

# 4 Chassis

## 4.1 Naming Conventions

### 4.2 AR100 Series

### 4.3 AR120 Series

### 4.4 AR150 Series

### 4.5 AR160 Series

### 4.6 AR200 Series

### 4.7 AR1200 Series

### 4.8 AR2200 Series

### 4.9 AR3200 Series

### 4.10 AR3600 Series

## 4.1 Naming Conventions

### AR100/AR120/AR150/AR160/AR200 Series

**Figure 4-1** shows naming conventions of the AR100/AR120/AR150/AR160/AR200 series routers. **Table 4-1** describes the meaning of each letter or digit.

**Figure 4-1** AR100/AR120/AR150/AR160/AR200 series routers naming conventions

AR 1 5 7 G -HSPA+7  
A B C D E F

**Table 4-1** AR100/AR120/AR150/AR160/AR200 series routers naming conventions

Field	Meaning	Description
A	Product name	AR: application and access routers

Field	Meaning	Description
B	Hardware platform type.	<ul style="list-style-type: none"> <li>• 1: four LAN interfaces</li> <li>• 2: eight LAN interfaces</li> <li>• 3: access network packaging product platform</li> </ul>
C	Combines with B to indicate different router series using the same hardware platform.	<p>The following router series are available:</p> <ul style="list-style-type: none"> <li>• 10: soho series</li> <li>• 12/15: 4*FE LAN interface series</li> <li>• 16: 4*GE LAN interface series</li> <li>• 30: soho series</li> <li>• 20: 8*FE LAN interface series</li> </ul>
D	Type of major fixed uplink interfaces on the router	<ul style="list-style-type: none"> <li>• 1: FE or GE</li> <li>• 2: SA</li> <li>• 6: ADSL-B/J</li> <li>• 7: ADSL-A/M</li> <li>• 8: G.SHDSL</li> <li>• 9: VDSL over POTS</li> </ul>
E	(Optional) Other interface types supported by the router	<ul style="list-style-type: none"> <li>• C: compact model developed based on a basic model (lower interface or feature performance)</li> <li>• E: enhanced model developed based on a basic model (enhanced interface or feature performance)</li> <li>• F: uplink GE combo interface</li> <li>• G: uplink wireless interface (GPRS, 3G, or LTE)</li> <li>• H: advanced settings</li> <li>• V: voice interface</li> <li>• W: Wi-Fi interface</li> <li>• J: VDSL 35B interface</li> </ul>

Field	Meaning	Description
F	(Optional) Extended information about the router  <b>NOTE</b> This field starts with "-" and specifies supplementary interface descriptions or other possible configurations.	<ul style="list-style-type: none"> <li>• HSPA+7: WCDMA HSPA+7 3G standard</li> <li>• C: CDMA2000 3G standard</li> <li>• U: WCDMA 3G standard</li> <li>• L: FDD-LTE, a European standard</li> <li>• Lc: FDD/TDD-LTE, a China standard</li> <li>• D: DC model</li> <li>• P: PoE supported</li> <li>• Mn: information about the multi-service open platform                             <ul style="list-style-type: none"> <li>– M9: Serial Advanced Technology Attachment (SATA) hard disk supported</li> </ul> </li> <li>• nS: n FXS interfaces supported</li> </ul>

## AR1200/AR2200/AR3200 Series/AR3670

Figure 4-2 shows naming conventions of the AR1200/AR2200/AR3200 series/AR3670 routers. Table 4-2 describes the meaning of each letter or digit.

Figure 4-2 AR1200/AR2200/AR3200 series/AR3670 routers naming conventions

```

AR 1 2 2 0 V W
  A B C D E F
AR 2 2 0 1 -48FE
  A B C D E G
    
```

Table 4-2 AR1200/AR2200/AR3200 series/AR3670 routers naming conventions

Field	Meaning	Description
A	Product name	AR: application and access routers
B	Hardware platform series code	Currently, three router series are available: 1, 2 and 3. A larger value indicates higher performance.
C	Hardware platform type	<ul style="list-style-type: none"> <li>• 2: traditional router</li> <li>• 6: router with the X86 open platform</li> </ul>

Field	Meaning	Description
D	Maximum number of slots supported by the router	<ul style="list-style-type: none"> <li>AR1200 series: D indicates the maximum number of service interface card (SIC) slots supported.</li> <li>AR2200/AR3200 series/AR3670: <ul style="list-style-type: none"> <li>Traditional router: D indicates the maximum number of extended service interface card (XSIC) slots supported.</li> <li>Router with the X86 open platform: D indicates the maximum number of wide service interface card (WSIC) slots supported.</li> </ul> </li> </ul> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>D can be 0, indicating the cost-effective router model with fixed uplink interfaces or reduced number of slots. E represents the number of fixed uplink interfaces or reduced number of slots. If D is not 0, E is 0 by default.</li> <li>For details about SIC, WSIC, and XSIC, see <a href="#">Card Dimensions</a>.</li> </ul>
E	Fixed uplink interfaces on the router	<ul style="list-style-type: none"> <li>1: FE/GE</li> <li>2: E1/SA</li> <li>4: four SIC slots</li> </ul>
F	(Optional) Series of the router and other interface types supported by the router	<ul style="list-style-type: none"> <li>F: F series</li> <li>L: L series</li> <li>E: E series</li> <li>C: C series</li> <li>V: fixed voice interface</li> <li>W: fixed Wi-Fi interface</li> </ul>
G	(Optional) Extended information about the router <b>NOTE</b> This field starts with "-" and specifies supplementary interface descriptions or other possible configurations.	<ul style="list-style-type: none"> <li>A: AC model (AC is the default configuration, and this field can be omitted in AC models.)</li> <li>D: DC model</li> <li>48FE: 48 fixed 100M switching ports</li> <li>X6: 6-core X86</li> </ul>

## Related Documents

Infographic:

- [A Quick Glance at AR Naming Conventions \(AR150/160/200 Series\)](#)
- [A Quick Glance at AR Naming Conventions \(AR1200/2200/3200 Series\)](#)

## 4.2 AR100 Series

### 4.2.1 AR109

#### Version Mapping

**Table 4-3** lists the mapping between the AR109 router and software versions.

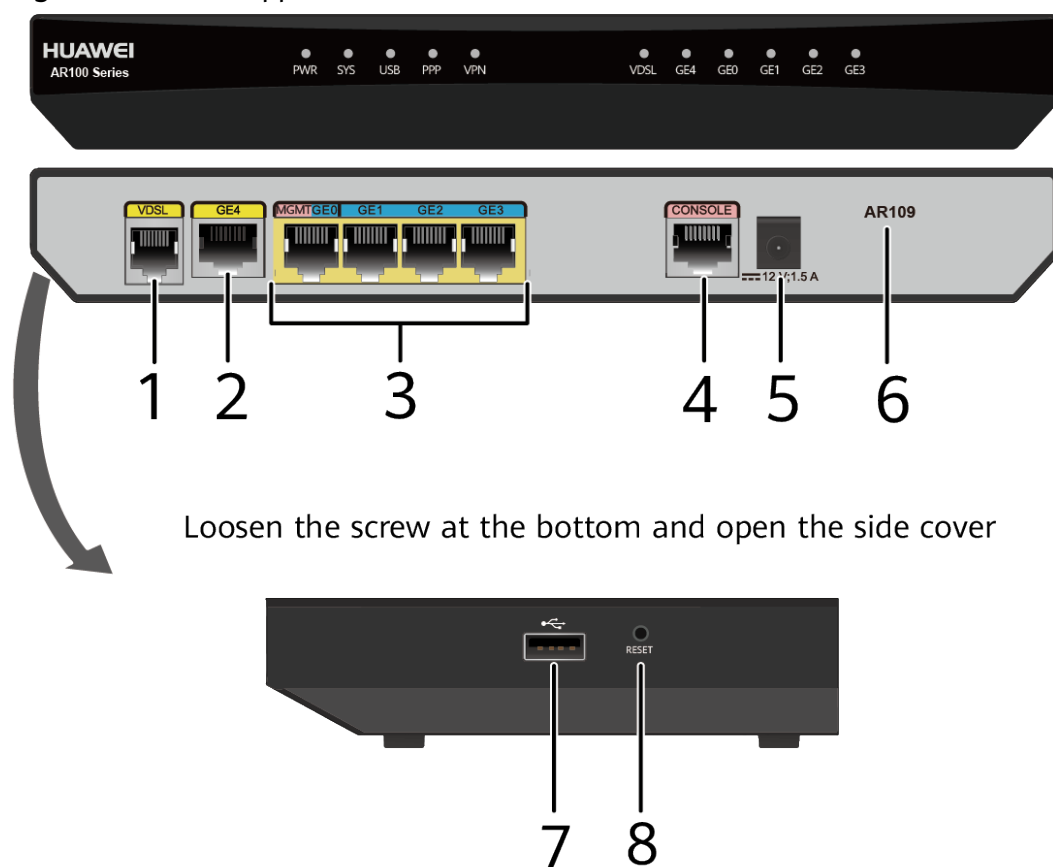
**Table 4-3** Mapping between the AR109 router and software versions

Router Model	Software Version
AR109	V200R008C20 and later versions

#### Appearance and Structure

**Figure 4-3** shows the appearance of the AR109 router.

Figure 4-3 AR109 appearance



Loosen the screw at the bottom and open the side cover

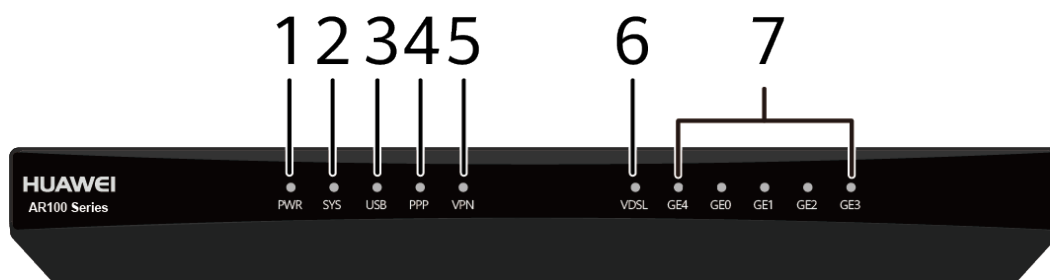
1	<p>WAN interface: VDSL interface</p> <p><b>NOTE</b> This interface supports the dying gasp function.</p>	2	<p>WAN interface: one GE electrical interface</p>
3	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	4	<p>Console interface</p>
5	<p>Power jack</p> <p><b>NOTE</b> The router uses a <b>24 W separate power adapter</b>.</p>	6	<p>Product model silkscreen</p>

7	USB interface (host)	8	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
---	----------------------	---	--

## Indicator Description

Figure 4-4 shows the indicators on the AR109 router.

Figure 4-4 Indicators on the AR109



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
7	GE interface indicators (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface.
			Blinking: Data is being transmitted or received on the corresponding GE interface.
			Off: No link is established on the corresponding GE interface.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-4](#) lists attributes of a console interface.

**Table 4-4** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232



Attribute	Description
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-5](#) lists attributes of a USB interface.

**Table 4-5** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-6](#) lists attributes of a GE electrical interface.

**Table 4-6** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP

Attribute	Description
Cable type	<a href="#">Ethernet Cable</a>

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-7](#) lists attributes of a VDSL interface.

**Table 4-7** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.993.2</li><li>• ITU-T G.992.5</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

## Technical Specifications

[Table 4-8](#) lists the technical specifications of the AR109 router.

**Table 4-8** AR109 technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB

Item	Specification
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 230 mm x 130 mm (1.18 in. x 9.06 in. x 5.12 in.)
Weight	0.6 kg (1.32 lb)
<b>Power specifications</b>	
Rated input voltage (AC)	110 V AC to 220 V AC, 50/60 Hz
Maximum AC input voltage	90 V AC to 270 V AC, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	15 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE electrical interface and one VDSL interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010364

## 4.2.2 AR109W

### Version Mapping

[Table 4-9](#) lists the mapping between the AR109W router and software versions.

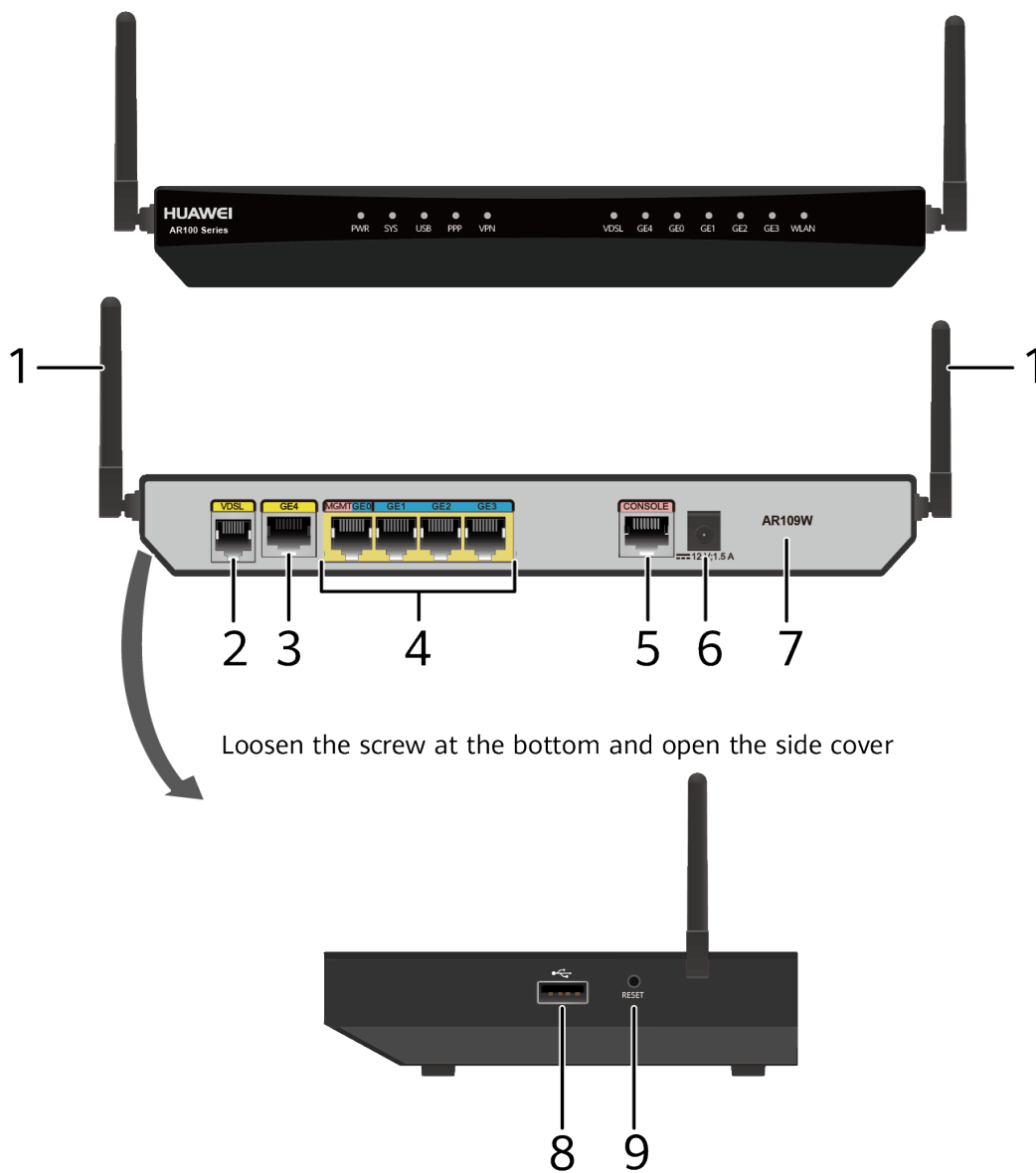
**Table 4-9** Mapping between the AR109W router and software versions

Router Model	Software Version
AR109W	V200R008C20 and later versions

### Appearance and Structure

[Figure 4-5](#) shows the appearance of the AR109W router.

Figure 4-5 AR109W appearance



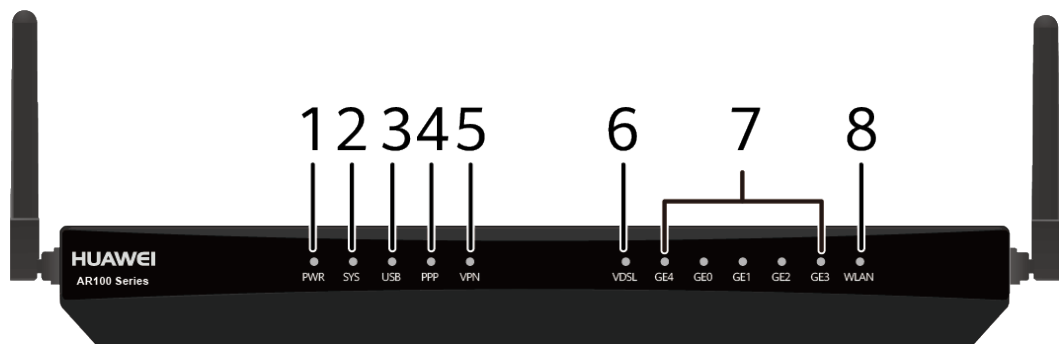
1	Two Wi-Fi antennas	2 WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
3	WAN interface: one GE electrical interface	4 LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

5	Console interface	6	Power jack <b>NOTE</b> The router uses a <b>24 W separate power adapter</b> .
7	Product model silkscreen	8	USB interface (host)
9	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	-	-

## Indicator Description

Figure 4-6 shows the indicators on the AR109W router.

Figure 4-6 Indicators on the AR109W



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
7	GE interface indicators (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface.
			Blinking: Data is being transmitted or received on the corresponding GE interface.
			Off: No link is established on the corresponding GE interface.
8	WLAN	Green	Steady on: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-10](#) lists attributes of a console interface.

**Table 4-10** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-11](#) lists attributes of a USB interface.

**Table 4-11** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-12](#) lists attributes of a GE electrical interface.

**Table 4-12** GE electrical interface attributes

Attribute	Description
Connector type	RJ45



Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-13](#) lists attributes of a VDSL interface.

**Table 4-13** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### Wi-Fi antenna interface

 NOTE

Wi-Fi antennas have been installed on Wi-Fi interfaces of a router before delivery.

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-14](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-14** Wi-Fi antenna interface attributes

Attribute	Description
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.2 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>

## Technical Specifications

[Table 4-15](#) lists the technical specifications of the AR109W router.

**Table 4-15** AR109W technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 230 mm x 130 mm (1.18 in. x 9.06 in. x 5.12 in.)
Weight	0.6 kg (1.32 lb)
<b>Power specifications</b>	
Rated input voltage (AC)	110 V AC to 220 V AC, 50/60 Hz

Item	Specification
Maximum AC input voltage	90 V AC to 270 V AC, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	15 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE electrical interface and one VDSL interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010365

### 4.2.3 AR109GW-L

## Version Mapping

**Table 4-16** lists the mapping between the AR109GW-L router and software versions.

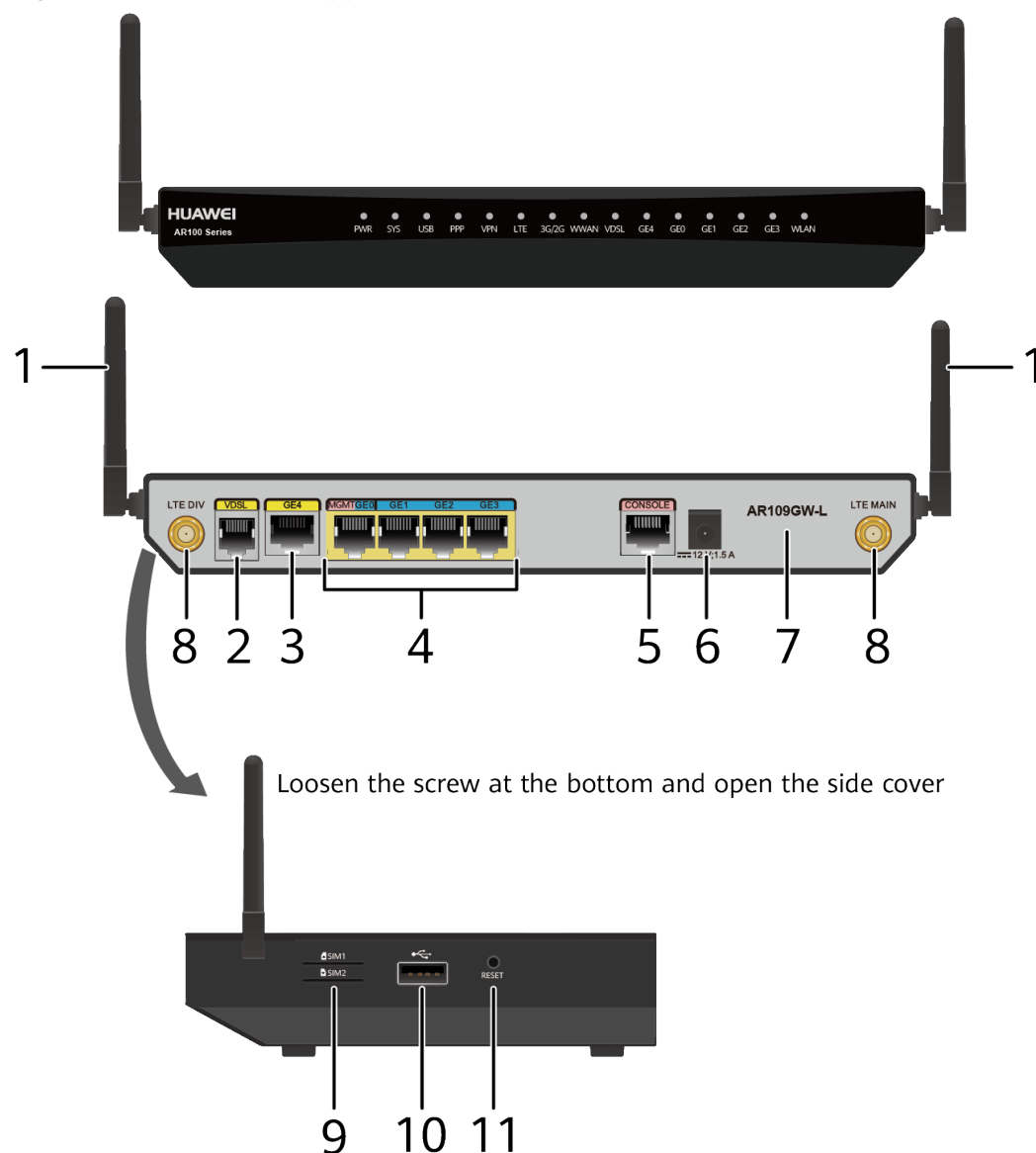
**Table 4-16** Mapping between the AR109GW-L router and software version

Router Model	Software Version
AR109GW-L	V200R008C20 and later versions

## Appearance and Structure

**Figure 4-7** shows the appearance of the AR109GW-L router.

**Figure 4-7** AR109GW-L appearance



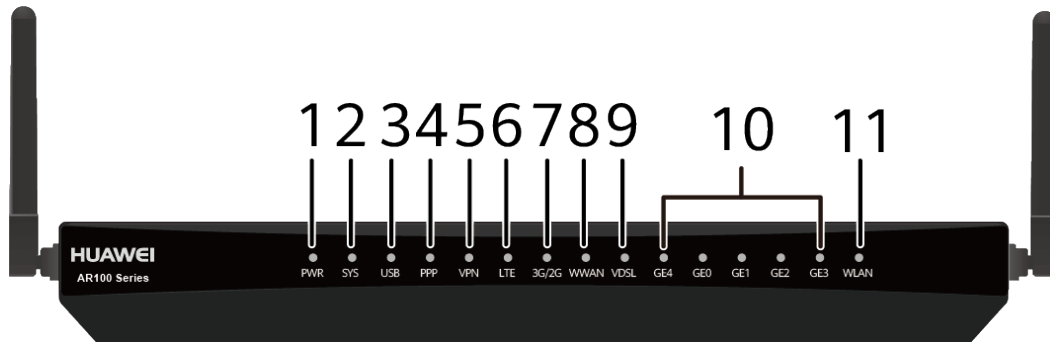
1	Two Wi-Fi antennas	2	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
3	WAN interface: one GE electrical interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	Console interface	6	Power jack <b>NOTE</b> The router uses a <b>24 W separate power adapter</b> .
7	Product model silkscreen	8	LTE antenna interface <b>NOTE</b> If the router uses channels 12 and 13 of the 2.4 GHz band to provide Wi-Fi service, connect an LTE remote antenna to the router.
9	Two SIM card slots <b>NOTE</b> <ul style="list-style-type: none"> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	10	USB interface (host)

1	RESET button	-	-
1	<p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>		

## Indicator Description

Figure 4-8 shows the indicators on the AR109GW-L router.

Figure 4-8 Indicators on the AR109GW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	<p>Slow blinking green: The system is running properly.</p> <p>Fast blinking green: The system is being powered on or restarting.</p> <p>Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.</p> <p>Off: The system software is not running or is resetting.</p>

Number	Indicator	Color	Description
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established.
			Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally.
			Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high.
			Fast blinking: The LTE signal strength is medium.
			Slow blinking: The LTE signal strength is low.
			Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the LTE/3G/2G connection.
			Off: The LTE/3G/2G connection has not been established or is inactive.

Number	Indicator	Color	Description
9	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
10	GE interface indicators (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface.
			Blinking: Data is being transmitted or received on the corresponding GE interface.
			Off: No link is established on the corresponding GE interface.
11	WLAN	Green	Steady on: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-17](#) lists attributes of a console interface.

**Table 4-17** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-18](#) lists attributes of a USB interface.



**Table 4-18** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-19](#) lists attributes of a GE electrical interface.

**Table 4-19** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-20](#) lists attributes of a VDSL interface.

**Table 4-20** VDSL interface attributes

Attribute	Description
Connector type	RJ11

Attribute	Description
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.993.2</li><li>• ITU-T G.992.5</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<b>8.7.3 Universal Telephone Cable</b>

### LTE antenna interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-21](#) lists attributes of an LTE antenna interface.

**Table 4-21** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li><li>• WCDMA: Bands 1/2/5/8</li><li>• GSM: 850/900/1800/1900 (MHz)</li></ul>

Attribute	Description
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Whip Antenna</b>

### Wi-Fi antenna interface

#### NOTE

Wi-Fi antennas have been installed on Wi-Fi interfaces of a router before delivery.

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-22](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-22** Wi-Fi antenna interface attributes

Attribute	Description
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.2 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>

## Technical Specifications

**Table 4-23** lists the technical specifications of the AR109GW-L router.

**Table 4-23** AR109GW-L technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 230 mm x 130 mm (1.18 in. x 9.06 in. x 5.12 in.)
Weight	0.6 kg (1.32 lb)
<b>Power specifications</b>	
Rated input voltage (AC)	110 V AC to 220 V AC, 50/60 Hz
Maximum AC input voltage	90 V AC to 270 V AC, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	15 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces	WAN interfaces: one GE electrical interface, one VDSL interface, and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010366

## 4.3 AR120 Series

### 4.3.1 AR121

#### Version Mapping

**Table 4-24** lists the mapping between the AR121 series routers and software versions.

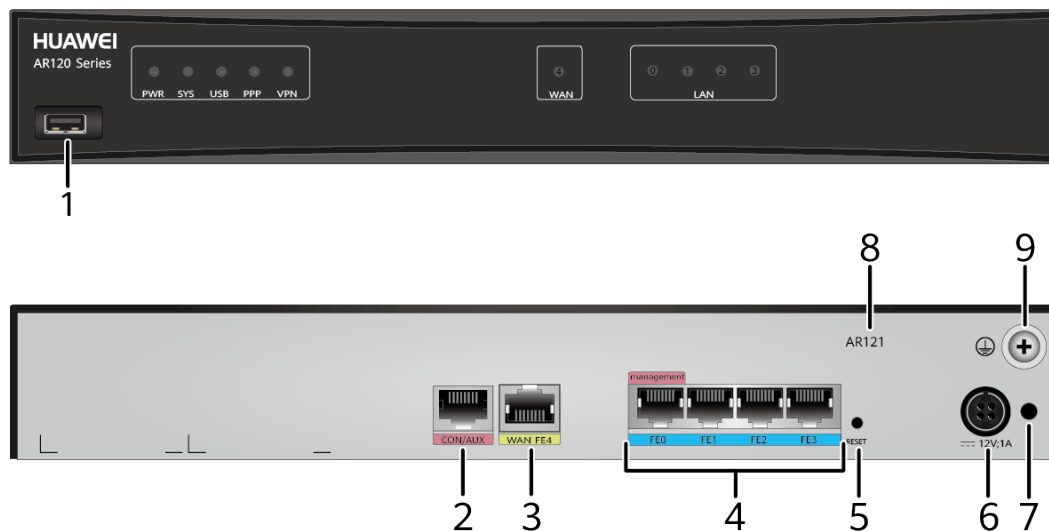
**Table 4-24** Matching between AR121 series routers and software versions

Router Model	Software Version
AR121	V200R006C10 and later versions

#### Appearance and Structure

**Figure 4-9** shows the appearance of the AR121 router.

Figure 4-9 AR121 appearance



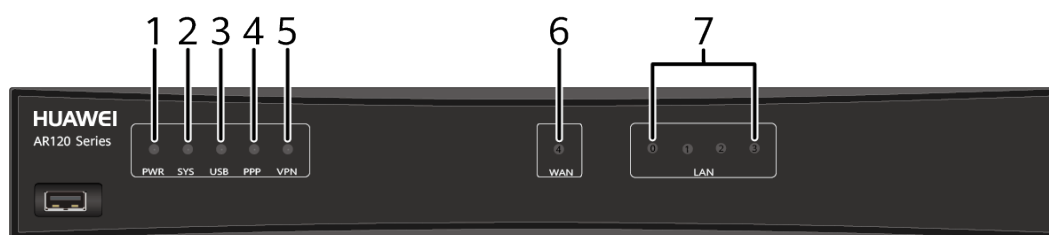
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR121 does not support AUX login.
3	WAN interface: FE electrical interface	4	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE0 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen

9	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	-	-
---	--	---	---

## Indicator Description

Figure 4-10 shows the indicators on the AR121 series routers.

Figure 4-10 Indicators on the AR121



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN (FE4)	Green	Steady on: A link has been established on the WAN interface. Blinking: Data is being transmitted or received on the WAN interface. Off: No link is established on the WAN interface.
7	LAN (FE0-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-25](#) lists the CON/AUX interface attributes.

**Table 4-25** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>



Attribute	Description
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-26](#) lists attributes of an FE electrical interface.

**Table 4-26** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-27](#) lists attributes of a USB interface.

**Table 4-27** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Technical Specifications

**Table 4-28** lists the technical specifications of the AR121 series routers.

**Table 4-28** AR121 series routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	9.3 W
<b>Heat dissipation</b>	
Fan	None
Airflow (facing the front panel)	None
<b>Interface density</b>	

Item	Specification
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interface: one FE electrical interface LAN interfaces: four FE electrical interfaces
Extended slots	Not supported
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010217

## 4.3.2 AR121W

### Version Mapping

[Table 4-29](#) describes the matching relationship between the AR121W router and software versions.

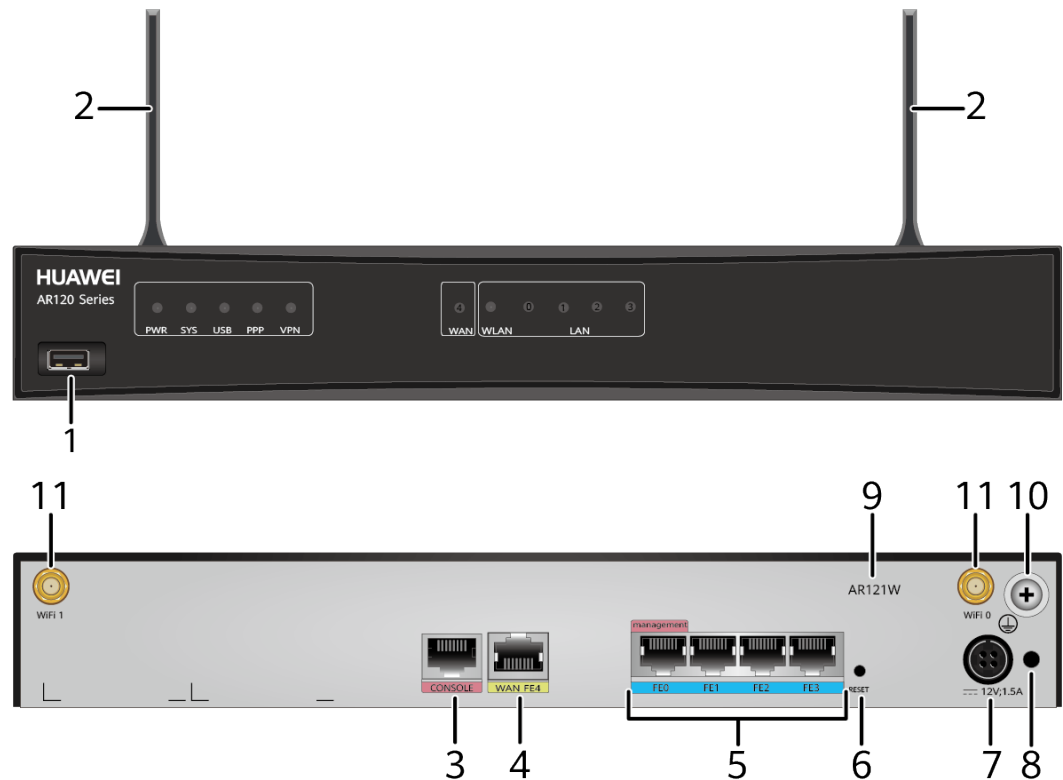
**Table 4-29** Matching between AR121W router and software versions

Router Model	Software Version
AR121W	V200R006C10 and later versions

### Appearance and Structure

[Figure 4-11](#) shows the appearance of the AR121W router.

Figure 4-11 AR121W appearance



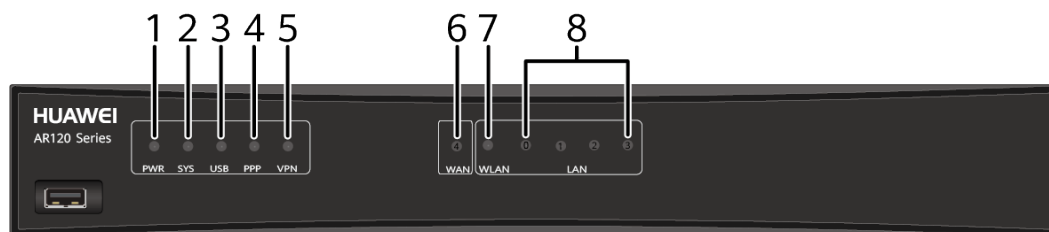
1	USB interface (host)	2	Two Wi-Fi antennas
3	Console interface	4	WAN interface: FE electrical interface
5	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE0 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .	8	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

9	Product model silkscreen	1 0	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
1 1	Two Wi-Fi antenna interfaces	-	-

## Indicator Description

Figure 4-12 shows the AR121W indicator.

Figure 4-12 Indicators on the AR121W



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN (FE4)	Green	Steady on: A link has been established on the WAN interface. Blinking: Data is being transmitted or received on the WAN interface. Off: No link is established on the WAN interface.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN (FE0-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-30](#) lists attributes of a console interface.

**Table 4-30** Console interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-31](#) lists attributes of an FE electrical interface.

**Table 4-31** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-32](#) lists attributes of a USB interface.

**Table 4-32** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-33](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-33** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

## Technical Specifications

[Table 4-34](#) lists the technical specifications of the AR121W router.

**Table 4-34** AR121W router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB



Item	Specification
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	11.32 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interface: one FE electrical interface LAN interfaces: four FE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	Not supported

Item	Specification
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010237

### 4.3.3 AR121GW-L

#### Version Mapping

[Table 4-35](#) lists the mapping between the AR121GW-L and software versions.

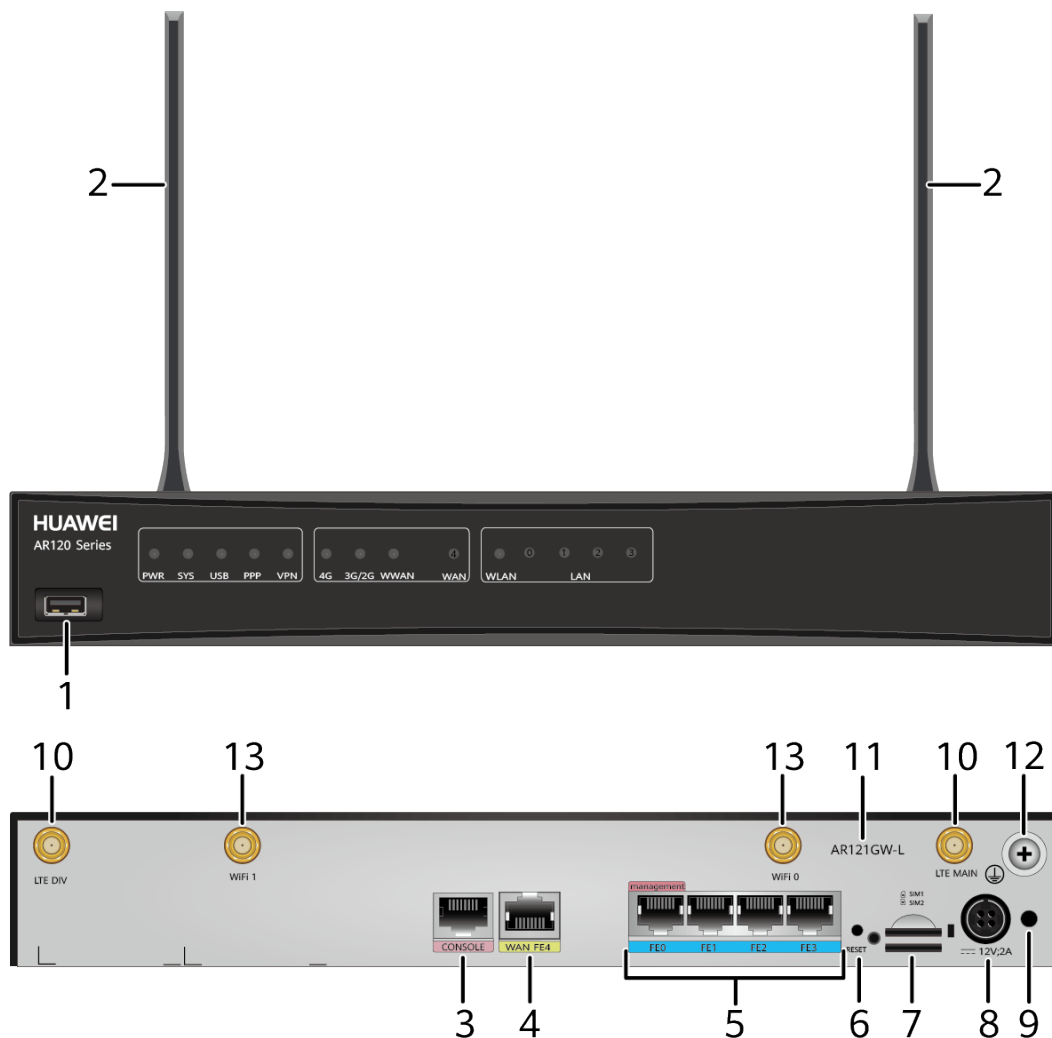
**Table 4-35** Mapping between the AR121GW-L and software versions

Router Model	Software Version
AR121GW-L	V200R007C00 and later versions

#### Appearance and Structure

[Figure 4-13](#) shows the appearance of the AR121GW-L.

Figure 4-13 AR121GW-L appearance



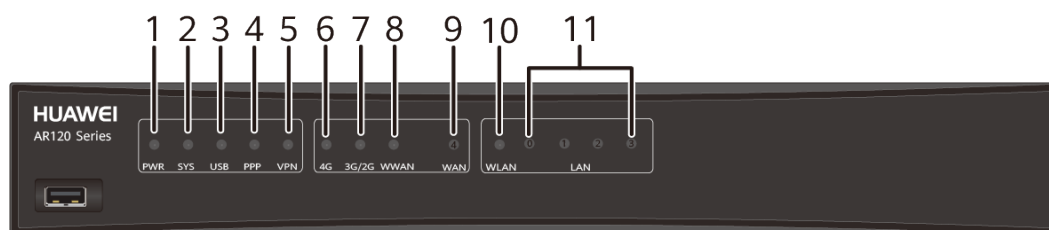
1	USB interface (host)	2	Two LTE antennas
3	Console interface	4	WAN interface: FE electrical interface
5	LAN interfaces: four FE electrical interfaces  <b>NOTE</b> <ul style="list-style-type: none"> <li>FE0 is a management interface and is used to upgrade the router.</li> <li>All FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button  <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.

7	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>LTE antenna interface</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
13	<p>Two Wi-Fi antenna interfaces</p>	-	-

## Indicator Description

Figure 4-14 shows the indicators on the AR121GW-L.

Figure 4-14 Indicators on the AR121GW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly.
			Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	4G	Green	Steady on: The 4G signal strength is high.
			Fast blinking: The 4G signal strength is medium.
			Slow blinking: The 4G signal strength is low.
			Off: No 4G signal is available.

Number	Indicator	Color	Description
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: A 4G/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the 4G/3G/2G connection.
			Off: The 4G/3G/2G connection has not been established or is inactive.
9	WAN	Green	Steady on: A WAN link has been established.
			Blinking: Data is being transmitted or received on the WAN link.
			Off: No WAN link is established.
10	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
11	LAN (FE0 to FE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-36](#) lists attributes of a console interface.

**Table 4-36** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-37](#) lists attributes of an FE electrical interface.

**Table 4-37** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-38](#) lists attributes of a USB interface.

**Table 4-38** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-39](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-39** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-40](#) lists attributes of an LTE antenna interface.

**Table 4-40** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)



Attribute	Description
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li> <li>• WCDMA: Bands 1/2/5/8</li> <li>• GSM: 850/900/1800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Indoor Remote Antenna (27012152)</b>

## Technical Specifications

**Table 4-41** lists the technical specifications of the AR121GW-L.

**Table 4-41** Technical specifications of the AR121GW-L

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Physical specifications</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	13.26 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one FE electrical interface, and two LTE antenna interfaces  LAN interfaces: four FE electrical interfaces, and two Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010240

### 4.3.4 AR129

#### Version Mapping

**Table 4-42** lists the mapping between the AR129 series routers and software versions.

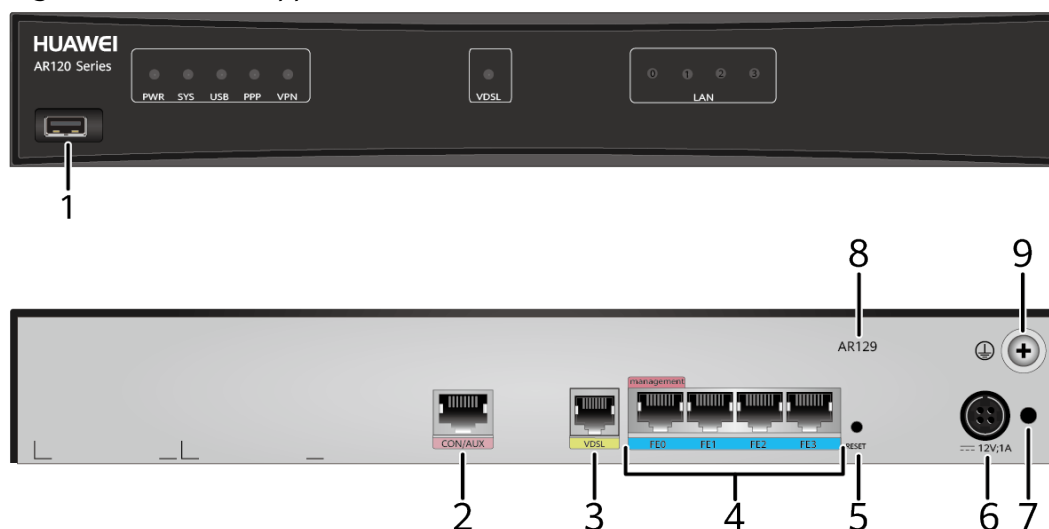
**Table 4-42** Matching between AR129 series routers and software versions

Router Model	Software Version
AR129	V200R006C10 and later versions

#### Appearance and Structure

**Figure 4-15** shows the appearance of the AR129 router.

**Figure 4-15** AR129 appearance

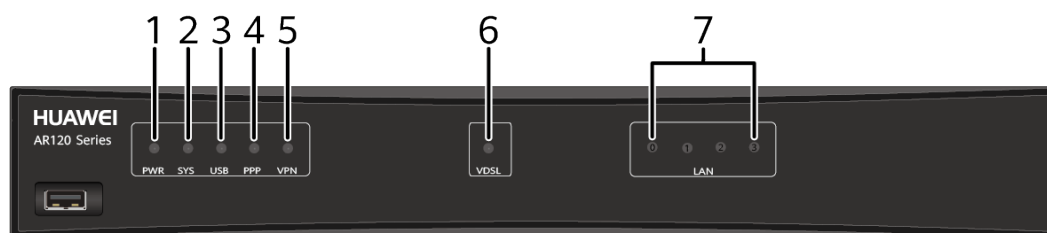


1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR129 does not support AUX login.
3	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE0 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-16** shows the indicators on the AR129 series routers.

**Figure 4-16** Indicators on the AR129



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL	Green	Steady on: A link has been established on the VDSL interface. Off: No link is established on the VDSL interface.

Number	Indicator	Color	Description
7	LAN (FE0-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-43](#) lists the CON/AUX interface attributes.

**Table 4-43** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-44](#) lists attributes of an FE electrical interface.

**Table 4-44** FE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-45](#) lists attributes of a USB interface.

**Table 4-45** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-46](#) lists attributes of a VDSL interface.

**Table 4-46** VDSL interface attributes

Attribute	Description
Connector type	RJ11

Attribute	Description
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

## Technical Specifications

[Table 4-47](#) lists the technical specifications of the AR129 router.

**Table 4-47** AR129 technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	



Item	Specification
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	9.7 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one VDSL interface LAN interfaces: four FE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010219

### 4.3.5 AR129CV

## Version Mapping

**Table 4-48** lists the mapping between the AR129CV router and software versions.

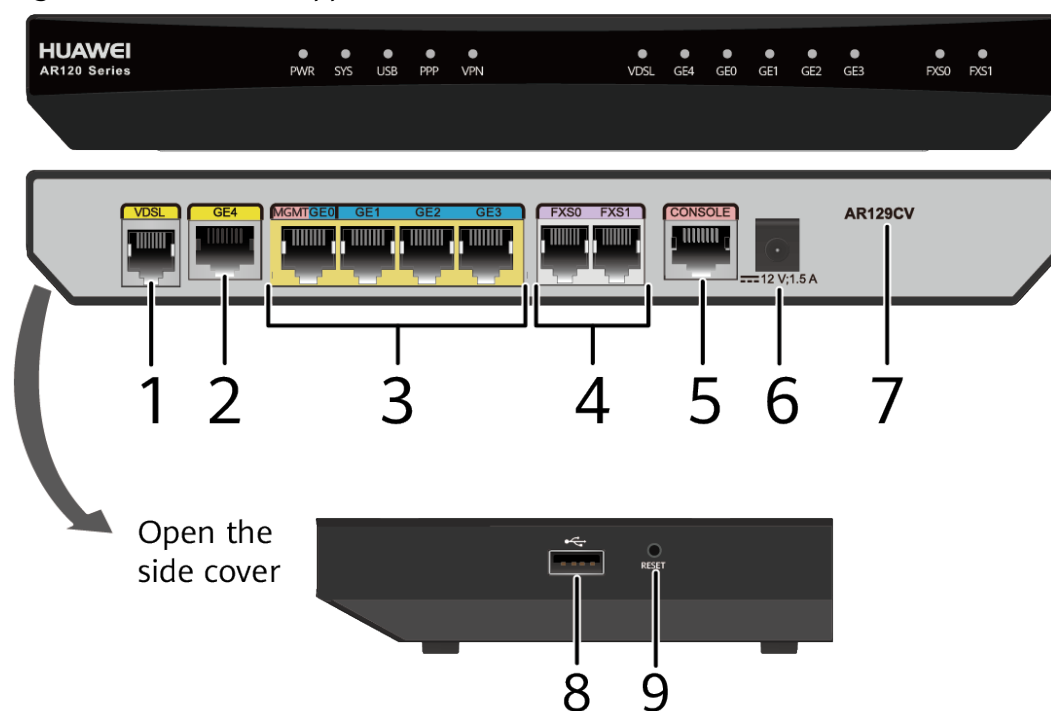
**Table 4-48** Version mapping

Router Model	Software Version
AR129CV	V200R009C00 and later versions

## Appearance and Structure

**Figure 4-17** shows the appearance of the AR129CV router.

**Figure 4-17** AR129CV appearance



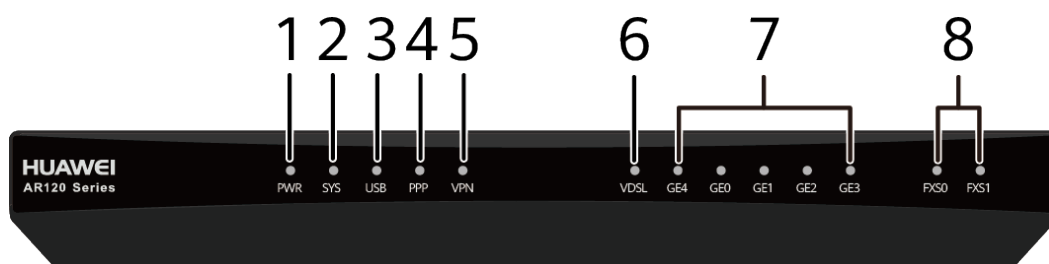
1	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.	2	WAN interface: one GE electrical interface
---	--	---	--

3	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	4	Two FXS interfaces
5	Console interface	6	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W separate power adapter</b>.</p>
7	Product model silkscreen	8	USB interface (host)
9	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	-	-

## Indicator Description

Figure 4-18 shows the indicators on the AR129CV router.

Figure 4-18 Indicators on the AR129CV router



Number	Indicator	Color	Description
1	PWR	Green	<p>Steady on: The system power supply is normal.</p> <p>Off: The system power is off.</p>

Number	Indicator	Color	Description
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
			Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
5	VPN	Green	Steady on: A VDSL link has been established. Off: No VDSL link is established.
			Steady on: A link has been established on the corresponding GE interface. Blinking: Data is being transmitted or received on the corresponding GE interface. Off: No link is established on the corresponding GE interface.
6	VDSL	Green	Steady on: A link has been established on the corresponding GE interface. Blinking: Data is being transmitted or received on the corresponding GE interface. Off: No link is established on the corresponding GE interface.
			Steady on: A link has been established on the corresponding GE interface. Blinking: Data is being transmitted or received on the corresponding GE interface. Off: No link is established on the corresponding GE interface.
7	GE interface indicators (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface. Blinking: Data is being transmitted or received on the corresponding GE interface. Off: No link is established on the corresponding GE interface.
			Steady on: A link has been established on the corresponding GE interface. Blinking: Data is being transmitted or received on the corresponding GE interface. Off: No link is established on the corresponding GE interface.
			Steady on: A link has been established on the corresponding GE interface. Blinking: Data is being transmitted or received on the corresponding GE interface. Off: No link is established on the corresponding GE interface.

Number	Indicator	Color	Description
8	FXS interface indicators (FXS0 to FXS1)	Green	Steady on: There is an ongoing call on the corresponding FXS channel.
			Off: The corresponding FXS channel is idle.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-49](#) lists attributes of a console interface.

**Table 4-49** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-50](#) lists attributes of a USB interface.

**Table 4-50** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-51](#) lists attributes of a GE electrical interface.

**Table 4-51** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

**VDSL interface**

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-52](#) lists attributes of a VDSL interface.

**Table 4-52** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>ITU-T G.993.2</li> <li>ITU-T G.992.5</li> <li>ITU-T G.992.3</li> <li>ITU-T G.992.1 G.DMT</li> <li>ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### FXS interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-53](#) lists attributes of an FXS interface.

**Table 4-53** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

[Table 4-54](#) lists the technical specifications of the AR129CV router.

**Table 4-54** Technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 230 mm x 130 mm (1.18 in. x 9.06 in. x 5.12 in.)
Weight	0.6 kg (1.32 lb)
<b>Power specifications</b>	
Rated input voltage	110 V AC to 220 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 270 V AC, 45 Hz to 65 Hz
Maximum output current	2 A

Item	Specification
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	10 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE electrical interface and one VDSL interface LAN interfaces: four GE electrical interfaces Voice interfaces: two FXS interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010406

### 4.3.6 AR129GW-L



## Version Mapping

**Table 4-55** lists the mapping between the AR129GW-L and software versions.

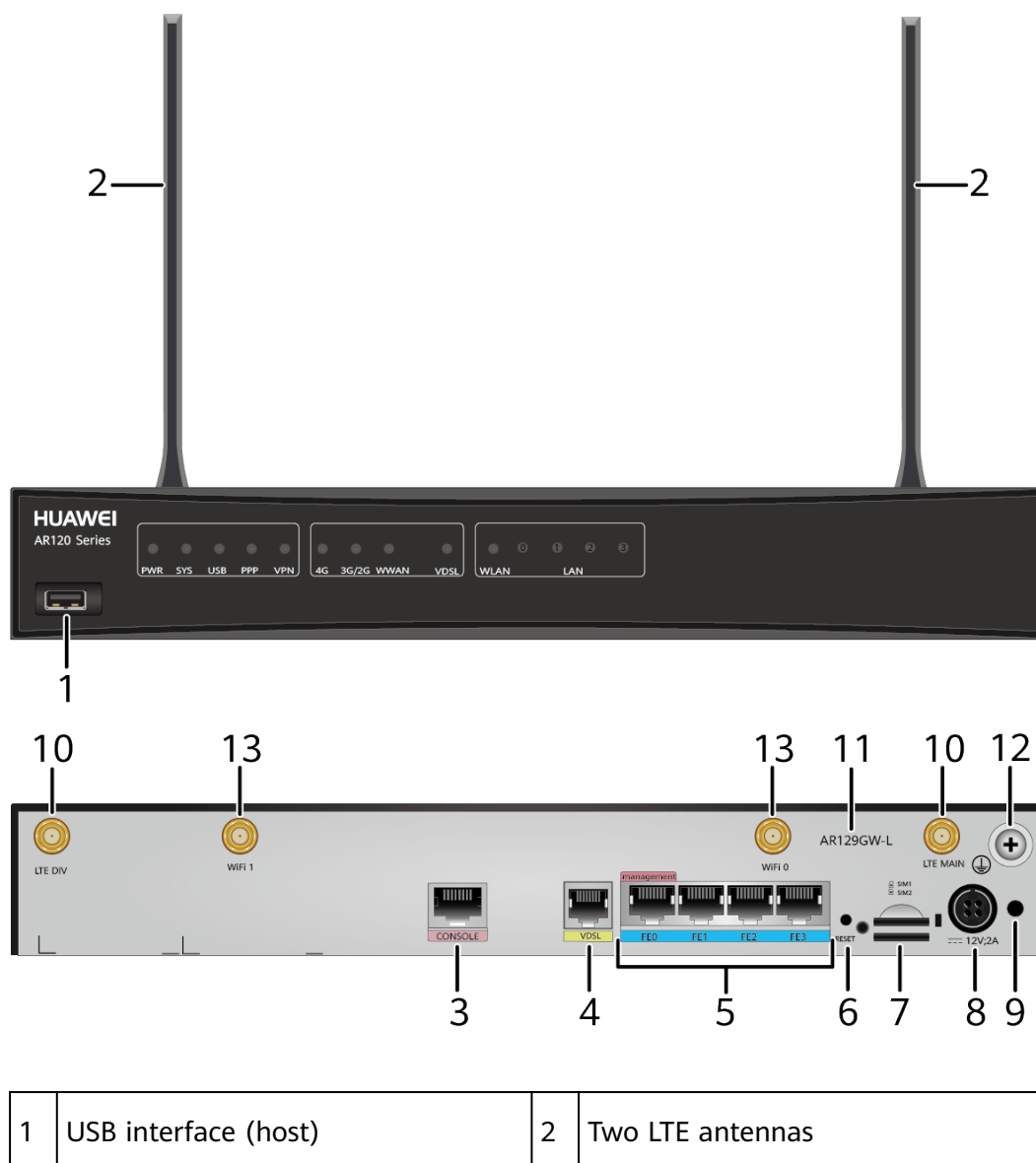
**Table 4-55** Mapping between the AR129GW-L and software versions

Router Model	Software Version
AR129GW-L	V200R007C00 and later versions

## Appearance and Structure

**Figure 4-19** shows the appearance of the AR129GW-L.

**Figure 4-19** AR129GW-L appearance



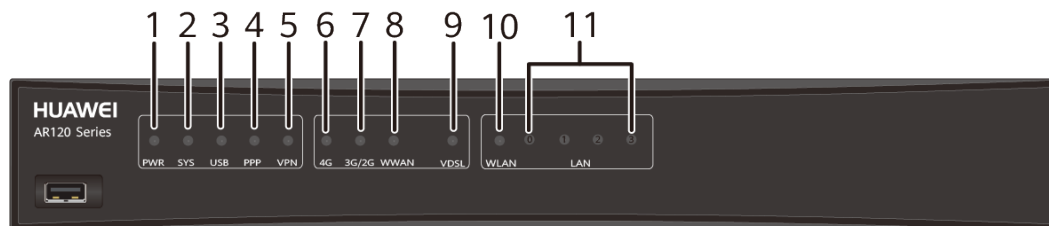
3	Console interface	4	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
5	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE0 is a management interface and is used to upgrade the router.</li> <li>All FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Two SIM card slots <b>NOTE</b> <ul style="list-style-type: none"> <li>The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .
9	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	10	LTE antenna interface
11	Product model silkscreen	12	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

1 3	Two Wi-Fi antenna interfaces	-	-
--------	------------------------------	---	---

## Indicator Description

Figure 4-20 shows the indicators on the AR129GW-L.

Figure 4-20 Indicators on the AR129GW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.

Number	Indicator	Color	Description
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	4G	Green	Steady on: The 4G signal strength is high.
			Fast blinking: The 4G signal strength is medium.
			Slow blinking: The 4G signal strength is low.
			Off: No 4G signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: A 4G/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the 4G/3G/2G connection.
			Off: The 4G/3G/2G connection has not been established or is inactive.
9	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
10	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
11	LAN (FE0 to FE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.

Number	Indicator	Color	Description
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-56](#) lists attributes of a console interface.

**Table 4-56** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-57](#) lists attributes of an FE electrical interface.

**Table 4-57** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>

Attribute	Description
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-58](#) lists attributes of a USB interface.

**Table 4-58** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-59](#) lists attributes of a VDSL interface.

**Table 4-59** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>ITU-T G.993.2</li><li>ITU-T G.992.5</li><li>ITU-T G.992.3</li><li>ITU-T G.992.1 G.DMT</li><li>ANSI T1.413 Issue 2</li></ul>

Attribute	Description
Rate	<ul style="list-style-type: none"> <li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-60](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-60** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>Layer 2/3 wireless access</li> <li>Wireless data encryption</li> <li>WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-61](#) lists attributes of an LTE antenna interface.

**Table 4-61** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li><li>• WCDMA: Bands 1/2/5/8</li><li>• GSM: 850/900/1800/1900 (MHz)</li></ul>
Rate	<ul style="list-style-type: none"><li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li><li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li><li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li><li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li><li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li><li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li><li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li><li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li></ul>
Cable type	<a href="#">LTE Indoor Remote Antenna (27012152)</a>

## Technical Specifications

[Table 4-62](#) lists the technical specifications of the AR129GW-L.

**Table 4-62** Technical specifications of the AR129GW-L

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Physical specifications</b>	



Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	12.95 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one VDSL interface, and two LTE antenna interfaces LAN interfaces: four FE electrical interfaces, and two Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.

Item	Specification
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010220

## 4.3.7 AR129CVW

### Version Mapping

[Table 4-63](#) lists the mapping between the AR129CVW router and software versions.

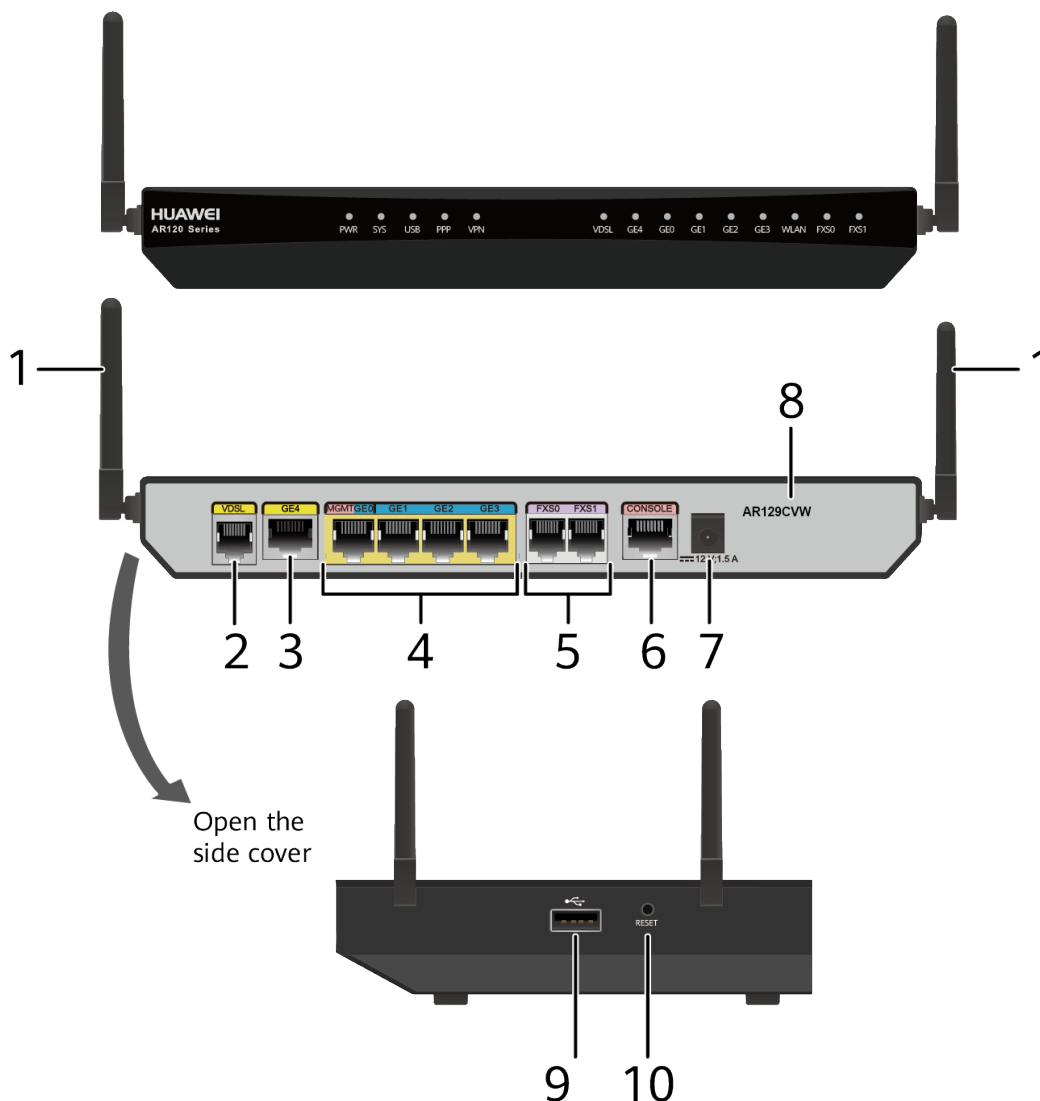
**Table 4-63** Mapping between the AR129CVW router and software versions

Router Model	Software Version
AR129CVW	V200R008C50 and later versions

### Appearance and Structure

[Figure 4-21](#) shows the appearance of the AR129CVW router.

Figure 4-21 AR129CVW appearance



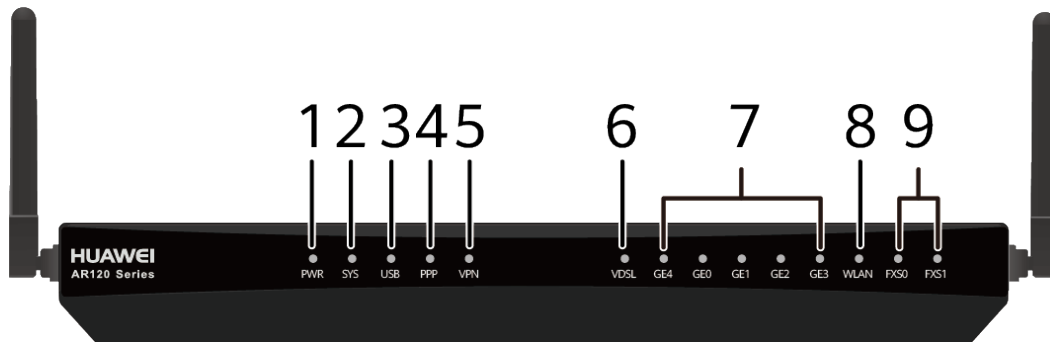
1	Four Wi-Fi antennas	2	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
3	WAN interface: one GE electrical interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	Two FXS interfaces	6	Console interface

7	Power jack <b>NOTE</b> The router uses a <b>24 W separate power adapter</b> .	8	Product model silkscreen
9	USB interface (host)	10	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.

### Indicator Description

Figure 4-22 shows the indicators on the AR129CVW router.

Figure 4-22 Indicators on the AR129CVW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.

Number	Indicator	Color	Description
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
7	GE interface indicators (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface.
			Blinking: Data is being transmitted or received on the corresponding GE interface.
			Off: No link is established on the corresponding GE interface.
8	WLAN	Green	Blinking: Data is being transmitted on the WLAN link. Off: The WLAN link is shut down.
9	FXS interface indicators (FXS0 to FXS1)	Green	Steady on: The corresponding FXS channel is being occupied by a call.
			Off: The corresponding FXS channel is idle.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-64](#) lists attributes of a console interface.

**Table 4-64** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-65](#) lists attributes of a USB interface.

**Table 4-65** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-66](#) lists attributes of a GE electrical interface.

**Table 4-66** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-67](#) lists attributes of a VDSL interface.

**Table 4-67** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>ITU-T G.993.2</li> <li>ITU-T G.992.5</li> <li>ITU-T G.992.3</li> <li>ITU-T G.992.1 G.DMT</li> <li>ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### FXS interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-68](#) lists attributes of an FXS interface.

**Table 4-68** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### Wi-Fi antenna interface

 **NOTE**

Wi-Fi antennas have been installed on Wi-Fi interfaces of a router before delivery.

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-69](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-69** Wi-Fi antenna interface attributes

Attribute	Description
Standards compliance	802.11a/b/g/n/ac
Frequency bands supported	<ul style="list-style-type: none"><li>• 2.4 GHz</li><li>• 5.0 GHz</li></ul>
Rate	1167 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	<ul style="list-style-type: none"><li>• 2.4 GHz: 1.9 dBi</li><li>• 5.0 GHz: 3.4 dBi</li></ul>
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>

## Technical Specifications

[Table 4-70](#) lists the technical specifications of the AR129CVW router.



**Table 4-70** AR129CVW technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash memory	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 230 mm x 130 mm (1.18 in. x 9.06 in. x 5.12 in.)
Weight	0.6 kg (1.32 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	110 V to 220 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 270 V, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	13 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE combo interface and one VDSL interface LAN interfaces: four GE electrical interfaces Voice interfaces: two FXS interfaces

Item	Specification
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	<ul style="list-style-type: none"> <li>• AR129CVW: 50010387</li> <li>• AR129CVW (RCM): 50010432</li> </ul>

### 4.3.8 AR129CGVW-L

#### Version Mapping

**Table 4-71** lists the mapping between the AR129CGVW-L routers and software versions.

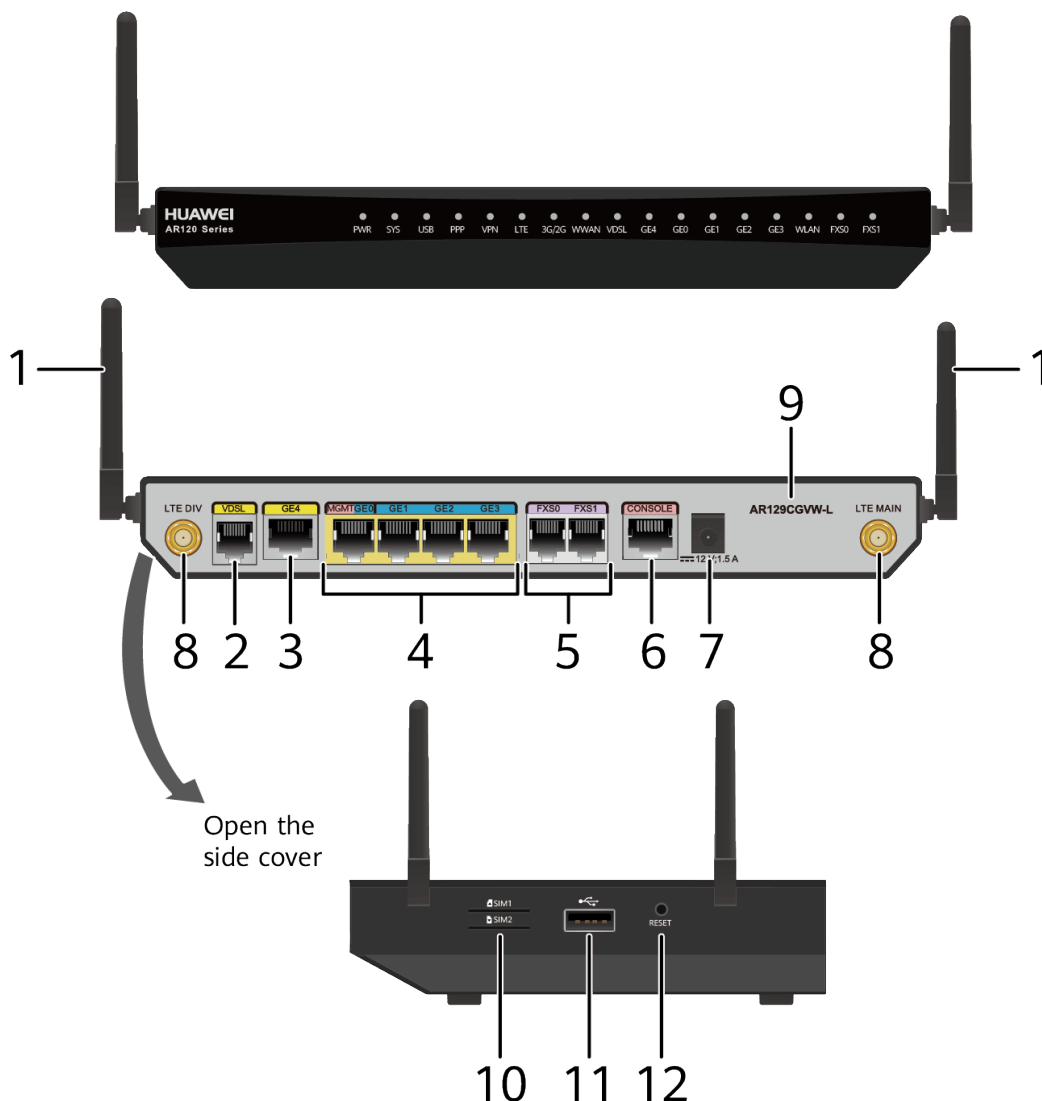
**Table 4-71** Mapping between the AR129CGVW-L router and software versions

Router Model	Software Version
AR129CGVW-L	V200R008C20 and later versions

#### Appearance and Structure

**Figure 4-23** shows the appearance of the AR129CGVW-L router.

Figure 4-23 AR129CGVW-L appearance



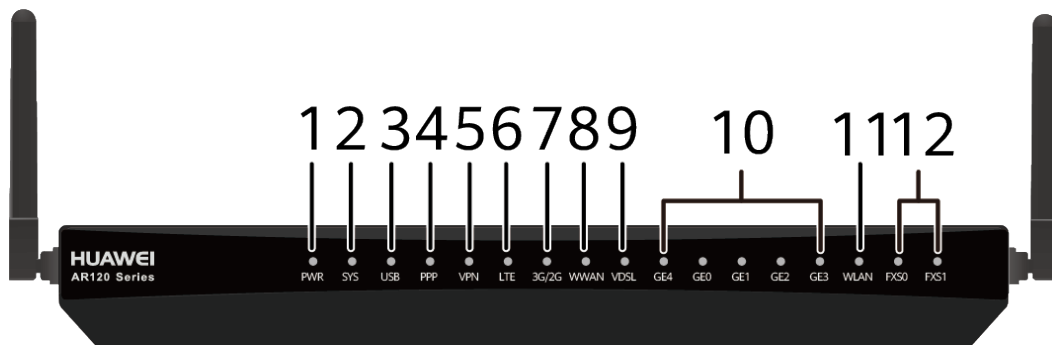
1	Four Wi-Fi antennas	2	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
3	WAN interface: one GE electrical interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	Two FXS interfaces	6	Console interface

7	Power jack	8	<p>LTE antenna interface</p> <p><b>NOTE</b></p> <p>If the router uses channels 12 and 13 of the 2.4 GHz band to provide Wi-Fi service, connect an LTE remote antenna to the router.</p>
9	Product model silkscreen	10	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>
11	USB interface (host)	12	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>

## Indicator Description

[Figure 4-24](#) shows the indicators on the AR129CGVW-L.

**Figure 4-24** Indicators on the AR129CGVW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high.
			Fast blinking: The LTE signal strength is medium.
			Slow blinking: The LTE signal strength is low.
			Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the LTE/3G/2G connection.
			Off: The LTE/3G/2G connection has not been established or is inactive.
9	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
10	GE interface indicators (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface.
			Blinking: Data is being transmitted or received on the corresponding GE interface.
			If the indicator is off, no link is connected to the GE interface.
11	WLAN	Green	Steady on: The wireless link is transmitting data. Off: The wireless link is shut down.

Number	Indicator	Color	Description
12	FXS interface indicators (FXS0 to FXS1)	Green	Steady on: The corresponding FXS channel is being occupied by a call.
			Off: The corresponding FXS channel is idle.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-72](#) lists attributes of a console interface.

**Table 4-72** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-73](#) lists attributes of a USB interface.

**Table 4-73** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-74](#) lists attributes of a GE electrical interface.

**Table 4-74** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

**VDSL interface**

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-75](#) lists attributes of a VDSL interface.

**Table 4-75** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>ITU-T G.993.2</li> <li>ITU-T G.992.5</li> <li>ITU-T G.992.3</li> <li>ITU-T G.992.1 G.DMT</li> <li>ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>



### FXS interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-76](#) lists attributes of an FXS interface.

**Table 4-76** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### LTE antenna interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-77](#) lists attributes of an LTE antenna interface.

**Table 4-77** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li><li>• WCDMA: Bands 1/2/5/8</li><li>• GSM: 850/900/1800/1900 (MHz)</li></ul>

Attribute	Description
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Whip Antenna</b>

### Wi-Fi antenna interface

#### NOTE

Wi-Fi antennas have been installed on Wi-Fi interfaces of a router before delivery.

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-78](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-78** Wi-Fi antenna interface attributes

Attribute	Description
Standards compliance	802.11a/b/g/n/ac
Frequency bands supported	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5.0 GHz</li> </ul>
Rate	1167 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	<ul style="list-style-type: none"> <li>• 2.4 GHz: 1.9 dBi</li> <li>• 5.0 GHz: 3.4 dBi</li> </ul>
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>

## Technical Specifications

**Table 4-79** lists the technical specifications of the AR129CGVW-L routers.

**Table 4-79** AR129CGVW-L technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 230 mm x 130 mm (1.18 in. x 9.06 in. x 5.12 in.)
Weight	0.6 kg (1.32 lb)
<b>Power specifications</b>	
Rated AC input power	110 V AC to 220 V AC, 50/60 Hz
Maximum AC input voltage	90 V AC to 270 V AC, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	18 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces	WAN interfaces: one GE electrical interface, one VDSL interface, and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces Voice interfaces: two FXS interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating environment temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	<ul style="list-style-type: none"><li>AR129CGVW-L: 50010304</li><li>AR129CGVW-L: (RCM) :50010431</li></ul>

## 4.4 AR150 Series

### 4.4.1 AR151

#### Version Mapping

**Table 4-80** describes the matching relationship between the AR151 router and software versions.

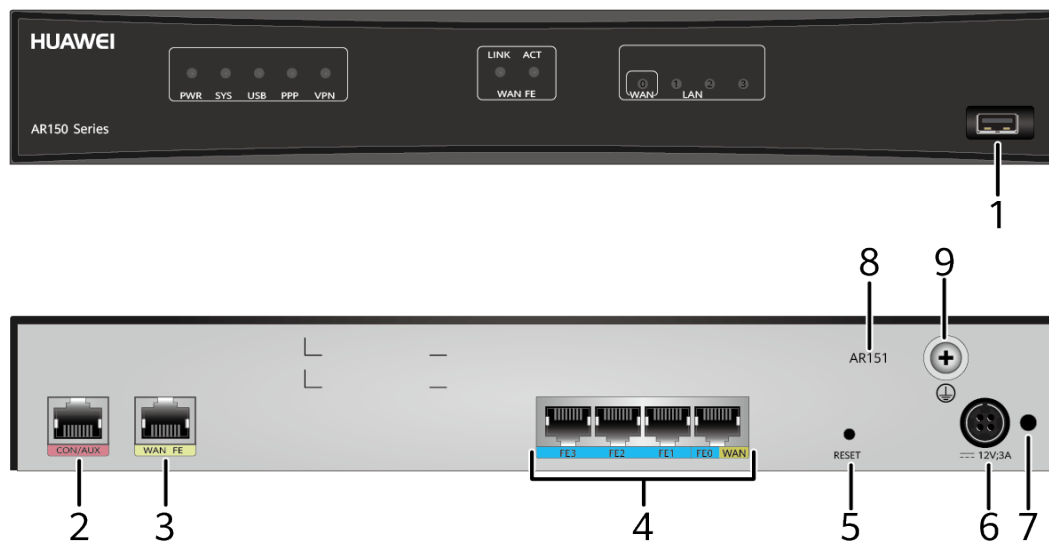
**Table 4-80** Matching between AR151 router and software versions

Router Model	Software Version
AR151	V200R002C00 and later versions

#### Appearance and Structure

**Figure 4-25** shows the appearance of the AR151 router.

Figure 4-25 AR151 appearance



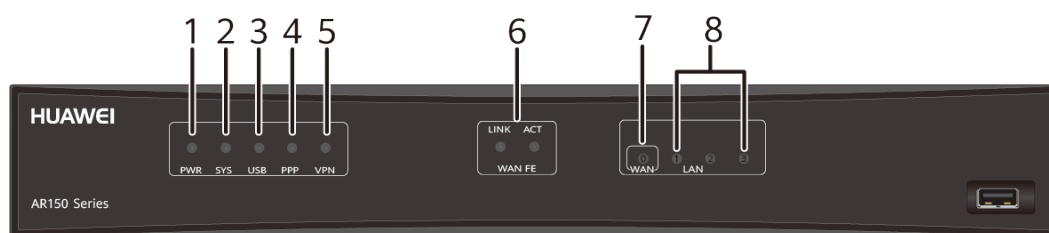
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR151 does not support AUX login.
3	WAN interface: FE electrical interface	4	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• FE3 is a management interface and is used to upgrade the router.</li> <li>• LAN interface FE0 can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen

9	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	-	-
---	--	---	---

## Indicator Description

Figure 4-26 shows the AR151 indicator.

Figure 4-26 Indicators on the AR151



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface.
			Blinking: The LAN interface is transmitting or receiving data.
			Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-81](#) lists the CON/AUX interface attributes.

**Table 4-81** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-82](#) lists attributes of an FE electrical interface.

**Table 4-82** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-83](#) lists attributes of a USB interface.



**Table 4-83** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Technical Specifications

**Table 4-84** lists the technical specifications of the AR151 router.

**Table 4-84** AR151 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS	Not supported
PoE	Not supported

Item	Specification
<b>Power consumption</b>	
Maximum power consumption	11.6 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interface: one FE electrical interface LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface.
Extended slots	Not supported
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353847

## 4.4.2 AR151G-C

### Version Mapping

[Table 4-85](#) lists the mapping between the AR151G-C and software versions.

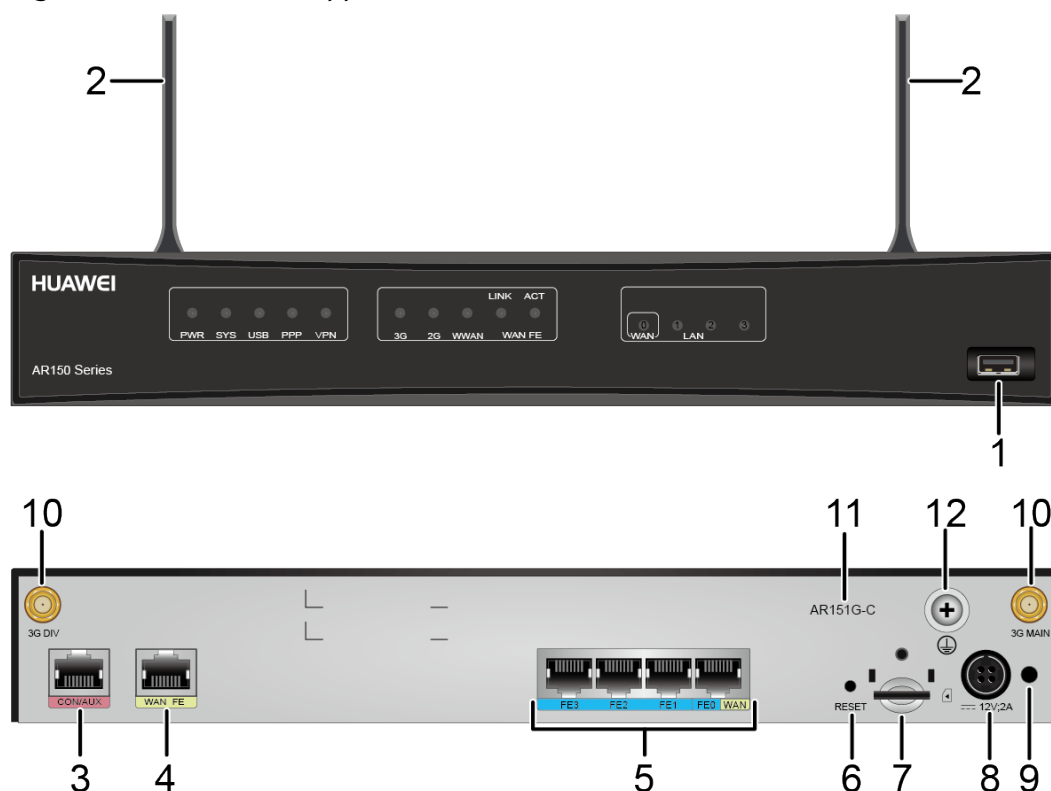
**Table 4-85** Mapping between the AR151G-C and software versions

Router Model	Software Version
AR151G-C	V200R005C00 and later versions

## Appearance and Structure

**Figure 4-27** shows the appearance of the AR151G-C.

**Figure 4-27** AR151G-C appearance



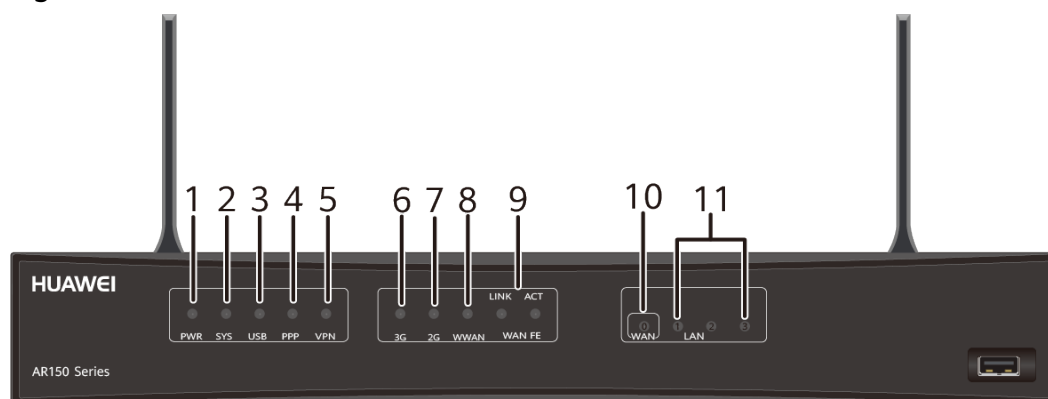
1	USB interface (host)	2	Two 3G antennas
3	CON/AUX interface <b>NOTE</b> The AR151G-C does not support AUX login.	4	WAN interface: FE electrical interface

5	<p>LAN interfaces: four FE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>FE3 is a management interface and is used to upgrade the router.</li> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>SIM card slot</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The mounting hole above the SIM card slots is used to fix the SIM card cover with a screw.</li> <li>The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>3G-EVDO antenna interface</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-28** shows the indicators on the AR151G-C.

**Figure 4-28** Indicators on the AR151G-C



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	3G	Green	Steady on: The 3G signal strength is high. Fast blinking: The 3G signal strength is medium. Slow blinking: The 3G signal strength is low. Off: No 3G signal is available.
7	2G	Green	Steady on: The 2G signal strength is high. Fast blinking: The 2G signal strength is medium. Slow blinking: The 2G signal strength is low. Off: No 2G signal is available.
8	WWAN	Green	Steady on: The 3G/2G connection has been set up and is active. Blinking: Data is being transmitted or received over the 3G/2G connection. Off: The 3G/2G connection has not been established or is inactive.
9	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
10	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.

Number	Indicator	Color	Description
11	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-86](#) lists the CON/AUX interface attributes.

**Table 4-86** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-87](#) lists attributes of an FE electrical interface.

**Table 4-87** FE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-88](#) lists attributes of a USB interface.

**Table 4-88** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### 3G-EVDO Antenna Interface

3G-EVDO antenna interfaces of a router include a 3G MAIN interface (for the primary antenna) and a 3G DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives 3G signals, whereas the secondary antenna assists the primary antenna in signal receiving. [Table 4-89](#) lists attributes of a 3G-EVDO antenna interface.

**Table 4-89** 3G-EVDO antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)



Attribute	Description
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• CDMA2000 EVDO Rev A: 800/1900 (MHz)</li> <li>• CDMA2000 EVDO Rev.0: 800/1900 (MHz)</li> <li>• CDMA2000 1X: 800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• CDMA2000 EVDO Rev A: uplink rate of 1.8 Mbit/s and downlink rate of 3.1 Mbit/s</li> <li>• CDMA2000 E-DO Rev.0: uplink rate of 153.6 kbit/s and downlink rate of 2.4 Mbit/s</li> <li>• CDMA2000 1X: uplink rate of 153.6 kbit/s and downlink rate of 153.6 kbit/s</li> </ul>
Cable type	<a href="#">8.15.2 3G Antenna</a>

## Technical Specifications

[Table 4-90](#) lists the technical specifications of the AR151G-C.

**Table 4-90** Technical specifications of the AR151G-C

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A

Item	Specification
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	12.4 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, unpluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one FE electrical interface, and two 3G-EVDO antenna interfaces LAN interfaces: four FE electrical interfaces. LAN interface FE0 can be configured as a WAN interface.
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02356388

### 4.4.3 AR151G-HSPA+7

## Version Mapping

**Table 4-91** lists the mapping between the AR151G-HSPA+7 router and software versions.

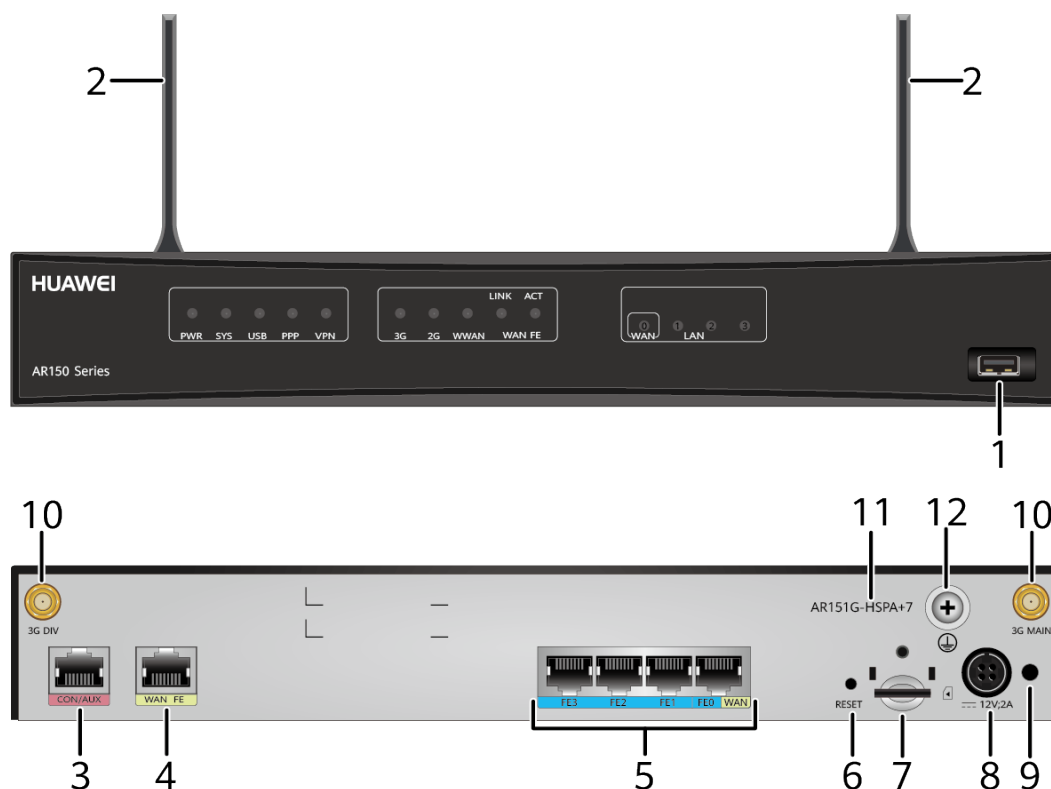
**Table 4-91** Matching between AR151G-HSPA+7 router and software versions

Router Model	Software Version
AR151G-HSPA+7	V200R003C00 and later versions

## Appearance and Structure

**Figure 4-29** shows the appearance of the AR151G-HSPA+7 router.

**Figure 4-29** AR151G-HSPA+7 appearance



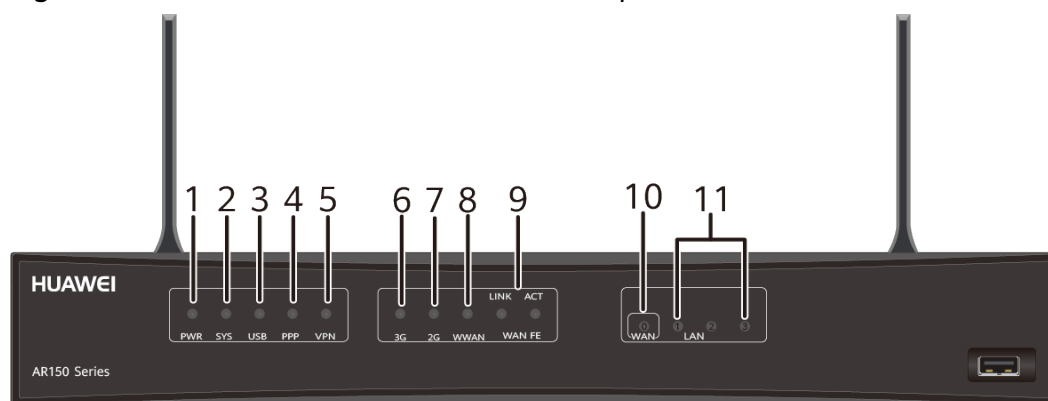
1	USB interface (host)	2	Two 3G antennas
3	CON/AUX interface <b>NOTE</b> The AR151G-HSPA+7 does not support AUX login.	4	WAN interface: FE electrical interface

5	<p>LAN interfaces: four FE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• FE3 is a management interface and is used to upgrade the router.</li> <li>• LAN interface FE0 can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>SIM card slot</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting hole above the SIM card slots is used to fix the SIM card cover with a screw.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>3G-HSPA+7 antenna interface</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-30** is a quick reference table for indicators of the AR151G-HSPA+7 router.

**Figure 4-30** Indicators on the AR151G-HSPA+7 panel



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	3G	Green	Steady on: The 3G signal strength is high. Fast blinking: The 3G signal strength is medium. Slow blinking: The 3G signal strength is low. Off: No 3G signal is available.
7	2G	Green	Steady on: The 2G signal strength is high. Fast blinking: The 2G signal strength is medium. Slow blinking: The 2G signal strength is low. Off: No 2G signal is available.
8	WWAN	Green	Steady on: The 3G/2G connection has been set up and is active. Blinking: Data is being transmitted or received over the 3G/2G connection. Off: The 3G/2G connection has not been established or is inactive.
9	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
10	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.

Number	Indicator	Color	Description
11	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-92](#) lists the CON/AUX interface attributes.

**Table 4-92** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-93](#) lists attributes of an FE electrical interface.

**Table 4-93** FE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-94](#) lists attributes of a USB interface.

**Table 4-94** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### 3G-HSPA+7 Antenna Interface

3G antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives 3G signals, and the secondary antenna helps improve the quality of received 3G signals. [Table 4-95](#) lists attributes of a 3G antenna interface.

**Table 4-95** 3G antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)



Attribute	Description
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>WCDMA: Bands 1/8</li> <li>GSM 850/900/1800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>HSPA: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> </ul>
Cable type	<a href="#">8.15.2 3G Antenna</a>

## Technical Specifications

[Table 4-96](#) lists the technical specifications of the AR151G-HSPA+7 router.

**Table 4-96** AR151G-HSPA+7 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	

Item	Specification
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	12.4 W
<b>Heat dissipation</b>	
Fan	Built-in fan, which is not pluggable
Airflow (facing the front panel)	Cold air flows into the router from the left side and is exhausted from the right side.
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interfaces: one FE electrical interface, two 3G-HSPA+7 antenna interfaces LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface.
Extended slots	Not supported
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354245

## 4.4.4 AR151W-P

### Version Mapping

**Table 4-97** lists the mapping between the AR151W-P router and software versions.

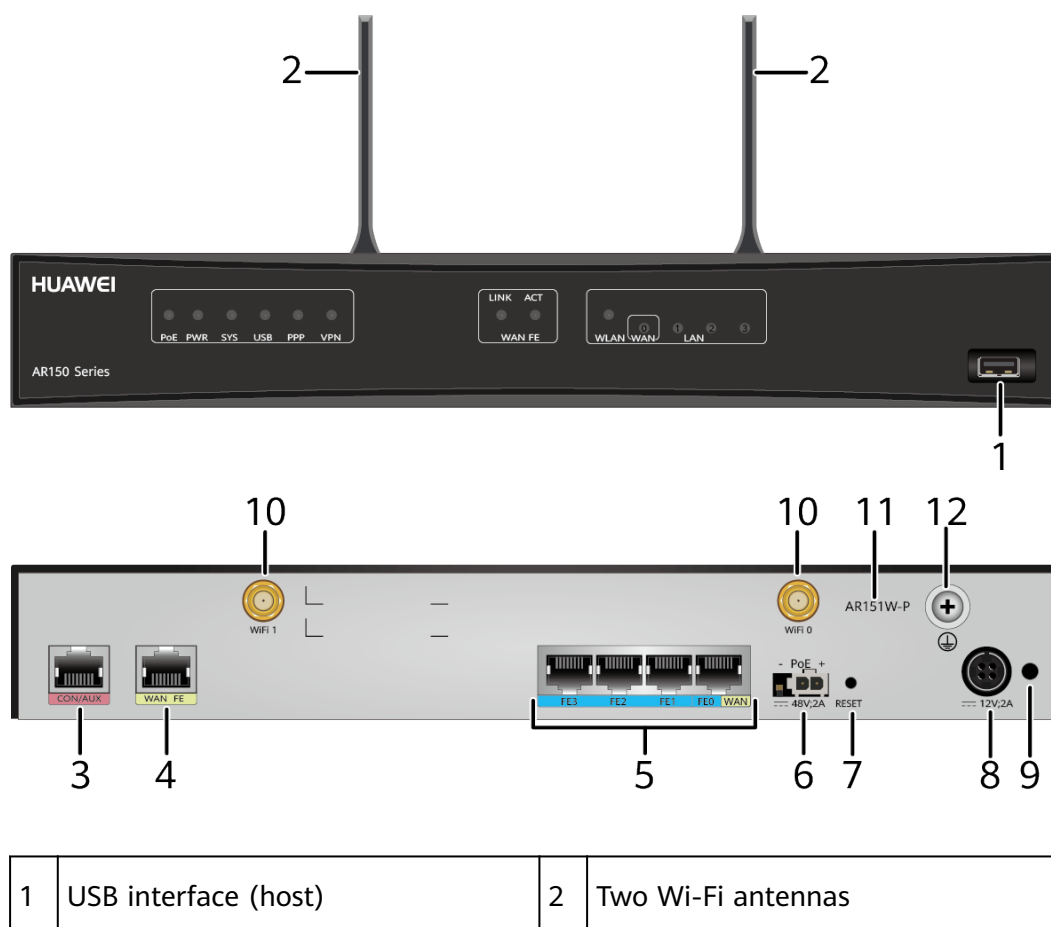
**Table 4-97** Matching between AR151W-P router and software versions

Router Model	Software Version
AR151W-P	V200R003C00 and later versions

### Appearance and Structure

**Figure 4-31** shows the appearance of the AR151W-P router.

**Figure 4-31** AR151W-P appearance

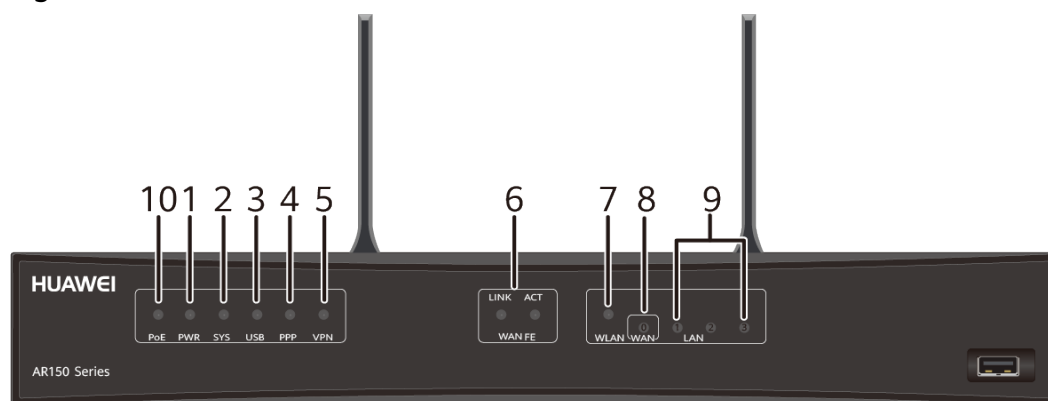


3	<p>CON/AUX interface</p> <p><b>NOTE</b> The AR151W-P does not support AUX login.</p>	4	<p>WAN interface: FE electrical interface</p>
5	<p>LAN interfaces: four FE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• FE3 is a management interface and is used to upgrade the router.</li> <li>• LAN interface FE0 can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>PoE power jack</p> <p><b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to Ethernet interfaces of the router.</p>
7	<p>RESET button</p> <p><b>NOTE</b> This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b> The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>Two Wi-Fi antenna interfaces</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-32** is a quick reference table for indicators of the AR151W-P router.

**Figure 4-32** Indicators on the AR151W-P



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface.
			Blinking: The LAN interface is transmitting or receiving data.
			Off: No link is connected on the LAN interface.
10	PoE	Green	Steady on: The PoE power supply is normal. Off: No PoE power supply is available.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-98](#) lists the CON/AUX interface attributes.

**Table 4-98** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<b>Console Cable</b>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-99](#) lists attributes of an FE electrical interface.

**Table 4-99** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<b>8.3.1 Ethernet Cable</b>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-100](#) lists attributes of a USB interface.

**Table 4-100** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-101](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-101** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

## Technical Specifications

[Table 4-102](#) lists the technical specifications of the AR151W-P router.

**Table 4-102** AR151W-P router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB



Item	Specification
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS	Not supported
PoE	Supported (FE0-FE3)
<b>Power consumption</b>	
Maximum power consumption	10.4 W
<b>Heat dissipation</b>	
Fan	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interface: one FE electrical interface LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface, and two Wi-Fi antenna interfaces
Extended slots	Not supported

Item	Specification
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354246

## 4.4.5 AR156

### Version Mapping

**Table 4-103** lists the mapping between the AR156 router and software versions.

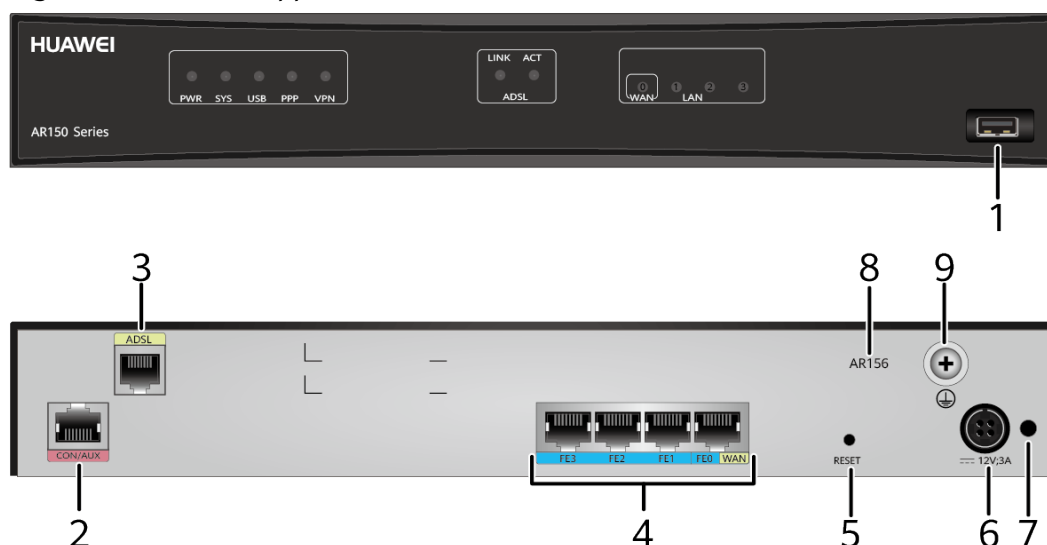
**Table 4-103** Matching between AR156 router and software versions

Router Model	Software Version
AR156	V200R002C02 and later versions

### Appearance and Structure

**Figure 4-33** shows the appearance of the AR156 router.

**Figure 4-33** AR156 appearance

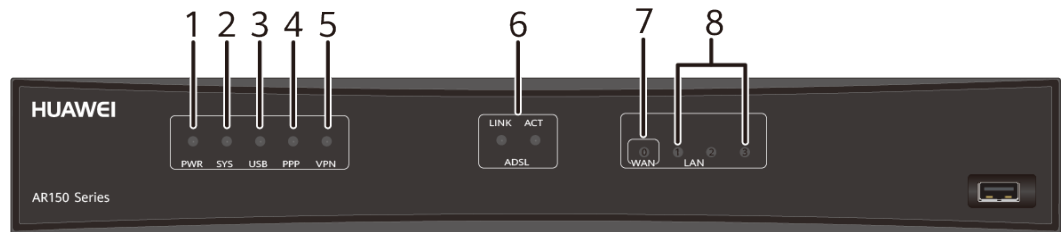


1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR156 does not support AUX login.
3	WAN interface: ADSL-B/J interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• FE3 is a management interface and is used to upgrade the router.</li> <li>• LAN interface FE0 can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-34** shows the indicators on the AR156 router.

**Figure 4-34** Indicators on the AR156



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface.
			Blinking: The LAN interface is transmitting or receiving data.
			Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-104](#) lists the CON/AUX interface attributes.

**Table 4-104** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>

Attribute	Description
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-105](#) lists attributes of an FE electrical interface.

**Table 4-105** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-106](#) lists attributes of a USB interface.

**Table 4-106** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### ADSL-B/J Interface

An ADSL-B/J interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-107](#) lists attributes of an ADSL-B/J interface.

**Table 4-107** ADSL-B/J interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>● ITU-T G.992.1 G.DMT</li><li>● ITU-T G.992.3</li><li>● ITU-T G.992.5</li></ul>
Rate	<ul style="list-style-type: none"><li>● ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL2+ Annex J mode: a downlink rate of 24 Mbit/s and an uplink rate of 3 Mbit/s</li></ul>
Cable type	<b>Universal Telephone Cable</b>

## Technical Specifications

[Table 4-108](#) lists the technical specifications of the AR156 router.

**Table 4-108** AR156 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	16.1 W
<b>Heat dissipation</b>	
Fan	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interface: one ADSL-B/J interface LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface.
Extended slots	Not supported
<b>Environment</b>	



Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354359

## 4.4.6 AR156W

### Version Mapping

[Table 4-109](#) lists the mapping between the AR156W and software versions.

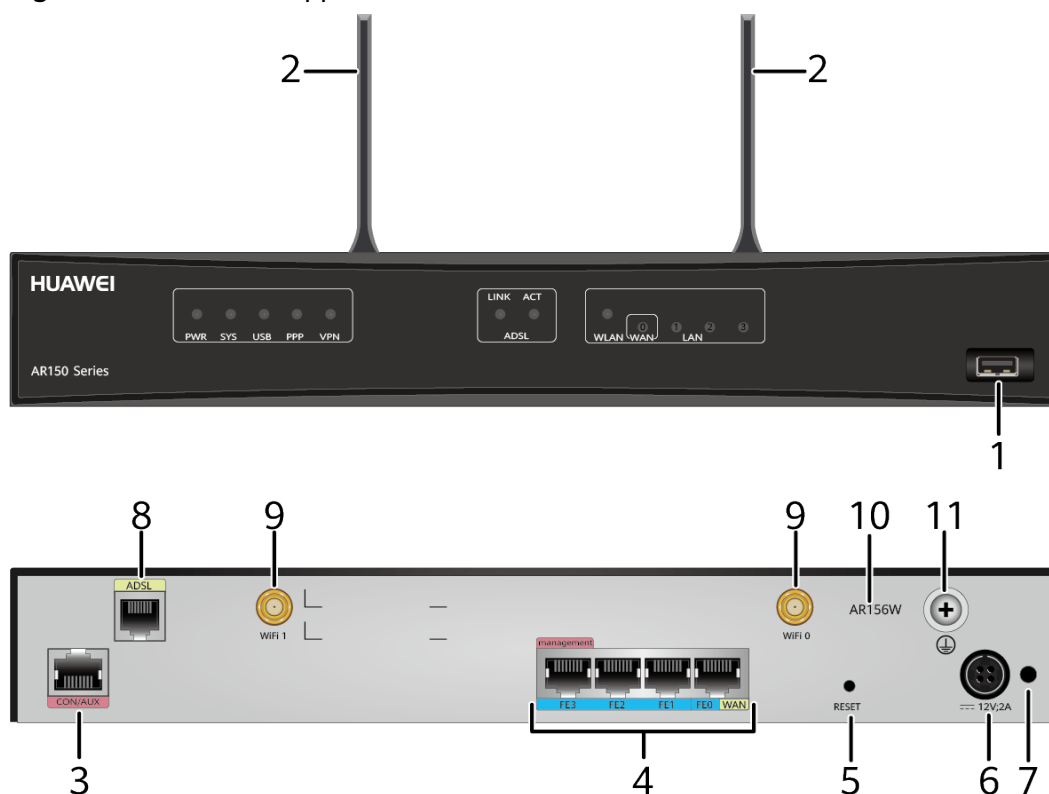
**Table 4-109** Mapping between the AR156W and software versions

Router Model	Software Version
AR156W	V200R005C10 and later versions

### Appearance and Structure

[Figure 4-35](#) shows the appearance of the AR156W.

Figure 4-35 AR156W appearance



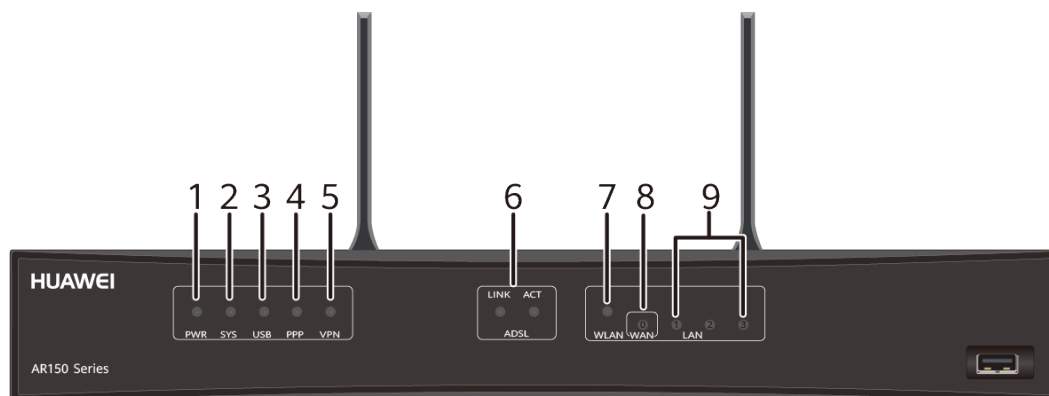
1	USB interface (host)	2	Two Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR156W does not support AUX login.	4	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE3 is a management interface and is used to upgrade the router.</li> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .

7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	WAN interface: ADSL-B/J interface <b>NOTE</b> This interface supports the dying gasp function.
9	Two Wi-Fi antenna interfaces	10	Product model silkscreen
11	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

Figure 4-36 shows the indicators on the AR156W.

Figure 4-36 Indicators on the AR156W



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.

Number	Indicator	Color	Description
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.

Number	Indicator	Color	Description
9	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface.
			Blinking: The LAN interface is transmitting or receiving data.
			Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-110](#) lists the CON/AUX interface attributes.

**Table 4-110** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-111](#) lists attributes of an FE electrical interface.

**Table 4-111** FE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>• PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>• PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-112](#) lists attributes of a USB interface.

**Table 4-112** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-113](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-113** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz

Attribute	Description
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### ADSL-B/J Interface

An ADSL-B/J interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-114](#) lists attributes of an ADSL-B/J interface.

**Table 4-114** ADSL-B/J interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.992.1 G.DMT</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.5</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2+ Annex J mode: a downlink rate of 24 Mbit/s and an uplink rate of 3 Mbit/s</li> </ul>
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

[Table 4-115](#) lists the technical specifications of the AR156W.

**Table 4-115** Technical specifications of the AR156W

Item	Specification
<b>System parameters</b>	

Item	Specification
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	16.7 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1



Item	Specification
Service interfaces (standard configuration)	WAN interface: one ADSL-B/J interface LAN interfaces: four FE electrical interfaces, LAN interface FE0 can be configured as a WAN interface, and two Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02358327

## 4.4.7 AR157

### Version Mapping

[Table 4-116](#) lists the mapping between the AR157 router and software versions.

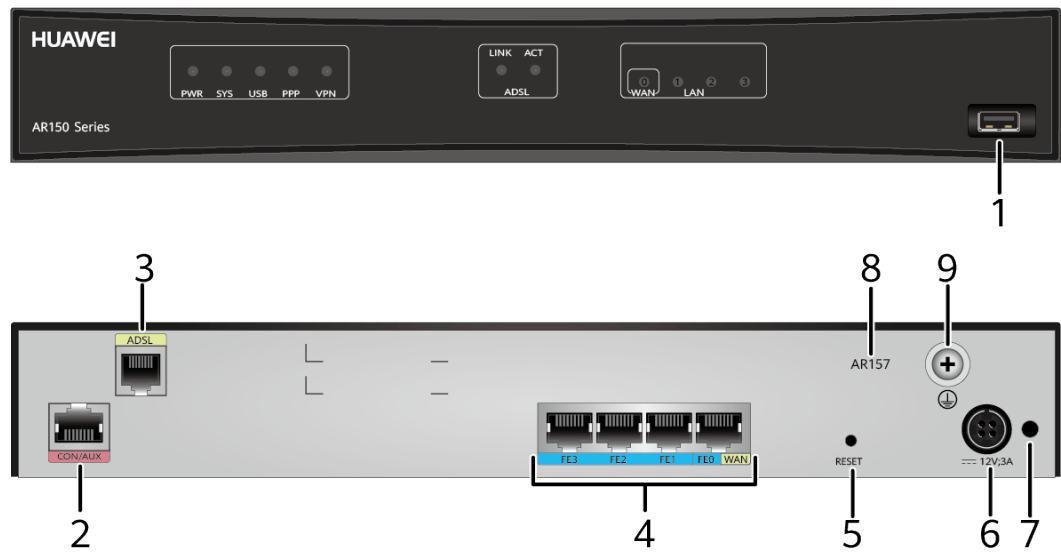
**Table 4-116** Matching between AR157 router and software versions

Router Model	Software Version
AR157	V200R002C00 and later versions

### Appearance and Structure

[Figure 4-37](#) shows the appearance of the AR157 router.

Figure 4-37 AR157 appearance



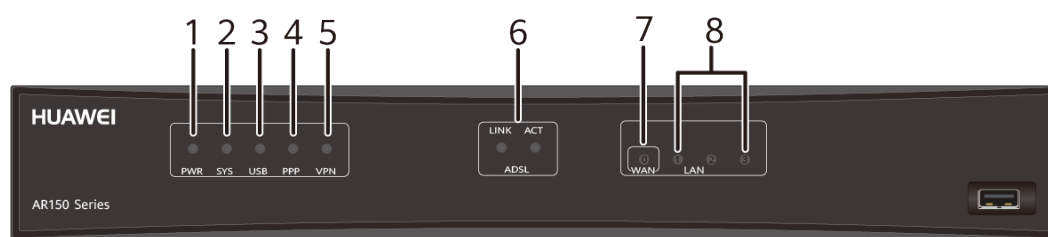
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR157 does not support AUX login.
3	WAN interface: ADSL-A/M interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• FE3 is a management interface and is used to upgrade the router.</li> <li>• LAN interface FE0 can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .

7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-38** shows the indicators on the AR157 router.

**Figure 4-38** Indicators on the AR157



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface.
			Blinking: The LAN interface is transmitting or receiving data.
			Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-117](#) lists the CON/AUX interface attributes.

**Table 4-117** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-118](#) lists attributes of an FE electrical interface.

**Table 4-118** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-119](#) lists attributes of a USB interface.

**Table 4-119** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-120](#) lists attributes of an ADSL-A/M interface.

**Table 4-120** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>● ITU-T G.992.1 G.DMT</li><li>● ANSI T1.413 Issue 2</li><li>● ITU-T G.992.3</li><li>● ITU-T G.992.5</li></ul>
Rate	<ul style="list-style-type: none"><li>● ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li><li>● ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li><li>● T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

[Table 4-121](#) lists the technical specifications of the AR157 router.

**Table 4-121** AR157 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	15.2 W
<b>Heat dissipation</b>	
Fan	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1

Item	Specification
Service interfaces (standard configuration)	WAN interface: one ADSL-A/M interface LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface
Extended slots	Not supported
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353848

## 4.4.8 AR157G-HSPA+7

### Version Mapping

[Table 4-122](#) lists the mapping between the AR157G-HSPA+7 and software versions.

**Table 4-122** Mapping between the AR157G-HSPA+7 and software versions

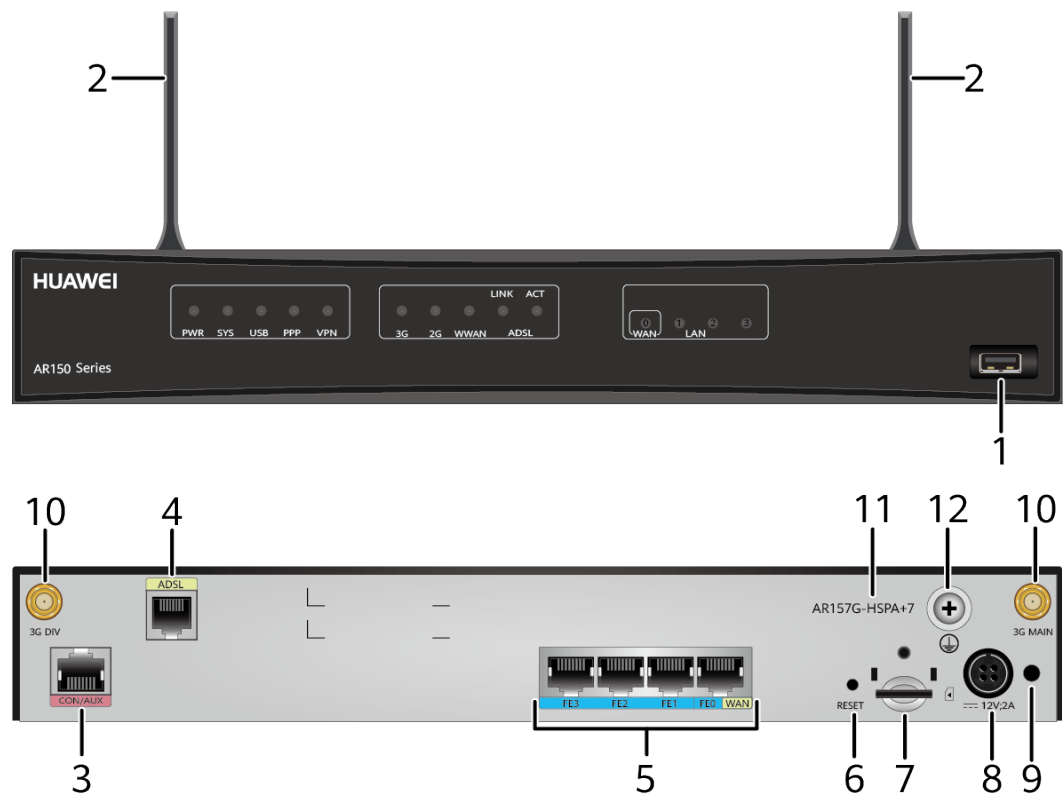
Router Model	Software Version
AR157G-HSPA+7	V200R003C00 and later versions

### Appearance and Structure

[Figure 4-39](#) shows the appearance of the AR157G-HSPA+7.



Figure 4-39 AR157G-HSPA+7 appearance



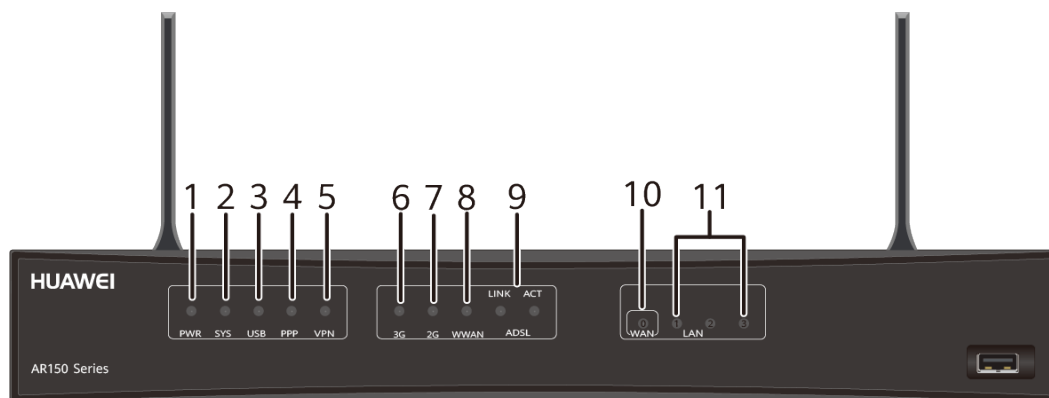
1	USB interface (host)	2	Two 3G antennas
3	CON/AUX interface <b>NOTE</b> The AR157G-HSPA+7 does not support AUX login.	4	WAN interface: ADSL-A/M interface <b>NOTE</b> This interface supports the dying gasp function.
5	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE3 is a management interface and is used to upgrade the router.</li> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	SIM card slot <b>NOTE</b> The mounting hole above the SIM card slots is used to fix the SIM card cover with a screw.	8	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .

9	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	10	3G-HSPA+7 antenna interface
11	Product model silkscreen	12	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

### Indicator Description

Figure 4-40 shows the indicators on the AR157G-HSPA+7.

Figure 4-40 Indicators on the AR157G-HSPA+7



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.

Number	Indicator	Color	Description
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	3G	Green	Steady on: The 3G signal strength is high. Fast blinking: The 3G signal strength is medium. Slow blinking: The 3G signal strength is low. Off: No 3G signal is available.
7	2G	Green	Steady on: The 2G signal strength is high. Fast blinking: The 2G signal strength is medium. Slow blinking: The 2G signal strength is low. Off: No 2G signal is available.
8	WWAN	Green	Steady on: The 3G/2G connection has been set up and is active. Blinking: Data is being transmitted or received over the 3G/2G connection. Off: The 3G/2G connection has not been established or is inactive.
9	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.

Number	Indicator	Color	Description
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
10	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
11	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-123](#) lists the CON/AUX interface attributes.

**Table 4-123** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-124](#) lists attributes of an FE electrical interface.

**Table 4-124** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-125](#) lists attributes of a USB interface.

**Table 4-125** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### 3G-HSPA+7 Antenna Interface

3G antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives 3G signals, and the secondary antenna helps improve the quality of received 3G signals. [Table 4-126](#) lists attributes of a 3G antenna interface.

**Table 4-126** 3G antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>WCDMA: Bands 1/8</li> <li>GSM 850/900/1800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>HSPA: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> </ul>
Cable type	<a href="#">8.15.2 3G Antenna</a>

**ADSL-A/M Interface**

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-127](#) lists attributes of an ADSL-A/M interface.

**Table 4-127** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>ITU-T G.992.1 G.DMT</li> <li>ANSI T1.413 Issue 2</li> <li>ITU-T G.992.3</li> <li>ITU-T G.992.5</li> </ul>
Rate	<ul style="list-style-type: none"> <li>ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li> <li>ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li> <li>T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li> </ul>

Attribute	Description
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

**Table 4-128** lists the technical specifications of the AR157G-HSPA+7.

**Table 4-128** Technical specifications of the AR157G-HSPA+7

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	16.9 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, unpluggable

Item	Specification
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one ADSL-A/M interface and two 3G-HSPA+7 antenna interfaces LAN interfaces: four FE electrical interfaces. LAN interface FE0 can be configured as a WAN interface.
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354402

## 4.4.9 AR157VW

### Version Mapping

**Table 4-129** lists the mapping between the AR157VW router and software versions.

**Table 4-129** Matching between AR157VW router and software versions

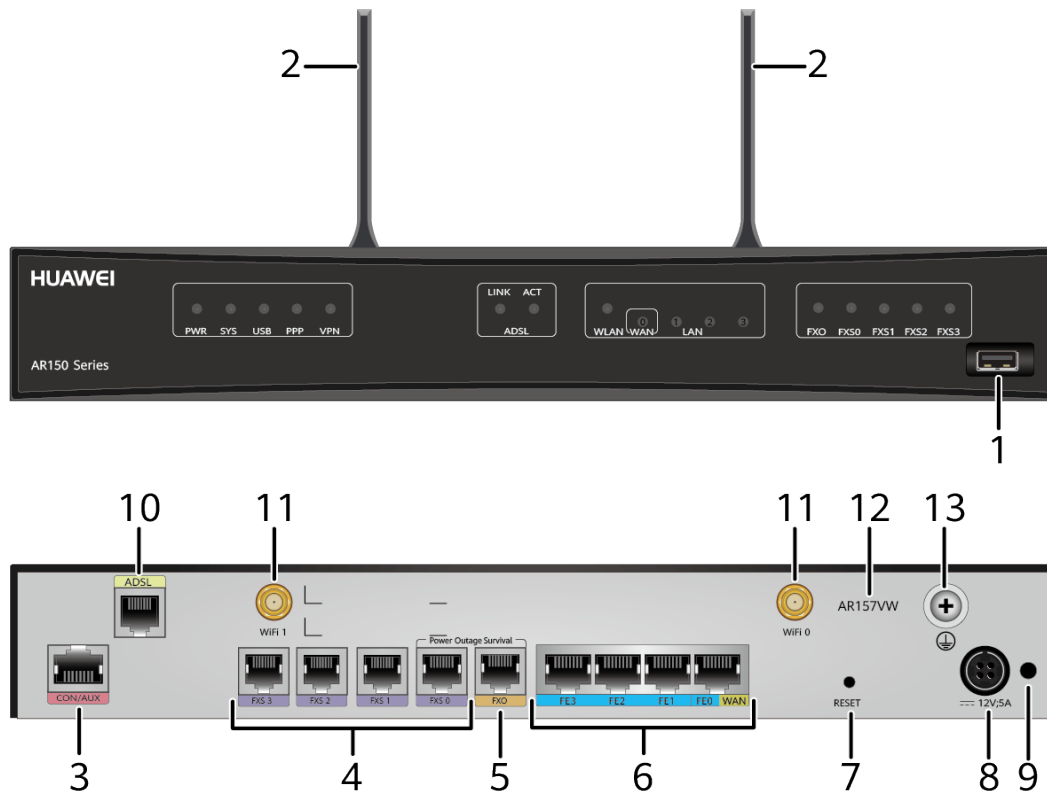
Router Model	Software Version
AR157VW	V200R003C00 and later versions



## Appearance and Structure

Figure 4-41 shows the appearance of the AR157VW router.

Figure 4-41 AR157VW appearance



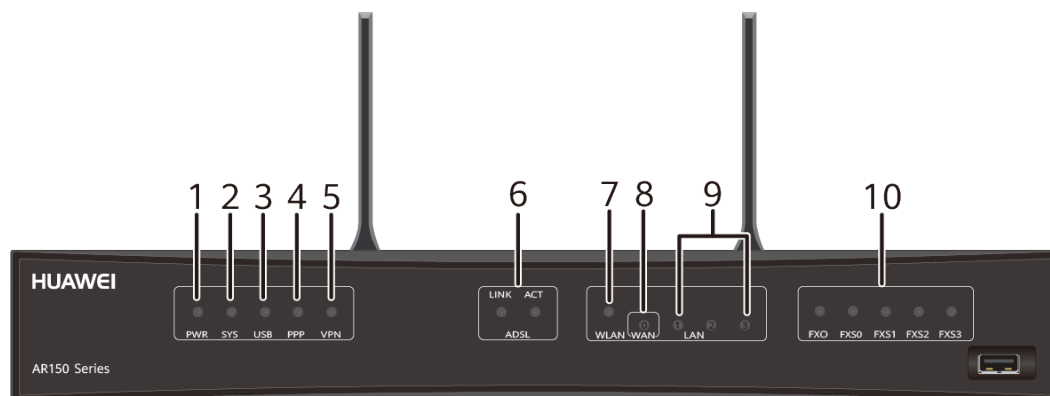
1	USB interface (host)	2	Two Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR157VW does not support AUX login.	4	Four FXS interfaces <b>NOTE</b> The FXS interfaces can be connected to analog telephones using a <a href="#">Universal Telephone Cable</a> .
5	One FXO interface <b>NOTE</b> The FXO interface can be connected to a public switched telephone network (PSTN) using a <a href="#">Universal Telephone Cable</a> .	6	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE3 is a management interface and is used to upgrade the router.</li> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>

7	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>60 W power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>WAN interface: ADSL-A/M interface</p> <p><b>NOTE</b></p> <p>This interface supports the dying gasp function.</p>
11	<p>Two Wi-Fi antenna interfaces</p>	12	<p>Product model silkscreen</p>
13	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	-	-

## Indicator Description

Figure 4-42 is a quick reference table for indicators of the AR157VW router.

Figure 4-42 Indicators on the AR157VW panel



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.

Number	Indicator	Color	Description
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.
10	FXS0-FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.
	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-130](#) lists the CON/AUX interface attributes.

**Table 4-130** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)

Attribute	Description
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-131](#) lists attributes of an FE electrical interface.

**Table 4-131** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-132](#) lists attributes of a USB interface.

**Table 4-132** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0

Attribute	Description
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-133](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-133** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-134](#) lists attributes of an ADSL-A/M interface.

**Table 4-134** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.5</li> </ul>

Attribute	Description
Rate	<ul style="list-style-type: none"><li>ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li><li>ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li><li>T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li></ul>
Cable type	<b>Universal Telephone Cable</b>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-135](#) lists attributes of an FXS interface.

**Table 4-135** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-136](#) lists attributes of an FXO interface.

**Table 4-136** FXO interface attributes

Attribute	Description
Connector type	RJ11

Attribute	Description
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

## Technical Specifications

**Table 4-137** lists the technical specifications of the AR157VW router.

**Table 4-137** AR157VW router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W



Item	Specification
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	20.8 W
<b>Heat dissipation</b>	
Fan	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	<p>WAN interface: one ADSL-A/M interface</p> <p>LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface, and two Wi-Fi antenna interfaces</p> <p>Voice interfaces: four FXS interfaces, one FXO interface</p>
Extended slots	Not supported
<b>Environment</b>	
Operating temperature	<p>0°C to 45°C (32°F to 113°F)</p> <p><b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.</p>
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354416

## 4.4.10 AR157W

## Version Mapping

**Table 4-138** lists the mapping between the AR157W router and software versions.

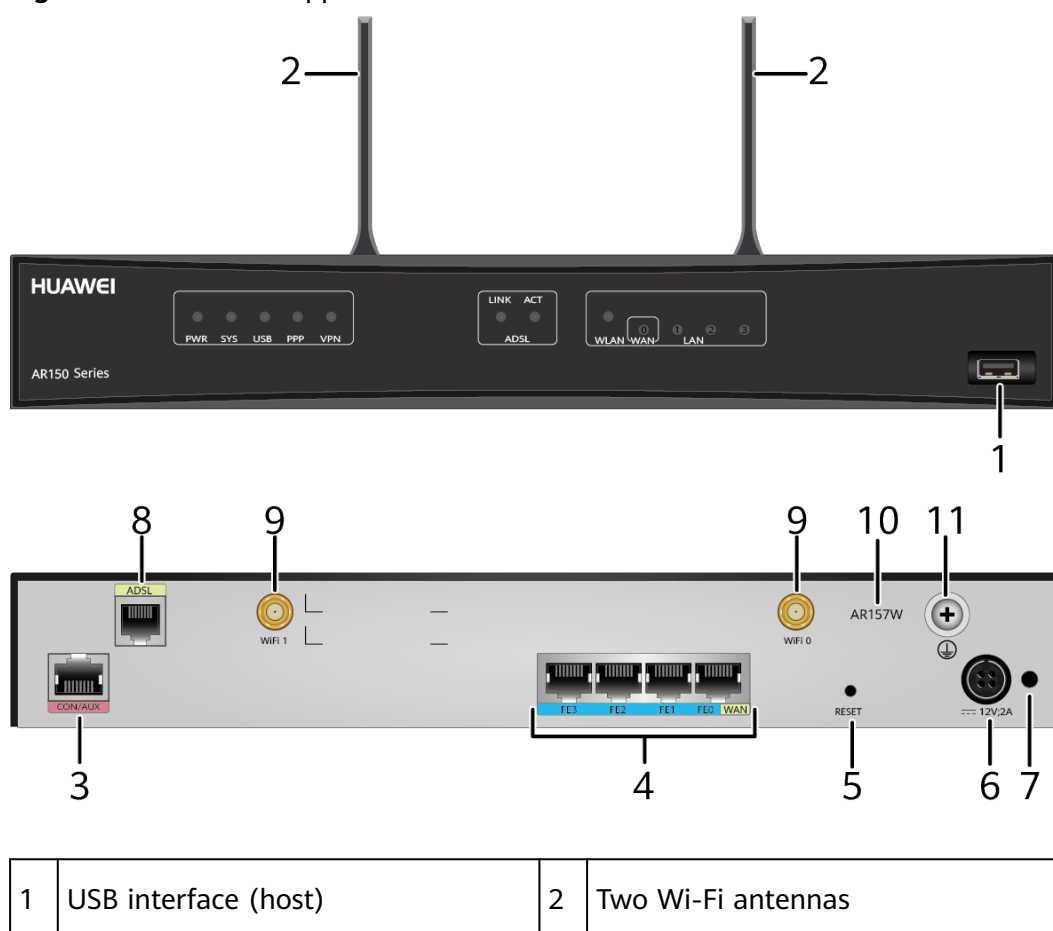
**Table 4-138** Matching between AR157W router and software versions

Router Model	Software Version
AR157W	V200R003C00 and later versions

## Appearance and Structure

**Figure 4-43** shows the appearance of the AR157W router.

**Figure 4-43** AR157W appearance

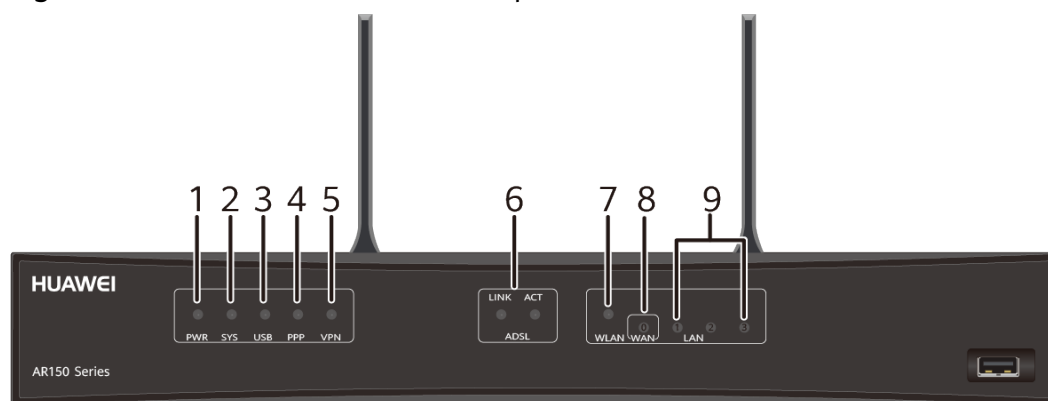


3	<p>CON/AUX interface</p> <p><b>NOTE</b> The AR157W does not support AUX login.</p>	4	<p>LAN interfaces: four FE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• FE3 is a management interface and is used to upgrade the router.</li> <li>• LAN interface FE0 can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	<p>RESET button</p> <p><b>NOTE</b> This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	6	<p>Power jack</p> <p><b>NOTE</b> The router uses a <b>24 W integrated power adapter</b>.</p>
7	<p>Jack for power cable locking strap</p> <p><b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.</p>	8	<p>WAN interface: ADSL-A/M interface</p> <p><b>NOTE</b> This interface supports the dying gasp function.</p>
9	<p>Two Wi-Fi antenna interfaces</p>	10	<p>Product model silkscreen</p>
11	<p>Ground point</p> <p><b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	-	-

## Indicator Description

**Figure 4-44** is a quick reference table for indicators of the AR157W router.

**Figure 4-44** Indicators on the AR157W panel



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface.
			Blinking: The LAN interface is transmitting or receiving data.
			Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-139](#) lists the CON/AUX interface attributes.

**Table 4-139** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-140](#) lists attributes of an FE electrical interface.

**Table 4-140** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-141](#) lists attributes of a USB interface.

**Table 4-141** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-142](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-142** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-143](#) lists attributes of an ADSL-A/M interface.

**Table 4-143** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11

Attribute	Description
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.5</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li> <li>• ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li> <li>• T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li> </ul>
Cable type	<b>Universal Telephone Cable</b>

## Technical Specifications

**Table 4-144** lists the technical specifications of the AR157W router.

**Table 4-144** AR157W router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	



Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	16.7 W
<b>Heat dissipation</b>	
Fan	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interface: one ADSL-A/M interface LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface, and two Wi-Fi antenna interfaces.
Extended slots	Not supported
<b>Environment</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354247

## 4.4.11 AR158E

### Version Mapping

[Table 4-145](#) lists the mapping between the AR158E router and software versions.

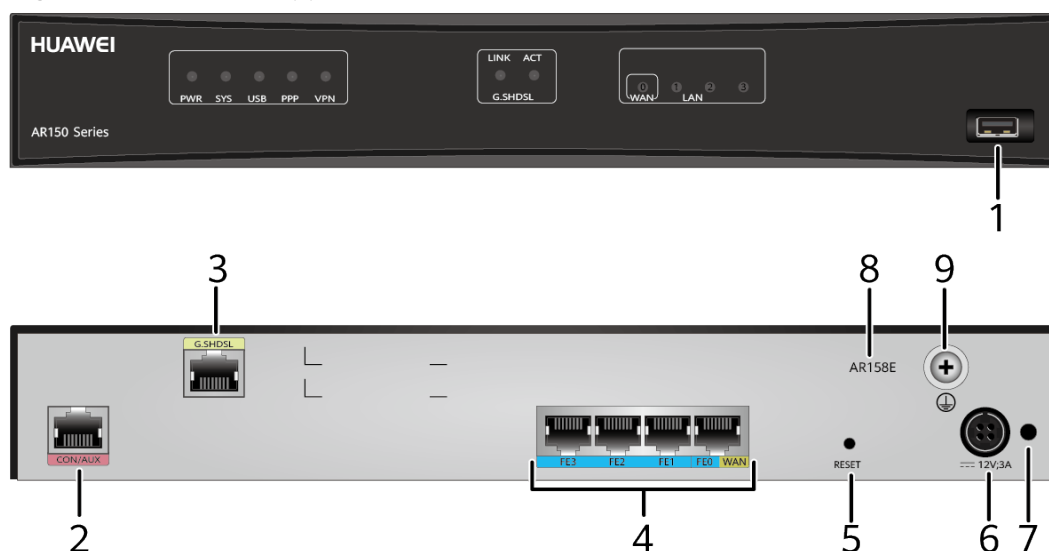
**Table 4-145** Matching between AR158E router and software versions

Router Model	Software Version
AR158E	V200R002C02 and later versions

### Appearance and Structure

[Figure 4-45](#) shows the appearance of the AR158E router.

**Figure 4-45** AR158E appearance

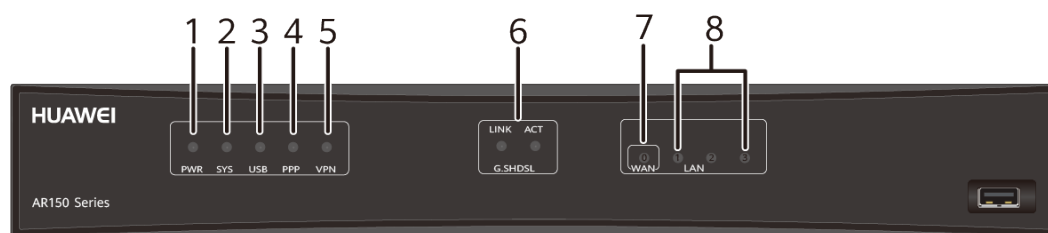


1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR158E does not support AUX login.
3	WAN interface: G.SHDSL interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: four FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>FE3 is a management interface and is used to upgrade the router.</li> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-46** shows the indicators on the AR158E router.

**Figure 4-46** Indicators on the AR158E



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface.
			Blinking: The LAN interface is transmitting or receiving data.
			Off: No link is connected on the LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-146](#) lists the CON/AUX interface attributes.

**Table 4-146** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>

Attribute	Description
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-147](#) lists attributes of an FE electrical interface.

**Table 4-147** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-148](#) lists attributes of a USB interface.

**Table 4-148** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## G.SHDSL Interface

A G.SHDSL interface transmits service data from a LAN to an upstream device at a high speed over a symmetric digital subscriber line. [Table 4-149](#) lists attributes of a G.SHDSL interface.

**Table 4-149** G.SHDSL interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	ITU-T G.991.2
Rate	15.296Mbps/pair (In PTM transmission mode, the binding type is set to EFM)
Cable type	<a href="#">8.12.1 G.SHDSL Cable</a> or <a href="#">8.3.1 Ethernet Cable</a>

## Technical Specifications

[Table 4-150](#) lists the technical specifications of the AR158E router.

**Table 4-150** AR158E router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (sd1 by default)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>Without rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power</b>	

Item	Specification
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS	Not supported
PoE	Not supported
<b>Power consumption</b>	
Maximum power consumption	14.7 W
<b>Heat dissipation</b>	
Fan	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0	1
Service interfaces (standard configuration)	WAN interface: one G.SHDSL interface LAN interfaces: four FE electrical interfaces, in which FE0 LAN interface can be switched to a WAN interface.
Extended slots	Not supported
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354360

## 4.4.12 AR158EVW



## Version Mapping

**Table 4-151** lists the mapping between the AR158EVW and software versions.

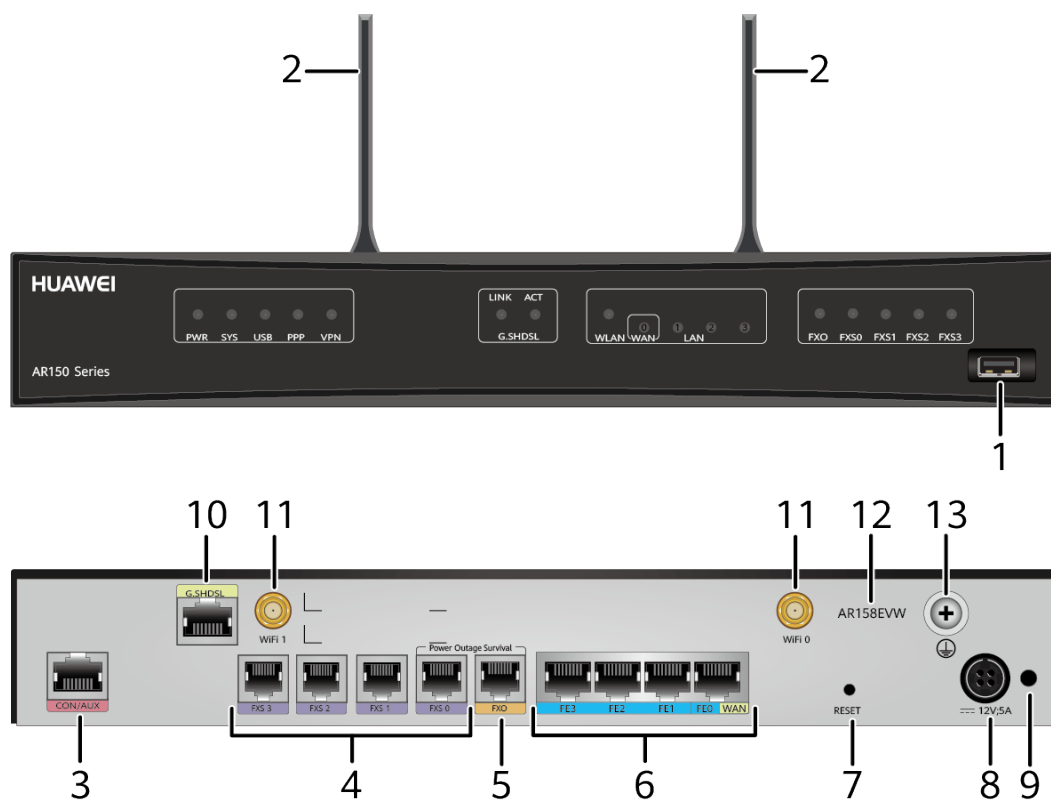
**Table 4-151** Mapping between the AR158EVW and software versions

Router Model	Software Version
AR158EVW	V200R003C00 and later versions

## Appearance and Structure

**Figure 4-47** shows the appearance of the AR158EVW.

**Figure 4-47** AR158EVW appearance



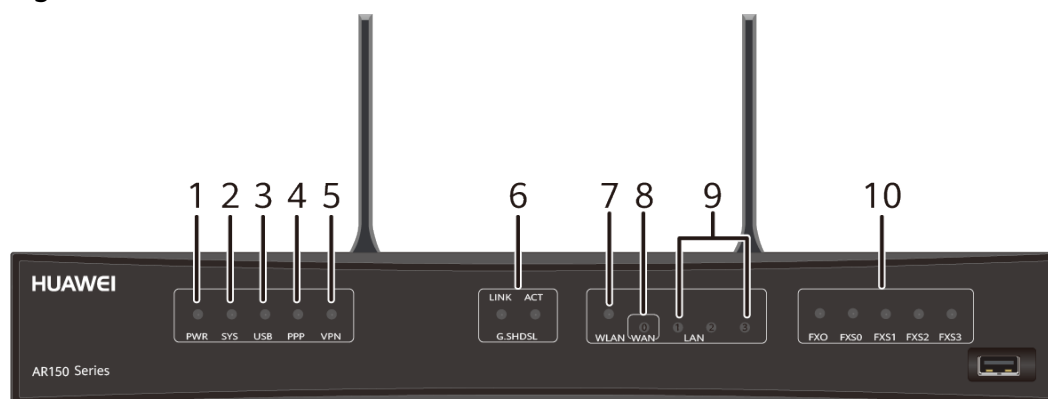
1	USB interface (host)	2	Two Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR158EVW does not support AUX login.	4	Four FXS interfaces <b>NOTE</b> The FXS interfaces can be connected to analog telephones using a <a href="#">Universal Telephone Cable</a> .

5	<p>One FXO interface</p> <p><b>NOTE</b> The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b>.</p>	6	<p>LAN interfaces: four FE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• FE3 is a management interface and is used to upgrade the router.</li> <li>• LAN interface FE0 can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
7	<p>RESET button</p> <p><b>NOTE</b> This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b> The router uses a <b>60 W power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>WAN interface: G.SHDSL interface</p> <p><b>NOTE</b> This interface supports the dying gasp function.</p>
11	<p>Two Wi-Fi antenna interfaces</p>	12	<p>Product model silkscreen</p>
13	<p>Ground point</p> <p><b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	-	-

## Indicator Description

**Figure 4-48** shows the indicators on the AR158EVW.

**Figure 4-48** Indicators on the AR158EVW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: No data is transmitted or received on the WAN interface.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (FE1-FE3)	Green	Steady on: A link is connected on the LAN interface. Blinking: The LAN interface is transmitting or receiving data. Off: No link is connected on the LAN interface.
10	FXS0-FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.
	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center

through a modem for remote configuration. [Table 4-152](#) lists the CON/AUX interface attributes.

**Table 4-152** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-153](#) lists attributes of an FE electrical interface.

**Table 4-153** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-154](#) lists attributes of a USB interface.

**Table 4-154** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-155](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-155** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### G.SHDSL Interface

A G.SHDSL interface transmits service data from a LAN to an upstream device at a high speed over a symmetric digital subscriber line. [Table 4-156](#) lists attributes of a G.SHDSL interface.

**Table 4-156** G.SHDSL interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Standards compliance	ITU-T G.991.2
Rate	15.296Mbps/pair (In PTM transmission mode, the binding type is set to EFM)
Cable type	<a href="#">8.12.1 G.SHDSL Cable</a> or <a href="#">8.3.1 Ethernet Cable</a>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-157](#) lists attributes of an FXS interface.

**Table 4-157** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-158](#) lists attributes of an FXO interface.

**Table 4-158** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz

Attribute	Description
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

**Table 4-159** lists the technical specifications of the AR158EVW.

**Table 4-159** Technical specifications of the AR158EVW

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	19.9 W
<b>Heat dissipation</b>	
Fan module	None



Item	Specification
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one G.SHDSL interface LAN interfaces: four FE electrical interfaces, LAN interface FE0 can be configured as a WAN interface, and two Wi-Fi antenna interfaces. Voice interfaces: four FXS interfaces, and one FXO interface.
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354417

## 4.5 AR160 Series

### 4.5.1 AR161

#### Version Mapping

[Table 4-160](#) lists the mapping between the AR161 router and software versions.

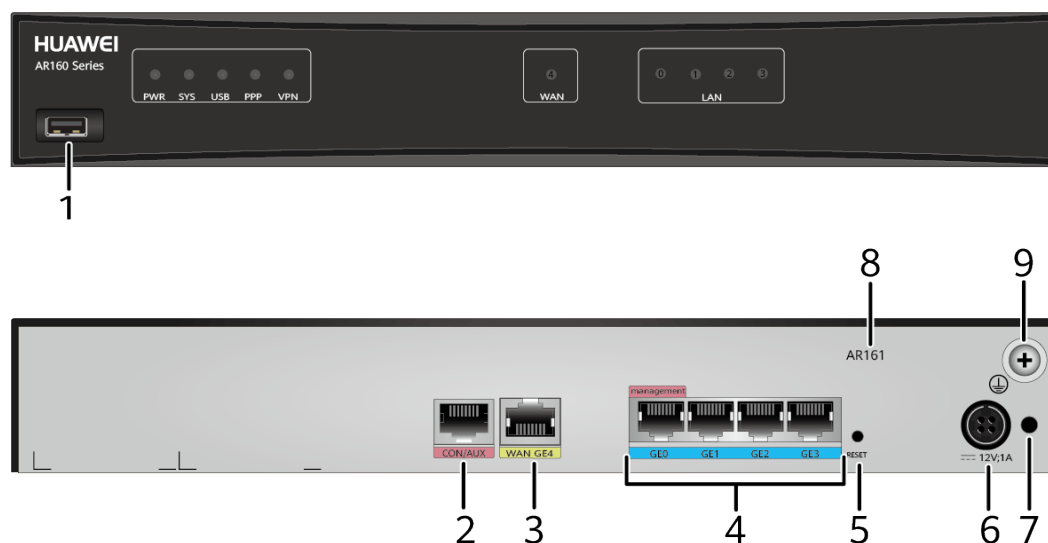
**Table 4-160** Mapping between the AR161 router and software versions

Router Model	Software Version
AR161	V200R006C10 and later versions

## Appearance and Structure

**Figure 4-49** shows the appearance of the AR161 router.

**Figure 4-49** AR161 appearance



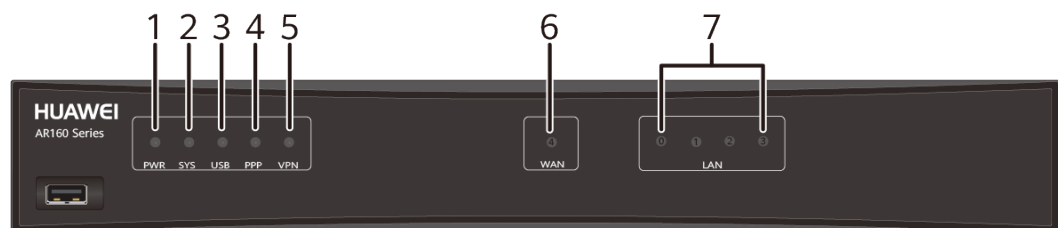
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR161 does not support AUX login.
3	WAN interface: GE electrical interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

5	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	6	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
7	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	8	<p>Product model silkscreen</p>
9	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	-	-

## Indicator Description

Figure 4-50 shows the locations of AR161 indicators.

Figure 4-50 Indicators on the AR161



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN	Green	Steady on: A link has been established on the WAN interface.
			Blinking: Data is being transmitted or received on the WAN interface.
			Off: No link is established on the WAN interface.
7	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-161](#) lists the CON/AUX interface attributes.

**Table 4-161** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-162](#) lists attributes of a USB interface.

**Table 4-162** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-163](#) lists attributes of a GE electrical interface.

**Table 4-163** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

## Technical Specifications

[Table 4-164](#) lists the technical specifications of the AR161 router.

**Table 4-164** AR161 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz

Item	Specification
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	9.3 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010212

## 4.5.2 AR161EW

## Version Mapping

**Table 4-165** describes the mapping between the AR161EW router and software versions.

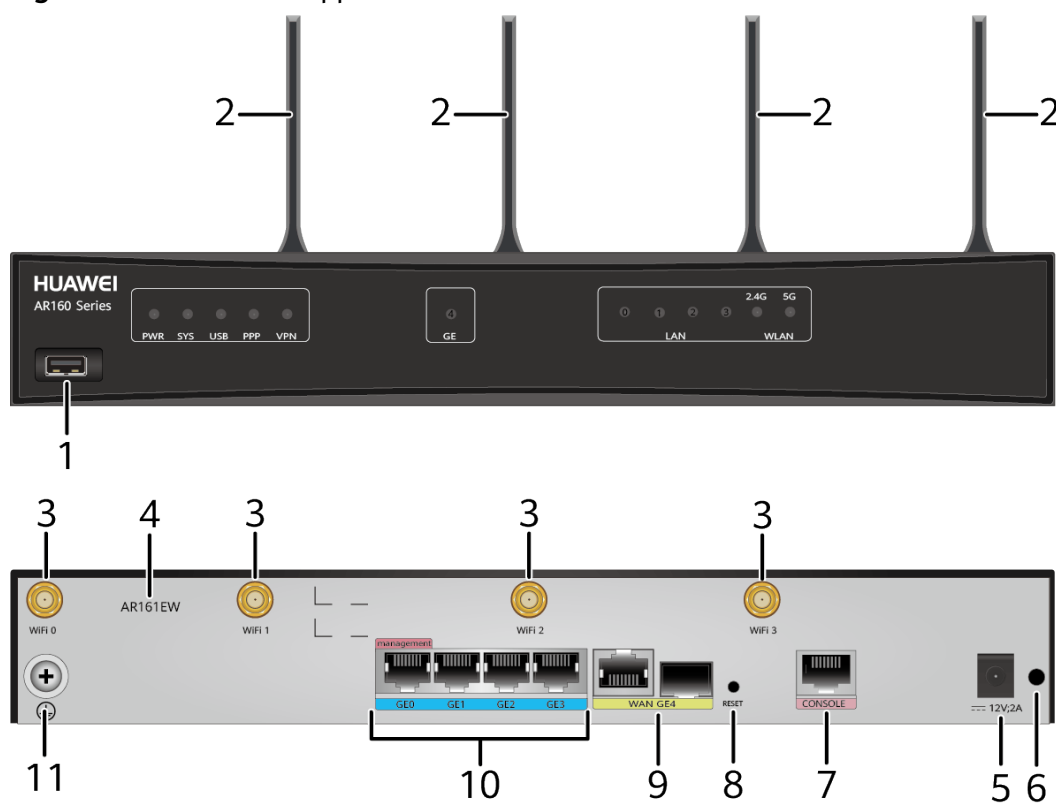
**Table 4-165** Mapping between the AR161EW router and software versions

Router Model	Software Version
AR161EW	V200R008C50 and later versions

## Appearance and Structure

**Figure 4-51** shows the appearance of the AR161EW router.

**Figure 4-51** AR161EW appearance



1	USB interface (host)	2	Four Wi-Fi antennas
3	Four Wi-Fi antenna interfaces	4	Product model silkscreen

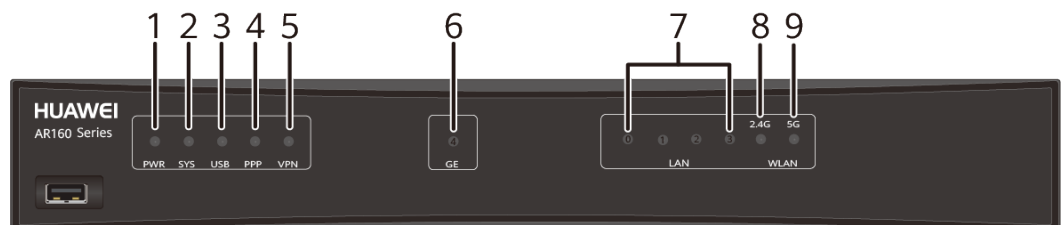


5	Power jack <b>NOTE</b> The router uses a <b>1-pin 36 W power adapter</b> .	6	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
7	Console interface	8	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
9	WAN interface: GE combo interface	10	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
11	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

Figure 4-52 shows the indicators on the AR161EW router.

Figure 4-52 Indicators on the AR161EW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly.
			Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
3	USB	Red and green	Off: The system software is not running or is resetting.
			Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
4	PPP	Green	Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
			Steady on: A PPP connection has been established.
			Off: No PPP connection is established.
			Steady on: The IPSec service is running normally.
5	VPN	Green	Off: The IPSec service is unavailable.
			Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
6	GE combo interface indicator	Green	Off: No link is established on the GE combo interface.
			Steady on: A link has been established on the corresponding LAN interface.
7	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.
8	WLAN 2.4G (effective when working on the 2.4 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
9	WLAN 5G (effective when working on the 5 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-166](#) lists attributes of a console interface.

**Table 4-166** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 5 Gbit/s upload and download rates. [Table 4-167](#) lists attributes of a USB interface.

**Table 4-167** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB3.0, USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-168](#) lists attributes of a GE electrical interface.

**Table 4-168** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1](#)

**Optical Fiber, 9.5 GE eSFP Optical Modules, or 9.4 FE SFP/eSFP Optical Modules.****NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**Wi-Fi antenna interface**

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-169](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-169** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"><li>• 2.4 GHz: 802.11b/g/n</li><li>• 5.0 GHz: 802.11a/n/ac</li></ul>
Frequency bands supported	<ul style="list-style-type: none"><li>• 2.4 GHz</li><li>• 5.0 GHz</li></ul>
Rate	<ul style="list-style-type: none"><li>• 2.4 GHz: 450 Mbit/s</li><li>• 5.0 GHz: 1300 Mbit/s</li></ul>
MIMO mode (Tx x Rx)	<ul style="list-style-type: none"><li>• 2.4 GHz: 3x3</li><li>• 5.0 GHz: 4x4</li></ul>
Gain	2.15 dBi/3.0 dBi
Cable type	<b>Wi-Fi Whip Antenna</b>

**Technical Specifications**

[Table 4-170](#) lists the technical specifications of the AR161EW router.

**Table 4-170** AR161EW technical specifications

Item	Description
<b>System parameters</b>	
Processor	Quad-core, 1.2 GHz
Memory	1 GB
Flash	512 MB

Item	Description
Micro SD card	Not supported
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	16 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 3.0 interfaces	1
Service interfaces	WAN interface: one GE combo interface LAN interfaces: four GE electrical interfaces and four Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Description
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02351BTJ

### 4.5.3 AR161EW-M1

#### Version Mapping

[Table 4-171](#) lists the mapping between the AR161EW-M1 router and software versions.

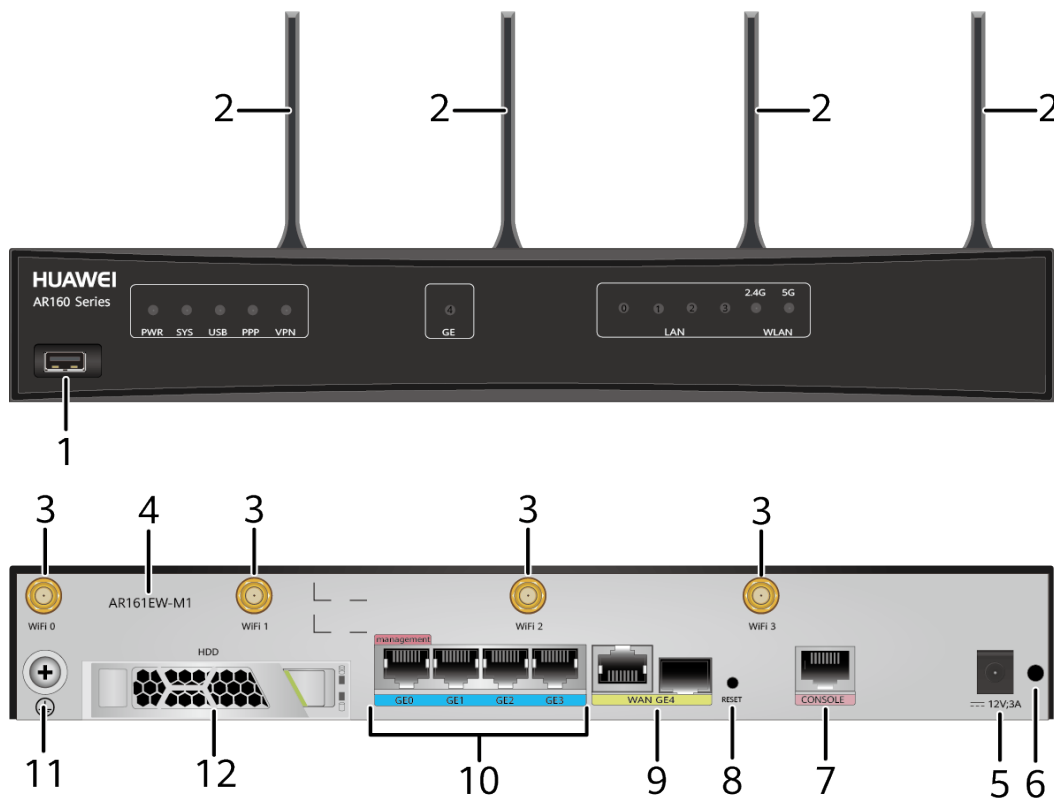
**Table 4-171** Mapping between the AR161EW-M1 router and software versions

Router Model	Software Version
AR161EW-M1	V200R008C50 and later versions

#### Appearance and Structure

[Figure 4-53](#) shows the appearance of the AR161EW-M1 router.

Figure 4-53 AR161EW-M1 appearance



1	USB interface (host)	2	Four Wi-Fi antennas
3	Four Wi-Fi antenna interfaces	4	Product model silkscreen
5	Power jack <b>NOTE</b> The router uses a <b>1-pin 36 W power adapter</b> .	6	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
7	Console interface	8	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.

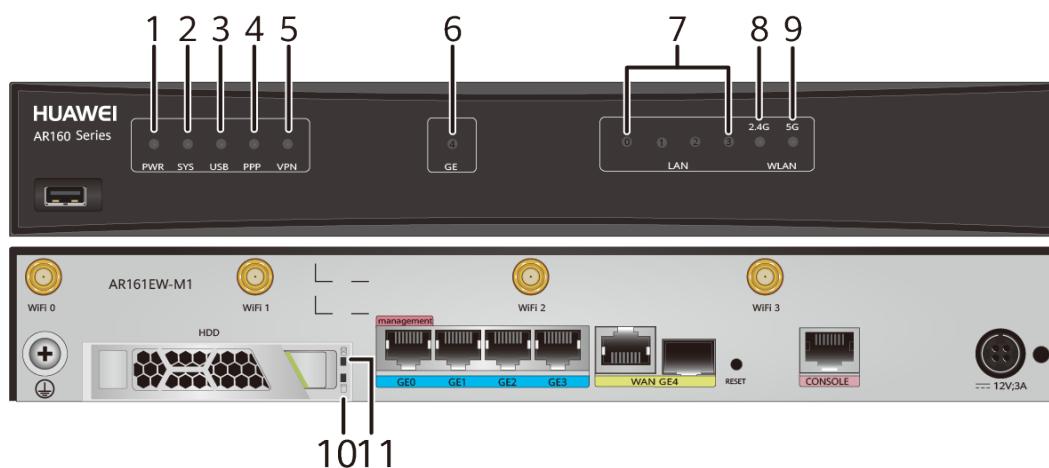


9	WAN interface: GE combo interface	1 0	LAN interfaces: four GE electrical interfaces  <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
1 1	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	1 2	Hard disk drive interface  <b>NOTE</b> 2.5-inch SATA hard disks are supported.

### Indicator Description

Figure 4-54 shows the indicators on the AR161EW-M1 router.

Figure 4-54 Indicators on the AR161EW-M1



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
7	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

Number	Indicator	Color	Description
8	WLAN 2.4G (effective when working on the 2.4 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
9	WLAN 5G (effective when working on the 5 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
10 and 11	HDD	<ul style="list-style-type: none"> <li>• 10: green</li> <li>• 11: red</li> </ul>	Green indicator steady on: A hard disk is available. Green indicator off: No hard disk is available. Red indicator steady on: The hard disk is faulty. Red indicator off: The hard disk is not faulty.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-172](#) lists attributes of a console interface.

**Table 4-172** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 5 Gbit/s upload and download rates. [Table 4-173](#) lists attributes of a USB interface.

**Table 4-173** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB3.0, USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-174](#) lists attributes of a GE electrical interface.

**Table 4-174** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).

- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi antenna interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-175](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-175** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"> <li>• 2.4 GHz: 802.11b/g/n</li> <li>• 5.0 GHz: 802.11a/n/ac</li> </ul>
Frequency bands supported	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5.0 GHz</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• 2.4 GHz: 450 Mbit/s</li> <li>• 5.0 GHz: 1300 Mbit/s</li> </ul>
MIMO mode (Tx x Rx)	<ul style="list-style-type: none"> <li>• 2.4 GHz: 3x3</li> <li>• 5.0 GHz: 4x4</li> </ul>
Gain	2.15 dBi/3.0 dBi
Cable type	<a href="#">Wi-Fi Whip Antenna</a>

## Technical Specifications

[Table 4-176](#) lists the technical specifications of the AR161EW-M1 router.

**Table 4-176** AR161EW-M1 technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 1.2 GHz
Memory	1 GB

Item	Specification
Flash	512 MB
Micro SD card	Not supported
Hard disk	Supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	26 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 3.0 interfaces	1
Service interfaces	WAN interface: one GE combo interface LAN interfaces: four GE electrical interfaces and four Wi-Fi antenna interfaces
Extended slots	Not supported

Item	Specification
<b>Environment parameters</b>	
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02351BXA

## 4.5.4 AR161F

### Version Mapping

[Table 4-177](#) lists the mapping between the AR161F router and software versions.

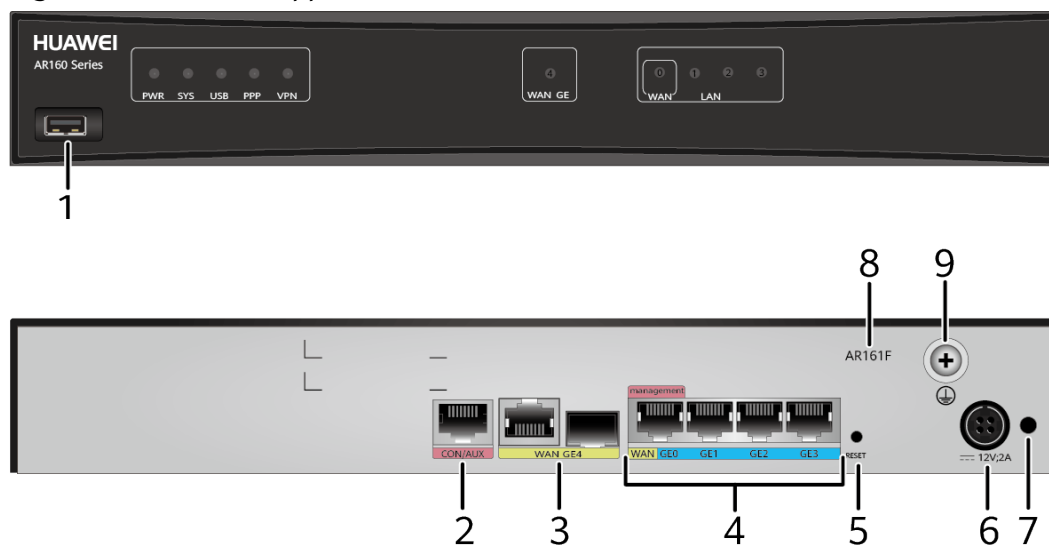
**Table 4-177** Mapping between the AR161F router and software versions

Router Model	Software Version
AR161F	V200R005C30 and later versions

### Appearance and Structure

[Figure 4-55](#) shows the appearance of the AR161F router.

**Figure 4-55** AR161F appearance



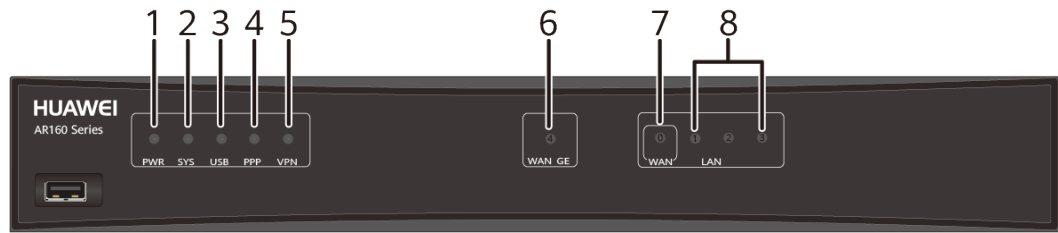
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR161F does not support AUX login.
3	WAN interface: GE combo interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-56** shows the locations of AR161F indicators.



**Figure 4-56** Indicators on the AR161F



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
7	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-178](#) lists the CON/AUX interface attributes.

**Table 4-178** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>

Attribute	Description
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-179](#) lists attributes of a USB interface.

**Table 4-179** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-180](#) lists attributes of a GE electrical interface.

**Table 4-180** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-181](#) lists the technical specifications of the AR161F routers.

**Table 4-181** AR161F routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz

Item	Specification
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	17.8 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one GE combo interface LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be used as a WAN interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010197

## 4.5.5 AR161F-DGP

## Version Mapping

**Table 4-182** lists the mapping between the AR161F-DGP router and software versions.

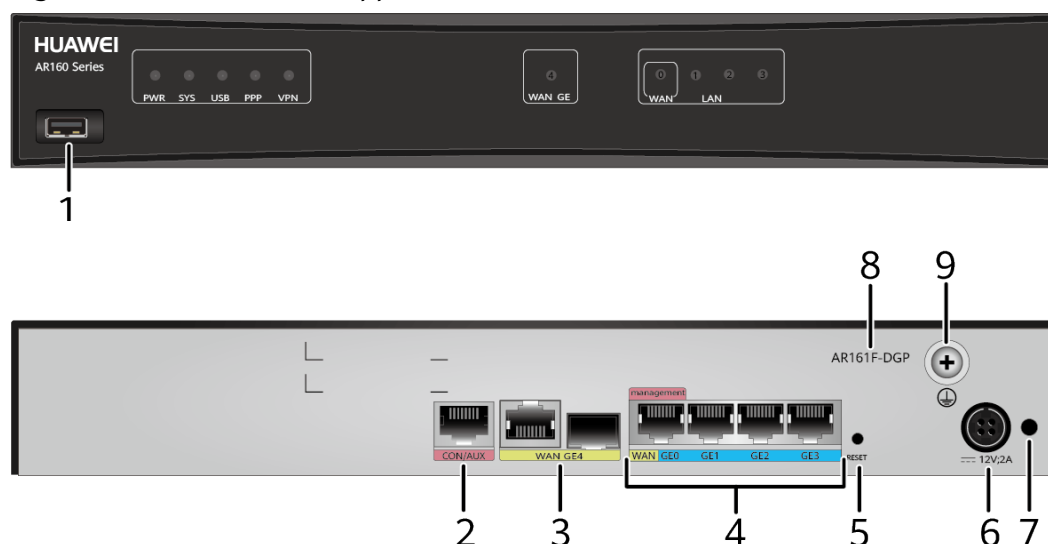
**Table 4-182** Mapping between the AR161F-DGP router and software versions

Router Model	Software Version
AR161F-DGP	V200R008C50 and later versions

## Appearance and Structure

**Figure 4-57** shows the appearance of the AR161F-DGP router.

**Figure 4-57** AR161F-DGP appearance



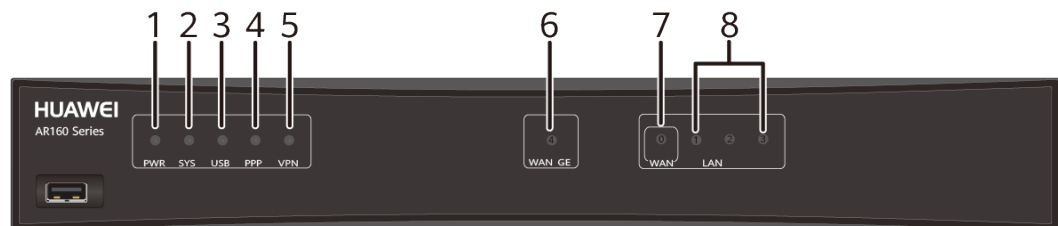
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR161F-DGP does not support AUX login.
3	WAN interface: GE combo interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

5	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	6	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
7	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	8	<p>Product model silkscreen</p>
9	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	-	-

## Indicator Description

Figure 4-58 shows the indicators on the AR161F-DGP router.

Figure 4-58 Indicators on the AR161F-DGP



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
7	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.



Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX interfaces

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-183](#) lists the CON/AUX interface attributes.

**Table 4-183** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-184](#) lists attributes of a USB interface.

**Table 4-184** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-185](#) lists attributes of a GE electrical interface.

**Table 4-185** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

**Table 4-186** lists the technical specifications of the AR161F-DGP router.

**Table 4-186** AR161F-DGP technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash memory	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	3.0 kg (6.61 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	17.8 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)

Item	Specification
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE combo interface LAN interfaces: four GE electrical interfaces, among which LAN interface GE0 can be used as a WAN interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010390

## 4.5.6 AR161FG-L

### Version Mapping

[Table 4-187](#) lists the mapping between the AR161FG-L and software versions.

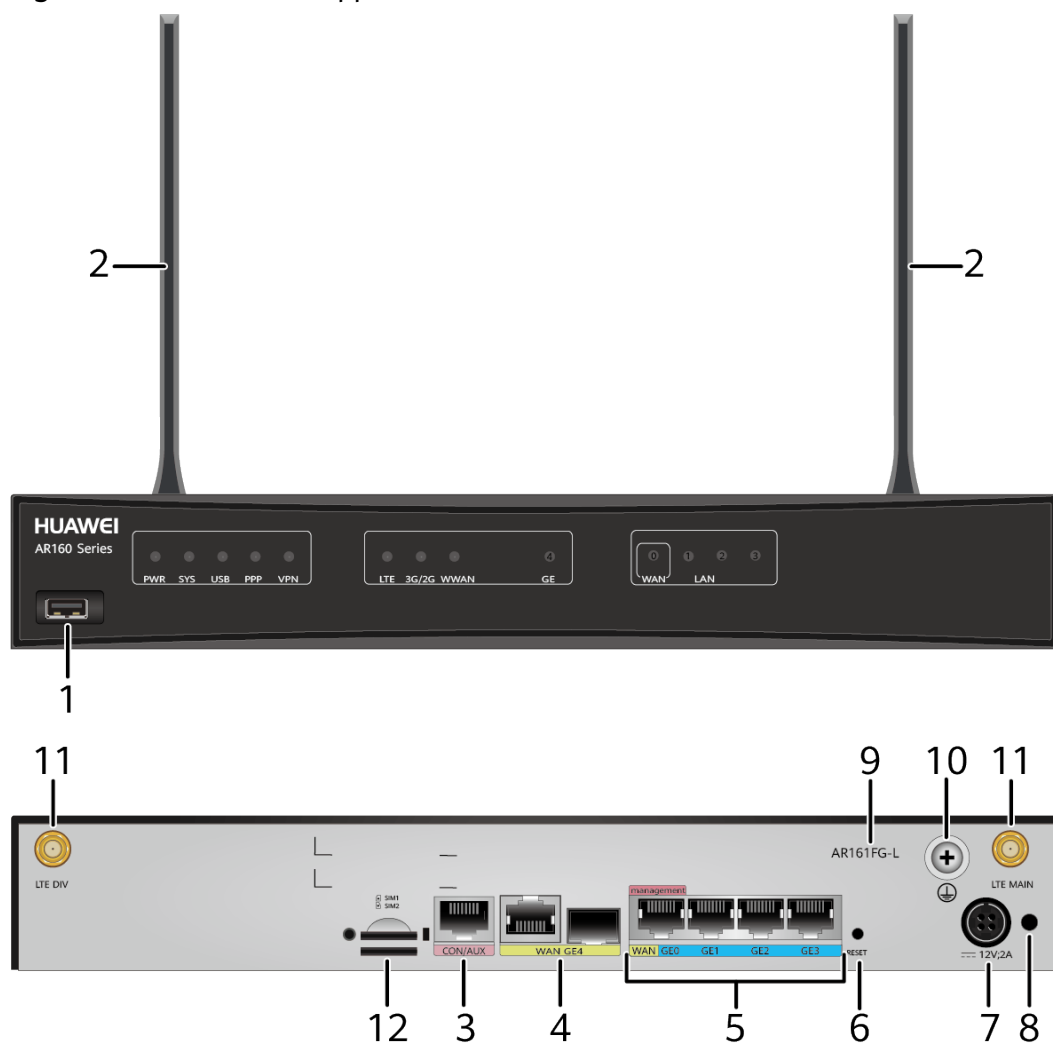
**Table 4-187** Mapping between the AR161FG-L and software versions

Router Model	Software Version
AR161FG-L	V200R005C10 and later versions

### Appearance and Structure

[Figure 4-59](#) shows the appearance of the AR161FG-L.

Figure 4-59 AR161FG-L appearance



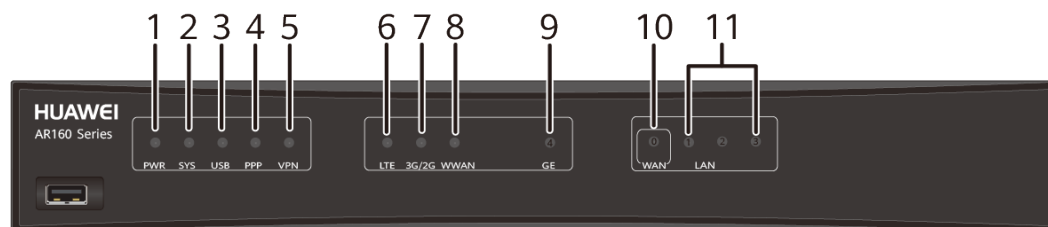
1	USB interface (host)	2	Two LTE antennas
3	CON/AUX interface <b>NOTE</b> The AR161FG-L does not support AUX login.	4	WAN interface: GE combo interface

5	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Power jack</p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• 24 W Power Adapter (Standard configuration)</li> <li>• 24 W DC power module (optional)</li> </ul>	8	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>
9	<p>Product model silkscreen</p>	10	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
11	<p>LTE antenna interface</p>	12	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>

## Indicator Description

Figure 4-60 shows the indicators on the AR161FG-L.

Figure 4-60 Indicators on the AR161FG-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high.
			Fast blinking: The LTE signal strength is medium.
			Slow blinking: The LTE signal strength is low.
			Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the LTE/3G/2G connection.
			Off: The LTE/3G/2G connection has not been established or is inactive.
9	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
10	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
11	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.



Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-188](#) lists the CON/AUX interface attributes.

**Table 4-188** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-189](#) lists attributes of a USB interface.

**Table 4-189** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE antenna interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-190](#) lists attributes of an LTE antenna interface.

**Table 4-190** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li><li>• WCDMA: Bands 1/2/5/8</li><li>• GSM: 850/900/1800/1900 (MHz)</li></ul>
Rate	<ul style="list-style-type: none"><li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li><li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li><li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li><li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li><li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li><li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li><li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li><li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li></ul>
Cable type	<a href="#">LTE Whip Antenna</a>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-191](#) lists attributes of a GE electrical interface.

**Table 4-191** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-192](#) lists the technical specifications of the AR161FG-L.

**Table 4-192** AR161FG-L technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz

Item	Specification
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	17 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	<p>WAN interfaces: one GE combo interface, and two LTE antenna interfaces</p> <p>LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface.</p>

Item	Specification
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010156

## 4.5.7 AR161FG-Lc

### Version Mapping

[Table 4-193](#) lists the mapping between the AR161FG-Lc router and software versions.

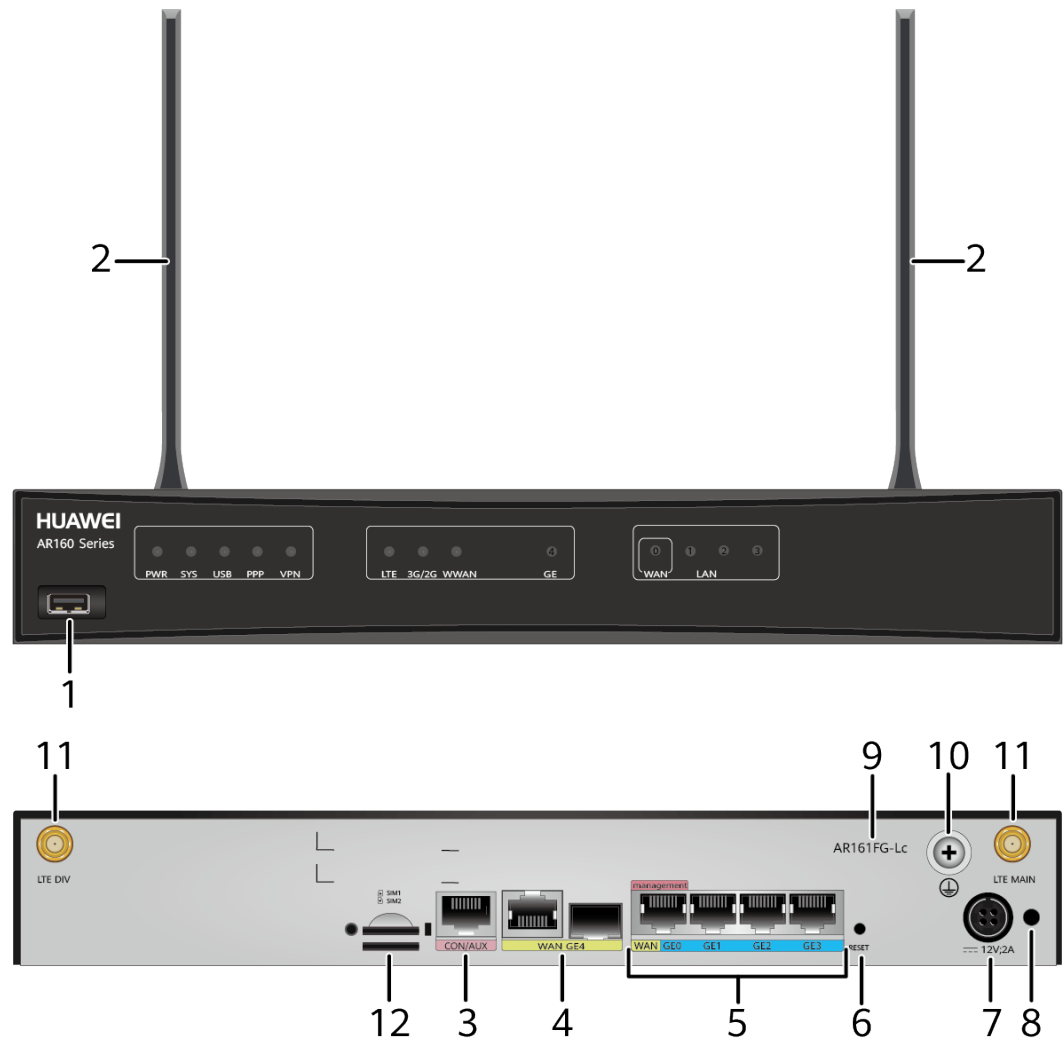
**Table 4-193** Mapping between the AR161FG-Lc router and software versions

Router Model	Software Version
AR161FG-Lc	V200R008C50 and later versions

### Appearance and Structure

[Figure 4-61](#) shows the appearance of the AR161FG-Lc router.

Figure 4-61 AR161FG-Lc appearance



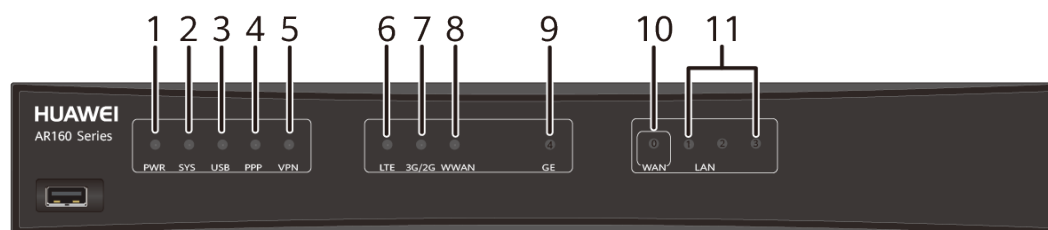
1	USB interface (host)	2	Two LTE antennas
3	CON/AUX interface <b>NOTE</b> The AR161FG-Lc does not support AUX login.	4	WAN interface: GE combo interface

5	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>	8	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>
9	<p>Product model silkscreen</p>	10	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
11	<p>LTE antenna interface</p>	12	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>

## Indicator Description

**Figure 4-62** shows the indicators on the AR161FG-Lc router.

**Figure 4-62** Indicators on the AR161FG-Lc



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high.



Number	Indicator	Color	Description
			Fast blinking: The LTE signal strength is medium.
			Slow blinking: The LTE signal strength is low.
			Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the LTE/3G/2G connection.
			Off: The LTE/3G/2G connection has not been established or is inactive.
9	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
10	LAN/WAN (GE0)	Green	Steady on: A link has been established on the LAN/WAN interface.
			Blinking: Data is being transmitted or received on the LAN/WAN interface.
			Off: No link is established on the LAN/WAN interface.
11	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-194](#) lists the CON/AUX interface attributes.

**Table 4-194** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-195](#) lists attributes of a USB interface.

**Table 4-195** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE antenna interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-196](#) lists attributes of an LTE antenna interface.

**Table 4-196** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• LTE FDD: bands 1, 3, and 8</li> <li>• LTE TDD: bands 38, 39, 40, and 41</li> <li>• WCDMA: bands 1, 8, and 9</li> <li>• TD-SCDMA: bands 34 and 39</li> <li>• GSM: 900/1800 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 150 Mbit/s</li> <li>• LTE TDD: uplink rate of 10 Mbit/s and downlink rate of 112 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• TD-HSPA+: uplink rate of 2.2 Mbit/s and downlink rate of 4.2 Mbit/s</li> <li>• TD-SCDMA PS: uplink rate of 384 kbit/s and downlink rate of 2.8 Mbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE whip antenna</b>

**GE electrical interface**

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-197](#) lists attributes of a GE electrical interface.

**Table 4-197** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-198](#) lists the technical specifications of the AR161FG-Lc router.

**Table 4-198** AR161FG-Lc technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz

Item	Specification
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage (AC)	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	17 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	<p>WAN interfaces: one GE combo interface and two LTE antenna interfaces</p> <p>LAN interfaces: four GE electrical interfaces, among which LAN interface GE0 can be used as a WAN interface</p>

Item	Specification
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010380

## 4.5.8 AR161FGW-L

### Version Mapping

[Table 4-199](#) lists the mapping between the AR161FGW-L and software versions.

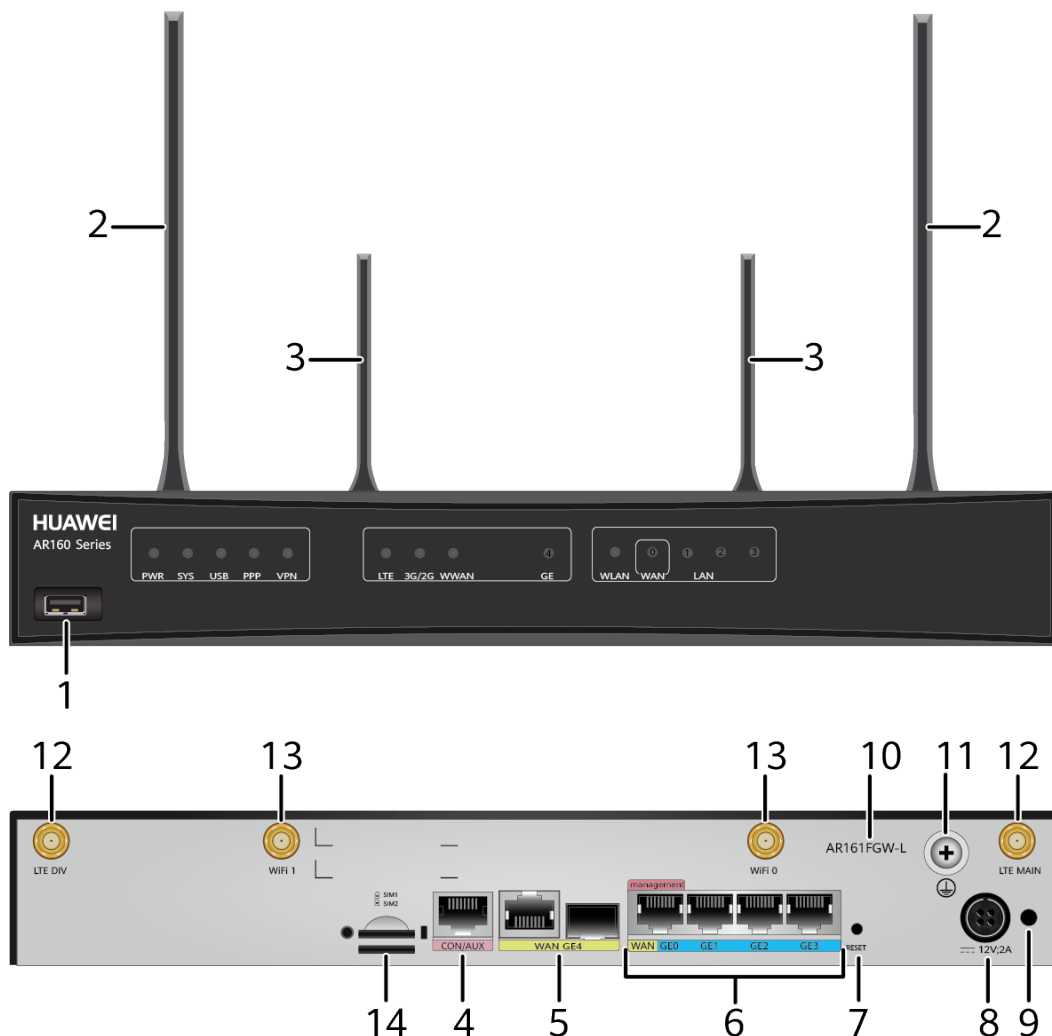
**Table 4-199** Mapping between the AR161FGW-L and software versions

Router Model	Software Version
AR161FGW-L	V200R005C10 and later versions

### Appearance and Structure

[Figure 4-63](#) shows the appearance of the AR161FGW-L.

Figure 4-63 AR161FGW-L appearance



1	USB interface (host)	2	Two LTE antennas
3	Two Wi-Fi antennas	4	CON/AUX interface <b>NOTE</b> The AR161FGW-L does not support AUX login.
5	WAN interface: GE combo interface	6	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

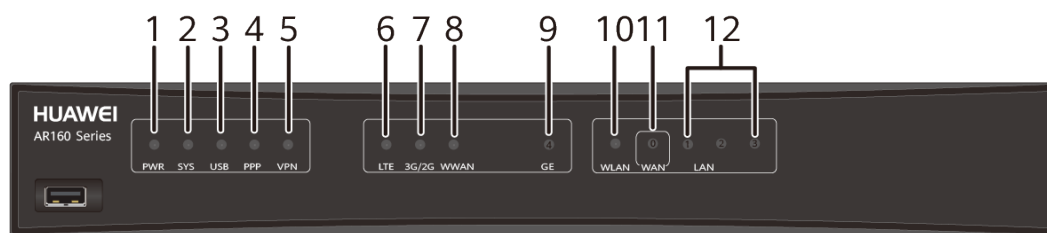
7	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>Product model silkscreen</p>
11	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	12	<p>LTE antenna interface</p>
13	<p>Two Wi-Fi antenna interfaces</p>	14	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>

## Indicator Description

**Figure 4-64** shows the indicators on the AR161FGW-L.



**Figure 4-64** Indicators on the AR161FGW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high.

Number	Indicator	Color	Description
			Fast blinking: The LTE signal strength is medium. Slow blinking: The LTE signal strength is low. Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high. Fast blinking: The 3G/2G signal strength is medium. Slow blinking: The 3G/2G signal strength is low. Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active. Blinking: Data is being transmitted or received over the LTE/3G/2G connection. Off: The LTE/3G/2G connection has not been established or is inactive.
9	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
10	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
11	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
12	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-200](#) lists the CON/AUX interface attributes.

**Table 4-200** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-201](#) lists attributes of a USB interface.

**Table 4-201** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-202](#) lists attributes of an LTE antenna interface.

**Table 4-202** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li> <li>• WCDMA: Bands 1/2/5/8</li> <li>• GSM: 850/900/1800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Whip Antenna</b>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-203](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-203** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n

Attribute	Description
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-204](#) lists attributes of a GE electrical interface.

**Table 4-204** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

**NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-205](#) lists the technical specifications of the AR161FGW-L.

**Table 4-205** Technical specifications of the AR161FGW-L

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported

Item	Specification
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	18.8 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface, and two LTE antenna interfaces  LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface, and two Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010155

## 4.5.9 AR161FGW-La

### Version Mapping

[Table 4-206](#) lists the mapping between the AR161FGW-La router and software versions.

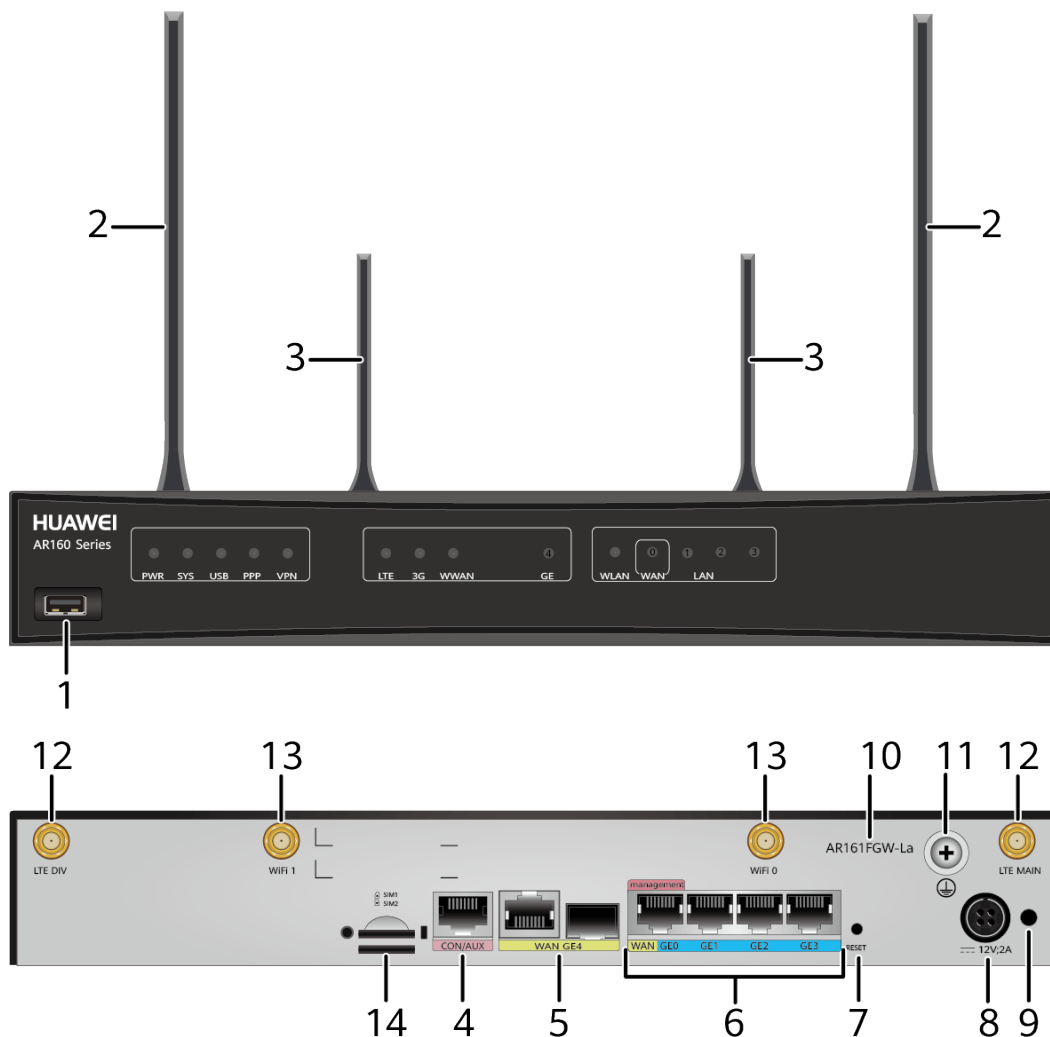
**Table 4-206** Mapping between the AR161FGW-La router and software versions

Router Model	Software Version
AR161FGW-La	V200R007C00 and later versions

## Appearance and Structure

Figure 4-65 shows the appearance of the AR161FGW-La router.

**Figure 4-65** AR161FGW-La appearance



1	USB interface (host)	2	Two LTE antennas
3	Two Wi-Fi antennas	4	CON/AUX interface <b>NOTE</b> The AR161FGW-La does not support AUX login.



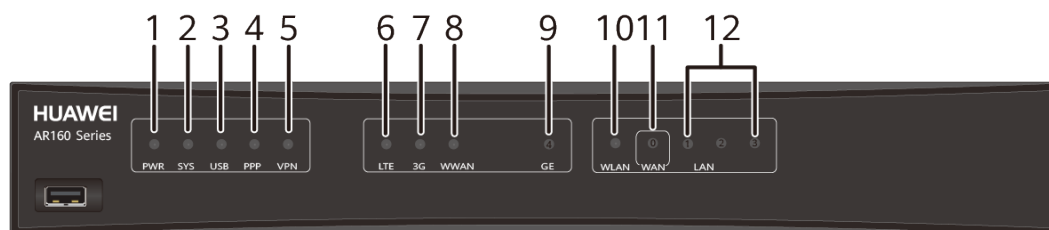
5	<p>WAN interface: GE combo interface</p>	6	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
7	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>Product model silkscreen</p>
11	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	12	<p>LTE antenna interface</p>

1 3	Two Wi-Fi antenna interfaces	1 4	Two SIM card slots <b>NOTE</b> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>
--------	------------------------------	--------	--

## Indicator Description

Figure 4-66 shows the indicators on the AR161FGW-La.

Figure 4-66 Indicators on the AR161FGW-La



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high.
			Fast blinking: The LTE signal strength is medium.
			Slow blinking: The LTE signal strength is low.
			Off: No LTE signal is available.
7	3G	Green	Steady on: The 3G signal strength is high.
			Fast blinking: The 3G signal strength is medium.
			Slow blinking: The 3G signal strength is low.
			Off: No 3G signal is available.
8	WWAN	Green	Steady on: An LTE/3G link has been set up and is active.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received over the LTE/3G link. Off: The LTE/3G link has not been set up or is inactive.
9	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
10	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
11	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
12	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-207](#) lists the CON/AUX interface attributes.

**Table 4-207** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-208](#) lists attributes of a USB interface.

**Table 4-208** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-209](#) lists attributes of an LTE antenna interface.

**Table 4-209** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: bands 2/4/5/17</li><li>• WCDMA: bands 2/4/5</li></ul>

Attribute	Description
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 43.2 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> </ul>
Cable type	<a href="#">8.15.4 LTE Indoor Remote Antenna</a>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-210](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-210** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-211](#) lists attributes of a GE electrical interface.

**Table 4-211** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-212](#) lists the technical specifications of the AR161FGW-La router.

**Table 4-212** AR161FGW-La technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input power (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	18.8 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1



Item	Specification
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be used as a WAN interface, and two Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating environment temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010261

## 4.5.10 AR161FGW-Lc

### Version Mapping

**Table 4-213** lists the mapping between the AR161FGW-Lc router and software versions.

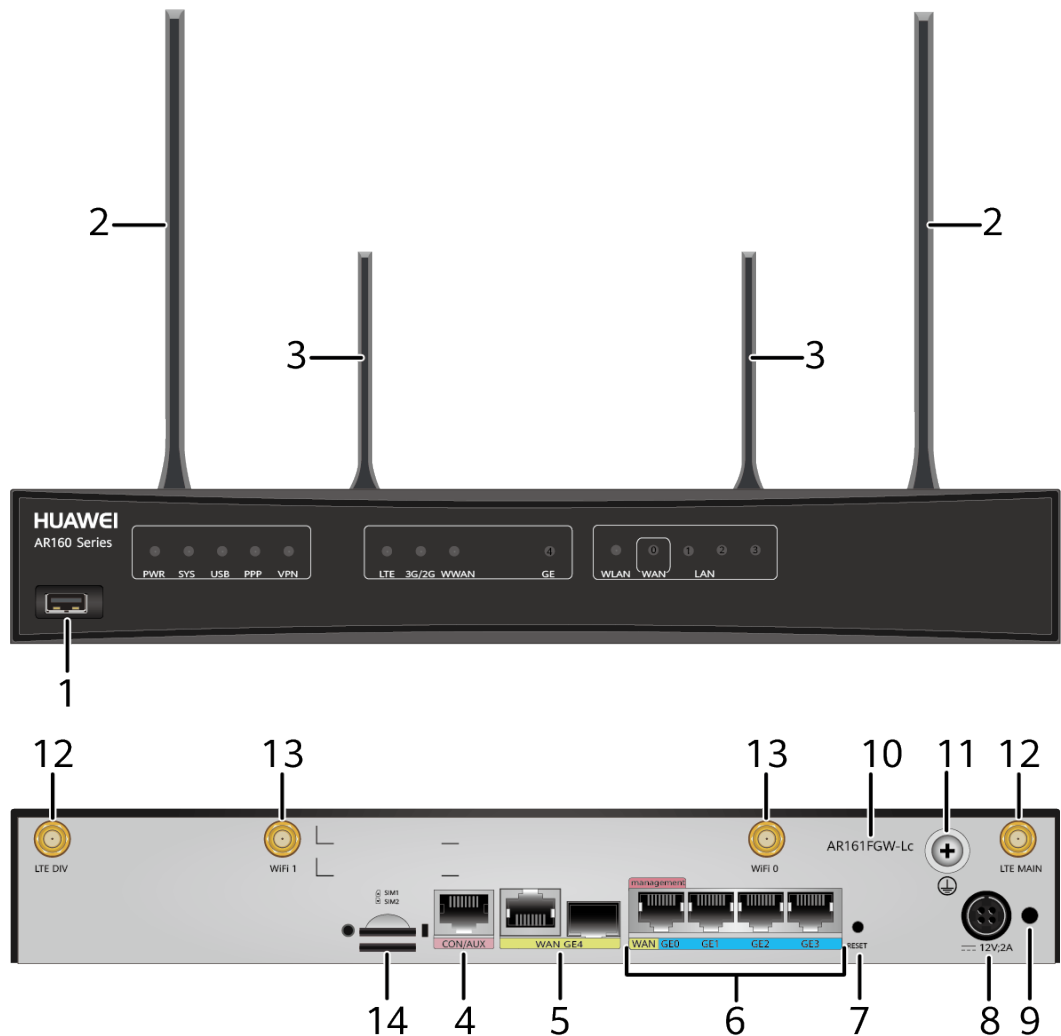
**Table 4-213** Mapping between the AR161FGW-Lc router and software version

Router Model	Software Version
AR161FGW-Lc	V200R008C50 and later versions

### Appearance and Structure

**Figure 4-67** shows the appearance of the AR161FGW-Lc router.

Figure 4-67 AR161FGW-Lc appearance



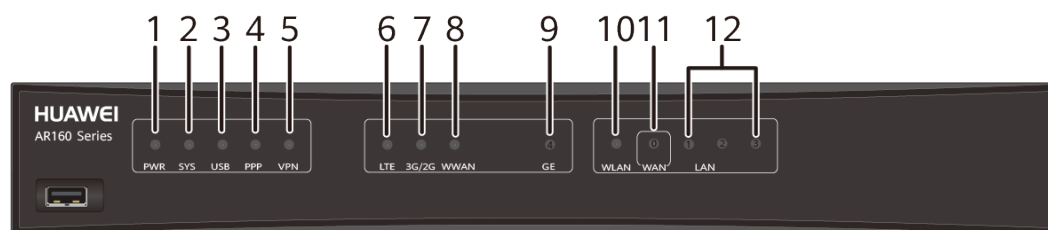
1	USB interface (host)	2	Two LTE antennas
3	Two Wi-Fi antennas	4	CON/AUX interface <b>NOTE</b> The AR161FGW-Lc does not support AUX login.
5	WAN interface: GE combo interface	6	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

7	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>Product model silkscreen</p>
11	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	12	<p>LTE antenna interface</p>
13	<p>Two Wi-Fi antenna interfaces</p>	14	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>

## Indicator Description

**Figure 4-68** shows the indicators on the AR161FGW-Lc router.

**Figure 4-68** Indicators on the AR161FGW-Lc



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high.

Number	Indicator	Color	Description
			Fast blinking: The LTE signal strength is medium. Slow blinking: The LTE signal strength is low. Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high. Fast blinking: The 3G/2G signal strength is medium. Slow blinking: The 3G/2G signal strength is low. Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active. Blinking: Data is being transmitted or received over the LTE/3G/2G connection. Off: The LTE/3G/2G connection has not been established or is inactive.
9	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
10	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
11	LAN/WAN (GE0)	Green	Steady on: A link has been established on the LAN/WAN interface. Blinking: Data is being transmitted or received on the LAN/WAN interface. Off: No link is established on the LAN/WAN interface.
12	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-214](#) lists the CON/AUX interface attributes.

**Table 4-214** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-215](#) lists attributes of a USB interface.

**Table 4-215** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE antenna interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-216](#) lists attributes of an LTE antenna interface.

**Table 4-216** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• LTE FDD: bands 1, 3, and 8</li> <li>• LTE TDD: bands 38, 39, 40, and 41</li> <li>• WCDMA: bands 1, 8, and 9</li> <li>• TD-SCDMA: bands 34 and 39</li> <li>• GSM: 900/1800 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 150 Mbit/s</li> <li>• LTE TDD: uplink rate of 10 Mbit/s and downlink rate of 112 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• TD-HSPA+: uplink rate of 2.2 Mbit/s and downlink rate of 4.2 Mbit/s</li> <li>• TD-SCDMA PS: uplink rate of 384 kbit/s and downlink rate of 2.8 Mbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<a href="#">LTE Indoor Remote Antenna (27012152)</a>

### Wi-Fi antenna interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-217](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-217** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-218](#) lists attributes of a GE electrical interface.

**Table 4-218** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface



A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-219](#) lists the technical specifications of the AR161FGW-Lc router.

**Table 4-219** AR161FGW-Lc technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage (AC)	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz

Item	Specification
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	18.8 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	<p>WAN interfaces: one GE combo interface and two LTE antenna interfaces</p> <p>LAN interfaces: two Wi-Fi antenna interfaces and four GE electrical interfaces, among which LAN interface GE0 can be used as a WAN interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	<p>0°C to 45°C (32°F to 113°F)</p> <p><b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p>
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010381

## 4.5.11 AR161FV-1P

### Version Mapping

**Table 4-220** lists the mapping between the AR161FV-1P and software versions.

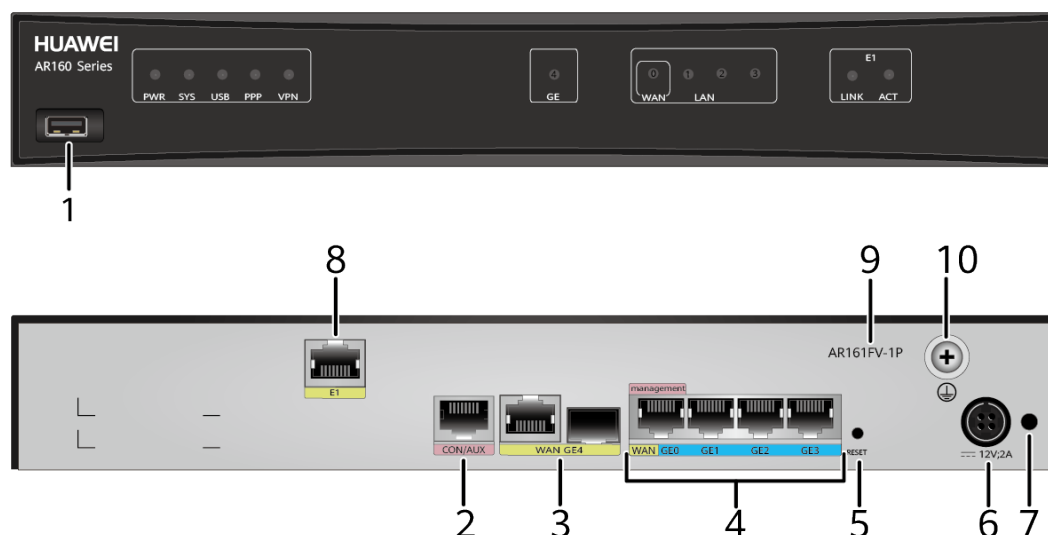
**Table 4-220** Mapping between the AR161FV-1P and software versions

Router Model	Software Version
AR161FV-1P	V200R007C00 and later versions

### Appearance and Structure

**Figure 4-69** shows the appearance of the AR161FV-1P.

**Figure 4-69** AR161FV-1P appearance



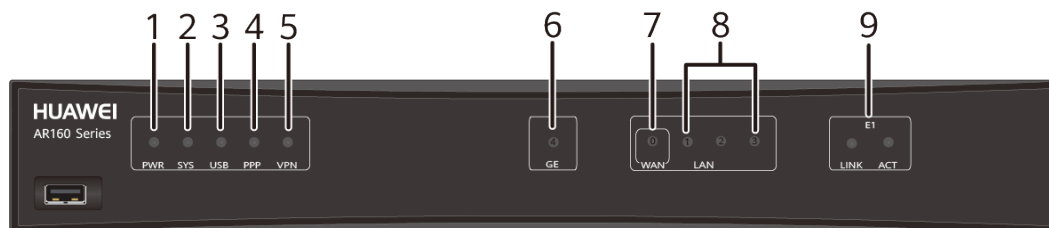
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR161FV-1P does not support AUX login.
3	WAN interface: GE combo interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

5	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	6	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
7	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	8	<p>WAN interface: VE1 interface</p> <p><b>NOTE</b></p> <p>This interface can be connected to a wide area network using an <b>E1/T1 cable</b>.</p>
9	<p>Product model silkscreen</p>	10	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

Figure 4-70 shows the indicators on the AR161FV-1P.

Figure 4-70 Indicators on the AR161FV-1P



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	WAN-side GE combo interface indicator	Green	Steady on: A link has been established on the combo interface.
			Blinking: Data is being transmitted or received on the combo interface.
			Off: No link is established on the combo interface.
7	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.
9	E1 LINK indicator	Green	Steady on: An E1 link has been established.
			Off: No E1 link is established.
	E1 ACT indicator	Green	Steady on: Data is being transmitted or received on the E1 interface.
			Off: No data is being transmitted or received on the E1 interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-221](#) lists the CON/AUX interface attributes.

**Table 4-221** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<b>Console Cable</b>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-222](#) lists attributes of a USB interface.

**Table 4-222** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-223](#) lists attributes of a GE electrical interface.

**Table 4-223** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1](#)

**Optical Fiber, 9.5 GE eSFP Optical Modules, or 9.4 FE SFP/eSFP Optical Modules.**

 **NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**VE1 Interface**

A VE1 interface uses to transmit voice signals. [Table 4-224](#) describes the VE1 interface attributes.

**Table 4-224** VE1 interface attributes

Attribute	Description
Connector type	DB9
Standards compliance	G.703, G.704
Interface speed	2.048 Mbit/s
Working mode	VE1
Services provided	<ul style="list-style-type: none"> <li>• Backup</li> <li>• Terminal access</li> </ul>
Cable	<a href="#">8.8 E1/T1 Cable</a>

**Technical Specifications**

[Table 4-225](#) lists the technical specifications of the AR161FV-1P.

**Table 4-225** Technical specifications of the AR161FV-1P

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	



Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	17 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface, and one E1 interface LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface.
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.

Item	Specification
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010242

## 4.5.12 AR161FW

### Version Mapping

[Table 4-226](#) lists the mapping between the AR161FW and software versions.

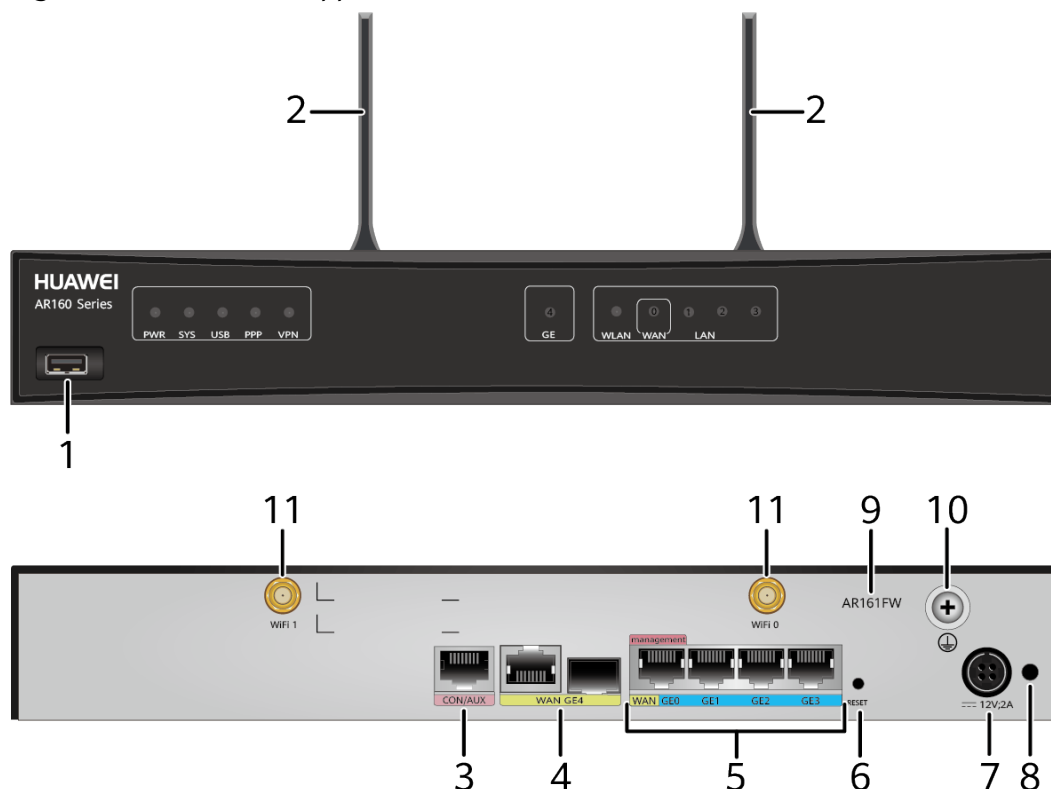
**Table 4-226** Mapping between the AR161FW and software versions

Router Model	Software Version
AR161FW	V200R005C20, V200R006C10 and later versions

### Appearance and Structure

[Figure 4-71](#) shows the appearance of the AR161FW.

**Figure 4-71** AR161FW appearance

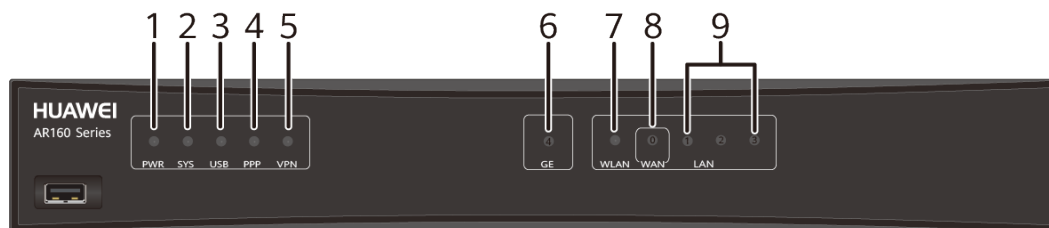


1	USB interface (host)	2	Two Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR161FW does not support AUX login.	4	WAN interface: GE combo interface
5	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .	8	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
9	Product model silkscreen	10	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
11	Two Wi-Fi antenna interfaces	-	-

## Indicator Description

Figure 4-72 shows the indicators on the AR161FW.

Figure 4-72 Indicators on the AR161FW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly.
			Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

Number	Indicator	Color	Description
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-227](#) lists the CON/AUX interface attributes.

**Table 4-227** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-228](#) lists attributes of a USB interface.

**Table 4-228** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-229](#) lists attributes of a GE electrical interface.

**Table 4-229** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).

- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 **NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-230](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-230** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

## Technical Specifications

[Table 4-231](#) lists the technical specifications of the AR161FW router.

**Table 4-231** Technical specifications of the AR161FW

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	1 GB
Flash	512 MB

Item	Specification
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	15.2 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	<p>WAN interface: one GE combo interface</p> <p>LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface, and two Wi-Fi antenna interfaces</p>
Extended slots	Not supported
<b>Environment parameters</b>	



Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010207

## 4.5.13 AR161FW-P-M5

### Version Mapping

[Table 4-232](#) lists the mapping between the AR161FW-P-M5 and software versions.

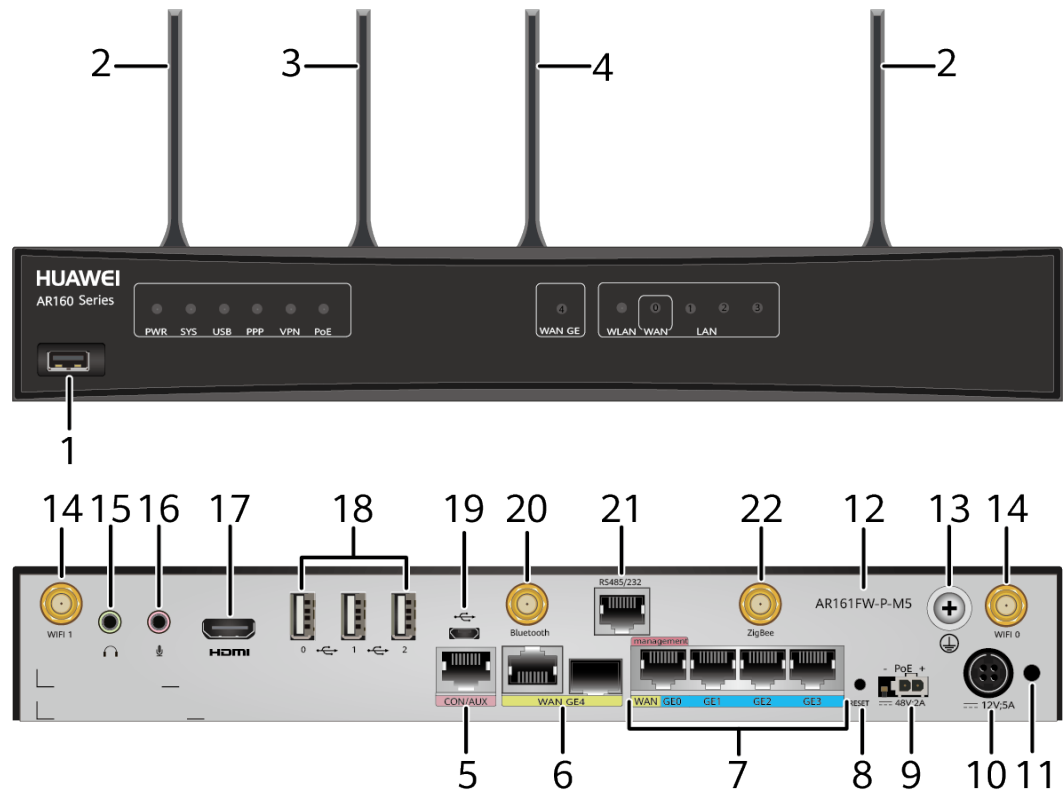
**Table 4-232** Mapping between the AR161FW-P-M5 and software versions

Router Model	Software Version
AR161FW-P-M5	V200R005C30 and later versions

### Appearance and Structure

[Figure 4-73](#) shows the appearance of the AR161FW-P-M5.

Figure 4-73 AR161FW-P-M5 appearance



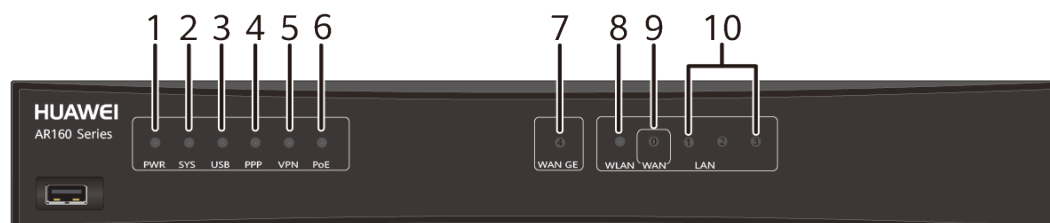
1	USB interface (host)	2	Two Wi-Fi antennas
3	ZigBee antenna	4	Bluetooth antenna
5	CON/AUX interface <b>NOTE</b> The AR161FW-P-M5 does not support AUX login.	6	WAN interface: GE combo interface
7	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	8	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.

9	PoE power jack <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.	1 0	Power jack <b>NOTE</b> The router uses a <b>60 W power adapter</b> .
1 1	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	1 2	Product model silkscreen
1 3	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	1 4	Two Wi-Fi antenna interfaces
1 5	Earphone jack	1 6	Microphone jack
1 7	HDMI video interface	1 8	Three USB interfaces (host)
1 9	USB interface (OTG)	2 0	Bluetooth antenna interface
2 1	RS485/232 interface	2 2	ZigBee antenna interface

## Indicator Description

**Figure 4-74** shows the indicators on the AR161FW-P-M5.

**Figure 4-74** Indicators on the AR161FW-P-M5



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly.
			Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	PoE	Green	Steady on: The PoE power supply is normal. Off: No PoE power supply is available.
7	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.

Number	Indicator	Color	Description
			Off: No link is established on the GE combo interface.
8	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
9	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
10	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-233](#) lists the CON/AUX interface attributes.

**Table 4-233** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

## GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-234](#) lists attributes of a GE electrical interface.

**Table 4-234** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

## GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-235](#) lists attributes of a USB interface.

**Table 4-235** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-236](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-236** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### HDMI Video Interface

A high definition multimedia interface (HDMI) interface provides HDMI video output. [Table 4-237](#) lists attributes of an HDMI interface.

**Table 4-237** HDMI interface attributes

Attribute	Description
Connector type	HDMI connector
Signal types supported	HDMI signal
Cable type	<b>HDMI video cable</b>

### USB Interface (OTG)

A USB interface (OTG) is also called a Micro USB interface. It can connect to an operation terminal for onsite configuration. [Table 4-238](#) lists attributes of a Micro USB interface.

**Table 4-238** Micro USB interface attributes

Attribute	Description
Connector type	Micro USB, B socket
Standards compliance	USB2.0
Working mode	OTG

### Bluetooth Antenna Interface

The Bluetooth antenna interface of a router connects to a Bluetooth antenna to transmit and receive data. [Table 4-239](#) lists attributes of the Bluetooth interface.

**Table 4-239** Bluetooth antenna interface attributes

Attribute	Description
Connector type	mini PCIe
Standards compliance	<ul style="list-style-type: none"><li>• BT4.0</li><li>• EDR</li></ul>
Frequency bands supported	2.4 GHz
Rate	1 Mbps
Transmission distance	10 m
Cable type	<b>8.15.7 Bluetooth Antenna</b>

### RS485/232 Interface

An RS232/485 interface is a serial interface. [Table 4-240](#) lists attributes of an RS232/485 interface.



**Table 4-240** RS232/485 interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232/485
Baud rate (bit/s)	<ul style="list-style-type: none"> <li>RS485: 19200</li> <li>RS232: 9600</li> </ul>
Cable type	<a href="#">8.6.1 Serial Cable (CON/RS232)</a>

## Technical Specifications

[Table 4-241](#) lists the technical specifications of the AR161FW-P-M5.

**Table 4-241** Technical specifications of the AR161FW-P-M5

Item	Specification
<b>OSP daughter card system parameters</b>	
Processor	Quad-core, 1.2 GHz
Memory	4 GB
Flash	2 GB
EMMC	32 GB
<b>MPU system parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	

Item	Specification
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (GE0-GE3)
<b>Power consumption</b>	
Maximum power consumption	32.4 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	4
Service interfaces (standard configuration)	<p>WAN interface: one GE combo interface</p> <p>LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface, two Wi-Fi antenna interfaces, one Bluetooth antenna interface, and one ZigBee antenna interface</p> <p>Multimedia service interfaces: one headset jack, one microphone jack, and one HDMI video interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	<p>0°C to 40°C (32°F to 104°F)</p> <p><b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.</p>
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing

Item	Specification
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010165

## 4.5.14 AR161G-L

### Version Mapping

**Table 4-242** lists the mapping between the AR161G-L router and software versions.

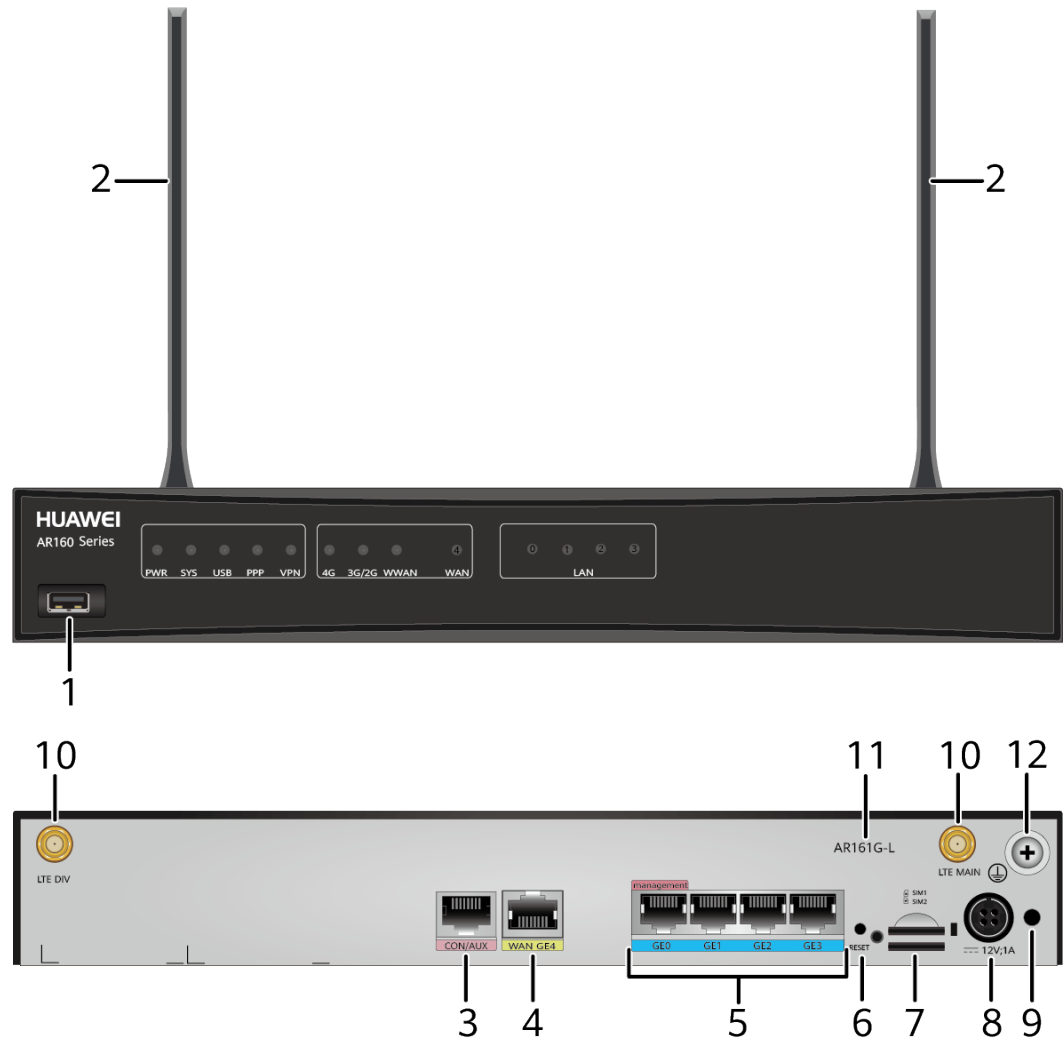
**Table 4-242** Mapping between the AR161G-L router and software versions

Router Model	Software Version
AR161G-L	V200R006C10 and later versions

### Appearance and Structure

**Figure 4-75** shows the appearance of the AR161G-L router.

Figure 4-75 AR161G-L appearance



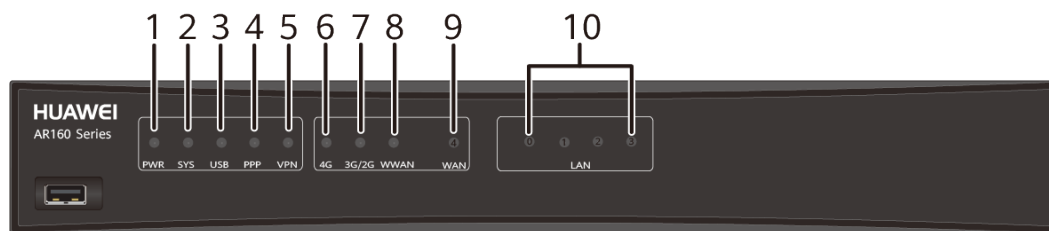
1	USB interface (host)	2	Two LTE antennas
3	CON/AUX interface <b>NOTE</b> The AR161G-L does not support AUX login.	4	WAN interface: GE electrical interface

5	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>LTE antenna interface</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-76** shows the locations of AR161G-L indicators.

**Figure 4-76** Indicators on the AR161G-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	4G	Green	Steady on: The 4G signal strength is high.

Number	Indicator	Color	Description
			Fast blinking: The 4G signal strength is medium.
			Slow blinking: The 4G signal strength is low.
			Off: No 4G signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: A 4G/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the 4G/3G/2G connection.
			Off: The 4G/3G/2G connection has not been established or is inactive.
9	WAN	Green	Steady on: A WAN link has been established.
			Blinking: Data is being transmitted or received on the WAN link.
			Off: No WAN link is established.
10	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-243](#) lists the CON/AUX interface attributes.

**Table 4-243** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-244](#) lists attributes of a USB interface.

**Table 4-244** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-245](#) lists attributes of an LTE antenna interface.

**Table 4-245** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li><li>• WCDMA: Bands 1/2/5/8</li><li>• GSM: 850/900/1800/1900 (MHz)</li></ul>



Attribute	Description
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Whip Antenna</b>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-246](#) lists attributes of a GE electrical interface.

**Table 4-246** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<b>Ethernet Cable</b>

## Technical Specifications

**Table 4-247** lists the technical specifications of the AR161G-L routers.

**Table 4-247** AR161G-L routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	11.9 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)

Item	Specification
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one GE electrical interface and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010214

## 4.5.15 AR161G-Lc

### Version Mapping

[Table 4-248](#) lists the mapping between the AR161G-Lc router and software versions.

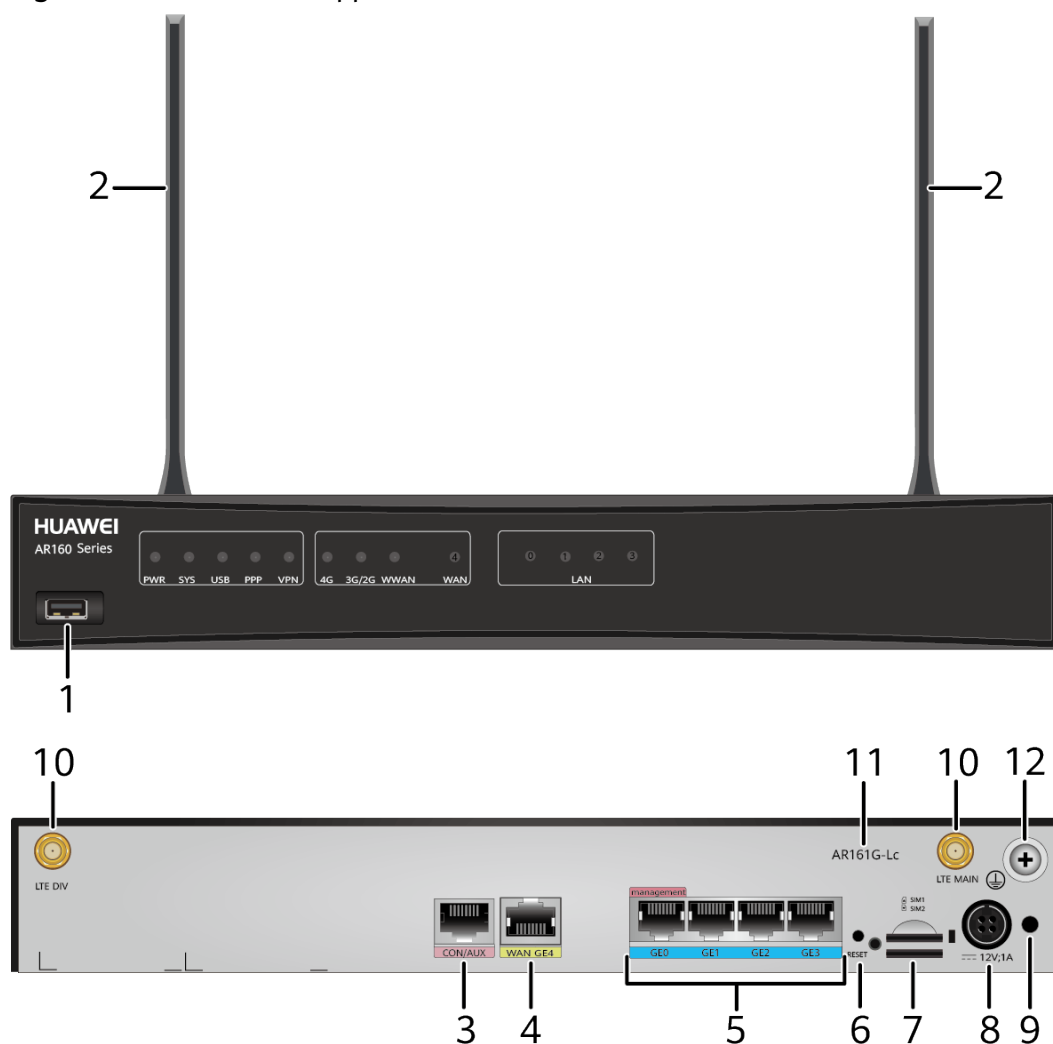
**Table 4-248** Mapping between the AR161G-Lc router and software versions

Router Model	Software Version
AR161G-Lc	V200R008C50 and later versions

### Appearance and Structure

[Figure 4-77](#) shows the appearance of the AR161G-Lc router.

Figure 4-77 AR161G-Lc appearance



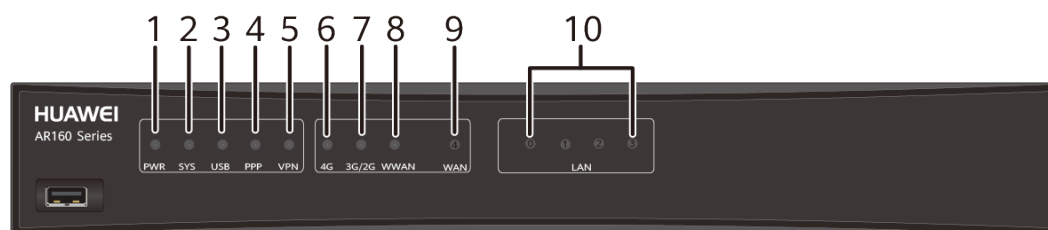
1	USB interface (host)	2	Two LTE antennas
3	CON/AUX interface <b>NOTE</b> The AR161G-Lc does not support AUX login.	4	WAN interface: GE electrical interface

5	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>LTE antenna interface</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-78** shows the indicators on the AR161G-Lc router.

**Figure 4-78** Indicators on the AR161G-Lc



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	4G	Green	Steady on: The 4G signal strength is high.

Number	Indicator	Color	Description
			Fast blinking: The 4G signal strength is medium.
			Slow blinking: The 4G signal strength is low.
			Off: No 4G signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: A 4G/3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the 4G/3G/2G connection.
			Off: The 4G/3G/2G connection has not been established or is inactive.
9	WAN	Green	Steady on: A WAN link has been established.
			Blinking: Data is being transmitted or received on the WAN link.
			Off: No WAN link is established.
10	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-249](#) lists the CON/AUX interface attributes.

**Table 4-249** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-250](#) lists attributes of a USB interface.

**Table 4-250** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE antenna interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-251](#) lists attributes of an LTE antenna interface.

**Table 4-251** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: bands 1, 3, and 8</li><li>• LTE TDD: bands 38, 39, 40, and 41</li><li>• WCDMA: bands 1, 8, and 9</li><li>• TD-SCDMA: bands 34 and 39</li><li>• GSM: 900/1800 (MHz)</li></ul>



Attribute	Description
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 150 Mbit/s</li> <li>• LTE TDD: uplink rate of 10 Mbit/s and downlink rate of 112 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• TD-HSPA+: uplink rate of 2.2 Mbit/s and downlink rate of 4.2 Mbit/s</li> <li>• TD-SCDMA PS: uplink rate of 384 kbit/s and downlink rate of 2.8 Mbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE whip antenna</b>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-252](#) lists attributes of a GE electrical interface.

**Table 4-252** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>

Attribute	Description
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

## Technical Specifications

[Table 4-253](#) lists the technical specifications of the AR161G-Lc router.

**Table 4-253** AR161G-Lc technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage (AC)	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported

Item	Specification
<b>Power consumption</b>	
Maximum power consumption	11.9 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE electrical interface and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010382

## 4.5.16 AR161G-U

### Version Mapping

[Table 4-254](#) lists the mapping between the AR161G-U and software versions.

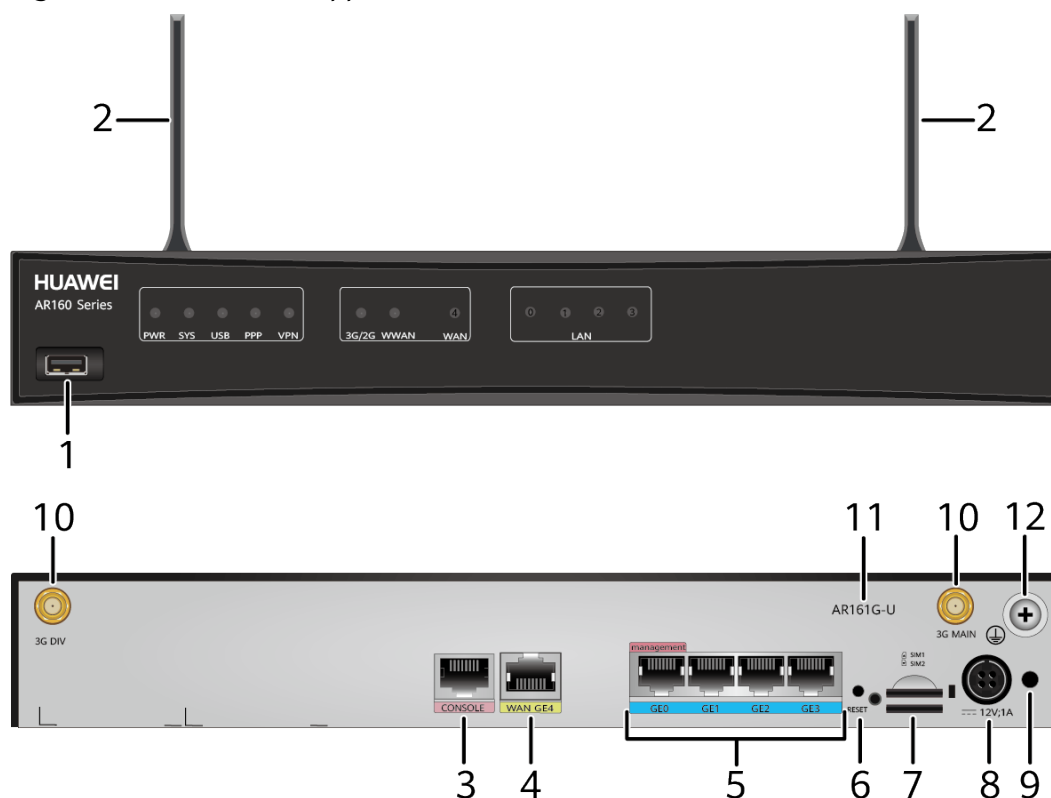
**Table 4-254** Mapping between the AR161G-U and software versions

Router Model	Software Version
AR161G-U	V200R007C01, V200R008C50 and later versions

## Appearance and Structure

**Figure 4-79** shows the appearance of the AR161G-U.

**Figure 4-79** AR161G-U appearance



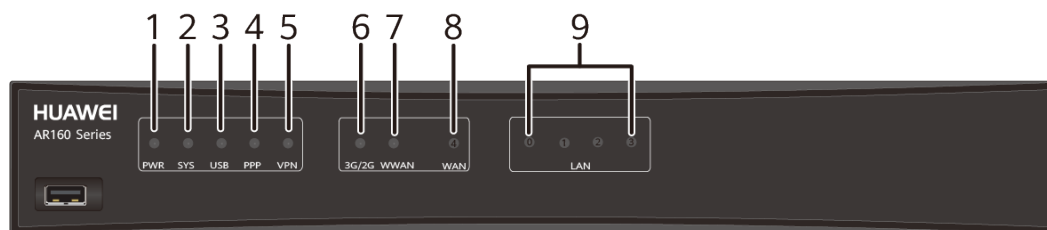
1	USB interface (host)	2	Two 3G antennas
3	Console interface	4	WAN interface: GE electrical interface

5	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>3G-U antenna interface</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-80** shows the indicators on the AR161G-U.

**Figure 4-80** Indicators on the AR161G-U



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	3G/2G	Green	Steady on: The 3G/2G signal strength is high.
			Fast blinking: The 3G/2G signal strength is medium.
			Slow blinking: The 3G/2G signal strength is low.
			Off: No 3G/2G signal is available.
7	WWAN	Green	Steady on: A 3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the 3G/2G connection.
			Off: The 3G/2G connection has not been established or is inactive.
8	WAN	Green	Steady on: A WAN link has been established.
			Blinking: Data is being transmitted or received on the WAN link.
			Off: No WAN link is established.
9	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-255](#) lists attributes of a console interface.

**Table 4-255** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232

Attribute	Description
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-256](#) lists attributes of a USB interface.

**Table 4-256** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### 3G-U Antenna Interface

3G antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives 3G signals, and the secondary antenna helps improve the quality of received 3G signals. [Table 4-257](#) lists attributes of a 3G antenna interface.

**Table 4-257** 3G antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>WCDMA: Bands 1/8</li><li>GSM 850/900/1800/1900 (MHz)</li></ul>



Attribute	Description
Rate	<ul style="list-style-type: none"> <li>• HSPA: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> </ul>
Cable type	<a href="#">8.15.2 3G Antenna</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-258](#) lists attributes of a GE electrical interface.

**Table 4-258** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

## Technical Specifications

[Table 4-259](#) lists the technical specifications of the AR161G-U.

**Table 4-259** Technical specifications of the AR161G-U

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	11.5 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: one GE electrical interface, and two 3G antenna interfaces LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010241

## 4.5.17 AR161W

### Version Mapping

[Table 4-260](#) lists the mapping between the AR161W router and software versions.

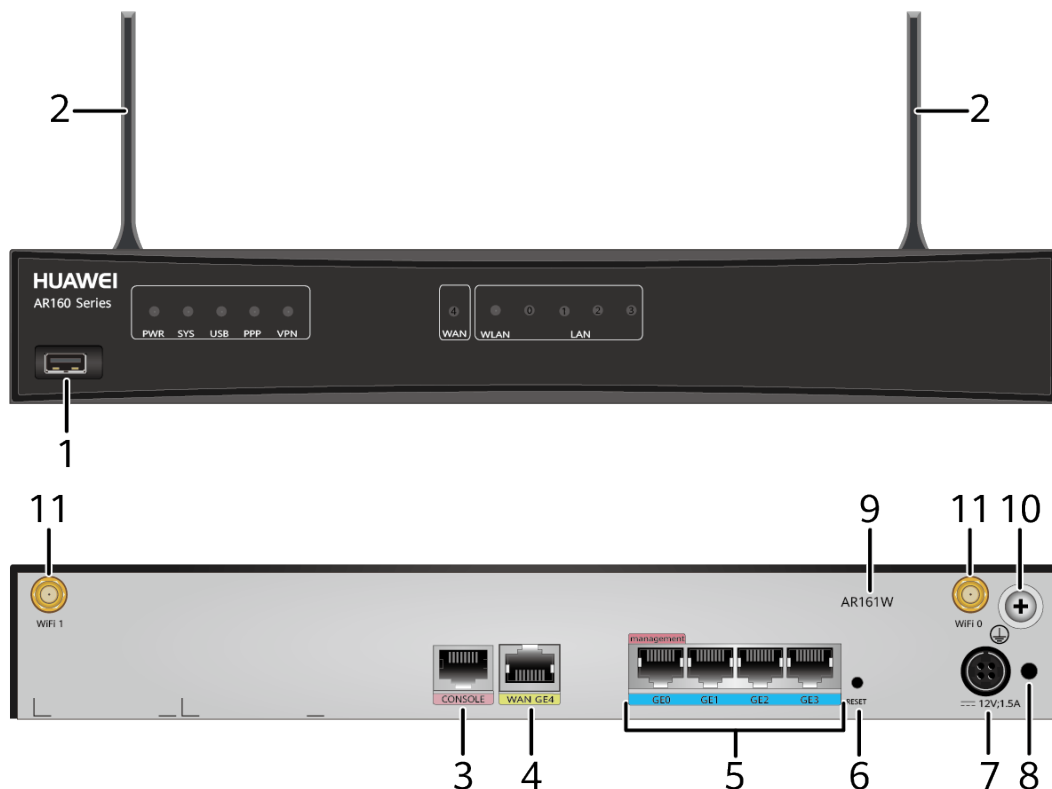
**Table 4-260** Mapping between the AR161W router and software versions

Router Model	Software Version
AR161W	V200R006C10 and later versions

### Appearance and Structure

[Figure 4-81](#) shows the appearance of the AR161W router.

Figure 4-81 AR161W appearance



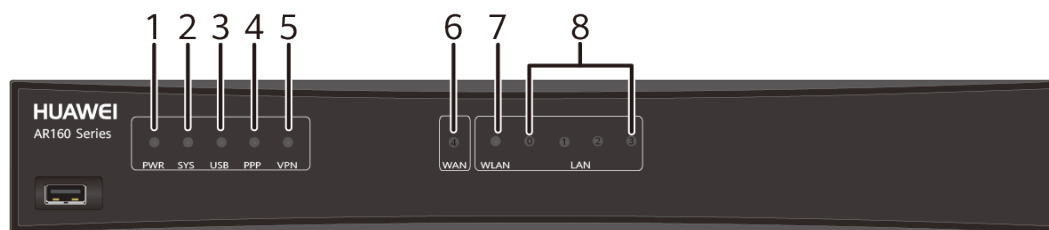
1	USB interface (host)	2	Two Wi-Fi antennas
3	Console interface	4	WAN interface: GE electrical interface
5	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .	8	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

9	Product model silkscreen	1 0	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
1 1	Two Wi-Fi antenna interfaces	-	-

## Indicator Description

**Figure 4-82** shows the locations of AR161W indicators.

**Figure 4-82** Indicators on the AR161W



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN	Green	Steady on: A link has been established on the WAN interface. Blinking: Data is being transmitted or received on the WAN interface. Off: No link is established on the WAN interface.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-261](#) lists attributes of a console interface.

**Table 4-261** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-262](#) lists attributes of a USB interface.

**Table 4-262** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-263](#) lists attributes of a GE electrical interface.

**Table 4-263** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab

Attribute	Description
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-264](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-264** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

## Technical Specifications

[Table 4-265](#) lists the technical specifications of the AR161W router.

**Table 4-265** AR161W router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB



Item	Specification
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	11.3 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010239

## 4.5.18 AR162F

### Version Mapping

[Table 4-266](#) lists the mapping between the AR162F and software versions.

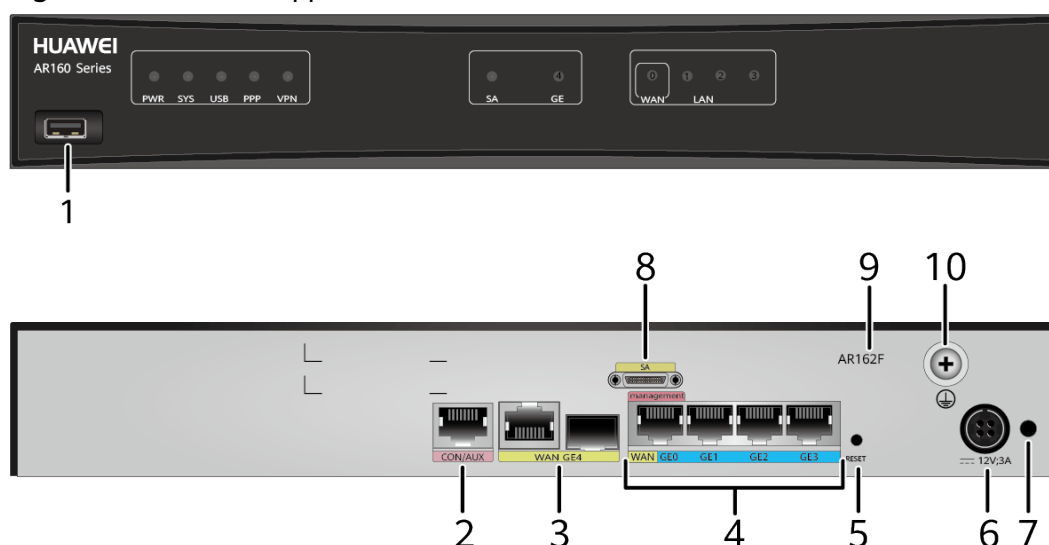
**Table 4-266** Mapping between the AR162F and software versions

Router Model	Software Version
AR162F	V200R005C20 and later versions

### Appearance and Structure

[Figure 4-83](#) shows the appearance of the AR162F.

**Figure 4-83** AR162F appearance

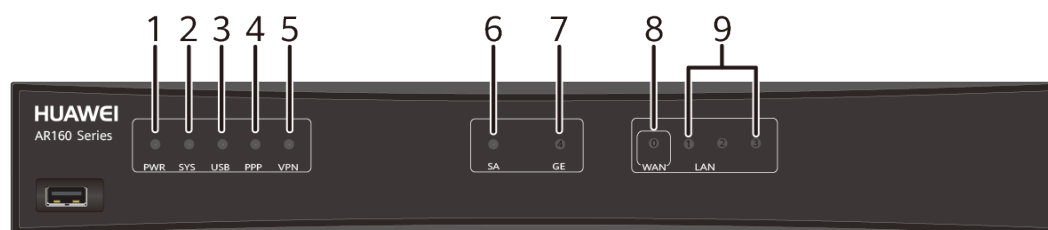


1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR162F does not support AUX login.
3	WAN interface: GE combo interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	WAN interface: SA interface
9	Product model silkscreen	10	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

## Indicator Description

**Figure 4-84** shows the indicators on the AR162F.

**Figure 4-84** Indicators on the AR162F



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	SA	Green	Steady on: A link has been established.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received.
			Off: No link is established.
7	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
8	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-267](#) lists the CON/AUX interface attributes.

**Table 4-267** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)

Attribute	Description
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-268](#) lists attributes of a USB interface.

**Table 4-268** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-269](#) lists attributes of a GE electrical interface.

**Table 4-269** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### SA Interface

When working in synchronous mode, the SA interfaces implement interworking between enterprise branches and the headquarters over PPP links. When working in asynchronous mode, the SA interfaces are used to log in to other devices from the local device through the redirection function. [Table 4-270](#) lists attributes of a SA interface.

**Table 4-270** SA interface attributes

Attribute	Description		
	Synchronous Serial Interface		Asynchronous Serial Interface
Connector type	DB28		
Standards compliance and working mode	<ul style="list-style-type: none"> <li>• V.24 DTE</li> <li>• V.24 DCE</li> </ul>	<ul style="list-style-type: none"> <li>• V.35 DTE</li> <li>• V.35 DCE</li> <li>• X.21 DTE</li> <li>• RS449 DTE</li> <li>• RS449 DCE</li> <li>• RS530 DTE</li> <li>• RS530 DCE</li> </ul>	RS232
Minimum baud rate (bit/s)	1200	1200	600

Attribute	Description		
	Synchronous Serial Interface		Asynchronous Serial Interface
Maximum baud rate (bit/s)	64000	2048000	115200
Services provided	DDN leased line		<ul style="list-style-type: none"> <li>• Modem dial-up</li> <li>• Backup</li> </ul>
	Terminal access		<ul style="list-style-type: none"> <li>• Asynchronous leased line</li> <li>• Terminal access</li> </ul>
Cable type	<a href="#">8.10 SA Cable</a>		

## Technical Specifications

[Table 4-271](#) lists the technical specifications of the AR162F.

**Table 4-271** Technical specifications of the AR162F

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A



Item	Specification
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	11.1 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one SA interface, and one GE combo interface LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface.
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010160

## 4.5.19 AR168F

### Version Mapping

[Table 4-272](#) lists the mapping between the AR168F and software versions.

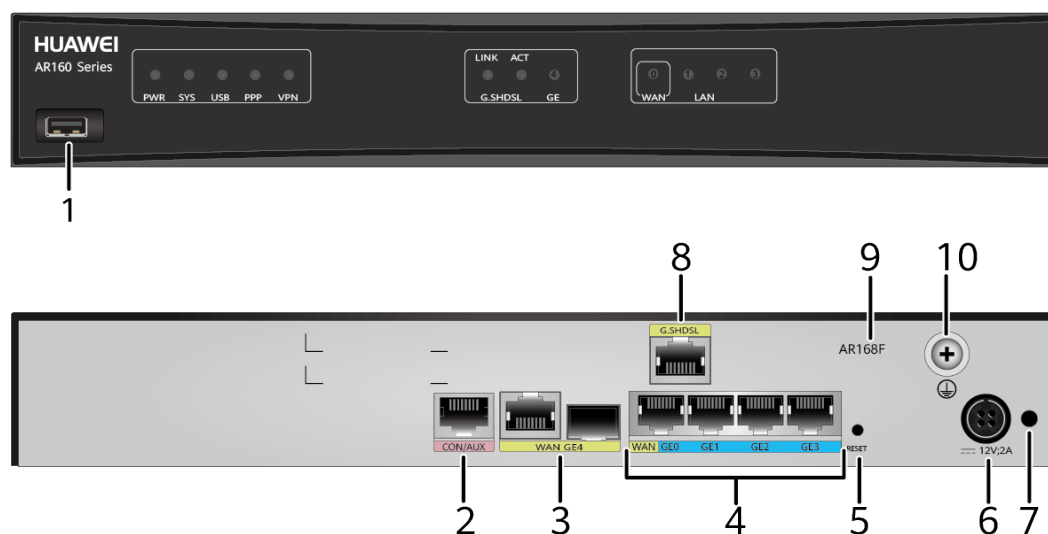
**Table 4-272** Mapping between the AR168F and software versions

Router Model	Software Version
AR168F	V200R005C00 and later versions

## Appearance and Structure

**Figure 4-85** shows the appearance of the AR168F.

**Figure 4-85** AR168F appearance



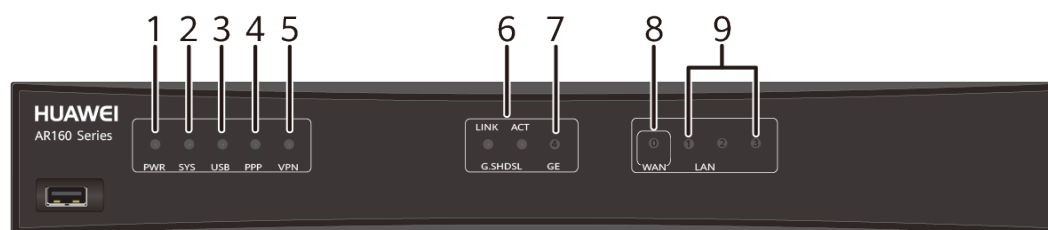
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR168F does not support AUX login.
3	WAN interface: GE combo interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

5	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	6	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
7	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	8	<p>WAN interface: G.SHDSL interface</p> <p><b>NOTE</b></p> <p>This interface supports the dying gasp function.</p>
9	<p>Product model silkscreen</p>	10	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

Figure 4-86 shows the indicators on the AR168F.

Figure 4-86 Indicators on the AR168F



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	G.SHDSL LINK indicator	Green	Steady on: All the four DSL channels are active.
			<ul style="list-style-type: none"> <li>Stays on for 0.25s and blinks three times in the next 0.75s: One DSL channel is active.</li> <li>Stays on for 0.5 seconds and blinks twice in the next 0.5 seconds: Two DSL channels are active.</li> <li>Stays on for 0.75 seconds and blinks once in the next 0.25 seconds: Three DSL channels are active.</li> </ul>
			Off: All the four DSL channels are inactive.
	G.SHDSL ACT indicator	Yellow	Blinking: Data is being transmitted or received. Off: No data is being transmitted or received.

Number	Indicator	Color	Description
7	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
8	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-273](#) lists the CON/AUX interface attributes.

**Table 4-273** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>

Attribute	Description
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-274](#) lists attributes of a USB interface.

**Table 4-274** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### G.SHDSL Interface

A G.SHDSL interface transmits service data from a LAN to an upstream device at a high speed over a symmetric digital subscriber line. [Table 4-275](#) lists attributes of a G.SHDSL interface.

**Table 4-275** G.SHDSL interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	ITU-T G.991.2
Rate	15.296Mbps/pair (In PTM transmission mode, the binding type is set to EFM)
Cable type	<a href="#">8.12.1 G.SHDSL Cable</a> or <a href="#">8.3.1 Ethernet Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-276](#) lists attributes of a GE electrical interface.

**Table 4-276** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-277](#) lists the technical specifications of the AR168F router.

**Table 4-277** Technical specifications of the AR168F

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	17.8 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1



Item	Specification
Service interfaces (standard configuration)	WAN interfaces: one G.SHDSL interface, and one GE combo interface. LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface.
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02356375

## 4.5.20 AR168F-4P

### Version Mapping

[Table 4-278](#) lists the mapping between the AR168F-4P router and software versions.

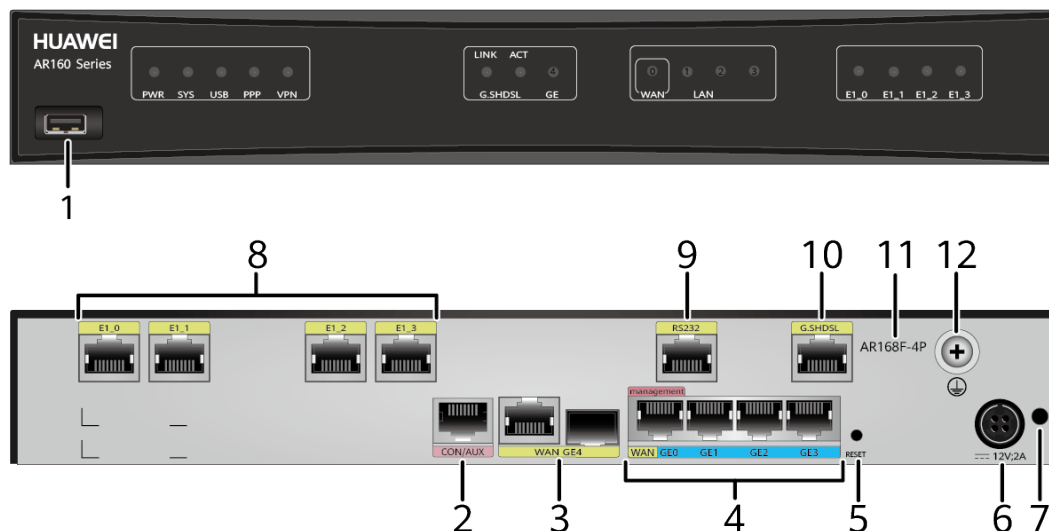
**Table 4-278** Version mapping

Router Model	Software Version
AR168F-4P	V200R009C00 and later versions

### Appearance and Structure

[Figure 4-87](#) shows the appearance of the AR168F-4P router.

Figure 4-87 AR168F-4P appearance



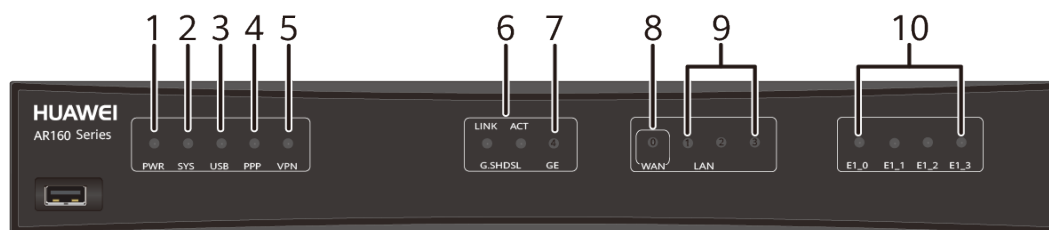
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR168F-4P does not support AUX login.
3	WAN interface: GE combo interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	WAN interfaces: four E1 interfaces <b>NOTE</b> This interface can be connected to a wide area network using an <b>E1/T1 cable</b> .

9	RS232 interface	10	WAN interface: G.SHDSL interface <b>NOTE</b> This interface supports the dying gasp function.
11	Product model silkscreen	12	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

## Indicator Description

Figure 4-88 shows the indicators on the AR168F-4P router.

Figure 4-88 Indicators on the AR168F-4P router



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			<p>Blinking green: The system is being upgraded or configured using a USB flash drive.</p> <p>Steady red: The system fails to be upgraded or configured using a USB flash drive.</p> <p>Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.</p>
4	PPP	Green	<p>Steady on: A PPP connection has been established.</p> <p>Off: No PPP connection is established.</p>
5	VPN	Green	<p>Steady on: The IPsec service is running normally.</p> <p>Off: The IPsec service is unavailable.</p>
6	G.SHDSL LINK indicator	Green	<p>Steady on: All the four DSL channels are active.</p> <ul style="list-style-type: none"> <li>● Stays on for 0.25s and blinks three times in the next 0.75s: One DSL channel is active.</li> <li>● Stays on for 0.5s and blinks twice in the next 0.5s: Two DSL channels are active.</li> <li>● Stays on for 0.75s and blinks once in the next 0.25s: Three DSL channels are active.</li> </ul>
			<p>Off: All the four DSL channels are inactive.</p>
	G.SHDSL ACT indicator	Yellow	<p>Blinking: Data is being transmitted or received on the interface.</p>
			<p>Off: No data is being transmitted or received on the interface.</p>
7	GE combo interface indicator	Green	<p>Steady on: A link has been established on the GE combo interface.</p>
			<p>Blinking: Data is being transmitted or received on the GE combo interface.</p>
			<p>Off: No link is established on the GE combo interface.</p>
8	LAN/WAN (GEO)	Green	<p>Steady on: A link has been established on the LAN/WAN interface.</p>

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the LAN/WAN interface.
			Off: No link is established on the LAN/WAN interface.
9	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.
10	E1 (E1_0 to E1_3)	Green	Steady on: A link has been established on the corresponding E1 interface or data is being transmitted on the link.
			Off: No link is established on the E1 interface.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-279](#) lists the CON/AUX interface attributes.

**Table 4-279** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-280](#) lists attributes of a USB interface.

**Table 4-280** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### G.SHDSL interface

A G.SHDSL interface transmits service data from a LAN to an upstream device at a high speed over a symmetric digital subscriber line. [Table 4-281](#) lists attributes of a G.SHDSL interface.

**Table 4-281** G.SHDSL interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	ITU-T G.991.2
Rate	15.296Mbps/pair (In PTM transmission mode, the binding type is set to EFM)
Cable type	<a href="#">8.12.1 G.SHDSL Cable</a> or <a href="#">8.3.1 Ethernet Cable</a>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-282](#) lists attributes of a GE electrical interface.

**Table 4-282** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### E1 interface

An E1 interface transmits data and image signals. [Table 4-283](#) lists attributes of an E1 interface.

**Table 4-283** E1 interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Standards compliance	G.703, G.704
Rate	2.048 Mbit/s
Working mode	E1
Services provided	<ul style="list-style-type: none"><li>• Backup</li><li>• Terminal access</li></ul>
Cable type	<a href="#">8.8 E1/T1 Cable</a>

### RS232 interface

An RS232 interface is a serial interface. [Table 4-284](#) lists attributes of an RS232 interface.

**Table 4-284** RS232 interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Baud rate (bit/s)	9600
Cable type	RS232 cable

## Technical Specifications

[Table 4-285](#) lists the technical specifications of the AR168F-4P router.

**Table 4-285** Technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	



Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	20 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	<p>WAN interfaces: one G.SHDSL interface, one GE combo interface, one RS232 interface, and four E1 interfaces</p> <p>LAN interfaces: four GE electrical interfaces, among which LAN interface GE0 can be used as a WAN interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to +45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010369

## 4.5.21 AR169

### Version Mapping

[Table 4-286](#) lists the mapping between the AR169 router and software versions.

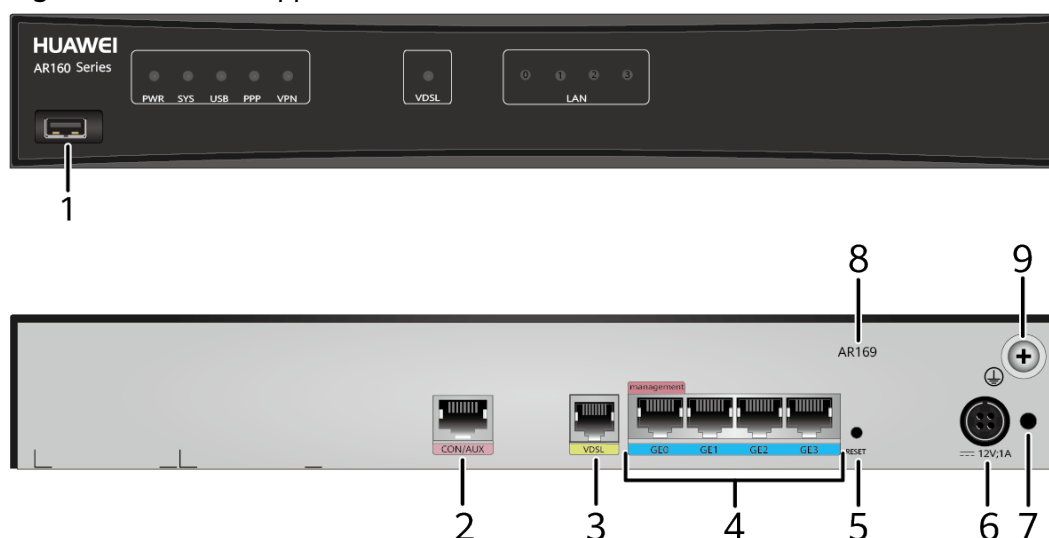
**Table 4-286** Mapping between the AR169 router and software versions

Router Model	Software Version
AR169	V200R006C10 and later versions

### Appearance and Structure

[Figure 4-89](#) shows the appearance of the AR169 router.

**Figure 4-89** AR169 appearance

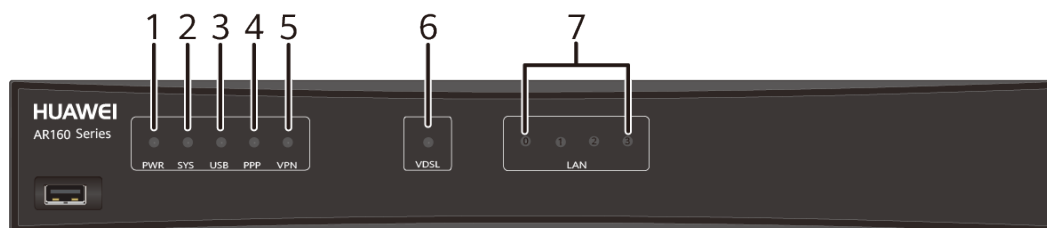


1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR169 does not support AUX login.
3	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-90** shows the locations of AR169 indicators.

**Figure 4-90** Indicators on the AR169



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.

Number	Indicator	Color	Description
7	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-287](#) lists the CON/AUX interface attributes.

**Table 4-287** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-288](#) lists attributes of a USB interface.

**Table 4-288** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-289](#) lists attributes of a GE electrical interface.

**Table 4-289** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-290](#) lists attributes of a VDSL interface.

**Table 4-290** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>ITU-T G.993.2</li><li>ITU-T G.992.5</li><li>ITU-T G.992.3</li><li>ITU-T G.992.1 G.DMT</li><li>ANSI T1.413 Issue 2</li></ul>

Attribute	Description
Rate	<ul style="list-style-type: none"><li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

## Technical Specifications

[Table 4-291](#) lists the technical specifications of the AR169 router.

**Table 4-291** AR169 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W

Item	Specification
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	9.7 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one VDSL interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010215

## 4.5.22 AR169CVW

### Version Mapping

[Table 4-292](#) describes the mapping between the AR169CVW router and software versions.



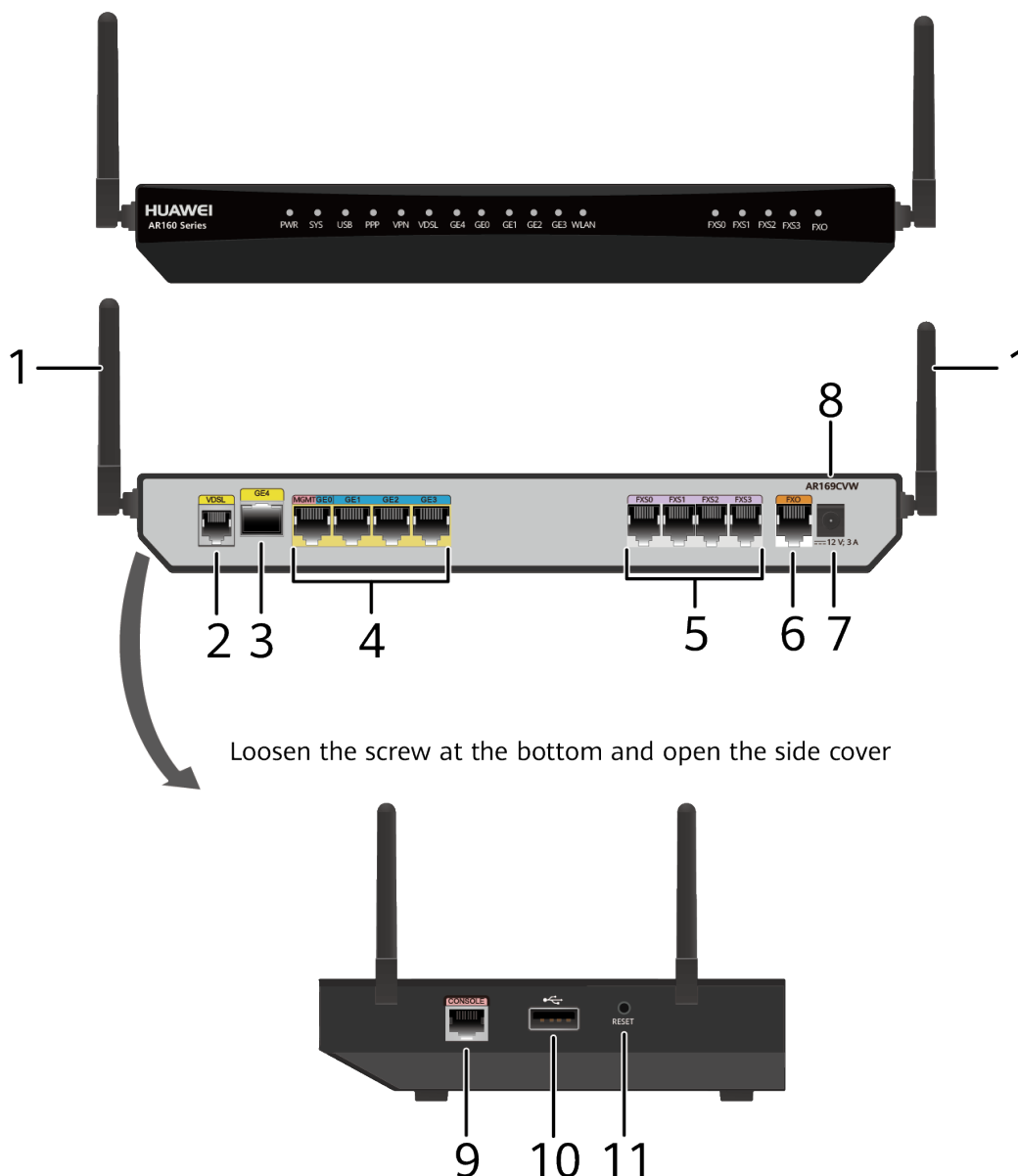
**Table 4-292** Mapping between the AR169CVW router and software versions

Router Model	Software Version
AR169CVW	V200R008C50 and later versions

## Appearance and Structure

**Figure 4-91** shows the appearance of the AR169CVW router.

**Figure 4-91** AR169CVW appearance

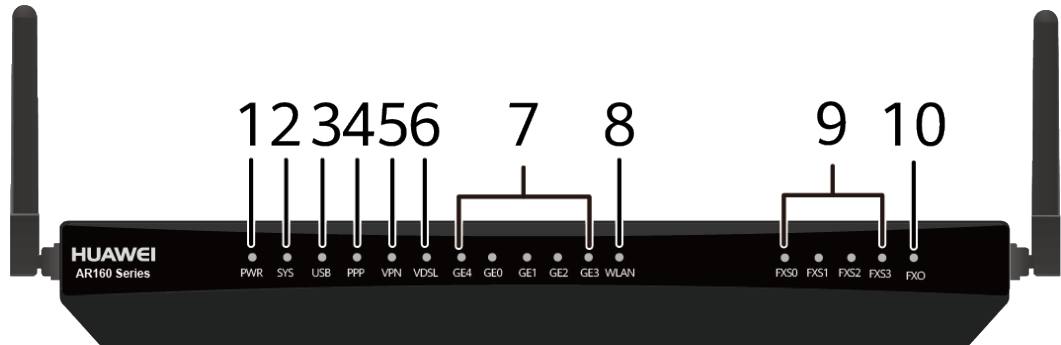


1	Four Wi-Fi antennas	2	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
3	WAN interface: GE optical interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	Four FXS interfaces	6	One FXO interface
7	Power jack <b>NOTE</b> The router uses a <b>1-pin 36 W power adapter</b> .	8	Product model silkscreen
9	Console interface	10	USB interface (host)
11	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	-	-

## Indicator Description

**Figure 4-92** shows the indicators on the AR169CVW router.

**Figure 4-92** Indicators on the AR169CVW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
7	GE (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface.
			Blinking: Data is being transmitted or received on the corresponding GE interface.
			Off: No link is established on the corresponding GE interface.
8	WLAN	Green	Blinking: Data is being transmitted on the WLAN link.
			Off: The WLAN link is shut down.
9	FXS (FXS0 to FXS3)	Green	Steady on: The corresponding FXS channel is being occupied by a call.
			Off: The corresponding FXS channel is idle.
10	FXO	Green	Steady on: The FXO channel is being occupied by a call.
			Off: The FXO channel is idle.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-293](#) lists attributes of a console interface.

**Table 4-293** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)

Attribute	Description
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 5 Gbit/s upload and download rates. [Table 4-294](#) lists attributes of a USB interface.

**Table 4-294** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB3.0, USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-295](#) lists attributes of a GE electrical interface.

**Table 4-295** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE optical interface

A GE optical interface can transmit and receive service traffic at 100 Mbit/s or 1000 Mbit/s. [Table 4-296](#) lists attributes of a GE optical interface.

**Table 4-296** GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.5 GE eSFP Optical Modules</a> and <a href="#">9.4 FE SFP/eSFP Optical Modules</a> .
Standards compliance	IEEE 802.3z

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-297](#) lists attributes of a VDSL interface.

**Table 4-297** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>● ITU-T G.993.2</li> <li>● ITU-T G.992.5</li> <li>● ITU-T G.992.3</li> <li>● ITU-T G.992.1 G.DMT</li> <li>● ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>● ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>● VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>● ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>● ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### FXS interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-298](#) lists attributes of an FXS interface.

**Table 4-298** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-299](#) lists attributes of an FXO interface.

**Table 4-299** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### Wi-Fi antenna interface

#### NOTE

Wi-Fi antennas have been installed on Wi-Fi interfaces of a router before delivery.

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-300](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-300** Wi-Fi antenna interface attributes

Attribute	Description
Standards compliance	802.11a/b/g/n/ac
Frequency bands supported	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5.0 GHz</li> </ul>
Rate	1167 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	<ul style="list-style-type: none"> <li>• 2.4 GHz: 1.9 dBi</li> <li>• 5.0 GHz: 3.4 dBi</li> </ul>
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>

## Technical Specifications

**Table 4-301** lists the technical specifications of the AR169CVW router.

**Table 4-301** AR169CVW technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card	Not supported
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 270 mm x 155 mm (1.18 in. x 10.63 in. x 6.10 in.)
Weight	0.76 kg (1.68 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	110 V to 220 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 270 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W



Item	Specification
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	18.1 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 3.0 interfaces	1
Service interfaces	WAN interfaces: one GE optical interface and one VDSL interface LAN interfaces: four GE electrical interfaces Voice interfaces: four FXS interfaces and one FXO interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010386

## 4.5.23 AR169CVW-4B4S

## Version Mapping

**Table 4-302** describes the mapping between the AR169CVW-4B4S router and software versions.

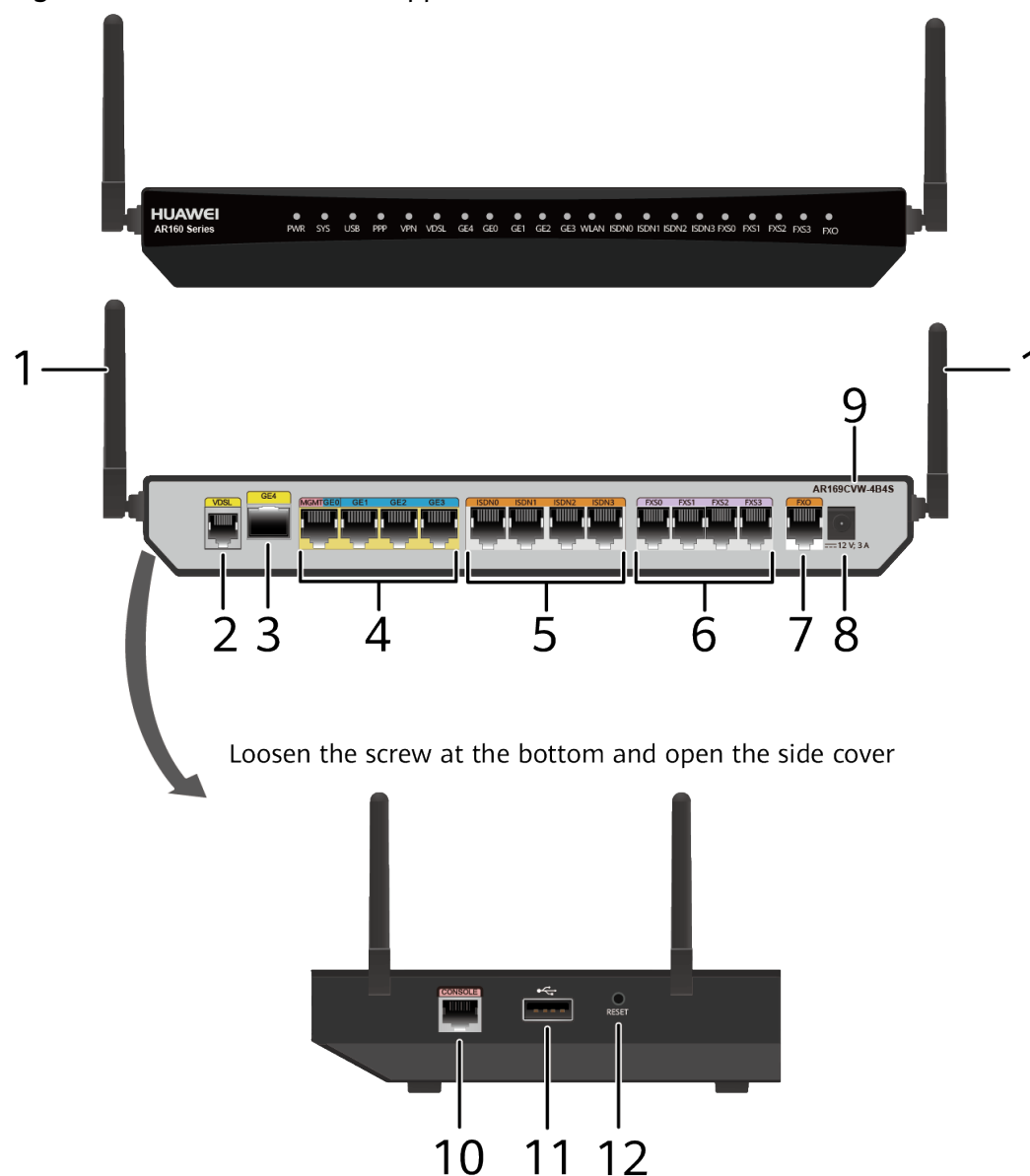
**Table 4-302** Mapping between the AR169CVW-4B4S router and software versions

Router Model	Software Version
AR169CVW-4B4S	V200R008C50 and later versions

## Appearance and Structure

**Figure 4-93** shows the appearance of the AR169CVW-4B4S router.

**Figure 4-93** AR169CVW-4B4S appearance

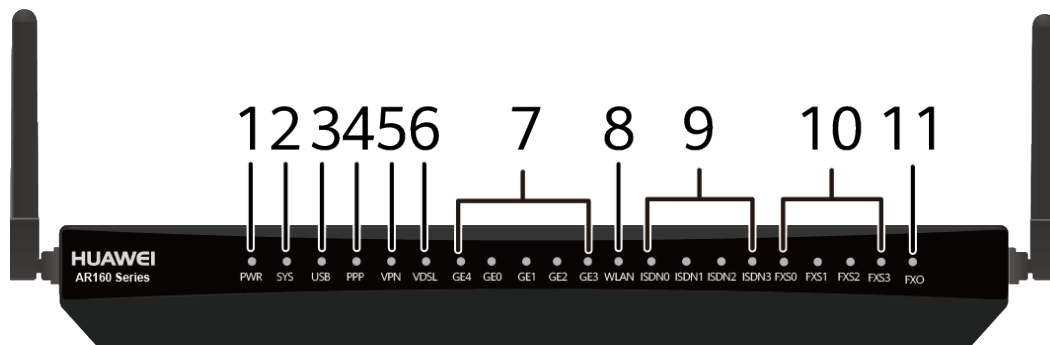


1	Four Wi-Fi antennas	2	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
3	WAN interface: GE optical interface	4	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	Four ISDN interfaces	6	Four FXS interfaces
7	One FXO interface	8	Power jack <b>NOTE</b> The router uses a <b>1-pin 36 W power adapter</b> .
9	Product model silkscreen	10	Console interface
11	USB interface (host)	12	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.

## Indicator Description

**Figure 4-94** shows the indicators on the AR169CVW-4B4S router.

**Figure 4-94** Indicators on the AR169CVW-4B4S



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL	Green	Steady on: A VDSL link has been established.
			Off: No VDSL link is established.
7	GE (GE0 to GE4)	Green	Steady on: A link has been established on the corresponding GE interface.
			Blinking: Data is being transmitted or received on the corresponding GE interface.
			Off: No link is established on the corresponding GE interface.
8	WLAN	Green	Blinking: Data is being transmitted on the WLAN link.
			Off: The WLAN link is shut down.
9	ISDN (ISDN0 to ISDN3)	Green	Steady on: The corresponding ISDN channel is active.
			Blinking: Data is being transmitted on the corresponding ISDN channel.
			Off: The corresponding ISDN channel is inactive.
10	FXS (FXS0 to FXS3)	Green	Steady on: The corresponding FXS channel is being occupied by a call.
			Off: The corresponding FXS channel is idle.
11	FXO	Green	Steady on: The FXO channel is being occupied by a call.
			Off: The FXO channel is idle.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-303](#) lists attributes of a console interface.

**Table 4-303** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 5 Gbit/s upload and download rates. [Table 4-304](#) lists attributes of a USB interface.

**Table 4-304** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB3.0, USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-305](#) lists attributes of a GE electrical interface.

**Table 4-305** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab

Attribute	Description
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE optical interface

A GE optical interface can transmit and receive service traffic at 100 Mbit/s or 1000 Mbit/s. [Table 4-306](#) lists attributes of a GE optical interface.

**Table 4-306** GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.5 GE eSFP Optical Modules</a> and <a href="#">9.4 FE SFP/eSFP Optical Modules</a> .
Standards compliance	IEEE 802.3z

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-307](#) lists attributes of a VDSL interface.

**Table 4-307** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>● ITU-T G.993.2</li><li>● ITU-T G.992.5</li><li>● ITU-T G.992.3</li><li>● ITU-T G.992.1 G.DMT</li><li>● ANSI T1.413 Issue 2</li></ul>

Attribute	Description
Rate	<ul style="list-style-type: none"> <li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### ISDN interface

An ISDN S/T interface can connect to an integrated services digital network (ISDN) to provide voice services. [Table 4-308](#) lists attributes of an ISDN S/T interface.

**Table 4-308** ISDN S/T interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	ITU-T I.430 Q.921 Q.931
Rate	192 kbit/s
Bandwidth	0 MHz to 100 MHz
Cable type	<a href="#">8.13 ISDN Cable</a>

### FXS interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-309](#) lists attributes of an FXS interface.

**Table 4-309** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection



Attribute	Description
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-310](#) lists attributes of an FXO interface.

**Table 4-310** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### Wi-Fi antenna interface

#### NOTE

Wi-Fi antennas have been installed on Wi-Fi interfaces of a router before delivery.

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-311](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-311** Wi-Fi antenna interface attributes

Attribute	Description
Standards compliance	802.11a/b/g/n/ac
Frequency bands supported	<ul style="list-style-type: none"><li>• 2.4 GHz</li><li>• 5.0 GHz</li></ul>
Rate	1167 Mbit/s
MIMO mode (Tx x Rx)	2x2

Attribute	Description
Gain	<ul style="list-style-type: none"><li>• 2.4 GHz: 1.9 dBi</li><li>• 5.0 GHz: 3.4 dBi</li></ul>
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>

## Technical Specifications

**Table 4-312** lists the technical specifications of the AR169CVW-4B4S router.

**Table 4-312** AR169CVW-4B4S technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card	Not supported
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	30 mm x 270 mm x 155 mm (1.18 in. x 10.63 in. x 6.10 in.)
Weight	0.8 kg (1.76 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	110 V to 220 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 270 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	18.6 W
<b>Heat dissipation</b>	

Item	Specification
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 3.0 interfaces	1
Service interfaces	WAN interfaces: one GE optical interface and one VDSL interface LAN interfaces: four GE electrical interfaces Voice interfaces: four ISDN interfaces, four FXS interfaces, and one FXO interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010351

## 4.5.24 AR169EW

### Version Mapping

**Table 4-313** describes the mapping between the AR169EW router and software versions.

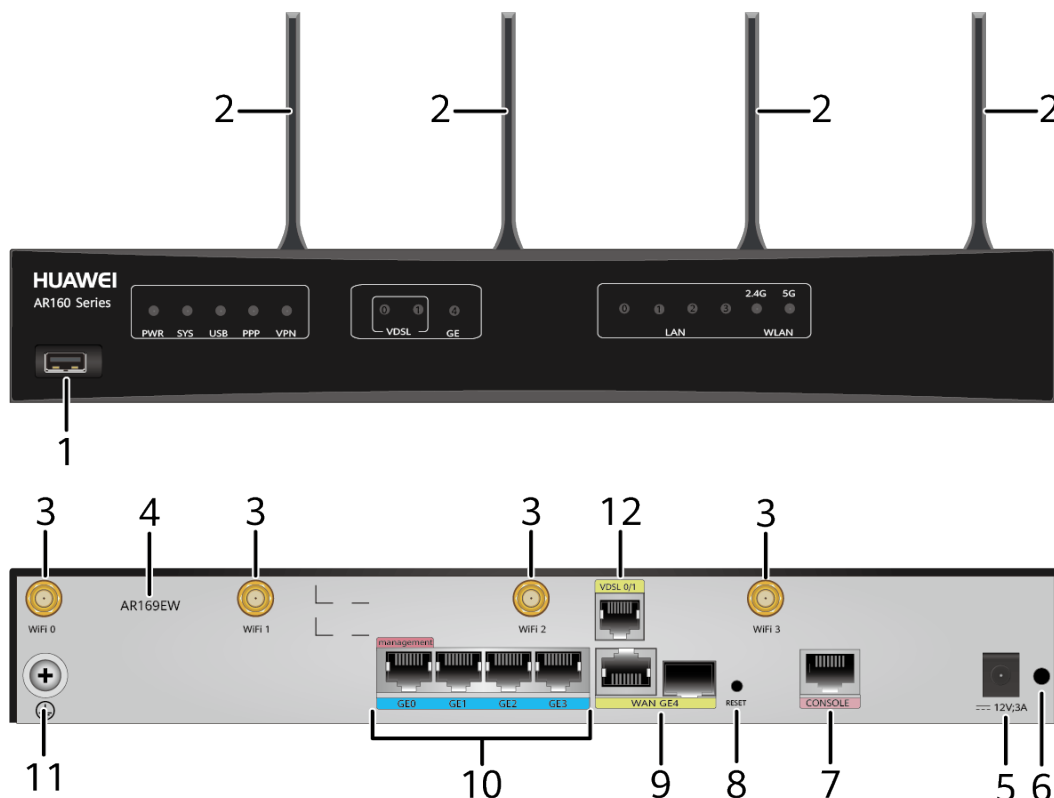
**Table 4-313** Mapping between the AR169EW router and software versions

Router Model	Software Version
AR169EW	V200R008C50 and later versions

## Appearance and Structure

Figure 4-95 shows the appearance of the AR169EW router.

**Figure 4-95** AR169EW appearance



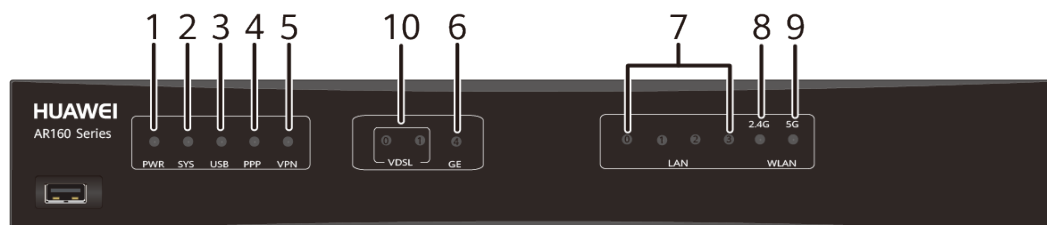
1	USB interface (host)	2	Four Wi-Fi antennas
3	Four Wi-Fi antenna interfaces	4	Product model silkscreen
5	Power jack <b>NOTE</b> The router uses a <b>1-pin 36 W power adapter</b> .	6	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

7	Console interface	8	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
9	WAN interface: GE combo interface	10	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
11	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	12	<p>WAN interface: VDSL interface</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>By default, VDSL0 and VDSL1 are bundled and used together.</li> <li>VDSL0 and VDSL1 can be unbundled. After unbundled, only VDSL0 is used to transmit data.</li> <li>The VDSL interfaces support the dying gasp function.</li> </ul>

## Indicator Description

Figure 4-96 shows the indicators on the AR169EW router.

Figure 4-96 Indicators on the AR169EW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly.
			Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
3	USB	Red and green	Off: The system software is not running or is resetting.
			Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
4	PPP	Green	Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
			Steady on: A PPP connection has been established.
			Off: No PPP connection is established.
			Steady on: The IPSec service is running normally.
5	VPN	Green	Off: The IPSec service is unavailable.
			Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
6	GE combo interface indicator	Green	Off: No link is established on the GE combo interface.
			Steady on: A link has been established on the corresponding LAN interface.
7	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.
8	WLAN 2.4G (effective when working on the 2.4 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
9	WLAN 5G (effective when working on the 5 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
10	VDSL0/ VDSL1	Green	Steady on: A link has been established on interface VDSL0/VDSL1. Blinking: The link on interface VDSL0/VDSL1 is activating. Off: No link is established on interface VDSL0/VDSL1.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-314](#) lists attributes of a console interface.

**Table 4-314** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 5 Gbit/s upload and download rates. [Table 4-315](#) lists attributes of a USB interface.

**Table 4-315** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB3.0, USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-316](#) lists attributes of a GE electrical interface.

**Table 4-316** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.



- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 **NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi antenna interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-317](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-317** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"> <li>• 2.4 GHz: 802.11b/g/n</li> <li>• 5.0 GHz: 802.11a/n/ac</li> </ul>
Frequency bands supported	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5.0 GHz</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• 2.4 GHz: 450 Mbit/s</li> <li>• 5.0 GHz: 1300 Mbit/s</li> </ul>
MIMO mode (Tx x Rx)	<ul style="list-style-type: none"> <li>• 2.4 GHz: 3x3</li> <li>• 5.0 GHz: 4x4</li> </ul>
Gain	2.15 dBi/3.0 dBi
Cable type	<a href="#">Wi-Fi Whip Antenna</a>

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-318](#) lists attributes of a VDSL interface.

**Table 4-318** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.17.1 2VDSL2 Cable</a>

## Technical Specifications

[Table 4-319](#) lists the technical specifications of the AR169EW router.

**Table 4-319** AR169EW technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 1.2 GHz
Memory	1 GB
Flash	512 MB
Micro SD card	Not supported
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>• With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>• With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>

Item	Specification
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	25 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 3.0 interfaces	1
Service interfaces	WAN interfaces: one GE combo interface and one VDSL interface LAN interfaces: four GE electrical interfaces and four Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to +40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)

Item	Specification
Part number	02351BTH

## 4.5.25 AR169EGW-L

### Version Mapping

[Table 4-320](#) describes the mapping between the AR169EGW-L router and software versions.

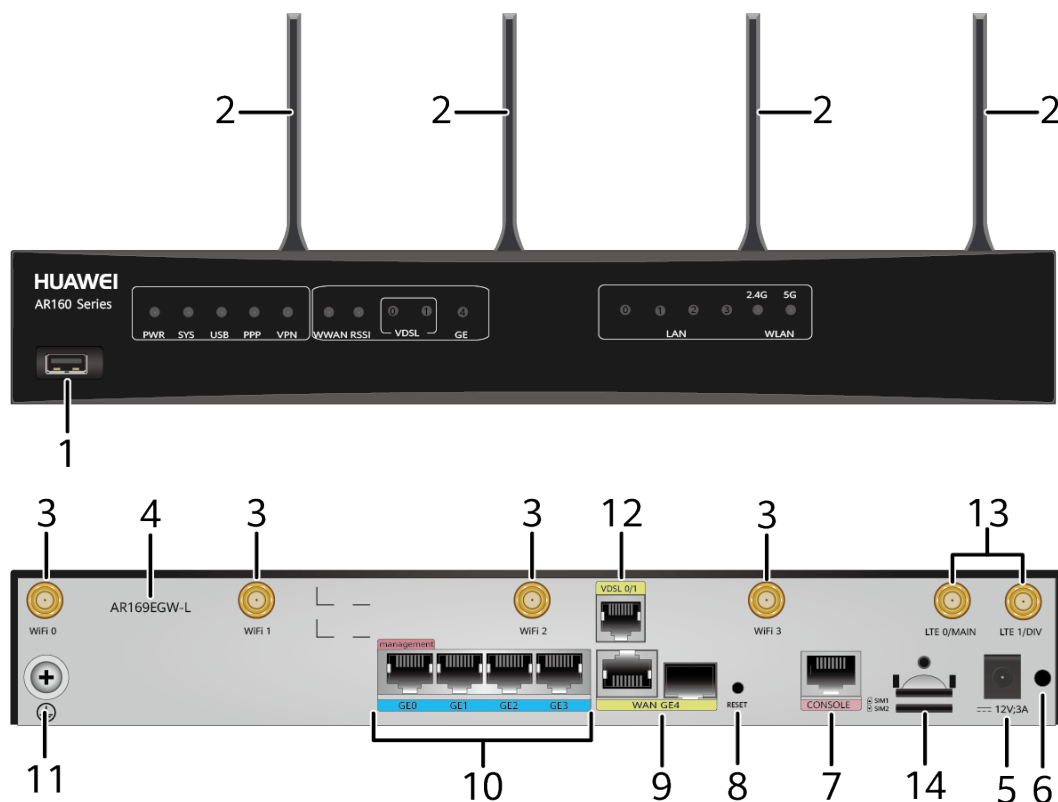
**Table 4-320** Mapping between the AR169EGW-L router and software versions

Router Model	Software Version
AR169EGW-L	V200R008C50 and later versions

### Appearance and Structure

[Figure 4-97](#) shows the appearance of the AR169EGW-L router.

**Figure 4-97** AR169EGW-L appearance



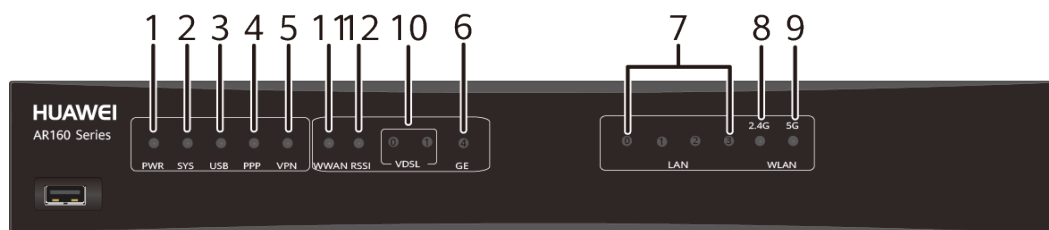
1	USB interface (host)	2	Four Wi-Fi antennas
3	Four Wi-Fi antenna interfaces	4	Product model silkscreen
5	Power jack <b>NOTE</b> The router uses a <b>1-pin 36 W power adapter</b> .	6	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
7	Console interface	8	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
9	WAN interface: GE combo interface	10	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 is a management interface and is used to upgrade the router.</li> <li>All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
11	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	12	WAN interface: VDSL interface <b>NOTE</b> <ul style="list-style-type: none"> <li>By default, VDSL0 and VDSL1 are bundled and used together.</li> <li>VDSL0 and VDSL1 can be unbundled. After unbundled, only VDSL0 is used to transmit data.</li> <li>The VDSL interfaces support the dying gasp function.</li> </ul>

1 3	LTE antenna interface	1 4	Two SIM card slots <b>NOTE</b> <ul style="list-style-type: none"> <li>• The mounting hole above the SIM card slots is used to fix the SIM card cover with a screw.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>
--------	-----------------------	--------	---

### Indicator Description

Figure 4-98 shows the indicators on the AR169EGW-L router.

Figure 4-98 Indicators on the AR169EGW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.
7	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

Number	Indicator	Color	Description
8	WLAN 2.4G (effective when working on the 2.4 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
9	WLAN 5G (effective when working on the 5 GHz band)	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
10	VDSL0/ VDSL1	Green	Steady on: A link has been established on interface VDSL0/VDSL1. Blinking: The link on interface VDSL0/VDSL1 is activating. Off: No link is established on interface VDSL0/VDSL1.
11	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active. Blinking: Data is being transmitted over the LTE/3G/2G connection. Off: The LTE/3G/2G connection has not been established or is inactive.
12	RSSI	Green	Steady on: The LTE/3G/2G signal strength is high. Fast blinking: The LTE/3G/2G signal strength is medium. Slow blinking: The LTE/3G/2G signal strength is low. Off: No LTE/3G/2G signal is available.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-321](#) lists attributes of a console interface.



**Table 4-321** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### USB interface (host)

A USB interface provides up to 5 Gbit/s upload and download rates. [Table 4-322](#) lists attributes of a USB interface.

**Table 4-322** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB3.0, USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-323](#) lists attributes of a GE electrical interface.

**Table 4-323** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab

Attribute	Description
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi antenna interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-324](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-324** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"> <li>• 2.4 GHz: 802.11b/g/n</li> <li>• 5.0 GHz: 802.11a/n/ac</li> </ul>
Frequency bands supported	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5.0 GHz</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• 2.4 GHz: 450 Mbit/s</li> <li>• 5.0 GHz: 1300 Mbit/s</li> </ul>

Attribute	Description
MIMO mode (Tx x Rx)	<ul style="list-style-type: none"><li>• 2.4 GHz: 3x3</li><li>• 5.0 GHz: 4x4</li></ul>
Gain	2.15 dBi/3.0 dBi
Cable type	<a href="#">Wi-Fi Whip Antenna</a>

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-325](#) lists attributes of a VDSL interface.

**Table 4-325** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.993.2</li><li>• ITU-T G.992.5</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">8.17.1 2VDSL2 Cable</a>

### LTE antenna interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-326](#) lists attributes of an LTE antenna interface.

**Table 4-326** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li> <li>• WCDMA: Bands 1/2/5/8</li> <li>• GSM: 850/900/1800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Indoor Remote Antenna (27012152)</b>

## Technical Specifications

**Table 4-327** lists the technical specifications of the AR169EGW-L router.

**Table 4-327** AR169EGW-L technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 1.2 GHz
Memory	1 GB
Flash	512 MB
Micro SD card	Not supported
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	27 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 3.0 interfaces	1
Service interfaces	WAN interfaces: one GE combo interface, one VDSL interface, and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces and four Wi-Fi antenna interfaces
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to +40°C (32°F to 104°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02351AWN

## 4.5.26 AR169F/AR169BF

### Version Mapping

**Table 4-328** lists the mapping between the AR169F/AR169BF and software versions.

**Table 4-328** Mapping between the AR169F/AR169BF and software versions

Router Model	Software Version
AR169F	V200R005C00 and later versions
AR169BF	V200R006C10 and later versions

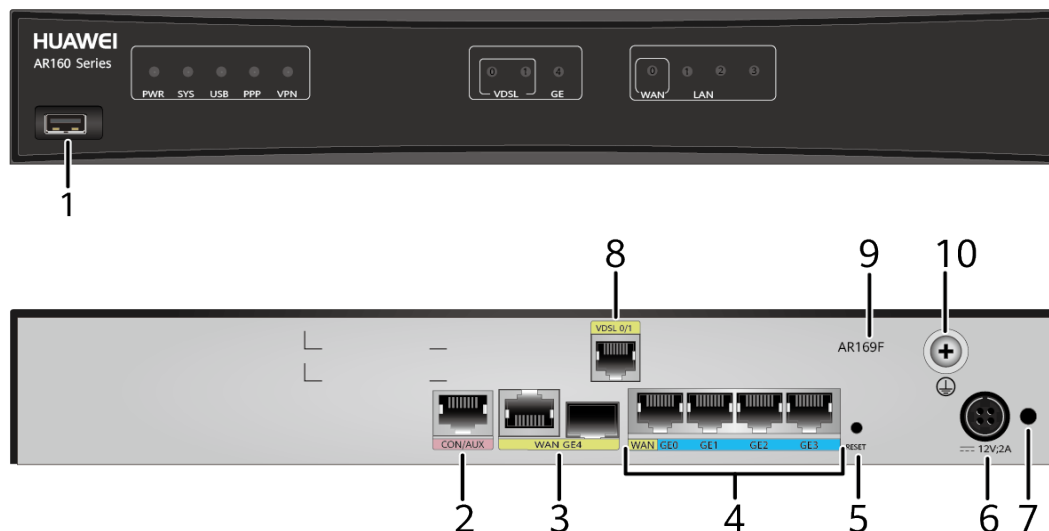
### Appearance and Structure

 **NOTE**

The AR169F and AR169BF have the same appearance but different silkscreens. The AR169F is used as an example here.

**Figure 4-99** shows the appearance of the AR169F/AR169BF.

**Figure 4-99** AR169F/AR169BF appearance



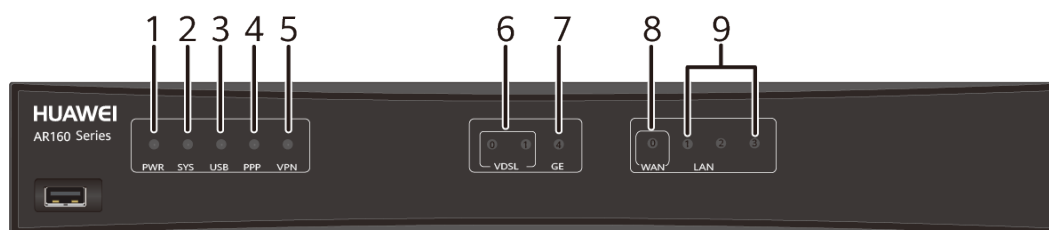
1	USB interface (host)	2 CON/AUX interface <b>NOTE</b> The AR169F/AR169BF does not support AUX login.
3	WAN interface: GE combo interface	4 LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"><li>• GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li><li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li></ul>
5	5 RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"><li>• To restore the factory settings, hold down the button for at least 5 seconds.</li><li>• To reset the system, press the button for less than 5 seconds.</li></ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6 Power jack <b>NOTE</b> The router uses a <b>24 W integrated power adapter</b> .

7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	WAN interface: VDSL interface  <b>NOTE</b> <ul style="list-style-type: none"> <li>By default, VDSL0 and VDSL1 are bundled and used together.</li> <li>VDSL0 and VDSL1 can be unbundled. After unbundled, only VDSL0 is used to transmit data.</li> <li>The VDSL interfaces support the dying gasp function.</li> </ul>
9	Product model silkscreen	10	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

## Indicator Description

Figure 4-100 shows the indicators on the AR169F/AR169BF.

Figure 4-100 Indicators on the AR169F/AR169BF



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.



Number	Indicator	Color	Description
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	VDSL (AR169F)	Green	Steady on: A link has been established on the WAN interface. Blinking: The WAN link on the interface is activating. Off: No link is established on the WAN interface.
	VDSL (AR169BF)	Green	LINK indicator steady on: A link has been established. LINK indicator off: No link is established. ACT indicator blinking: Data is being transmitted or received. ACT indicator off: No data is being transmitted or received.
7	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.

Number	Indicator	Color	Description
8	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-329](#) lists the CON/AUX interface attributes.

**Table 4-329** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-330](#) lists attributes of a USB interface.

**Table 4-330** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-331](#) lists attributes of a VDSL interface.

**Table 4-331** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>● ITU-T G.993.2</li><li>● ITU-T G.992.5</li><li>● ITU-T G.992.3</li><li>● ITU-T G.992.1 G.DMT</li><li>● ANSI T1.413 Issue 2</li></ul>
Rate	<ul style="list-style-type: none"><li>● ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>● VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>● ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">8.17.1 2VDSL2 Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-332](#) lists attributes of a GE electrical interface.

**Table 4-332** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

## Technical Specifications

[Table 4-333](#) lists the technical specifications of the AR169F/AR169BF.

**Table 4-333** Technical specifications of the AR169F/AR169BF

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	<ul style="list-style-type: none"> <li>AR169F: 512 MB</li> <li>AR169BF: 1 GB</li> </ul>
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	<ul style="list-style-type: none"> <li>AR169F: 17.8 W</li> <li>AR169BF: 17.0 W</li> </ul>
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)

Item	Specification
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one VDSL interface, and one GE combo interface LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be configured as a WAN interface.
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	<ul style="list-style-type: none"><li>AR169F: 02356376</li><li>AR169BF: 50010210</li></ul>

## 4.5.27 AR169FVW

### Version Mapping

**Table 4-334** lists the mapping between the AR169FVW router and software versions.

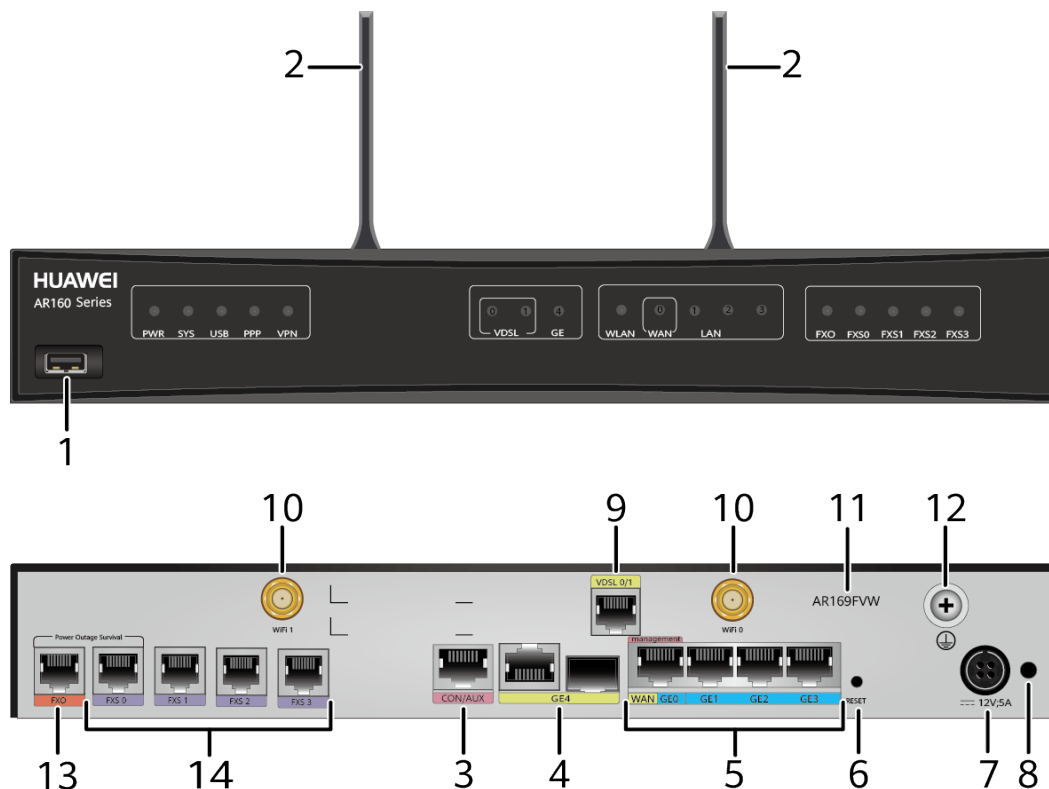
**Table 4-334** Mapping between the AR169FVW router and software versions

Router Model	Software Version
AR169FVW	V200R005C30 and later versions

### Appearance and Structure

**Figure 4-101** shows the appearance of the AR169FVW router.

Figure 4-101 AR169FVW appearance



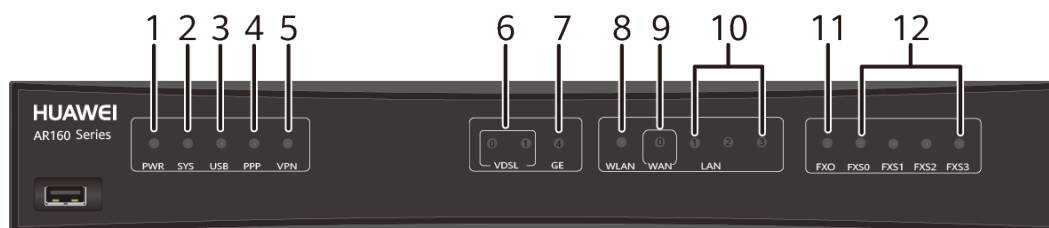
1	USB interface (host)	2	Two Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR169FVW does not support AUX login.	4	WAN interface: GE combo interface
5	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack <b>NOTE</b> The router uses a <b>60 W power adapter</b> .	8	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

9	<p>WAN interface: VDSL interface</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>By default, VDSL0 and VDSL1 are bundled and used together.</li> <li>VDSL0 and VDSL1 can be unbundled. After unbundled, only VDSL0 is used to transmit data.</li> <li>The VDSL interfaces support the dying gasp function.</li> </ul>	1 0	Two Wi-Fi antenna interfaces
1 1	Product model silkscreen	1 2	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
1 3	<p>One FXO interface</p> <p><b>NOTE</b></p> <p>The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b>.</p>	1 4	<p>Four FXS interfaces</p> <p><b>NOTE</b></p> <p>The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b>.</p>

## Indicator Description

Figure 4-102 shows the locations of AR169FVW indicators.

Figure 4-102 Indicators on an AR169FVW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.



Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	Left VDSL indicator (LINK0)	Green	Steady on: A link has been established on the WAN interface.
	Right VDSL indicator (LINK1)		Blinking: The WAN link on the interface is activating. Off: No link is established on the WAN interface.
7	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
8	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.

Number	Indicator	Color	Description
9	LAN/WAN (GEO)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
10	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.
11	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.
12	FXS0 to FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-335](#) lists the CON/AUX interface attributes.

**Table 4-335** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-336](#) lists attributes of a USB interface.

**Table 4-336** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-337](#) lists attributes of a GE electrical interface.

**Table 4-337** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-338](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-338** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-339](#) lists attributes of a VDSL interface.

**Table 4-339** VDSL interface attributes

Attribute	Description
Connector type	RJ11

Attribute	Description
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.993.2</li><li>• ITU-T G.992.5</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">8.17.1 2VDSL2 Cable</a>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-340](#) lists attributes of an FXS interface.

**Table 4-340** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-341](#) lists attributes of an FXO interface.

**Table 4-341** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

## Technical Specifications

**Table 4-342** lists the technical specifications of the AR169FVW routers.

**Table 4-342** AR169FVW routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A

Item	Specification
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	25.3 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	<p>WAN interfaces: one GE combo interface and one VDSL interface</p> <p>LAN interfaces: two Wi-Fi antenna interfaces and four GE electrical interfaces, in which LAN interface GE0 can be used as a WAN interface</p> <p>Voice interfaces: four FXS interfaces and one FX0 interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	<p>0°C to 45°C (32°F to 113°F)</p> <p><b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.</p>
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010167

## 4.5.28 AR169FVW-8S

## Version Mapping

**Table 4-343** describes the mapping between the AR169FVW-8S router and software versions.

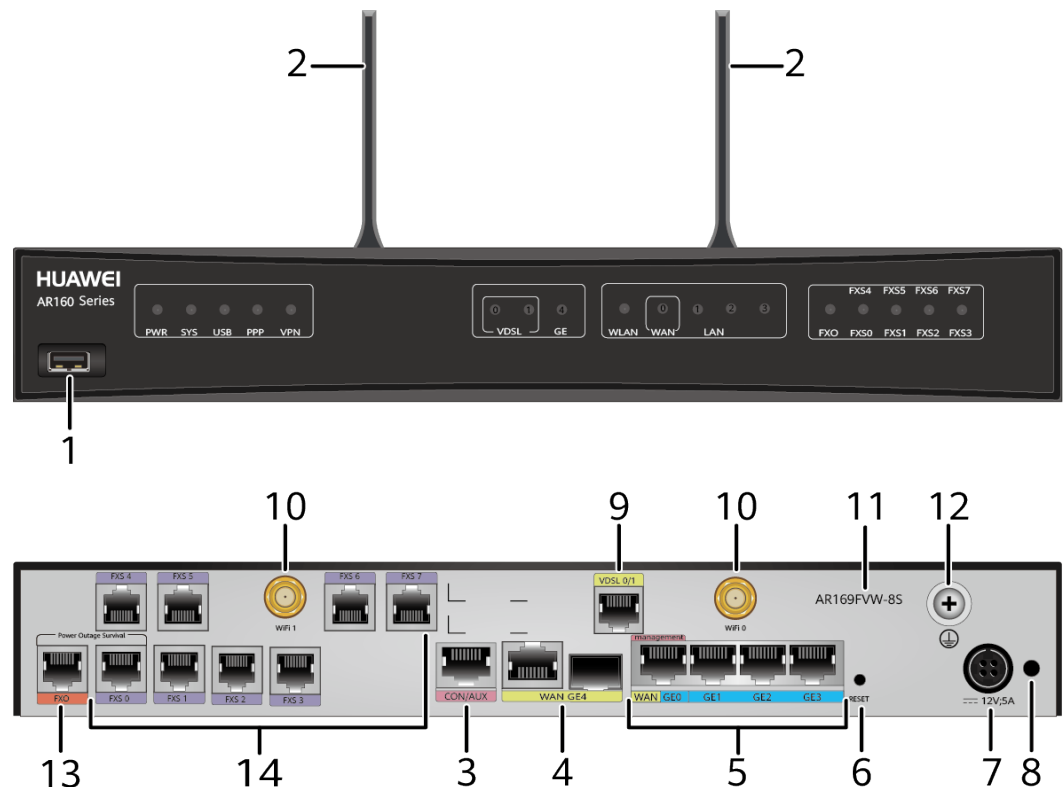
**Table 4-343** Mapping between the AR169FVW-8S router and software versions

Router Model	Software Version
AR169FVW-8S	V200R008C50 and later versions

## Appearance and Structure

**Figure 4-103** shows the appearance of the AR169FVW-8S router.

**Figure 4-103** AR169FVW-8S appearance



1	USB interface (host)	2	Two Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR169FVW-8S does not support AUX login.	4	WAN interface: GE combo interface

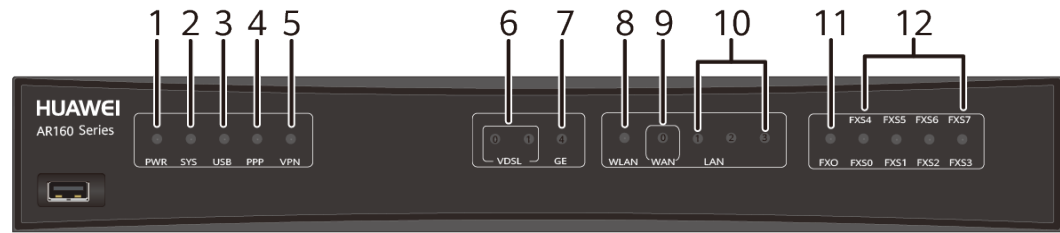


5	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>60 W power adapter</b>.</p>	8	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>
9	<p>WAN interface: VDSL interface</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• By default, VDSL0 and VDSL1 are bundled and used together.</li> <li>• VDSL0 and VDSL1 can be unbundled. After unbundled, only VDSL0 is used to transmit data.</li> <li>• The VDSL interfaces support the dying gasp function.</li> </ul>	10	<p>Two Wi-Fi antenna interfaces</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
13	<p>One FXO interface</p> <p><b>NOTE</b></p> <p>The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b>.</p>	14	<p>Eight FXS interfaces</p> <p><b>NOTE</b></p> <p>The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b>.</p>

## Indicator Description

**Figure 4-104** shows the indicators on the AR169FVW-8S router.

**Figure 4-104** Indicators on the AR169FVW-8S



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	Left VDSL indicator (LINK0) Right VDSL indicator (LINK1)	Green	Steady on: A link has been established on the WAN interface. Blinking: The WAN link on the interface is activating. Off: No link is established on the WAN interface.
7	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
8	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
9	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
10	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.
11	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.
12	FXS0 to FXS7	Green	Steady on: The corresponding FXS channel is being occupied by a call. Off: The corresponding FXS channel is idle.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-344](#) lists the CON/AUX interface attributes.

**Table 4-344** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

#### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-345](#) lists attributes of a USB interface.

**Table 4-345** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

#### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-346](#) lists attributes of a GE electrical interface.

**Table 4-346** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi antenna interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-347](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-347** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)

Attribute	Description
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### VDSL interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-348](#) lists attributes of a VDSL interface.

**Table 4-348** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.17.1 2VDSL2 Cable</a>

### FXS interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-349](#) lists attributes of an FXS interface.

**Table 4-349** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-350](#) lists attributes of an FXO interface.

**Table 4-350** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

[Table 4-351](#) lists the technical specifications of the AR169FVW-8S router.

**Table 4-351** AR169FVW-8S technical specifications

Item	Specification
<b>System parameters</b>	

Item	Specification
Processor	Dual-core, 533 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	33.8 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1



Item	Specification
Service interfaces	WAN interfaces: one GE combo interface and one VDSL interface LAN interfaces: two Wi-Fi antenna interfaces and four GE electrical interfaces, among which LAN interface GE0 can be used as a WAN interface Voice interfaces: eight FXS interfaces and one FXO interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010370

## 4.5.29 AR169JFVW-4B4S

### Version Mapping

[Table 4-352](#) lists the mapping between the AR169JFVW-4B4S router and software versions.

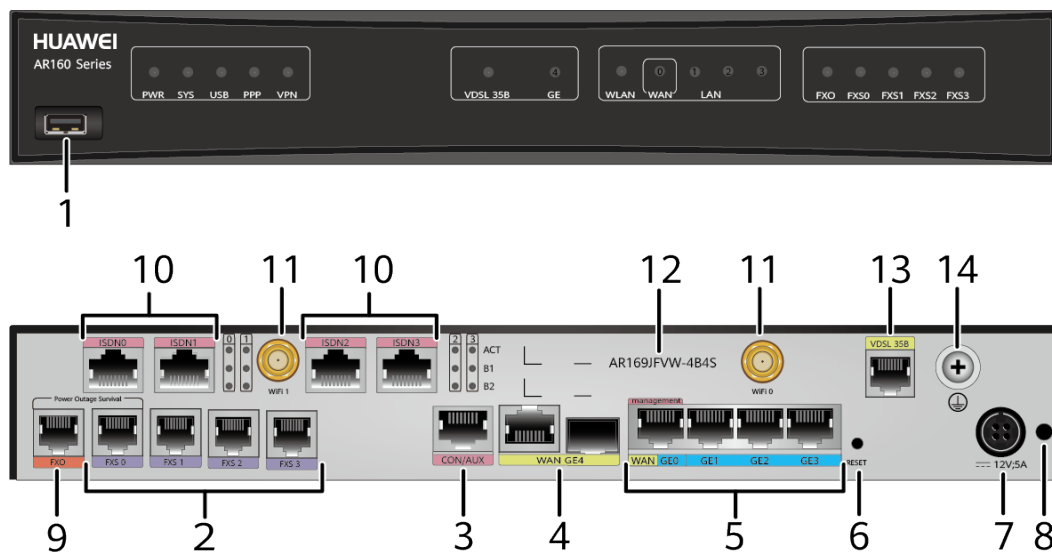
**Table 4-352** Version mapping

Router Model	Software Version
AR169JFVW-4B4S	V200R009C00 and later versions

### Appearance and Structure

[Figure 4-105](#) shows the appearance of the AR169JFVW-4B4S router.

Figure 4-105 AR169JFVW-4B4S appearance



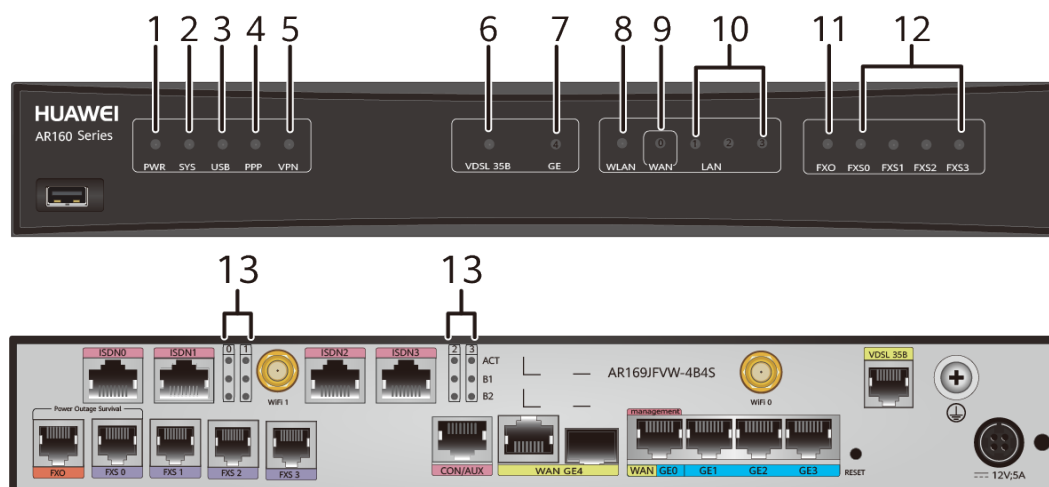
1	USB interface (host)	2 Four FXS interfaces <b>NOTE</b> The FXS interfaces can be connected to analog telephones using a <a href="#">Universal Telephone Cable</a> .
3	CON/AUX interface <b>NOTE</b> The AR169JFVW-4B4S does not support AUX login.	4 WAN interface: GE combo interface
5	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"><li>• GE0 is a management interface and is used to upgrade the router.</li><li>• All GE LAN interfaces can be configured as WAN interfaces.</li></ul>	6 RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"><li>• To restore the factory settings, hold down the button for at least 5 seconds.</li><li>• To reset the system, press the button for less than 5 seconds.</li></ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack <b>NOTE</b> The router uses a <a href="#">60 W power adapter</a> .	8 Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

9	One FXO interface <b>NOTE</b> The FXO interface can be connected to a public switched telephone network (PSTN) using a <a href="#">Universal Telephone Cable</a> .	1 0	Four ISDN interfaces
1 1	Two Wi-Fi antenna interfaces	1 2	Product model silkscreen
1 3	WAN interface: VDSL 35B interface	1 4	Ground point <b>NOTE</b> Reliably ground the router by connecting a <a href="#">ground cable</a> to the ground point to protect the router against lightning and interference.

### Indicator Description

[Figure 4-106](#) shows the indicators on the AR169JFVW-4B4S router.

**Figure 4-106** Indicators on the AR169JFVW-4B4S router



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been established. Off: No PPP connection is established.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	VDSL 35B	Green	Steady on: A link has been established on the VDSL 35B interface. Blinking: The link on the VDSL 35B interface is activating. Off: No link is established on the VDSL 35B interface.
7	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
8	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.

Number	Indicator	Color	Description
9	LAN/WAN (GEO)	Green	Steady on: A link has been established on the LAN/WAN interface. Blinking: Data is being transmitted or received on the LAN/WAN interface. Off: No link is established on the LAN/WAN interface.
10	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.
11	FXO	Green	Steady on: There is an ongoing call on the FXO channel. Off: The FXO channel is idle.
12	FXS0 to FXS3	Green	Steady on: There is an ongoing call on the corresponding FXS channel. Off: The corresponding FXS channel is idle.
13	ISDN0 to ISDN3	ACT	Steady on: The corresponding ISDN channel is active. Off: The corresponding ISDN channel is inactive.
		B1	Blinking: The ISDN B1 channel is being occupied. Off: The ISDN B1 channel is idle.
		B2	Blinking: The ISDN B2 channel is being occupied. Off: The ISDN B2 channel is idle.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-353](#) lists the CON/AUX interface attributes.

**Table 4-353** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<b>Console Cable</b>

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-354](#) lists attributes of a USB interface.

**Table 4-354** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-355](#) lists attributes of a GE electrical interface.

**Table 4-355** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>

Attribute	Description
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi antenna interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-356](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-356** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi

Attribute	Description
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### VDSL 35B interface

A very-high-speed digital subscriber line (VDSL) 35B interface transmits service data from a LAN to an upstream device at a high speed over a twisted pair. [Table 4-357](#) lists attributes of a VDSL interface.

**Table 4-357** VDSL 35B interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 35B mode (ITU-T G.993.2): downlink rate of 350 Mbit/s and uplink rate of 40 Mbit/s</li> </ul>
Cable type	<a href="#">Universal Telephone Cable</a>

### FXS interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-358](#) lists attributes of an FXS interface.



**Table 4-358** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

### FXO interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-359](#) lists attributes of an FXO interface.

**Table 4-359** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

### ISDN interface

An ISDN S/T interface can connect to an integrated services digital network (ISDN) to provide voice services. [Table 4-360](#) lists attributes of an ISDN S/T interface.

**Table 4-360** ISDN S/T interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	ITU-T I.430 Q.921 Q.931

Attribute	Description
Rate	192 kbit/s
Bandwidth	0 MHz to 100 MHz
Cable type	<a href="#">8.13 ISDN Cable</a>

## Technical Specifications

[Table 4-361](#) lists the technical specifications of the AR169JFVW-4B4S router.

**Table 4-361** Technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no rack-mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With rack-mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	

Item	Specification
Maximum power consumption	22 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE combo interface and one VDSL 35B interface LAN interfaces: two Wi-Fi antenna interfaces and four GE electrical interfaces, among which LAN interface GE0 can be used as a WAN interface Voice interfaces: four FXS interfaces, one FXO interface, and four ISDN interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to +45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010389

## 4.5.30 AR169JFVW-2S

### Version Mapping

[Table 4-362](#) lists the mapping between the AR169JFVW-2S router and software versions.

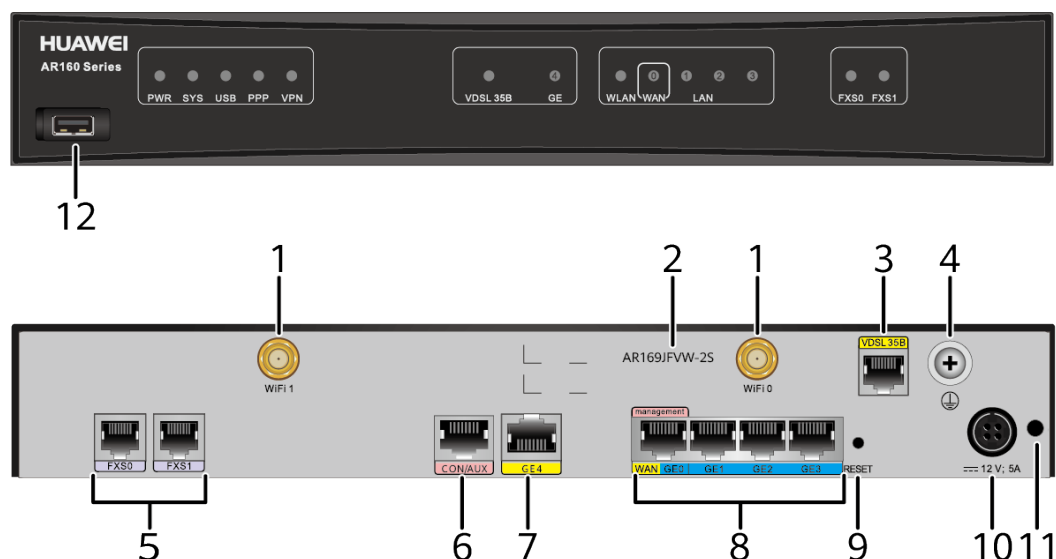
**Table 4-362** Mapping between the AR169JFVW-2S router and software versions

Router Model	Software Version
AR169JFVW-2S	V200R010C00, V300R003C10 and later versions

## Appearance and Structure

**Figure 4-107** shows the appearance of the AR169JFVW-2S router.

**Figure 4-107** AR169JFVW-2S appearance



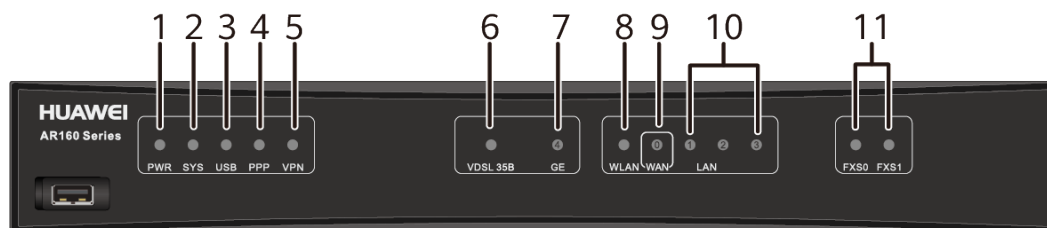
1	Two Wi-Fi antenna interfaces	2	Product model silkscreen
3	WAN interface: VDSL 35B interface	4	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
5	Two FXS interfaces <b>NOTE</b> The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b> .	6	CON/AUX interface <b>NOTE</b> The AR169JFVW-2S does not support AUX login.

7	WAN interface: one GE electrical interface	8	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"><li>• GE0 is a management interface and is used to upgrade the router.</li><li>• All GE LAN interfaces can be configured as WAN interfaces.</li></ul>
9	RESET button <b>NOTE</b> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"><li>• To restore the factory settings, hold down the button for at least 5 seconds.</li><li>• To reset the system, press the button for less than 5 seconds.</li></ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	10	Power jack <b>NOTE</b> <p>The router uses a <b>60 W power adapter</b>.</p>
11	Jack for power cable locking strap <b>NOTE</b> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	12	USB interface (host)

## Indicator Description

Figure 4-108 shows the indicators on the AR169JFVW-2S router.

Figure 4-108 Indicators on the AR169JFVW-2S router



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.

Number	Indicator	Color	Description
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
			Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
			Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	VDSL 35B	Green	Steady on: A link has been established on the VDSL 35B interface. Blinking: The link on the VDSL 35B interface is activating. Off: No link is established on the VDSL 35B interface.
			Steady on: A link has been established on the GE interface. Blinking: Data is being transmitted or received on the GE interface. Off: No link is established on the GE interface.
			Steady on: A link has been established on the GE interface. Blinking: Data is being transmitted or received on the GE interface. Off: No link is established on the GE interface.

Number	Indicator	Color	Description
8	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
9	LAN/WAN (GE0)	Green	Steady on: A link has been established on the LAN/WAN interface. Blinking: Data is being transmitted or received on the LAN/WAN interface. Off: No link is established on the LAN/WAN interface.
10	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.
11	FXS0 and FXS1	Green	Steady on: There is an ongoing call on the corresponding FXS channel. Off: The corresponding FXS channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-363](#) lists the CON/AUX interface attributes.

**Table 4-363** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>

Attribute	Description
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-364](#) lists attributes of a USB interface.

**Table 4-364** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-365](#) lists attributes of a GE electrical interface.

**Table 4-365** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### Wi-Fi Antenna Interface



A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-366](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-366** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### VDSL 35B Interface

A very-high-speed digital subscriber line (VDSL) 35B interface transmits service data from a LAN to an upstream device at a high speed over a twisted pair. [Table 4-367](#) lists attributes of a VDSL interface.

**Table 4-367** VDSL 35B interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.993.2</li><li>• ITU-T G.992.5</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li></ul>

Attribute	Description
Rate	<ul style="list-style-type: none"><li>ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>VDSL2 35B mode (ITU-T G.993.2): downlink rate of 350 Mbit/s and uplink rate of 40 Mbit/s</li></ul>
Cable type	<b>Universal Telephone Cable</b>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-368](#) lists attributes of an FXS interface.

**Table 4-368** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

## Technical Specifications

[Table 4-369](#) lists the technical specifications of the AR169JFVW-2S router.

**Table 4-369** AR169JFVW-2S technical specifications

Item	Description
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	1 GB

Item	Description
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	1.632 kg (3.598 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	22 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
Service interfaces (standard configuration)	WAN interfaces: one GE electrical interface and one VDSL 35B interface LAN interfaces: two Wi-Fi antenna interfaces and four GE electrical interfaces, among which LAN interface GE0 can be used as a WAN interface Voice interfaces: two FXS interfaces
Extended slots	Not supported

Item	Description
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010463

## 4.5.31 AR169FGW-L

### Version Mapping

[Table 4-370](#) lists the mapping between the AR169FGW-L router and software versions.

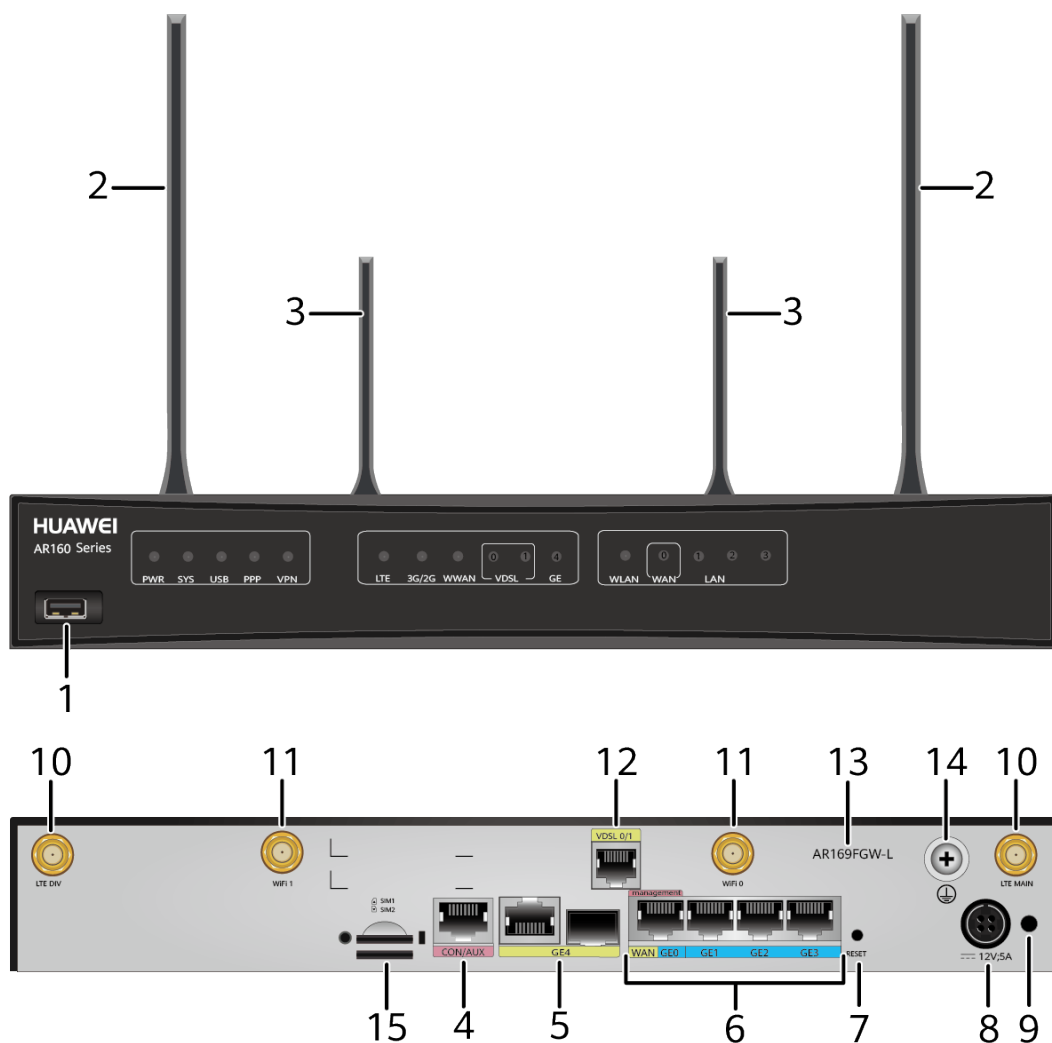
**Table 4-370** Mapping between the AR169FGW-L router and software versions

Router Model	Software Version
AR169FGW-L	V200R005C30 and later versions

### Appearance and Structure

[Figure 4-109](#) shows the appearance of the AR169FGW-L router.

Figure 4-109 AR169FGW-L appearance



1	USB interface (host)	2	Two LTE antennas
3	Two Wi-Fi antennas	4	CON/AUX interface <b>NOTE</b> The AR169FGW-L does not support AUX login.
5	WAN interface: GE combo interface	6	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>

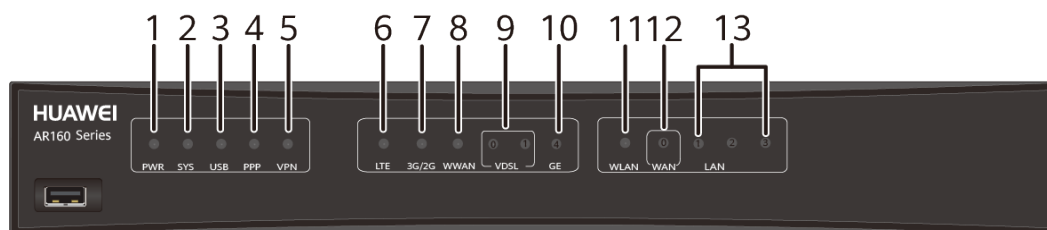
7	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>60 W power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>LTE antenna interface</p>
11	<p>Two Wi-Fi antenna interfaces</p>	12	<p>WAN interface: VDSL interface</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• By default, VDSL0 and VDSL1 are bundled and used together.</li> <li>• VDSL0 and VDSL1 can be unbundled. After unbundled, only VDSL0 is used to transmit data.</li> <li>• The VDSL interfaces support the dying gasp function.</li> </ul>
13	<p>Product model silkscreen</p>	14	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

1 5	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	-	-
--------	---	---	---

## Indicator Description

Figure 4-110 shows the locations of AR169FGW-L indicators.

Figure 4-110 Indicators on an AR169FGW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high. Fast blinking: The LTE signal strength is medium. Slow blinking: The LTE signal strength is low. Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high. Fast blinking: The 3G/2G signal strength is medium. Slow blinking: The 3G/2G signal strength is low. Off: No 3G/2G signal is available.



Number	Indicator	Color	Description
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active. Blinking: Data is being transmitted or received over the LTE/3G/2G connection. Off: The LTE/3G/2G connection has not been established or is inactive.
9	Left VDSL indicator (LINK0) Right VDSL indicator (LINK1)	Green	Steady on: A link has been established on the WAN interface. Blinking: The WAN link on the interface is activating. Off: No link is established on the WAN interface.
10	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
11	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
12	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
13	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center

through a modem for remote configuration. [Table 4-371](#) lists the CON/AUX interface attributes.

**Table 4-371** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-372](#) lists attributes of a USB interface.

**Table 4-372** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-373](#) lists attributes of a GE electrical interface.

**Table 4-373** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-374](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-374** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)

Attribute	Description
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-375](#) lists attributes of a VDSL interface.

**Table 4-375** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.17.1 2VDSL2 Cable</a>

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and

secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-376](#) lists attributes of an LTE antenna interface.

**Table 4-376** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li> <li>• WCDMA: Bands 1/2/5/8</li> <li>• GSM: 850/900/1800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<a href="#">LTE Indoor Remote Antenna (27012152)</a>

## Technical Specifications

[Table 4-377](#) lists the technical specifications of the AR169FGW-L routers.

**Table 4-377** AR169FGW-L routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	None

Item	Specification
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	22 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	<p>WAN interfaces: one GE combo interface, one VDSL interface and two LTE antenna interfaces</p> <p>LAN interfaces: two Wi-Fi antenna interfaces and four GE electrical interfaces, in which LAN interface GE0 can be used as a WAN interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	50010200

## 4.5.32 AR169FGVW-L

### Version Mapping

**Table 4-378** lists the mapping between the AR169FGVW-L router and software versions.

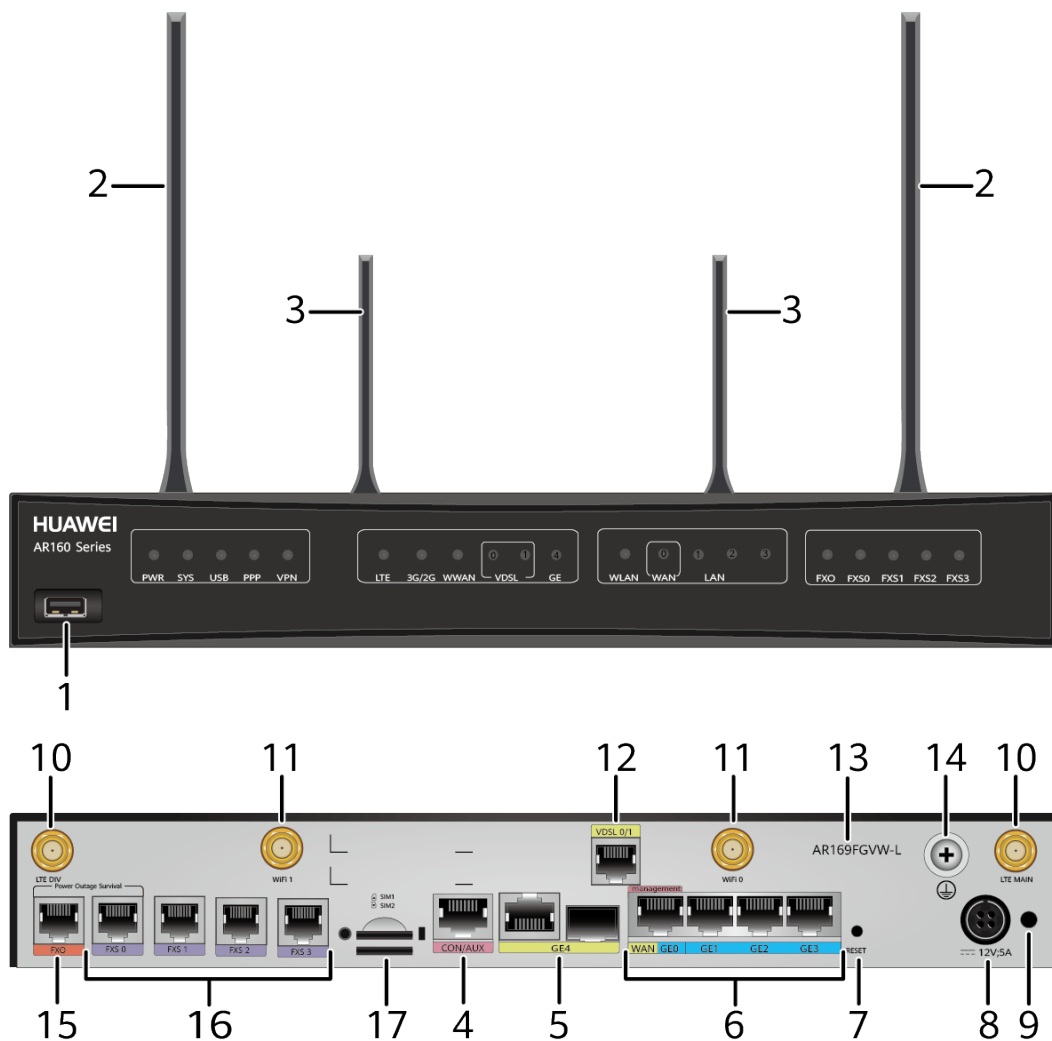
**Table 4-378** Mapping between the AR169FGVW-L router and software versions

Router Model	Software Version
AR169FGVW-L	V200R005C30 and later versions

### Appearance and Structure

**Figure 4-111** shows the appearance of the AR169FGVW-L router.

Figure 4-111 AR169FGVW-L appearance



1	USB interface (host)	2	Two LTE antennas
3	Two Wi-Fi antennas	4	CON/AUX interface <b>NOTE</b> The AR169FGVW-L does not support AUX login.
5	WAN interface: GE combo interface	6	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>GE0 LAN is a management interface and is used to upgrade the router. It can be configured as a WAN interface.</li> <li>V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>



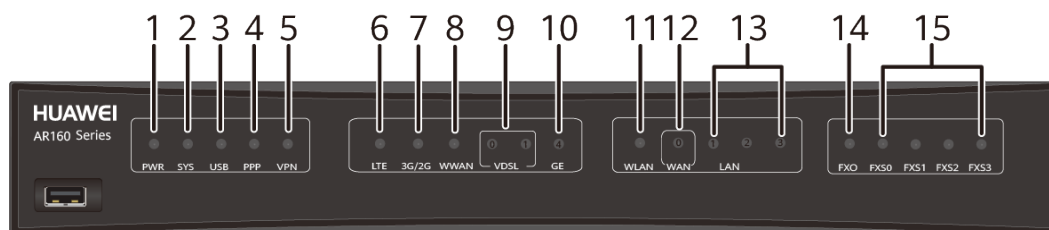
7	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>60 W power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>LTE antenna interface</p>
11	<p>Two Wi-Fi antenna interfaces</p>	12	<p>WAN interface: VDSL interface</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>By default, VDSL0 and VDSL1 are bundled and used together.</li> <li>VDSL0 and VDSL1 can be unbundled. After unbundled, only VDSL0 is used to transmit data.</li> <li>The VDSL interfaces support the dying gasp function.</li> </ul>
13	<p>Product model silkscreen</p>	14	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
15	<p>One FXO interface</p> <p><b>NOTE</b></p> <p>The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b>.</p>	16	<p>Four FXS interfaces</p> <p><b>NOTE</b></p> <p>The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b>.</p>

1 7	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	-	-
--------	---	---	---

## Indicator Description

Figure 4-112 shows the locations of AR169FGVW-L indicators.

Figure 4-112 Indicators on an AR169FGVW-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting.

Number	Indicator	Color	Description
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	LTE	Green	Steady on: The LTE signal strength is high. Fast blinking: The LTE signal strength is medium. Slow blinking: The LTE signal strength is low. Off: No LTE signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high. Fast blinking: The 3G/2G signal strength is medium. Slow blinking: The 3G/2G signal strength is low. Off: No 3G/2G signal is available.

Number	Indicator	Color	Description
8	WWAN	Green	Steady on: An LTE/3G/2G connection has been established and is active. Blinking: Data is being transmitted or received over the LTE/3G/2G connection. Off: The LTE/3G/2G connection has not been established or is inactive.
9	Left VDSL indicator (LINK0) Right VDSL indicator (LINK1)	Green	Steady on: A link has been established on the WAN interface. Blinking: The WAN link on the interface is activating. Off: No link is established on the WAN interface.
10	GE combo interface indicator	Green	Steady on: A link has been established on the GE combo interface. Blinking: Data is being transmitted or received on the GE combo interface. Off: No link is established on the GE combo interface.
11	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
12	LAN/WAN (GE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface. Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface. Off: No link is established on the corresponding LAN/WAN interface.
13	LAN (GE1 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.
14	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.

Number	Indicator	Color	Description
15	FXS0 to FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-379](#) lists the CON/AUX interface attributes.

**Table 4-379** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-380](#) lists attributes of a USB interface.

**Table 4-380** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-381](#) lists attributes of a GE electrical interface.

**Table 4-381** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-382](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-382** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

**VDSL Interface**

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-383](#) lists attributes of a VDSL interface.

**Table 4-383** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.17.1 2VDSL2 Cable</a>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-384](#) lists attributes of an FXS interface.

**Table 4-384** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-385](#) lists attributes of an FXO interface.

**Table 4-385** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-386](#) lists attributes of an LTE antenna interface.



**Table 4-386** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"> <li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li> <li>• WCDMA: Bands 1/2/5/8</li> <li>• GSM: 850/900/1800/1900 (MHz)</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Indoor Remote Antenna (27012152)</b>

## Technical Specifications

**Table 4-387** lists the technical specifications of the AR169FGVW-L routers.

**Table 4-387** AR169FGVW-L routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	28.9 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	<p>WAN interfaces: one GE combo interface, one VDSL interface and two LTE antenna interfaces</p> <p>LAN interfaces: four GE electrical interfaces, in which LAN interface GE0 can be used as a WAN interface, and two Wi-Fi antenna interfaces</p> <p>Voice interfaces: four FXS interfaces and one FX0 interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	<ul style="list-style-type: none"> <li>• AR169FGVW-L: 50010168</li> <li>• AR169FGVW-L (RCM) : 50010437</li> </ul>

### 4.5.33 AR169G-L

#### Version Mapping

**Table 4-388** lists the mapping between the AR169G-L router and software versions.

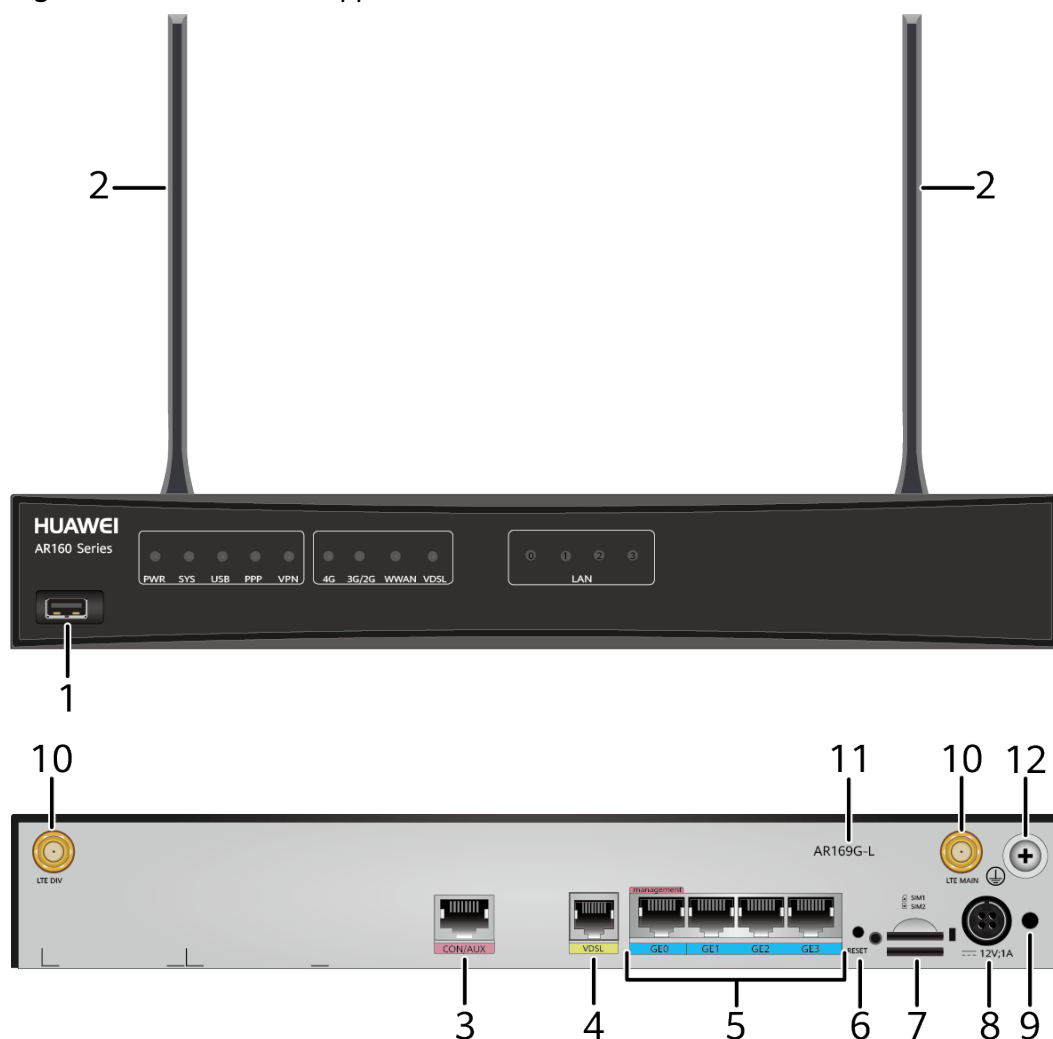
**Table 4-388** Mapping between the AR169G-L router and software versions

Router Model	Software Version
AR169G-L	V200R006C10 and later versions

#### Appearance and Structure

**Figure 4-113** shows the appearance of the AR169G-L router.

Figure 4-113 AR169G-L appearance



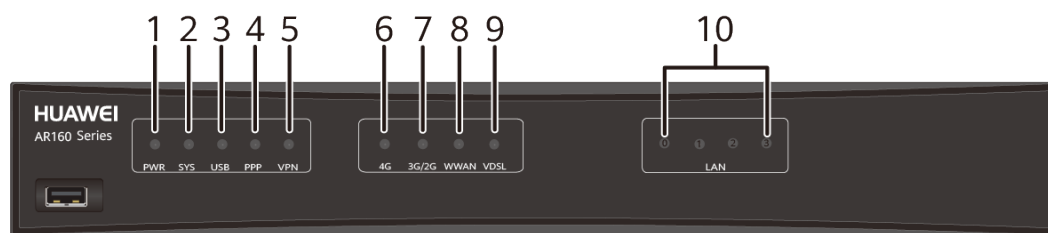
1	USB interface (host)	2	Two LTE antennas
3	CON/AUX interface <b>NOTE</b> The AR169G-L does not support AUX login.	4	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.

5	<p>LAN interfaces: four GE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Two SIM card slots</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• The mounting holes at two sides of the SIM card slots are used to fix the SIM card cover with screws.</li> <li>• The double-card single-standby is supported, and SIM1 is the default master card.</li> <li>• If only one SIM card needs to be installed, install it in slot SIM1. When installing a SIM card, ensure that the notch direction of the SIM card is consistent with that of the SIM card slot.</li> <li>• The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>• Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>	8	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>24 W integrated power adapter</b>.</p>
9	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	10	<p>LTE antenna interface</p>
11	<p>Product model silkscreen</p>	12	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-114** shows the locations of AR169G-L indicators.

**Figure 4-114** Indicators on the AR169G-L



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	4G	Green	Steady on: The 4G signal strength is high.

Number	Indicator	Color	Description
			Fast blinking: The 4G signal strength is medium. Slow blinking: The 4G signal strength is low. Off: No 4G signal is available.
7	3G/2G	Green	Steady on: The 3G/2G signal strength is high. Fast blinking: The 3G/2G signal strength is medium. Slow blinking: The 3G/2G signal strength is low. Off: No 3G/2G signal is available.
8	WWAN	Green	Steady on: A 4G/3G/2G connection has been established and is active. Blinking: Data is being transmitted or received over the 4G/3G/2G connection. Off: The 4G/3G/2G connection has not been established or is inactive.
9	VDSL	Green	Steady on: A VDSL link has been established. Off: No VDSL link is established.
10	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-389](#) lists the CON/AUX interface attributes.

**Table 4-389** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-390](#) lists attributes of a USB interface.

**Table 4-390** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### LTE Antenna Interface

LTE antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives LTE signals, and the secondary antenna only receives LTE signals to help improve the downlink rate. [Table 4-391](#) lists attributes of an LTE antenna interface.

**Table 4-391** LTE antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>• LTE FDD: Bands 1/2/3/4/5/7/8/20</li><li>• WCDMA: Bands 1/2/5/8</li><li>• GSM: 850/900/1800/1900 (MHz)</li></ul>



Attribute	Description
Rate	<ul style="list-style-type: none"> <li>• LTE FDD: uplink rate of 50 Mbit/s and downlink rate of 100 Mbit/s</li> <li>• DC-HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 42 Mbit/s</li> <li>• HSPA+: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li> <li>• WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li> <li>• WCDMA CS: uplink rate of 64 kbit/s and downlink rate of 64 kbit/s</li> <li>• EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li> <li>• GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li> <li>• GSM: uplink rate of 9.6 kbit/s and downlink rate of 14.4 kbit/s</li> </ul>
Cable type	<b>LTE Whip Antenna</b>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-392](#) lists attributes of a GE electrical interface.

**Table 4-392** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<b>Ethernet Cable</b>

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-393](#) lists attributes of a VDSL interface.

**Table 4-393** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

## Technical Specifications

[Table 4-394](#) lists the technical specifications of the AR169G-L router.

**Table 4-394** AR169G-L router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	11.5 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one VDSL interface and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.

Item	Specification
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010216

### 4.5.34 AR169-P-M9

#### Version Mapping

**Table 4-395** lists the mapping between the AR169-P-M9 router and software versions.

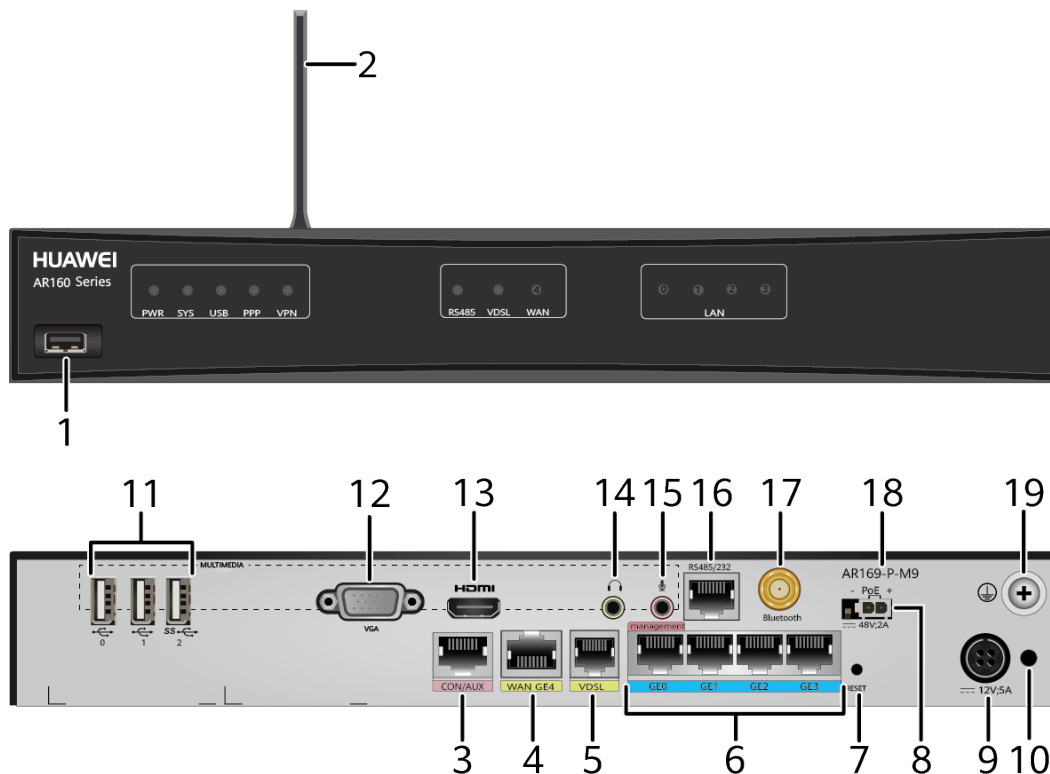
**Table 4-395** Mapping between the AR169-P-M9 router and software versions

Router Model	Software Version
AR169-P-M9	V200R006C10 and later versions

#### Appearance and Structure

**Figure 4-115** shows the appearance of the AR169-P-M9 router.

**Figure 4-115** AR169-P-M9 appearance



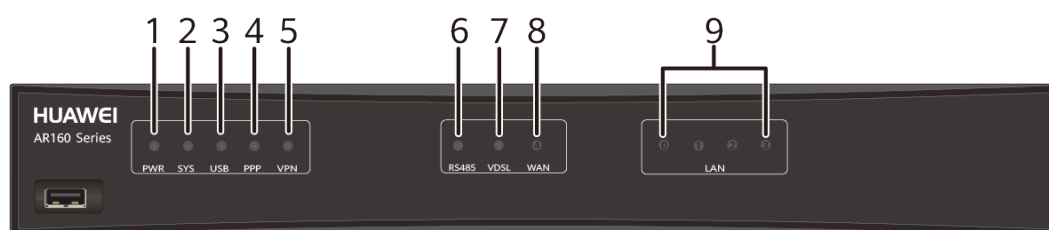
1	USB interface (host)	2	Bluetooth antenna
3	CON/AUX interface <b>NOTE</b> The AR169-P-M9 does not support AUX login.	4	WAN interface: GE electrical interface
5	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.	6	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
7	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	8	PoE power jack <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.
9	Power jack <b>NOTE</b> The router uses a <b>60 W power adapter</b> .	10	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
11	Three USB interfaces (host)	12	VGA interface
13	HDMI video interface	14	Earphone jack
15	Microphone jack	16	RS485/232 interface
17	Bluetooth antenna interface	18	Product model silkscreen

1 9	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-
--------	---	---	---

## Indicator Description

Figure 4-116 shows the locations of AR169-P-M9 indicators.

Figure 4-116 Indicators on the AR169-P-M9



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	RS485	Green	Steady on: An RS485 link has been established and is working normally. Off: No RS485 link is established or a communication failure occurs on the link.
7	VDSL	Green	Steady on: A link has been established on the VDSL interface. Off: No link is established on the VDSL interface.
8	WAN	Green	Steady on: A link has been established on the WAN interface. Blinking: Data is being transmitted or received on the WAN interface. Off: No link is established on the WAN interface.
9	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-396](#) lists the CON/AUX interface attributes.

**Table 4-396** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-397](#) lists attributes of a GE electrical interface.

**Table 4-397** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<b>Ethernet Cable</b>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-398](#) lists attributes of a USB interface.



**Table 4-398** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-399](#) lists attributes of a VDSL interface.

**Table 4-399** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.993.2</li><li>• ITU-T G.992.5</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### HDMI Video Interface

A high definition multimedia interface (HDMI) interface provides HDMI video output. [Table 4-400](#) lists attributes of an HDMI interface.

**Table 4-400** HDMI interface attributes

Attribute	Description
Connector type	HDMI connector

Attribute	Description
Signal types supported	HDMI signal
Cable type	<a href="#">HDMI video cable</a>

### VGA Interface

A video graphics array (VGA) interface provides VGA video output. [Table 4-401](#) lists attributes of a VGA interface.

**Table 4-401** VGA interface attributes

Attribute	Description
Connector type	VGA connector
Signal types supported	VGA signal
Cable type	<a href="#">VGA video cable</a>

### Bluetooth Antenna Interface

The Bluetooth antenna interface of a router connects to a Bluetooth antenna to transmit and receive data. [Table 4-402](#) lists attributes of the Bluetooth interface.

**Table 4-402** Bluetooth antenna interface attributes

Attribute	Description
Connector type	mini PCIe
Standards compliance	<ul style="list-style-type: none"> <li>• BT4.0</li> <li>• EDR</li> </ul>
Frequency bands supported	2.4 GHz
Rate	1 Mbps
Transmission distance	10 m
Cable type	<a href="#">8.15.7 Bluetooth Antenna</a>

### RS485/232 Interface

An RS232/485 interface is a serial interface. [Table 4-403](#) lists attributes of an RS232/485 interface.

**Table 4-403** RS232/485 interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232/485
Baud rate (bit/s)	<ul style="list-style-type: none"><li>RS485: 19200</li><li>RS232: 9600</li></ul>
Cable type	<a href="#">8.6.1 Serial Cable (CON/RS232)</a>

## Technical Specifications

[Table 4-404](#) lists the technical specifications of the AR169-P-M9 router.

**Table 4-404** AR169-P-M9 router technical specifications

Item	Specification
<b>OSP daughter card system parameters</b>	
Processor	Quad-core, 1.91 GHz
Memory	8 GB
Hard disk	64 GB To view the available memory size, run the <b>dir</b> command.
<b>MPU system parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB To view the available memory size, run the <b>dir</b> command.
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg

Item	Specification
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (GE0-GE3)
<b>Power consumption</b>	
Maximum power consumption	30.2 W
<b>Heat dissipation</b>	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	4
Service interfaces (standard configuration)	<p>WAN interfaces: one GE combo interface and one VDSL interface</p> <p>LAN interfaces: four GE electrical interfaces and one Bluetooth antenna interface</p> <p>Multimedia service interfaces: one headset jack, one microphone jack, one HDMI video interface, and one VGA interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	<p>0°C to 45°C (32°F to 113°F)</p> <p><b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.</p>
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing

Item	Specification
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010222

### 4.5.35 AR169W-P-M9

#### Version Mapping

Table 4-405 lists the mapping between the AR169W-P-M9 and software versions.

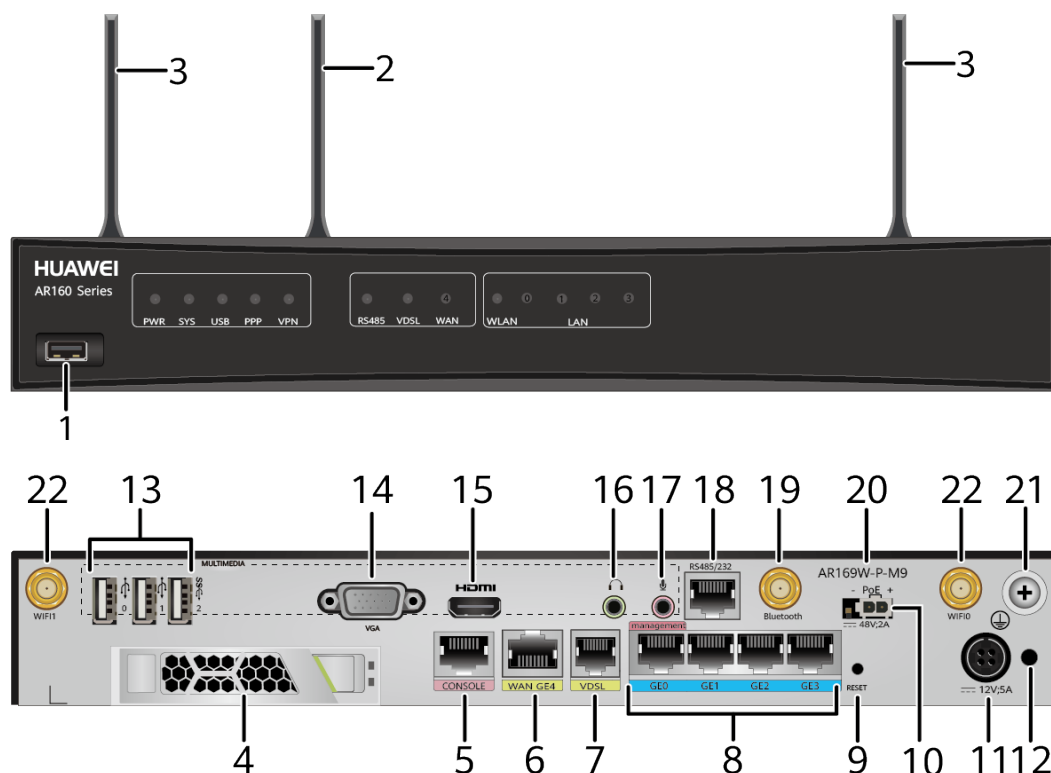
Table 4-405 Mapping between the AR169W-P-M9 and software versions

Router Model	Software Version
AR169W-P-M9	V200R007C00 and later versions

#### Appearance and Structure

Figure 4-117 shows the appearance of the AR169W-P-M9.

Figure 4-117 AR169W-P-M9 appearance



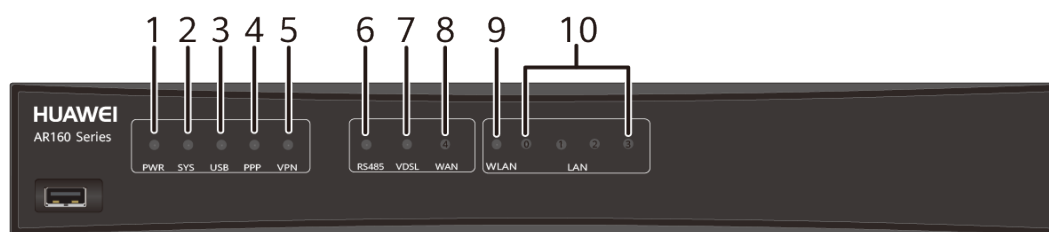
1	USB interface (host)	2	Bluetooth antenna
3	Two Wi-Fi antennas	4	Hard disk drive interface <b>NOTE</b> 2.5-inch SATA hard disks are supported.
5	Console interface	6	WAN interface: GE electrical interface
7	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.	8	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>
9	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	10	PoE power jack <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.
11	Power jack <b>NOTE</b> The router uses a <b>60 W power adapter</b> .	12	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
13	Three USB interfaces (host) <b>NOTE</b> The output power of the USB interface is 5 W. When a USB CD-ROM driver with high power consumption is connected to the USB interface, it must be powered by an independent external power source.	14	VGA interface
15	HDMI video interface	16	Earphone jack
17	Microphone jack	18	RS485/232 interface

19	Bluetooth antenna interface	20	Product model silkscreen
21	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	22	Two Wi-Fi antenna interfaces

## Indicator Description

**Figure 4-118** shows the indicators on the AR169W-P-M9.

**Figure 4-118** Indicators on the AR169W-P-M9



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB <b>NOTE</b> It is the indicator of the USB interface on the front panel.	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	RS485	Green	Steady on: An RS485 link has been established and is working normally. Off: No RS485 link is established or a communication failure occurs on the link.
7	VDSL	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
8	WAN-side GE electrical interface indicator	Green	Steady on: A link has been established on the GE electrical interface. Blinking: Data is being transmitted or received on the GE electrical interface. Off: No link is established on the GE electrical interface.
9	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
10	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.



## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-406](#) lists attributes of a console interface.

**Table 4-406** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-407](#) lists attributes of a GE electrical interface.

**Table 4-407** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-408](#) lists attributes of a USB interface.

**Table 4-408** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-409](#) lists attributes of a VDSL interface.

**Table 4-409** VDSL interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>● ITU-T G.993.2</li><li>● ITU-T G.992.5</li><li>● ITU-T G.992.3</li><li>● ITU-T G.992.1 G.DMT</li><li>● ANSI T1.413 Issue 2</li></ul>
Rate	<ul style="list-style-type: none"><li>● ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>● VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li><li>● ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>● ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-410](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-410** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"><li>• 2.4 GHz: 802.11b/g/n</li><li>• 5.0 GHz: 802.11a/n/ac</li></ul>
Frequency band supported	<ul style="list-style-type: none"><li>• 2.4 GHz</li><li>• 5.0 GHz</li></ul>
Rate	<ul style="list-style-type: none"><li>• 2.4 GHz: 300 Mbit/s</li><li>• 5.0 GHz: 867 Mbit/s</li></ul>
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi/3.0 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### HDMI Video Interface

A high definition multimedia interface (HDMI) interface provides HDMI video output. [Table 4-411](#) lists attributes of an HDMI interface.

**Table 4-411** HDMI interface attributes

Attribute	Description
Connector type	HDMI connector
Signal types supported	HDMI signal
Cable type	<a href="#">HDMI video cable</a>

### VGA Interface

A video graphics array (VGA) interface provides VGA video output. [Table 4-412](#) lists attributes of a VGA interface.

**Table 4-412** VGA interface attributes

Attribute	Description
Connector type	VGA connector

Attribute	Description
Signal types supported	VGA signal
Cable type	<a href="#">VGA video cable</a>

### Bluetooth Antenna Interface

The Bluetooth antenna interface of a router connects to a Bluetooth antenna to transmit and receive data. [Table 4-413](#) lists attributes of the Bluetooth interface.

**Table 4-413** Bluetooth antenna interface attributes

Attribute	Description
Connector type	mini PCIe
Standards compliance	<ul style="list-style-type: none"><li>• BT4.0</li><li>• EDR</li></ul>
Frequency bands supported	2.4 GHz
Rate	1 Mbps
Transmission distance	10 m
Cable type	<a href="#">8.15.7 Bluetooth Antenna</a>

### RS485/232 Interface

An RS232/485 interface is a serial interface. [Table 4-414](#) lists attributes of an RS232/485 interface.

**Table 4-414** RS232/485 interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232/485
Baud rate (bit/s)	<ul style="list-style-type: none"><li>• RS485: 19200</li><li>• RS232: 9600</li></ul>
Cable type	<a href="#">8.6.1 Serial Cable (CON/RS232)</a>

## Technical Specifications

[Table 4-415](#) lists the technical specifications of the AR169W-P-M9.

**Table 4-415** Technical specifications of the AR169W-P-M9

Item	Specification
<b>OSP daughter card system parameters</b>	
Processor	Quad-core, 1.91 GHz
Memory	8 GB
Hard disk	64 GB To view the available memory size, run the <b>dir</b> command.
<b>MPU system parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB To view the available memory size, run the <b>dir</b> command.
Micro SD card (default: sd1)	None
Hard disk	Supported
<b>Physical specifications</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (GE0-GE3)
<b>Power consumption</b>	
Maximum power consumption	41 W
<b>Heat dissipation</b>	

Item	Specification
Fan module	Built-in fan module, unpluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	4
Service interfaces (standard configuration)	WAN interfaces: one GE electrical interface, and one VDSL interface LAN interfaces: four GE electrical interfaces, one Bluetooth antenna interface, and two Wi-Fi antenna interfaces Multimedia service interfaces: one headset jack, one microphone jack, one HDMI video interface, and one VGA interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	<ul style="list-style-type: none"><li>With a hard disk installed: 5°C to 40°C (32°F to 104°F)</li><li>With no hard disk installed: 0°C to 40°C (32°F to 113°F)</li></ul> <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	<ul style="list-style-type: none"><li>With a hard disk installed: &lt; 3000 m (9843 ft.)</li><li>With no hard disk installed: &lt; 5000 m (16404.2 ft.)</li></ul>
Part number	50010223

## Related Documents

Video: [Huawei ICT-Converged Smart Class Solution](#)

## 4.5.36 AR169RW-P-M9

### Version Mapping

**Table 4-416** lists the mapping between the AR169RW-P-M9 and software versions.

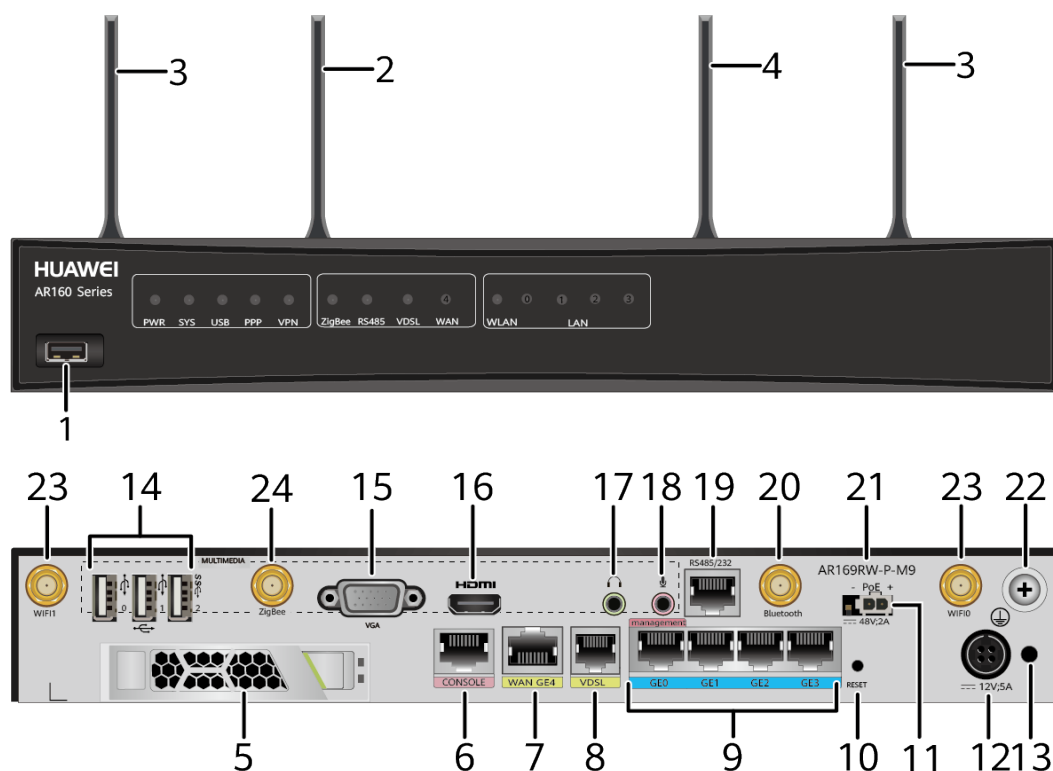
**Table 4-416** Mapping between the AR169RW-P-M9 and software versions

Router Model	Software Version
AR169RW-P-M9	V200R007C00 and later versions

### Appearance and Structure

**Figure 4-119** shows the appearance of the AR169RW-P-M9.

**Figure 4-119** AR169RW-P-M9 appearance



1	USB interface (host)	2	Bluetooth antenna
3	Two Wi-Fi antennas	4	ZigBee antenna

5	Hard disk drive interface <b>NOTE</b> 2.5-inch SATA hard disks are supported.	6	Console interface
7	WAN interface: GE electrical interface	8	WAN interface: VDSL interface <b>NOTE</b> This interface supports the dying gasp function.
9	LAN interfaces: four GE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>• GE0 is a management interface and is used to upgrade the router.</li> <li>• All GE LAN interfaces can be configured as WAN interfaces.</li> </ul>	10	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>• To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>• To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
11	PoE power jack <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.	12	Power jack <b>NOTE</b> The router uses a <b>60 W power adapter</b> .
13	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	14	Three USB interfaces (host) <b>NOTE</b> The output power of the USB interface is 5 W. When a USB CD-ROM driver with high power consumption is connected to the USB interface, it must be powered by an independent external power source.
15	VGA interface	16	HDMI video interface
17	Earphone jack	18	Microphone jack
19	RS485/232 interface	20	Bluetooth antenna interface

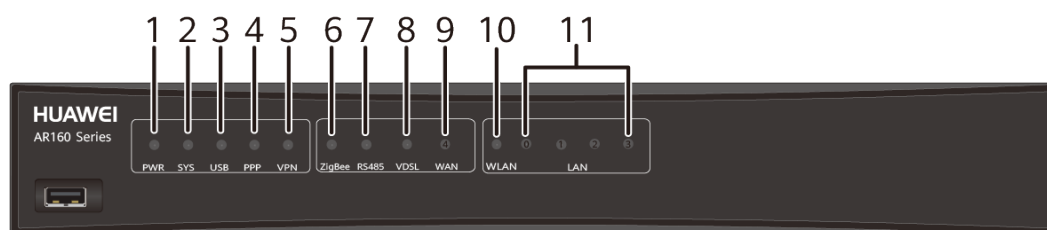


2 1	Product model silkscreen	2 2	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
2 3	Two Wi-Fi antenna interfaces	2 4	ZigBee antenna interface

## Indicator Description

Figure 4-120 shows the indicators on the AR169RW-P-M9.

Figure 4-120 Indicators on the AR169RW-P-M9



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB <b>NOTE</b> It is the indicator of the USB interface on the front panel.	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.
6	ZigBee	Green	Steady on: The ZigBee link connection is normal. Blinking: The ZigBee link connection is normal, and data is being transmitted or received on the ZigBee link. Off: No ZigBee link is established.
7	RS485	Green	Steady on: An RS485 link has been established and is working normally. Off: No RS485 link is established or a communication failure occurs on the link.
8	VDSL	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
9	WAN-side GE electrical interface indicator	Green	Steady on: A link has been established on the GE electrical interface. Blinking: Data is being transmitted or received on the GE electrical interface. Off: No link is established on the GE electrical interface.
10	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.

Number	Indicator	Color	Description
11	LAN (GE0 to GE3)	Green	Steady on: A link has been established on the corresponding LAN interface. Blinking: Data is being transmitted or received on the corresponding LAN interface. Off: No link is established on the corresponding LAN interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-417](#) lists attributes of a console interface.

**Table 4-417** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-418](#) lists attributes of a GE electrical interface.

**Table 4-418** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-419](#) lists attributes of a USB interface.

**Table 4-419** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### VDSL Interface

A very-high-speed digital subscriber line (VDSL) interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-420](#) lists attributes of a VDSL interface.

**Table 4-420** VDSL interface attributes

Attribute	Description
Connector type	RJ11

Attribute	Description
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.993.2</li> <li>• ITU-T G.992.5</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• VDSL2 mode (ITU-T G.993.2): downlink rate of 100 Mbit/s and uplink rate of 50 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL full rate mode (G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">8.7.3 Universal Telephone Cable</a>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-421](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-421** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"> <li>• 2.4 GHz: 802.11b/g/n</li> <li>• 5.0 GHz: 802.11a/n/ac</li> </ul>
Frequency band supported	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5.0 GHz</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• 2.4 GHz: 300 Mbit/s</li> <li>• 5.0 GHz: 867 Mbit/s</li> </ul>
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi/3.0 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.1 Wi-Fi Whip Antenna</a>

### HDMI Video Interface

A high definition multimedia interface (HDMI) interface provides HDMI video output. [Table 4-422](#) lists attributes of an HDMI interface.

**Table 4-422** HDMI interface attributes

Attribute	Description
Connector type	HDMI connector
Signal types supported	HDMI signal
Cable type	<a href="#">HDMI video cable</a>

### VGA Interface

A video graphics array (VGA) interface provides VGA video output. [Table 4-423](#) lists attributes of a VGA interface.

**Table 4-423** VGA interface attributes

Attribute	Description
Connector type	VGA connector
Signal types supported	VGA signal
Cable type	<a href="#">VGA video cable</a>

### Bluetooth Antenna Interface

The Bluetooth antenna interface of a router connects to a Bluetooth antenna to transmit and receive data. [Table 4-424](#) lists attributes of the Bluetooth interface.

**Table 4-424** Bluetooth antenna interface attributes

Attribute	Description
Connector type	mini PCIe
Standards compliance	<ul style="list-style-type: none"><li>• BT4.0</li><li>• EDR</li></ul>
Frequency bands supported	2.4 GHz
Rate	1 Mbps
Transmission distance	10 m
Cable type	<a href="#">8.15.7 Bluetooth Antenna</a>

### RS485/232 Interface

An RS232/485 interface is a serial interface. [Table 4-425](#) lists attributes of an RS232/485 interface.

**Table 4-425** RS232/485 interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232/485
Baud rate (bit/s)	<ul style="list-style-type: none"><li>RS485: 19200</li><li>RS232: 9600</li></ul>
Cable type	<a href="#">8.6.1 Serial Cable (CON/RS232)</a>

## Technical Specifications

[Table 4-426](#) lists the technical specifications of the AR169RW-P-M9.

**Table 4-426** Technical specifications of the AR169RW-P-M9

Item	Specification
<b>OSP daughter card system parameters</b>	
Processor	Quad-core, 1.91 GHz
Memory	8 GB
Hard disk	64 GB <b>NOTE</b> The actual available disk space is less than this value because the router system software occupies some space.
<b>MPU system parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Supported
<b>Physical specifications</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (GE0-GE3)
<b>Power consumption</b>	
Maximum power consumption	42 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, unpluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	4
Service interfaces (standard configuration)	<p>WAN interfaces: one GE electrical interface, and one VDSL interface</p> <p>LAN interfaces: four GE electrical interfaces, one Bluetooth antenna interface, two Wi-Fi antenna interfaces, and one ZigBee antenna interface</p> <p>Multimedia service interfaces: one headset jack, one microphone jack, one HDMI video interface, and one VGA interface</p>
Extended slots	Not supported
<b>Environment parameters</b>	



Item	Specification
Operating temperature	<ul style="list-style-type: none"> <li>With a hard disk installed: 5°C to 40°C (32°F to 104°F)</li> <li>With no hard disk installed: 0°C to 40°C (32°F to 113°F)</li> </ul> <p><b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.</p>
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	<ul style="list-style-type: none"> <li>With a hard disk installed: &lt; 3000 m (9843 ft.)</li> <li>With no hard disk installed: &lt; 5000 m (16404.2 ft.)</li> </ul>
Part number	50010252

## Related Documents

Video: [Huawei ICT-Converged Smart Class Solution](#)

## 4.6 AR200 Series

### 4.6.1 AR201

#### Version Mapping

[Table 4-427](#) lists the mapping between the AR201 router and software versions.

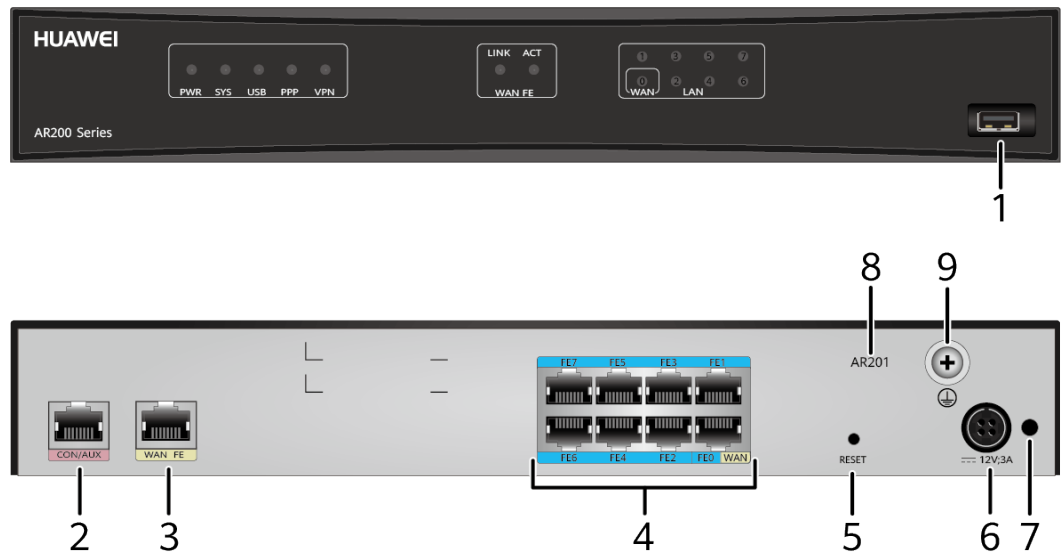
**Table 4-427** Mapping between the AR201 router and software versions

Router Model	Software Version
AR201	V200R002C00 and later versions

#### Appearance and Structure

[Figure 4-121](#) shows the appearance of the AR201 router.

Figure 4-121 AR201 appearance



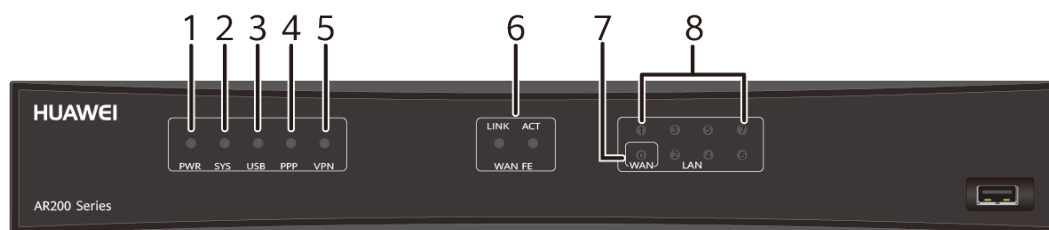
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR201 does not support AUX login.
3	WAN interface: FE electrical interface	4	LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .

7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

Figure 4-122 shows the locations of AR201 indicators.

Figure 4-122 Indicators on the AR201



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: The WAN interface is not transmitting or receiving data.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-428](#) lists the CON/AUX interface attributes.

**Table 4-428** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-429](#) lists attributes of an FE electrical interface.

**Table 4-429** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP

Attribute	Description
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-430](#) lists attributes of a USB interface.

**Table 4-430** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Technical Specifications

[Table 4-431](#) lists the technical specifications of the AR201 router.

**Table 4-431** AR201 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz

Item	Specification
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	12.3 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one FE electrical interface LAN interfaces: eight FE electrical interfaces, in which LAN interface FE0 can be used as a WAN interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353839

## 4.6.2 AR201VW-P

## Version Mapping

**Table 4-432** lists the mapping between the AR201VW-P router and software versions.

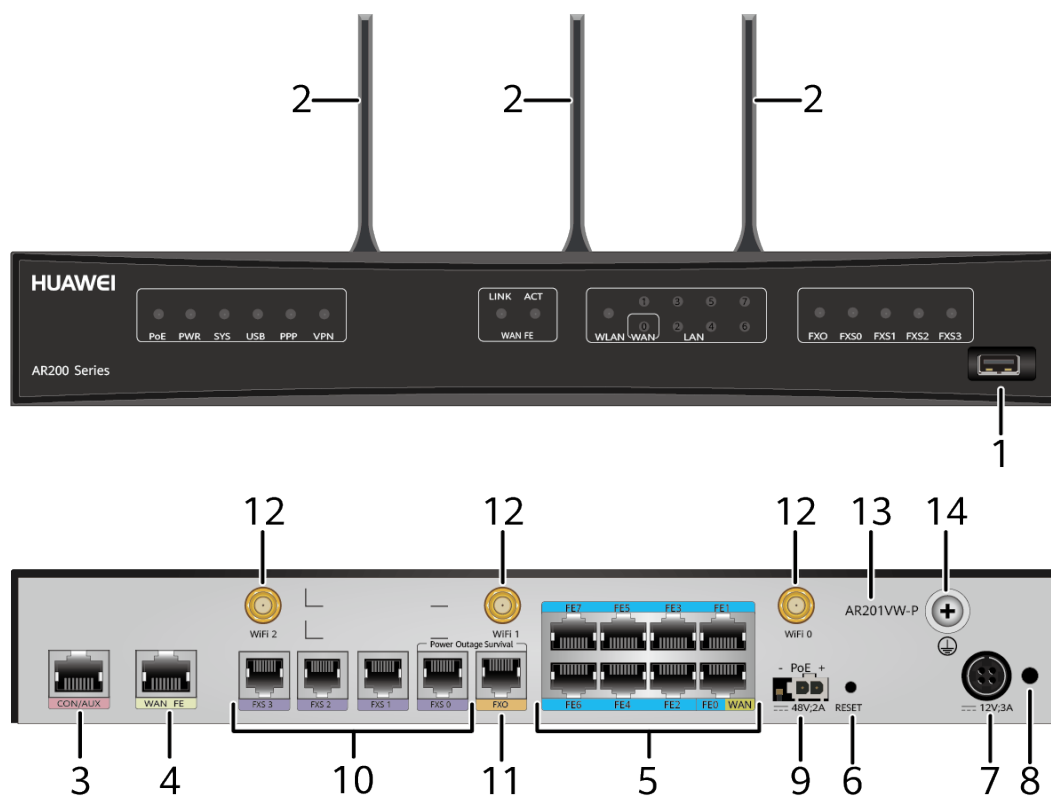
**Table 4-432** Mapping between the AR201VW-P router and software versions

Router Model	Software Version
AR201VW-P	V200R003C00 and later versions

## Appearance and Structure

**Figure 4-123** shows the appearance of the AR201VW-P router.

**Figure 4-123** AR201VW-P appearance



1	USB interface (host)	2	Three Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR201VW-P does not support AUX login.	4	WAN interface: FE electrical interface

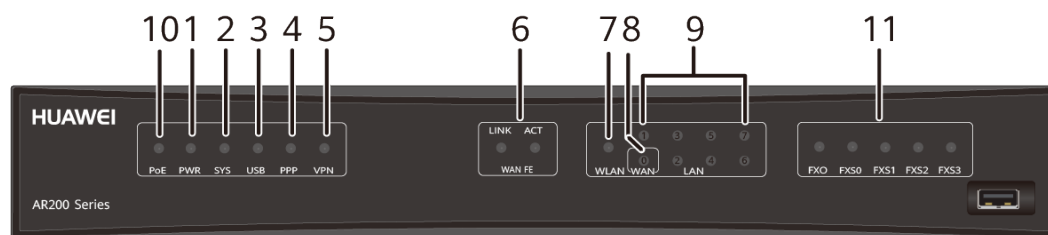


5	<p>LAN interfaces: eight FE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	<p>RESET button</p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>
7	<p>Power jack</p> <p><b>NOTE</b></p> <p>The router uses a <b>4-pin 36 W power adapter</b>.</p>	8	<p>Jack for power cable locking strap</p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>
9	<p>PoE power jack</p> <p><b>NOTE</b></p> <p>The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to Ethernet interfaces of the router.</p>	10	<p>Four FXS interfaces</p> <p><b>NOTE</b></p> <p>The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b>.</p>
11	<p>One FXO interface</p> <p><b>NOTE</b></p> <p>The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b>.</p>	12	<p>Three Wi-Fi antenna interfaces</p>
13	<p>Product model silkscreen</p>	14	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

**Figure 4-124** shows the indicators on the AR201VW-P router.

**Figure 4-124** Indicators on the AR201VW-P



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	WAN: LINK	Green	Steady on: A link has been established on the WAN interface. Off: No link is established on the WAN interface.
	WAN: ACT	Green	Blinking: Data is being transmitted or received on the WAN interface. Off: The WAN interface is not transmitting or receiving data.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.
10	PoE	Green	Steady on: The PoE power supply is normal. Off: No PoE power supply is available.
11	FXS0 to FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.
	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-433](#) lists the CON/AUX interface attributes.

**Table 4-433** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-434](#) lists attributes of an FE electrical interface.

**Table 4-434** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-435](#) lists attributes of a USB interface.

**Table 4-435** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-436](#) lists attributes of an FXS interface.

**Table 4-436** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-437](#) lists attributes of an FXO interface.

**Table 4-437** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection

Attribute	Description
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-438](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-438** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"><li>• 2.4 GHz: 802.11b/g/n</li><li>• 5.0 GHz: 802.11a/n</li></ul>
Frequency bands supported	<ul style="list-style-type: none"><li>• 2.4 GHz</li><li>• 5.0 GHz</li></ul>
Rate	450 Mbit/s
MIMO mode (Tx x Rx)	3x3
Gain	2.15 dBi/3.0 dBi
Cable type	<a href="#">Wi-Fi Whip Antenna</a>

## Technical Specifications

[Table 4-439](#) lists the technical specifications of the AR201VW-P router.

**Table 4-439** AR201VW-P technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None

Item	Specification
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Supported (FE0-FE7)
<b>Power consumption</b>	
Maximum power consumption	23 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: 1 FE electrical interface LAN interfaces: eight FE electrical interfaces, in which FE0 can be configured as a WAN interface and three Wi-Fi antenna interfaces Voice interfaces: four FXS interfaces and one FXO interfaces
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354975

### 4.6.3 AR206

#### Version Mapping

[Table 4-440](#) lists the mapping between the AR206 router and software versions.

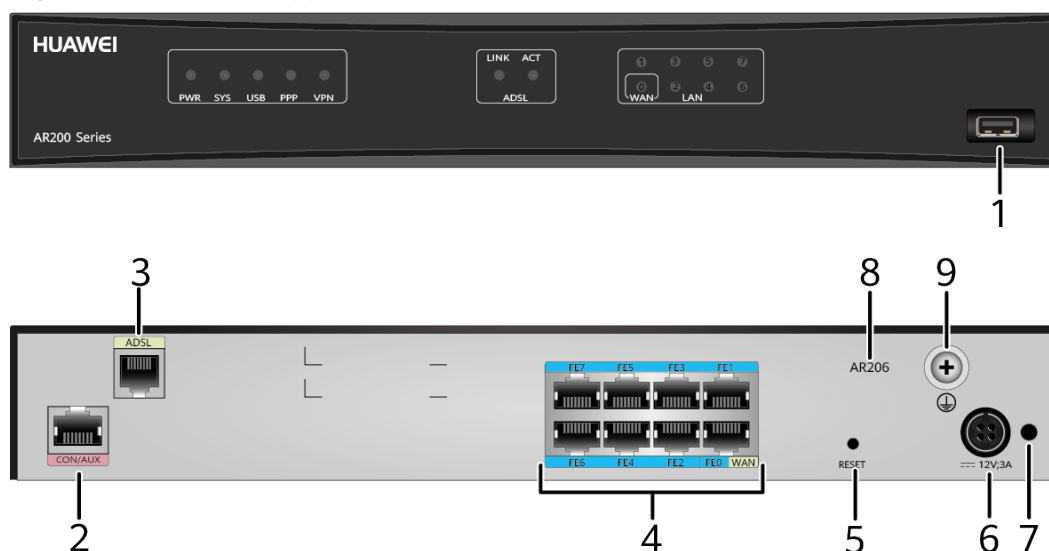
**Table 4-440** Mapping between the AR206 router and software versions

Router Model	Software Version
AR206	V200R002C00 and later versions

#### Appearance and Structure

[Figure 4-125](#) shows the appearance of the AR206 router.

**Figure 4-125** AR206 appearance



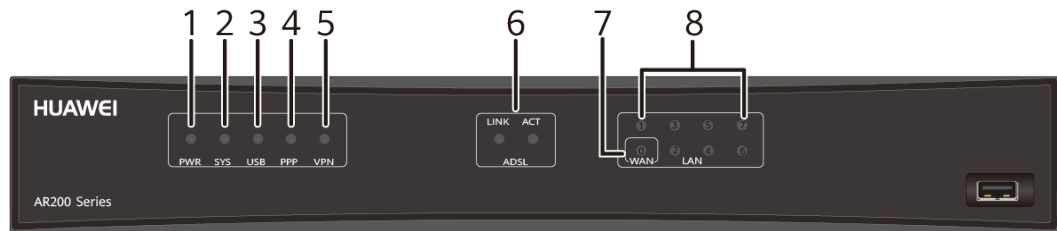


1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR206 does not support AUX login.
3	WAN interface: ADSL-B/J interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-126** shows the locations of AR206 indicators.

**Figure 4-126** Indicators on the AR206



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPSec service is running normally. Off: The IPSec service is unavailable.

Number	Indicator	Color	Description
6	ADSL: LINK	Green	Steady on: A link has been established on the ADSL interface. Off: No link is established on the ADSL interface.
	ADSL: ACT	Green	Blinking: Data is being transmitted or received on the ADSL interface. Off: No data is being transmitted or received on the ADSL interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-441](#) lists the CON/AUX interface attributes.

**Table 4-441** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)

Attribute	Description
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-442](#) lists attributes of an FE electrical interface.

**Table 4-442** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-443](#) lists attributes of a USB interface.

**Table 4-443** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0

Attribute	Description
Working mode	Host

### ADSL-B/J Interface

An ADSL-B/J interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-444](#) lists attributes of an ADSL-B/J interface.

**Table 4-444** ADSL-B/J interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.992.1 G.DMT</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.5</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2+ Annex J mode: a downlink rate of 24 Mbit/s and an uplink rate of 3 Mbit/s</li></ul>
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

[Table 4-445](#) lists the technical specifications of the AR206 router.

**Table 4-445** AR206 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported

Item	Specification
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	16.1 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one ADSL-B/J interface LAN interfaces: eight FE electrical interfaces, in which LAN interface FE0 can be used as a WAN interface
Extended slots	Not supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353840

## 4.6.4 AR207

### Version Mapping

[Table 4-446](#) lists the mapping between the AR207 router and software versions.

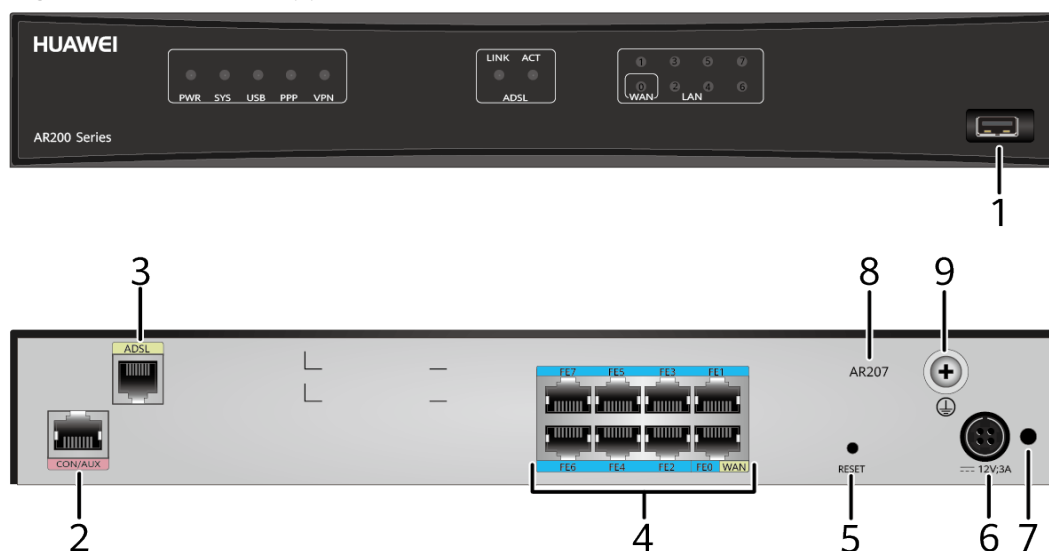
**Table 4-446** Mapping between the AR207 router and software versions

Router Model	Software Version
AR207	V200R002C00 and later versions

### Appearance and Structure

[Figure 4-127](#) shows the appearance of the AR207 router.

**Figure 4-127** AR207 appearance



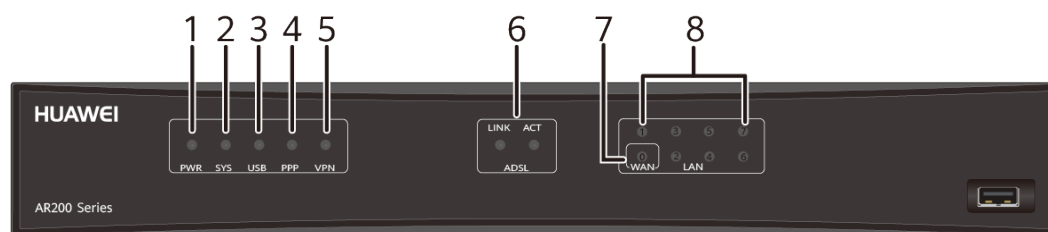
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR207 does not support AUX login.
3	WAN interface: ADSL-A/M interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

**Figure 4-128** shows the locations of AR207 indicators.



**Figure 4-128** Indicators on the AR207



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	ADSL: LINK	Green	Steady on: A link has been established on the ADSL interface. Off: No link is established on the ADSL interface.
	ADSL: ACT	Green	Blinking: Data is being transmitted or received on the ADSL interface. Off: No data is being transmitted or received on the ADSL interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-447](#) lists the CON/AUX interface attributes.

**Table 4-447** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)

Attribute	Description
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-448](#) lists attributes of an FE electrical interface.

**Table 4-448** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-449](#) lists attributes of a USB interface.

**Table 4-449** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0

Attribute	Description
Working mode	Host

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-450](#) lists attributes of an ADSL-A/M interface.

**Table 4-450** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.5</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li> <li>• ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li> <li>• T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li> </ul>
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

[Table 4-451](#) lists the technical specifications of the AR207 router.

**Table 4-451** AR207 router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB

Item	Specification
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	16.1 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	<p>WAN interface: one ADSL-A/M interface</p> <p>LAN interfaces: eight FE electrical interfaces, in which LAN interface FE0 can be used as a WAN interface</p>
Extended slots	Not supported

Item	Specification
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353841

## 4.6.5 AR207G-HSPA+7

### Version Mapping

[Table 4-452](#) lists the mapping between the AR207G-HSPA+7 router and software versions.

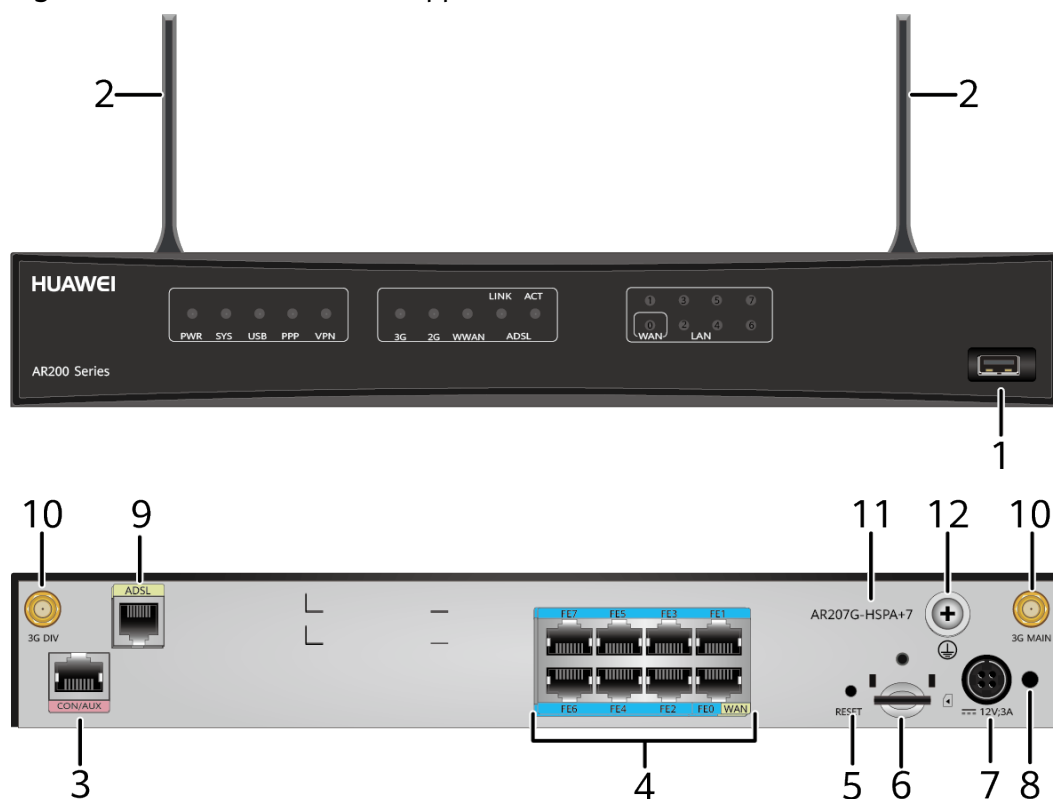
**Table 4-452** Mapping between the AR207G-HSPA+7 router and software versions

Router Model	Software Version
AR207G-HSPA+7	V200R002C01 and later versions

### Appearance and Structure

[Figure 4-129](#) shows the appearance of the AR207G-HSPA+7 router.

Figure 4-129 AR207G-HSPA+7 appearance



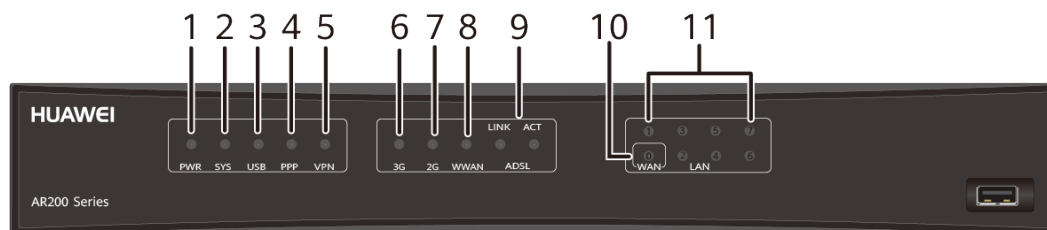
1	USB interface (host)	2	Two 3G antennas
3	CON/AUX interface <b>NOTE</b> The AR207G-HSPA+7 does not support AUX login.	4	LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>

5	<p><b>RESET button</b></p> <p><b>NOTE</b></p> <p>This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	6	<p><b>SIM card slot</b></p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The mounting hole above the SIM card slots is used to fix the SIM card cover with a screw.</li> <li>The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.</li> <li>Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.</li> </ul>
7	<p><b>Power jack</b></p> <p><b>NOTE</b></p> <p>The router uses a <b>4-pin 36 W power adapter</b>.</p>	8	<p><b>Jack for power cable locking strap</b></p> <p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>
9	<p><b>WAN interface: ADSL-A/M interface</b></p> <p><b>NOTE</b></p> <p>This interface supports the dying gasp function.</p>	10	<p><b>3G-HSPA+7 antenna interface</b></p>
11	<p><b>Product model silkscreen</b></p>	12	<p><b>Ground point</b></p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>

## Indicator Description

Figure 4-130 shows the locations of AR207G-HSPA+7 indicators.

Figure 4-130 Indicators on the AR207G-HSPA+7





Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly.
			Fast blinking green: The system is being powered on or restarting.
			Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention.
3	USB	Red and green	Off: The system software is not running or is resetting.
			Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
4	PPP	Green	Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
			Steady on: A PPP connection has been set up.
			Off: No PPP connection is set up.
			Steady on: The IPsec service is running normally.
5	VPN	Green	Off: The IPsec service is unavailable.
			Steady on: The 3G signal strength is high.
			Fast blinking: The 3G signal strength is medium.
			Slow blinking: The 3G signal strength is low.
6	3G	Green	Off: No 3G signal is available.
			Steady on: The 2G signal strength is high.
			Fast blinking: The 2G signal strength is medium.
			Slow blinking: The 2G signal strength is low.
7	2G	Green	Steady on: The 2G signal strength is high.

Number	Indicator	Color	Description
			Fast blinking: The 2G signal strength is medium.
			Slow blinking: The 2G signal strength is low.
			Off: No 2G signal is available.
8	WWAN	Green	Steady on: A 3G/2G connection has been established and is active.
			Blinking: Data is being transmitted or received over the 3G/2G connection.
			Off: The 3G/2G connection has not been established or is inactive.
9	ADSL: LINK	Green	Steady on: A link has been established on the ADSL interface. Off: No link is established on the ADSL interface.
	ADSL: ACT	Green	Blinking: Data is being transmitted or received on the ADSL interface. Off: No data is being transmitted or received on the ADSL interface.
10	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
11	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center

through a modem for remote configuration. [Table 4-453](#) lists the CON/AUX interface attributes.

**Table 4-453** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-454](#) lists attributes of an FE electrical interface.

**Table 4-454** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-455](#) lists attributes of a USB interface.

**Table 4-455** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-456](#) lists attributes of an ADSL-A/M interface.

**Table 4-456** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.5</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li><li>• ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li><li>• T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">Universal Telephone Cable</a>

### 3G-HSPA+7 Antenna Interface

3G antenna interfaces of a router include a MAIN interface (for the primary antenna) and a DIV interface (for the secondary antenna). The primary and secondary antennas work together. The primary antenna transmits and receives

3G signals, and the secondary antenna helps improve the quality of received 3G signals. [Table 4-457](#) lists attributes of a 3G antenna interface.

**Table 4-457** 3G antenna interface attributes

Attribute	Description
Connector type	SMA-K (screw threads outside and a hole inside)
Standards compliance and frequency bands supported	<ul style="list-style-type: none"><li>WCDMA: Bands 1/8</li><li>GSM 850/900/1800/1900 (MHz)</li></ul>
Rate	<ul style="list-style-type: none"><li>HSPA: uplink rate of 5.76 Mbit/s and downlink rate of 21.6 Mbit/s</li><li>WCDMA PS: uplink rate of 384 kbit/s and downlink rate of 384 kbit/s</li><li>EDGE: uplink rate of 236.8 kbit/s and downlink rate of 236.8 kbit/s</li><li>GPRS: uplink rate of 85.6 kbit/s and downlink rate of 85.6 kbit/s</li></ul>
Cable type	<a href="#">8.15.2 3G Antenna</a>

## Technical Specifications

[Table 4-458](#) lists the technical specifications of the AR207G-HSPA+7 routers.

**Table 4-458** AR207G-HSPA+7 routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>

Item	Specification
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	17.1 W
<b>Heat dissipation</b>	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one ADSL-A/M interface and two 3G-HSPA+7 antenna interfaces LAN interfaces: eight FE electrical interfaces, in which LAN interface FE0 can be used as a WAN interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)

Item	Specification
Part number	02354074

## 4.6.6 AR207V

### Version Mapping

[Table 4-459](#) lists the mapping between the AR207V router and software versions.

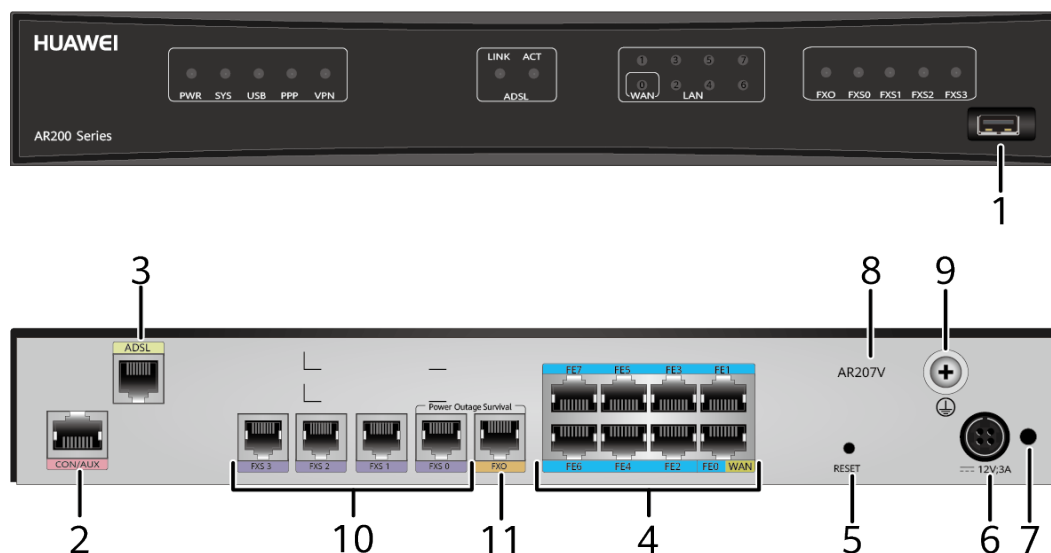
**Table 4-459** Mapping between the AR207V router and software versions

Router Model	Software Version
AR207V	V200R002C00 and later versions

### Appearance and Structure

[Figure 4-131](#) shows the appearance of the AR207V router.

**Figure 4-131** AR207V appearance



1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR207V does not support AUX login.
---	----------------------	---	--

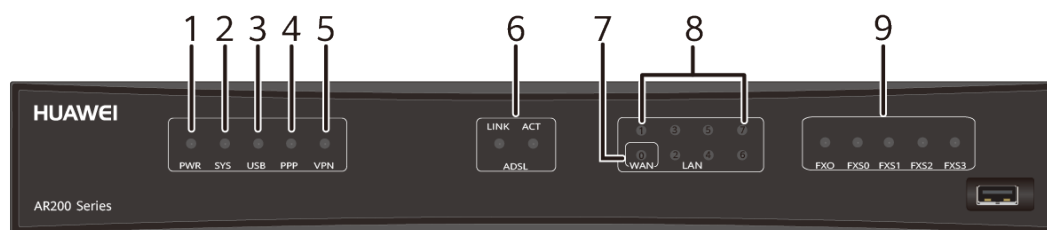
3	<p>WAN interface: ADSL-A/M interface</p> <p><b>NOTE</b> This interface supports the dying gasp function.</p>	4	<p>LAN interfaces: eight FE electrical interfaces</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	<p>RESET button</p> <p><b>NOTE</b> This button is used to reset the router.</p> <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> <p>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</p>	6	<p>Power jack</p> <p><b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b>.</p>
7	<p>Jack for power cable locking strap</p> <p><b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.</p>	8	<p>Product model silkscreen</p>
9	<p>Ground point</p> <p><b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	10	<p>Four FXS interfaces</p> <p><b>NOTE</b> The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b>.</p>
11	<p>One FXO interface</p> <p><b>NOTE</b> The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b>.</p>	-	-

## Indicator Description

**Figure 4-132** shows the locations of AR207V indicators.



**Figure 4-132** Indicators on the AR207V



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.

Number	Indicator	Color	Description
6	ADSL: LINK	Green	Steady on: A link has been established on the ADSL interface. Off: No link is established on the ADSL interface.
	ADSL: ACT	Green	Blinking: Data is being transmitted or received on the ADSL interface. Off: No data is being transmitted or received on the ADSL interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.
9	FXS0 to FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.
	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-460](#) lists the CON/AUX interface attributes.

**Table 4-460** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<b>Console Cable</b>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-461](#) lists attributes of an FE electrical interface.

**Table 4-461** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	<ul style="list-style-type: none"> <li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li> <li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li> </ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<b>8.3.1 Ethernet Cable</b>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-462](#) lists attributes of a USB interface.

**Table 4-462** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-463](#) lists attributes of an ADSL-A/M interface.

**Table 4-463** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.5</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li><li>• ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li><li>• T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li></ul>
Cable type	<b>Universal Telephone Cable</b>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-464](#) lists attributes of an FXS interface.

**Table 4-464** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-465](#) lists attributes of an FXO interface.

**Table 4-465** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

## Technical Specifications

[Table 4-466](#) lists the technical specifications of the AR207V router.

**Table 4-466** AR207V router technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB

Item	Specification
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	22.8 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	<p>WAN interface: one ADSL-A/M interface</p> <p>LAN interfaces: eight FE electrical interfaces, in which LAN interface FE0 can be used as a WAN interface</p> <p>Voice interfaces: four FXS interfaces and one FX0 interface</p>
Extended slots	Not supported

Item	Specification
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353842

## 4.6.7 AR207V-P

### Version Mapping

[Table 4-467](#) lists the mapping between the AR207V-P router and software versions.

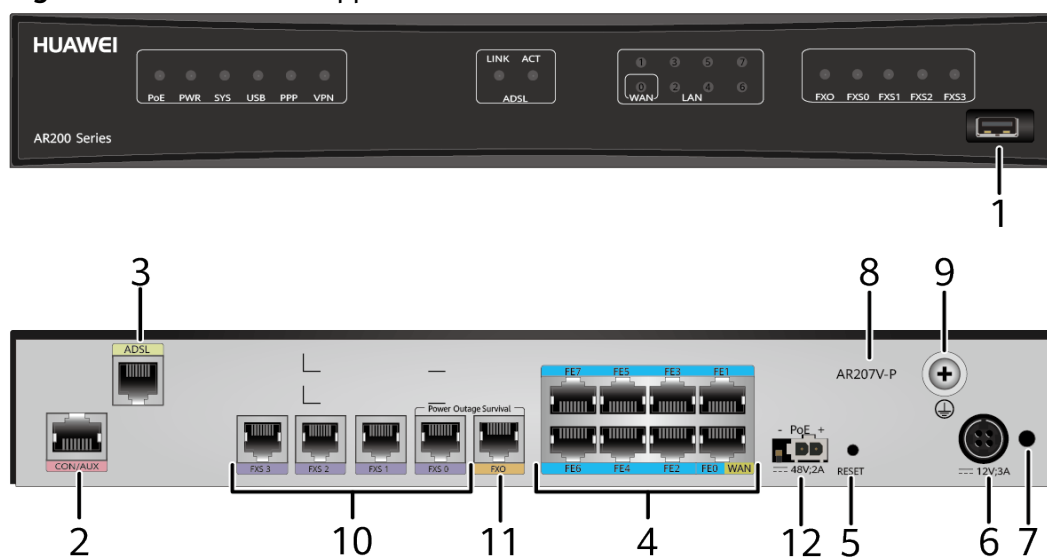
**Table 4-467** Mapping between the AR207V-P router and software versions

Router Model	Software Version
AR207V-P	V200R002C00 and later versions

### Appearance and Structure

[Figure 4-133](#) shows the appearance of the AR207V-P router.

**Figure 4-133** AR207V-P appearance



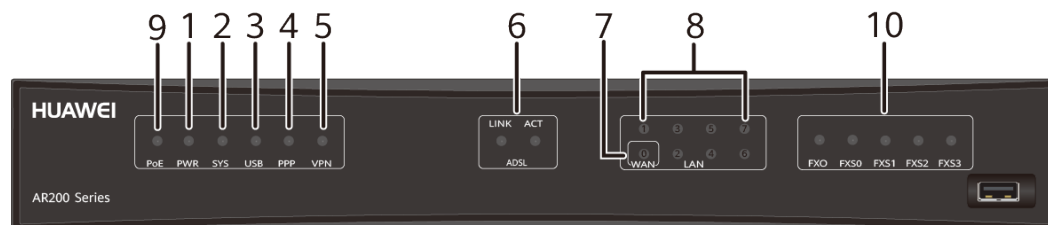
1	USB interface (host)	2	CON/AUX interface <b>NOTE</b> The AR207V-P does not support AUX login.
3	WAN interface: ADSL-A/M interface <b>NOTE</b> This interface supports the dying gasp function.	4	LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	10	Four FXS interfaces <b>NOTE</b> The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b> .
11	One FXO interface <b>NOTE</b> The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b> .	12	PoE power jack <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to Ethernet interfaces of the router.



## Indicator Description

Figure 4-134 shows the locations of AR207V-P indicators.

Figure 4-134 Indicators on the AR207V-P



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.

Number	Indicator	Color	Description
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	ADSL: LINK	Green	Steady on: A link has been established on the ADSL interface. Off: No link is established on the ADSL interface.
	ADSL: ACT	Green	Blinking: Data is being transmitted or received on the ADSL interface. Off: No data is being transmitted or received on the ADSL interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.
9	PoE	Green	Steady on: The PoE power supply is normal. Off: No PoE power supply is available.
10	FXS0 to FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.
	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-468](#) lists the CON/AUX interface attributes.

**Table 4-468** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-469](#) lists attributes of an FE electrical interface.

**Table 4-469** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-470](#) lists attributes of a USB interface.

**Table 4-470** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-471](#) lists attributes of an ADSL-A/M interface.

**Table 4-471** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	<ul style="list-style-type: none"><li>• ITU-T G.992.1 G.DMT</li><li>• ANSI T1.413 Issue 2</li><li>• ITU-T G.992.3</li><li>• ITU-T G.992.5</li></ul>
Rate	<ul style="list-style-type: none"><li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li><li>• ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li><li>• ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li><li>• T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li></ul>
Cable type	<a href="#">Universal Telephone Cable</a>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-472](#) lists attributes of an FXS interface.

**Table 4-472** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-473](#) lists attributes of an FXO interface.

**Table 4-473** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

## Technical Specifications

[Table 4-474](#) lists the technical specifications of the AR207V-P router.

**Table 4-474** AR207V-P router technical specifications

Item	Specification
<b>System parameters</b>	

Item	Specification
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li> <li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li> </ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Supported (FE0-FE7)
<b>Power consumption</b>	
Maximum power consumption	22.6 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces (standard configuration)	WAN interface: one ADSL-A/M interface LAN interfaces: eight FE electrical interfaces, in which LAN interface FE0 can be used as a WAN interface Voice interfaces: four FXS interfaces and one FX0 interface
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353843

## 4.6.8 AR207VW

### Version Mapping

[Table 4-475](#) lists the mapping between the AR207VW router and software versions.

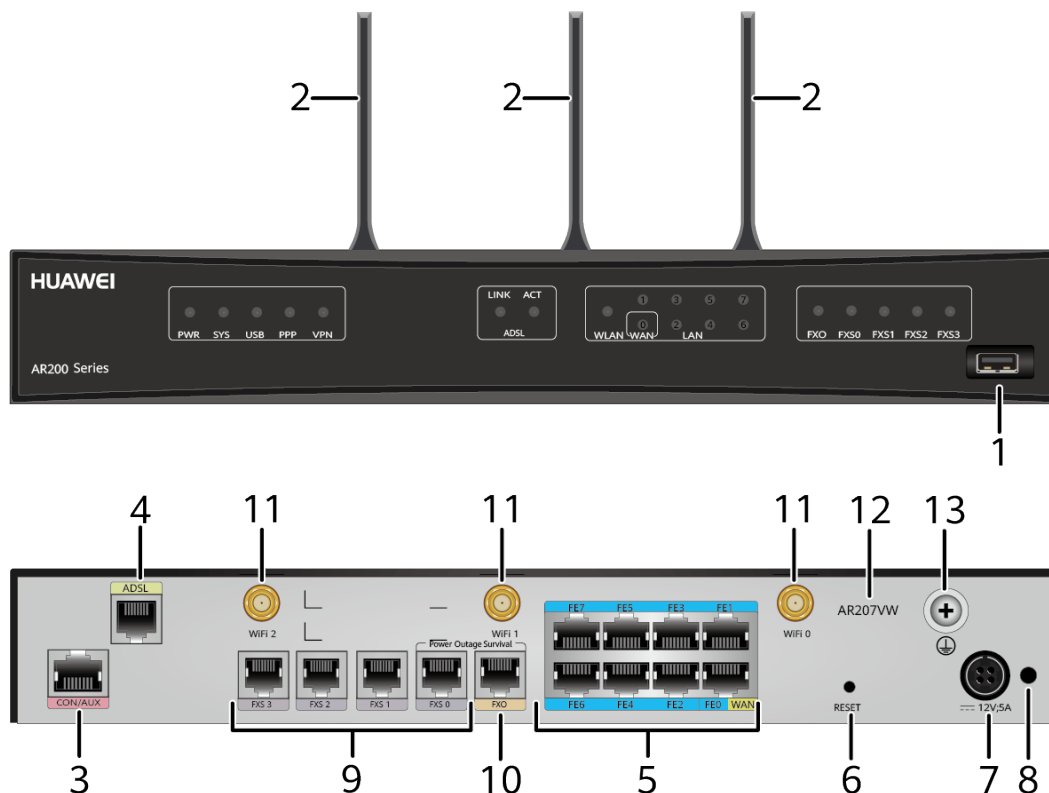
**Table 4-475** Mapping between the AR207VW router and software versions

Router Model	Software Version
AR207VW	V200R003C00 and later versions

### Appearance and Structure

[Figure 4-135](#) shows the appearance of the AR207VW router.

Figure 4-135 AR207VW appearance



1	USB interface (host)	2	Three Wi-Fi antennas
3	CON/AUX interface <b>NOTE</b> The AR207VW does not support AUX login.	4	WAN interface: ADSL-A/M interface <b>NOTE</b> This interface supports the dying gasp function.
5	LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>	6	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack <b>NOTE</b> The router uses a <b>60 W power adapter</b> .	8	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

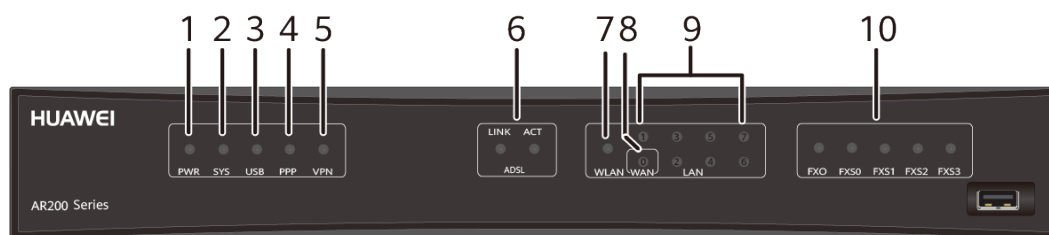


9	Four FXS interfaces  <b>NOTE</b> The FXS interfaces can be connected to analog telephones using a <b>Universal Telephone Cable</b> .	1 0	One FXO interface  <b>NOTE</b> The FXO interface can be connected to a public switched telephone network (PSTN) using a <b>Universal Telephone Cable</b> .
1 1	Three Wi-Fi antenna interfaces	1 2	Product model silkscreen
1 3	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

Figure 4-136 shows the indicators on the AR207VW router.

Figure 4-136 Indicators on the AR207VW



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.

Number	Indicator	Color	Description
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	ADSL: LINK	Green	Steady on: A link has been established on the ADSL interface. Off: No link is established on the ADSL interface.
	ADSL: ACT	Green	Blinking: Data is being transmitted or received on the ADSL interface. Off: The ADSL interface is not transmitting or receiving data.
7	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link. Off: The WLAN link is shut down.
8	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
9	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.
10	FXS0 to FXS3	Green	Steady on: The FXS channel is being occupied by a call. Off: The FXS channel is idle.
	FXO	Green	Steady on: The FXO channel is being occupied by a call. Off: The FXO channel is idle.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-476](#) lists the CON/AUX interface attributes.

**Table 4-476** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-477](#) lists attributes of an FE electrical interface.

**Table 4-477** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>• PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>• PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-478](#) lists attributes of a USB interface.

**Table 4-478** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### ADSL-A/M Interface

An ADSL-A/M interface transmits service data from a LAN to an upstream device at a high speed. [Table 4-479](#) lists attributes of an ADSL-A/M interface.

**Table 4-479** ADSL-A/M interface attributes

Attribute	Description
Connector type	RJ11

Attribute	Description
Standards compliance	<ul style="list-style-type: none"> <li>• ITU-T G.992.1 G.DMT</li> <li>• ANSI T1.413 Issue 2</li> <li>• ITU-T G.992.3</li> <li>• ITU-T G.992.5</li> </ul>
Rate	<ul style="list-style-type: none"> <li>• ADSL full rate mode (ITU-T G.992.1 G.DMT): downlink rate of 8 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2 full rate mode (ITU-T G.992.3): downlink rate of 12 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2+ full rate mode (ITU-T G.992.5): downlink rate of 24 Mbit/s and uplink rate of 1 Mbit/s</li> <li>• ADSL2 Annex M mode: a downlink rate of 12 Mbit/s and an uplink rate of 2 Mbit/s</li> <li>• ADSL2+ Annex M mode: a downlink rate of 24 Mbit/s and uplink rate of 2 Mbit/s</li> <li>• T1.413 mode: a downlink rate of 8 Mbit/s and an uplink rate of 1 Mbit/s</li> </ul>
Cable type	<b>Universal Telephone Cable</b>

### FXS Interface

A foreign exchange station (FXS) interface is an analog subscriber line interface and can connect to an analog phone or fax machine. [Table 4-480](#) lists attributes of an FXS interface.

**Table 4-480** FXS interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.512 for the FXS interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	DTMF in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<b>Universal Telephone Cable</b>

### FXO Interface

A foreign exchange office (FXO) interface is a loop trunk interface and can connect to a PSTN network. [Table 4-481](#) lists attributes of an FXO interface.

**Table 4-481** FXO interface attributes

Attribute	Description
Connector type	RJ11
Standards compliance	ITU Q.552 for the FXO interface ITU K.20 for overcurrent protection and overvoltage protection
Dialing mode	Dual tone multiple frequency (DTMF) in accordance with GB3378
Bandwidth	300 Hz to 3400 Hz
Cable type	<a href="#">Universal Telephone Cable</a>

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-482](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-482** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	<ul style="list-style-type: none"><li>• 2.4 GHz: 802.11b/g/n</li><li>• 5.0 GHz: 802.11a/n</li></ul>
Frequency bands supported	<ul style="list-style-type: none"><li>• 2.4 GHz</li><li>• 5.0 GHz</li></ul>
Rate	450 Mbit/s
MIMO mode (Tx x Rx)	3x3
Gain	2.15 dBi/3.0 dBi
Cable type	<a href="#">Wi-Fi Whip Antenna</a>

## Technical Specifications

[Table 4-483](#) lists the technical specifications of the AR207VW router.

**Table 4-483** AR207VW technical specifications

Item	Specification
<b>System parameters</b>	

Item	Specification
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg (6.17 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	5 A
Maximum output power	60
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	20.7 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces (standard configuration)	WAN interface: one ADSL-A/M interface LAN interfaces: eight FE electrical interfaces, in which FE0 can be configured as a WAN interface and three Wi-Fi antenna interfaces Voice interfaces: four FXS interfaces and one FXO interfaces
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354976

## 4.6.9 AR208E

### Version Mapping

[Table 4-484](#) lists the mapping between the AR208E router and software versions.

**Table 4-484** Mapping between the AR208E router and software versions

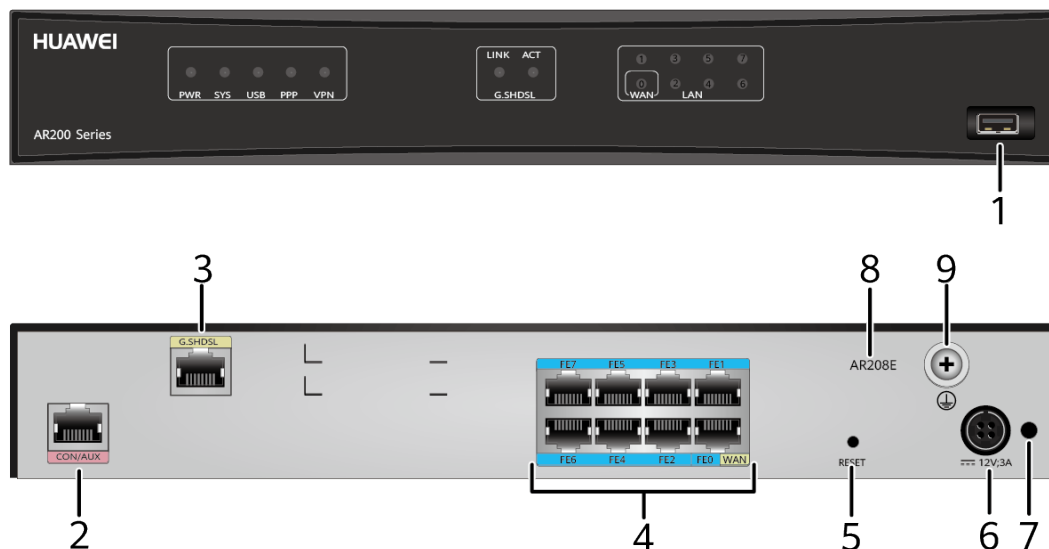
Router Model	Software Version
AR208E	V200R002C00 and later versions

### Appearance and Structure

[Figure 4-137](#) shows the appearance of the AR208E router.



Figure 4-137 AR208E appearance



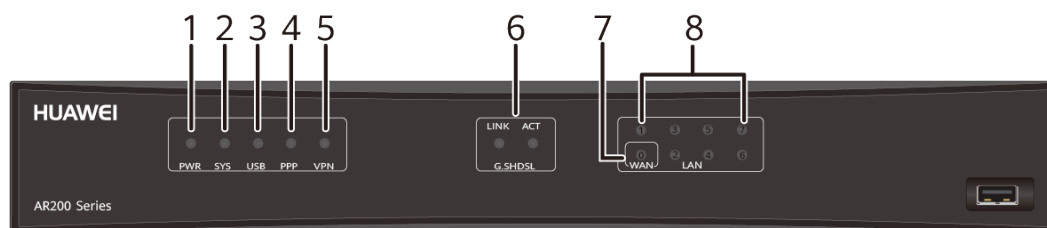
1	USB interface (host)	2 CON/AUX interface <b>NOTE</b> The AR208E does not support AUX login.
3	WAN interface: G.SHDSL interface <b>NOTE</b> This interface supports the dying gasp function.	4 LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <ul style="list-style-type: none"> <li>LAN interface FE0 can be configured as a WAN interface.</li> <li>FE6 is a management interface and is used to upgrade the router.</li> <li>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</li> </ul>
5	RESET button <b>NOTE</b> This button is used to reset the router. <ul style="list-style-type: none"> <li>To restore the factory settings, hold down the button for at least 5 seconds.</li> <li>To reset the system, press the button for less than 5 seconds.</li> </ul> Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6 Power jack <b>NOTE</b> The router uses a <b>4-pin 36 W power adapter</b> .

7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Indicator Description

Figure 4-138 shows the locations of AR208E indicators.

Figure 4-138 Indicators on the AR208E



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The system power supply is normal. Off: The system power is off.
2	SYS	Red and green	Slow blinking green: The system is running properly. Fast blinking green: The system is being powered on or restarting. Steady red: A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. Off: The system software is not running or is resetting.
3	USB	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
4	PPP	Green	Steady on: A PPP connection has been set up. Off: No PPP connection is set up.
5	VPN	Green	Steady on: The IPsec service is running normally. Off: The IPsec service is unavailable.
6	G.SHDSL: LINK	Green	Steady on: A link has been established on the G.SHDSL interface. Off: No link is established on the G.SHDSL interface.
	G.SHDSL: ACT	Green	Blinking: Data is being transmitted or received on the G.SHDSL interface. Off: No data is being transmitted or received on the G.SHDSL interface.
7	LAN/WAN (FE0)	Green	Steady on: A link has been established on the corresponding LAN/WAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN/WAN interface.
			Off: No link is established on the corresponding LAN/WAN interface.
8	LAN (FE1 to FE7)	Green	Steady on: A link has been established on the corresponding LAN interface.
			Blinking: Data is being transmitted or received on the corresponding LAN interface.
			Off: No link is established on the corresponding LAN interface.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-485](#) lists the CON/AUX interface attributes.

**Table 4-485** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-486](#) lists attributes of an FE electrical interface.

**Table 4-486** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP

Attribute	Description
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-487](#) lists attributes of a USB interface.

**Table 4-487** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### G.SHDSL Interface

A G.SHDSL interface transmits service data from a LAN to an upstream device at a high speed over a symmetric digital subscriber line. [Table 4-488](#) lists attributes of a G.SHDSL interface.

**Table 4-488** G.SHDSL interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	ITU-T G.991.2
Rate	15.296Mbps/pair (In PTM transmission mode, the binding type is set to EFM)
Cable type	<a href="#">8.12.1 G.SHDSL Cable</a> or <a href="#">8.3.1 Ethernet Cable</a>

## Technical Specifications

[Table 4-489](#) lists the technical specifications of the AR208E router.

**Table 4-489** AR208E router technical specifications

Item	Specification
<b>System parameters</b>	

Item	Specification
Processor	Dual-core, 533 MHz
Memory	512MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.0 mm x 300.0 mm x 216.4 mm (1.73 in. x 11.81 in. x 8.52 in.)</li><li>With mounting brackets installed: 44.0 mm x 482.6 mm x 216.4 mm (1.73 in. x 19.00 in. x 8.52 in.)</li></ul>
Weight	2.8 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption</b>	
Maximum power consumption	14.7 W
<b>Heat dissipation</b>	
Fan module	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interface: one G.SHDSL interface LAN interfaces: eight FE electrical interfaces, in which LAN interface FE0 can be used as a WAN interface

Item	Specification
Extended slots	Not supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02353844

## 4.7 AR1200 Series

### 4.7.1 AR1220-AC

#### Version Mapping

[Table 4-490](#) lists the mapping between the AR1220-AC router and software versions.

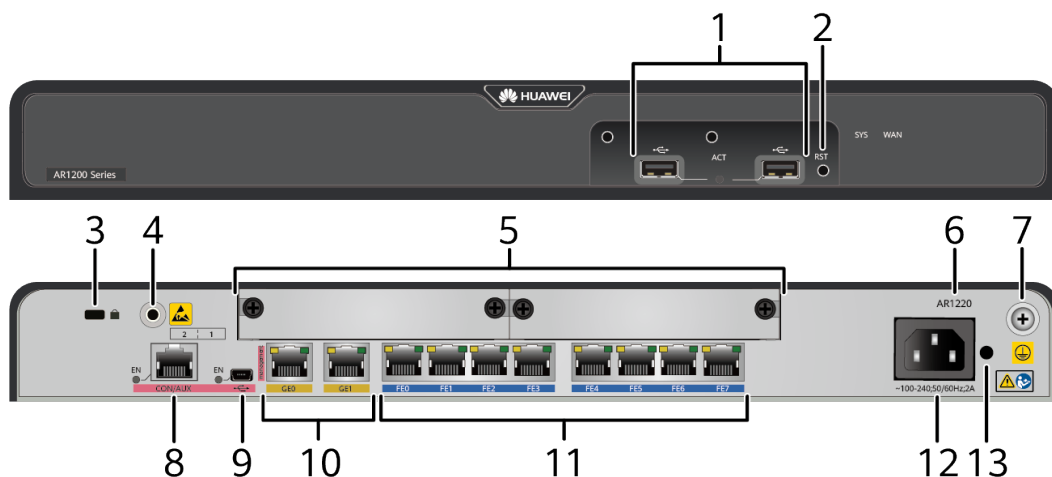
**Table 4-490** Mapping between the AR1220-AC router and software versions

Router Model	Software Version
AR1220-AC	V200R001C00 and later versions

#### Appearance and Structure

[Figure 4-139](#) shows the appearance of the AR1220-AC router.

Figure 4-139 AR1220-AC appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>
3	Security lock	4	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
5	Two SIC slots	6	Product model silkscreen
7	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	8	CON/AUX interface <b>NOTE</b> The AR1220-AC does not support AUX login.
9	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	10	WAN interfaces: two GE electrical interfaces <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.



1 1	LAN interfaces: eight FE electrical interfaces  <b>NOTE</b> V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.	1 2	AC power jack  <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
1 3	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	-	-

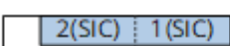
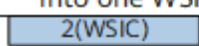
## Slot Distribution

 **NOTE**

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-140** shows the slots layout on the AR1220-AC router.

**Figure 4-140** Slot distribution of the AR1220-AC router

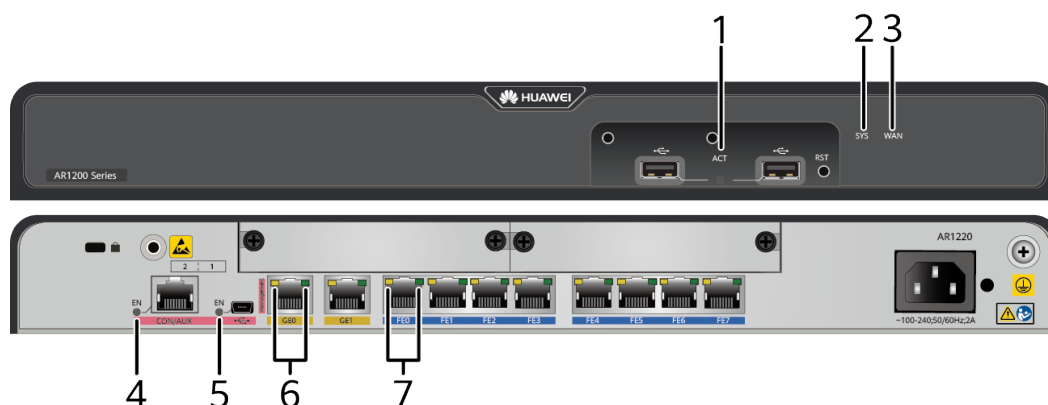
Device Model		Slot Distribution	Slot Combination
AR1220-AC	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

**Figure 4-141** shows the indicators on the AR1220-AC router.

Figure 4-141 Indicators on the AR1220-AC



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly.
			Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.

Number	Indicator	Color	Description
4	EN (CON/AUX interface)  <b>NOTE</b> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>	Green	Steady on: The CON/AUX interface is enabled.
			Off: The CON/AUX interface is disabled.
5	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
6	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

Number	Indicator	Color	Description
7	FE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-491](#) lists the CON/AUX interface attributes.

**Table 4-491** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-492](#) lists attributes of a Mini USB interface.

**Table 4-492** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0

Attribute	Description
Working mode	Device

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-493](#) lists attributes of an FE electrical interface.

**Table 4-493** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-494](#) lists attributes of a GE electrical interface.

**Table 4-494** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-495](#) lists attributes of a USB interface.

**Table 4-495** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR1220-AC router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-142](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-142** Airflow



## Technical Specifications

**Table 4-496** lists the technical specifications of the AR1220-AC router.

**Table 4-496** AR1220-AC technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li><li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li></ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	27 W
Maximum power consumption	32 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)

Item	Specification
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces LAN interfaces: eight FE electrical interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02352932

## 4.7.2 AR1220-DC

### Version Mapping

[Table 4-497](#) lists the mapping between the AR1220-DC router and software versions.

**Table 4-497** Mapping between the AR1220-DC router and software versions

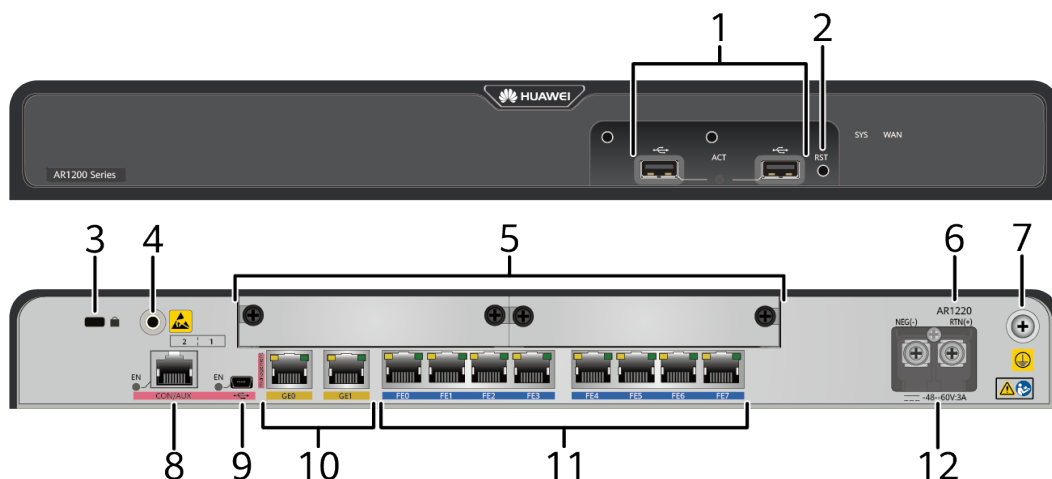
Router Model	Software Version
AR1220-DC	V200R001C01, V200R002C02 and later versions <b>NOTE</b> The AR1220-DC is not supported in V200R002C00 and V200R002C01.

### Appearance and Structure

[Figure 4-143](#) shows the appearance of the AR1220-DC router.



Figure 4-143 AR1220-DC appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>
3	Security lock	4	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
5	Two SIC slots	6	Product model silkscreen
7	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	8	CON/AUX interface <b>NOTE</b> The AR1220-DC does not support AUX login.
9	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	10	WAN interfaces: two GE electrical interfaces <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.

1	LAN interfaces: eight FE electrical interfaces	1	DC power terminals
1	<b>NOTE</b> V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.	2	<b>NOTE</b> Use <b>DC power cables</b> to connect the router to an external power source.

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-144 shows the slot distribution of the AR1220-DC router.

Figure 4-144 Slot distribution of the AR1220-DC router

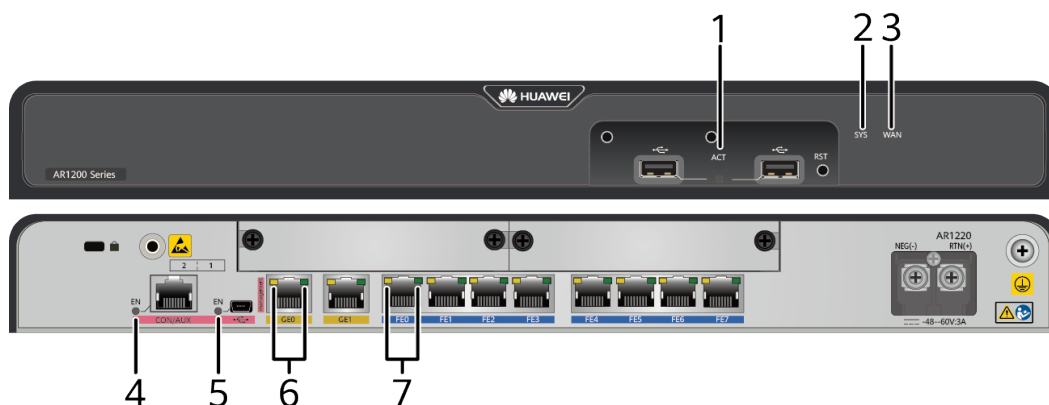
Device Model		Slot Distribution	Slot Combination
AR1220-DC	Front view	NA	NA
	Rear view	2(SIC) : 1(SIC)	Two SIC slots are combined into one WSIC slot 2(WSIC)

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

Figure 4-145 shows the indicators on the AR1220-DC router.

Figure 4-145 Indicators on the AR1220-DC



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.
4	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		Off: The CON/AUX interface is disabled.
5	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
6	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
7	FE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.

Number	Indicator	Color	Description
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-498](#) lists the CON/AUX interface attributes.

**Table 4-498** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-499](#) lists attributes of a Mini USB interface.

**Table 4-499** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-500](#) lists attributes of an FE electrical interface.

**Table 4-500** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-501](#) lists attributes of a GE electrical interface.

**Table 4-501** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>

Attribute	Description
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-502](#) lists attributes of a USB interface.

**Table 4-502** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR1220-DC router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-146](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-146** Airflow



## Technical Specifications

[Table 4-503](#) lists the technical specifications of the AR1220-DC router.

**Table 4-503** AR1220-DC technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage (DC)	-48 V DC to -60 V DC
Maximum input voltage (DC)	-38.4 V DC to -72 V DC
Maximum input current	3 A
Maximum output power	54 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	27 W
Maximum power consumption	32 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2



Item	Specification
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces LAN interfaces: eight FE electrical interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354271

## 4.7.3 AR1220-8GE

### Version Mapping

**Table 4-504** lists the mapping between the AR1220-8GE router and software versions.

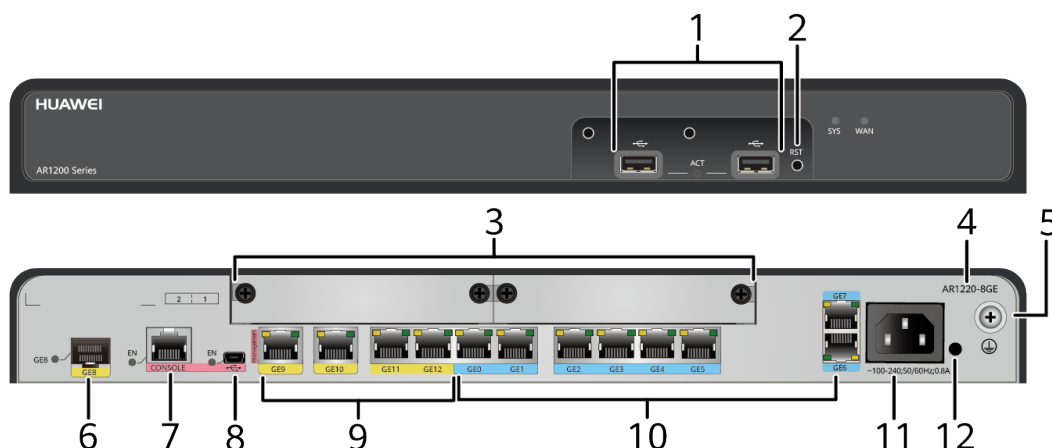
**Table 4-504** Mapping between the AR1220-8GE router and software versions

Router Model	Software Version
AR1220-8GE	V200R007C00, V200R008C50 and later versions

### Appearance and Structure

**Figure 4-147** shows the appearance of the AR1220-8GE router.

Figure 4-147 AR1220-8GE appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	Two SIC slots	4	Product model silkscreen
5	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	6	WAN interface: GE optical interface
7	CONSOLE interface	8	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.
9	WAN interfaces: four GE electrical interfaces <b>NOTE</b> GE9 is a management interface and is used to upgrade the router.	10	LAN interfaces: eight GE electrical interfaces <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.
11	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.	12	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.


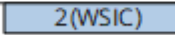
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-148 shows the slot distribution of the AR1220-8GE router.

Figure 4-148 Slot distribution of the AR1220-8GE

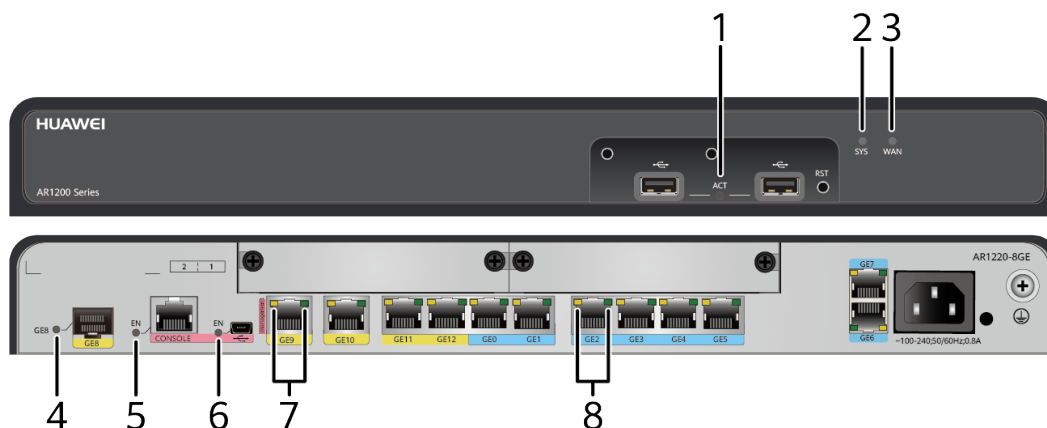
Device Model		Slot Distribution	Slot Combination
AR1220-8GE	Front view	NA	NA
	Rear view		

- Slot 1 and slot 2 can be combined into new slot 2.

## Indicator Description

Figure 4-149 shows the indicators on the AR1220-8GE router.

Figure 4-149 Indicators on the AR1220-8GE



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting. Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually. Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active. Off: The five GE interfaces are all disconnected or inactive.
4	GE optical interface indicator (WAN)	Green	Steady on: A link has been established on the interface. Blinking: Data is being transmitted or received on the interface. Off: No link is established on the interface.
5	EN (console interface)	Green	Steady on: The console interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The console interface and Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the console interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		Off: The console interface is disabled.
6	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
7	GE electrical interface indicator (WAN)	Green	Steady on: A link has been established on the interface.
			Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received on the interface.
			Off: No data is being transmitted or received on the interface.
8	GE electrical interface	Green	Steady on: A link has been established on the interface.

Number	Indicator	Color	Description
	indicator (LAN)		Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received on the interface.
			Off: No data is being transmitted or received on the interface.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-505](#) lists attributes of a console interface.

**Table 4-505** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### Mini USB interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-506](#) lists attributes of a Mini USB interface.

**Table 4-506** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-507](#) lists attributes of a GE electrical interface.

**Table 4-507** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE optical interface

A GE optical interface can transmit and receive service traffic at 100 Mbit/s or 1000 Mbit/s. [Table 4-508](#) lists attributes of a GE optical interface.

**Table 4-508** GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.5 GE eSFP Optical Modules</a> and <a href="#">9.4 FE SFP/eSFP Optical Modules</a> .
Standards compliance	IEEE 802.3z

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-509](#) lists attributes of a USB interface.

**Table 4-509** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR1220-8GE router has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-510** lists the technical specifications of the AR1220-8GE routers.

**Table 4-510** AR1220-8GE technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li><li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li></ul>
Weight	2.9 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	0.8 A
Maximum output power	25 W
RPS power supply	Not supported



Item	Specification
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	14 W
Maximum power consumption	15 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interfaces: four GE electrical interfaces and one GE optical interface LAN interfaces: eight GE electrical interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02351BXS

## 4.7.4 AR1220C

### Version Mapping

[Table 4-511](#) lists the mapping between the AR1220C router and software versions.

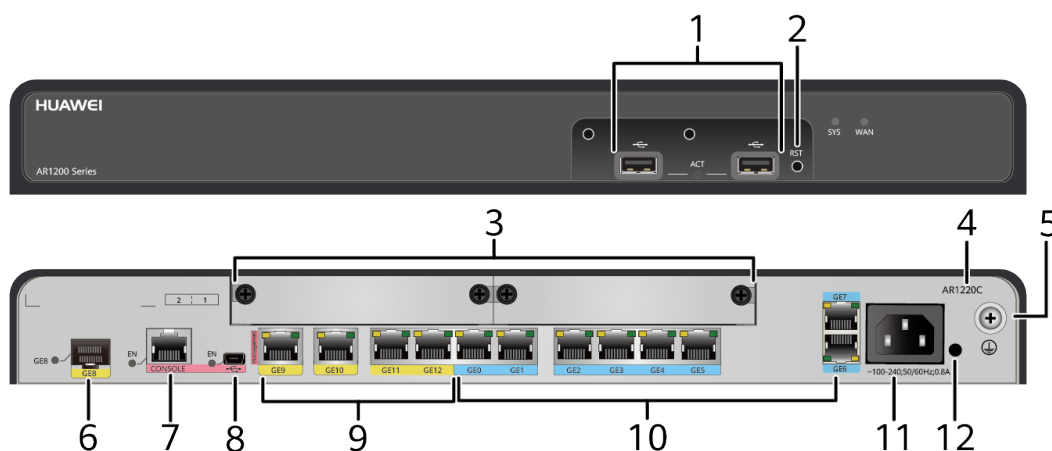
**Table 4-511** Mapping between the AR1220C router and software versions

Router Model	Software Version
AR1220C	V200R007C00 and later versions

## Appearance and Structure

**Figure 4-150** shows the appearance of the AR1220C router.

**Figure 4-150** AR1220C appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	Two SIC slots	4	Product model silkscreen
5	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	6	WAN interface: GE optical interface
7	CONSOLE interface	8	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.

9	WAN interface: GE electrical interface	10	LAN interfaces: eight GE electrical interfaces <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.
11	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.	12	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

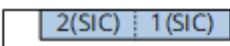
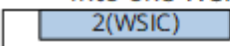
## Slot Distribution

 **NOTE**

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-151** shows the slot layout on the AR1220C.

**Figure 4-151** Slot distribution of the AR1220C router

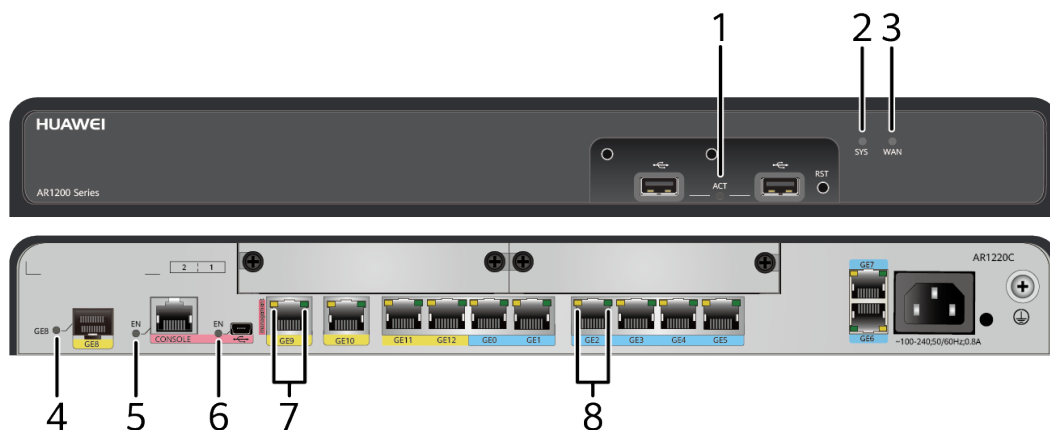
Device Model		Slot Distribution	Slot Combination
AR1220C	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

**Figure 4-152** shows the indicators on the AR1220C router.

Figure 4-152 Indicators on the AR1220C



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly.
			Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.

Number	Indicator	Color	Description
			Off: The five GE interfaces are all disconnected or inactive.
4	GE optical interface indicators (WAN)	Green	Steady on: A link has been established.
			Blinking: Data is being transmitted or received.
			Off: No link is established.
5	EN (console interface) <b>NOTE</b> <ul style="list-style-type: none"> <li>The console interface and Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the console interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>	Green	Steady on: The console interface is enabled.
			Off: The console interface is disabled.
6	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
7	GE electrical interface	Green	Steady on: A link has been established.

Number	Indicator	Color	Description
	indicators (WAN)		Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
8	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-512](#) lists attributes of a console interface.

**Table 4-512** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-513](#) lists attributes of a Mini USB interface.

**Table 4-513** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-514](#) lists attributes of a GE electrical interface.

**Table 4-514** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Optical Interface

A GE optical interface can transmit and receive service traffic at 100 Mbit/s or 1000 Mbit/s. [Table 4-515](#) lists attributes of a GE optical interface.

**Table 4-515** GE optical interface attributes

Attribute	Description
Connector type	LC/PC

Attribute	Description
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.5 GE eSFP Optical Modules</a> and <a href="#">9.4 FE SFP/eSFP Optical Modules</a> .
Standards compliance	IEEE 802.3z

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-516](#) lists attributes of a USB interface.

**Table 4-516** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR1220C router has no fans and uses natural heat dissipation.

## Technical Specifications

[Table 4-517](#) lists the technical specifications of the AR1220C router.

**Table 4-517** AR1220C technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	



Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	0.8 A
Maximum output power	25 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	14 W
Maximum power consumption	15 W
<b>Heat dissipation</b>	
Fans	None
Airflow (facing the front panel)	None
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: four GE electrical interfaces and one GE optical interface LAN interfaces: eight GE electrical interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350JGL

## 4.7.5 AR1220E

### Version Mapping

[Table 4-518](#) lists the mapping between the AR1220E router and software versions.

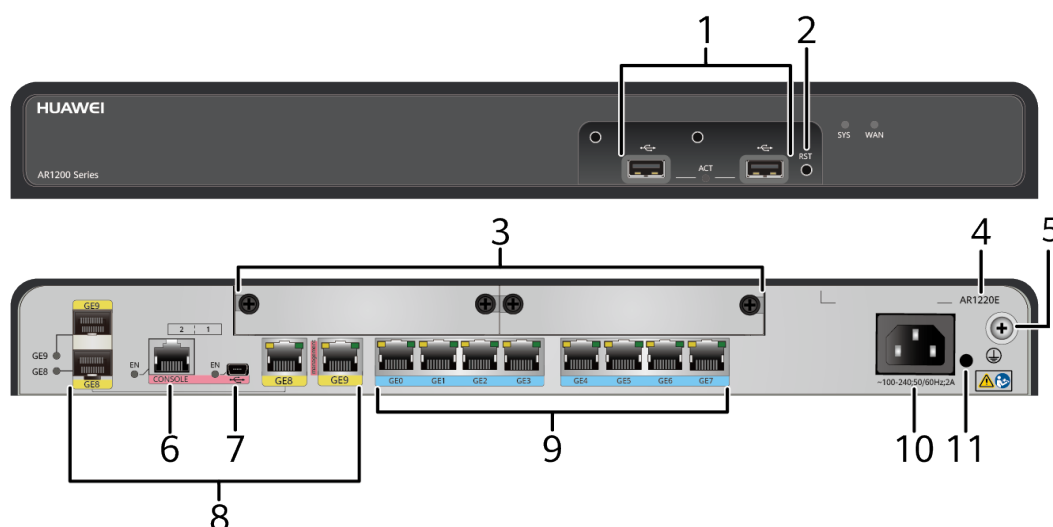
**Table 4-518** Mapping between the AR1220E router and software versions

Router Model	Software Version
AR1220E	V200R006C10 and later versions

### Appearance and Structure

[Figure 4-153](#) shows the appearance of the AR1220E router.

**Figure 4-153** AR1220E appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	Two SIC slots	4	Product model silkscreen
5	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	6	Console interface
7	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	8	WAN interface: GE combo interface
9	LAN interfaces: eight GE electrical interfaces <b>NOTE</b> V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.	10	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
11	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	-	-

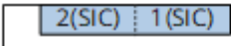
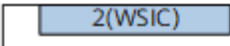
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-154** shows the slot distribution of the AR1220E.

Figure 4-154 Slot distribution of the AR1220E router

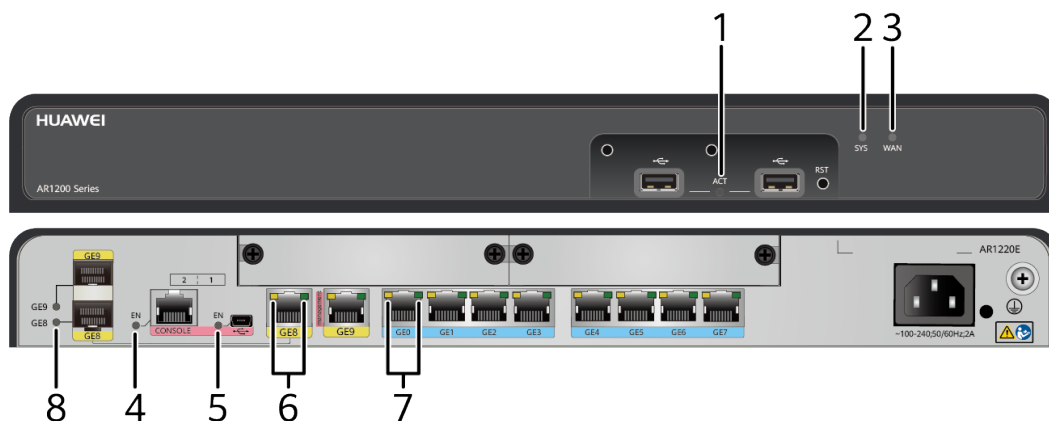
Device Model		Slot Distribution	Slot Combination
AR1220E	Front view	NA	NA
	Rear view		<p>Two SIC slots are combined into one WSIC slot</p> 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

Figure 4-155 shows the indicators on the AR1220E router.

Figure 4-155 Indicators on the AR1220E



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.

Number	Indicator	Color	Description
2	SYS	Red and green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.
4	EN (console interface)	Green	Steady on: The console interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The console interface and Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the console interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		Off: The console interface is disabled.
5	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
6	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
7	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established.
			Off: No link is established.

Number	Indicator	Color	Description
		Yellow	Blinking: Data is being transmitted or received. Off: No data is being transmitted or received.
8	GE optical interface indicators	Green	Steady on: A link has been established. Blinking: Data is being transmitted or received. Off: No link is established.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-519](#) lists attributes of a console interface.

**Table 4-519** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-520](#) lists attributes of a Mini USB interface.

**Table 4-520** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0

Attribute	Description
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-521](#) lists attributes of a GE electrical interface.

**Table 4-521** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).



**NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**USB Interface (Host)**

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-522](#) lists attributes of a USB interface.

**Table 4-522** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

**Heat Dissipation**

The AR1220E router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-156](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-156** Airflow



**Technical Specifications**

[Table 4-523](#) lists the technical specifications of the AR1220E router.

**Table 4-523** AR1220E technical specifications

Item	Specification
<b>System parameters</b>	

Item	Specification
Processor	Dual-core, 1 GHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	18 W
Maximum power consumption	20 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: two GE combo interfaces LAN interfaces: eight GE electrical interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350DQJ

## 4.7.6 AR1220EV

### Version Mapping

**Table 4-524** lists the mapping between the AR1220EV router and software versions.

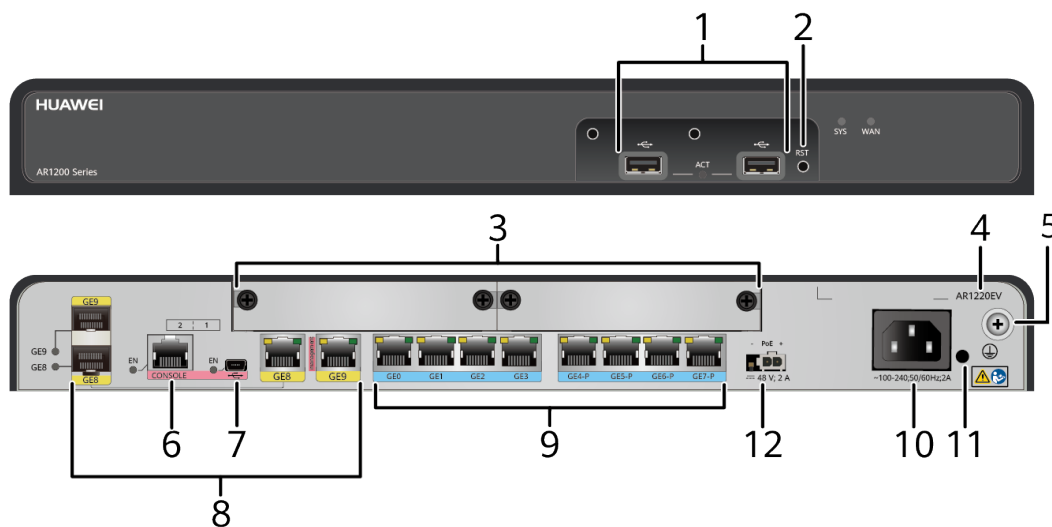
**Table 4-524** Mapping between the AR1220EV router and software versions

Router Model	Software Version
AR1220EV	V200R006C10 and later versions

### Appearance and Structure

**Figure 4-157** shows the appearance of the AR1220EV router.

Figure 4-157 AR1220EV appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	Two SIC slots	4	Product model silkscreen
5	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	6	Console interface
7	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	8	WAN interface: GE combo interface
9	LAN interfaces: eight GE electrical interfaces <b>NOTE</b> V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.	10	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.

1 1	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	1 2	PoE power jack  <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.
--------	---	--------	--

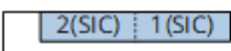
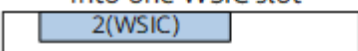
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-158 shows the slot distribution of the AR1220EV.

Figure 4-158 Slot distribution of the AR1220EV router

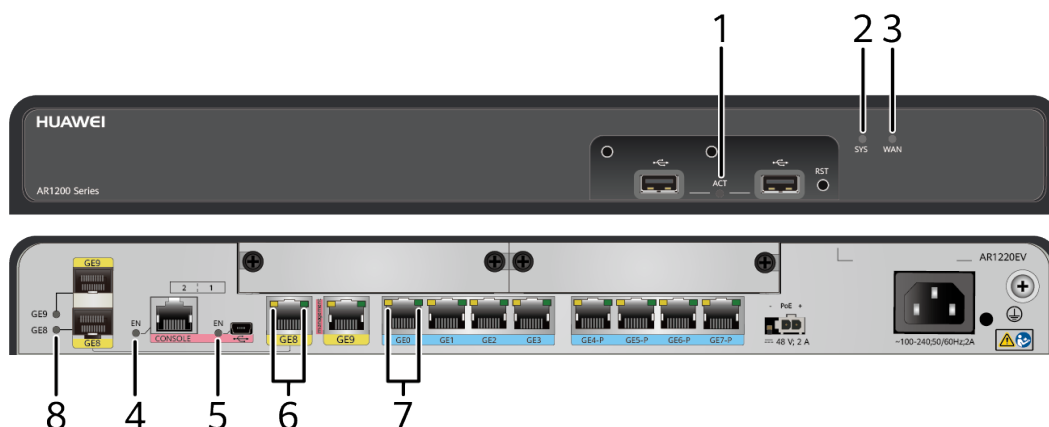
Device Model		Slot Distribution	Slot Combination
AR1220EV	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

Figure 4-159 shows the indicators on the AR1220EV router.

Figure 4-159 Indicators on the AR1220EV



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.
4	EN (console interface)	Green	Steady on: The console interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The console interface and Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the console interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		Off: The console interface is disabled.
5	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
6	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
7	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established.
			Off: No link is established.

Number	Indicator	Color	Description
		Yellow	Blinking: Data is being transmitted or received. Off: No data is being transmitted or received.
8	GE optical interface indicators	Green	Steady on: A link has been established. Blinking: Data is being transmitted or received. Off: No link is established.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-525](#) lists attributes of a console interface.

**Table 4-525** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-526](#) lists attributes of a Mini USB interface.

**Table 4-526** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0



Attribute	Description
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-527](#) lists attributes of a GE electrical interface.

**Table 4-527** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

**NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**USB Interface (Host)**

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-528](#) lists attributes of a USB interface.

**Table 4-528** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

**Heat Dissipation**

The AR1220EV router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-160](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-160** Airflow**Technical Specifications**

[Table 4-529](#) lists the technical specifications of the AR1220EV router.

**Table 4-529** AR1220EV technical specifications

Item	Specification
<b>System parameters</b>	

Item	Specification
Processor	Dual-core, 1 GHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces GE4 to GE7)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	21 W
Maximum power consumption	22 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: two GE combo interfaces LAN interfaces: eight GE electrical interfaces
Extended slots	2xSIC
DSP DIMM slot	Supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350DQK

## 4.7.7 AR1220EVW

### Version Mapping

[Table 4-530](#) lists the mapping between the AR1220EVW router and software versions.

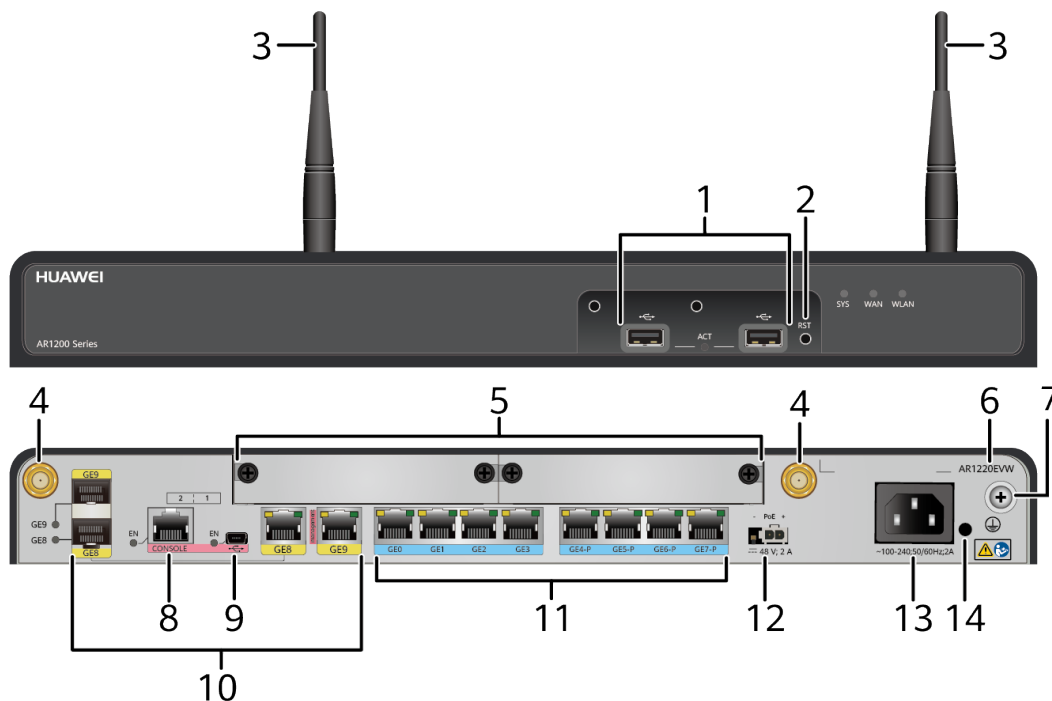
**Table 4-530** Mapping between the AR1220EVW router and software versions

Router Model	Software Version
AR1220EVW	V200R006C10 and later versions

### Appearance and Structure

[Figure 4-161](#) shows the appearance of the AR1220EVW router.

Figure 4-161 AR1220EVW appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	Two Wi-Fi antennas	4	Two Wi-Fi antenna interfaces
5	Two SIC slots	6	Product model silkscreen
7	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	8	Console interface
9	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	10	WAN interface: GE combo interface

1 1	LAN interfaces: eight GE electrical interfaces  <b>NOTE</b> V200R007C00 and later versions: all GE LAN interfaces can be configured as WAN interfaces.	1 2	PoE power jack  <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.
1 3	AC power jack  <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.	1 4	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

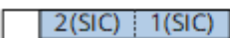
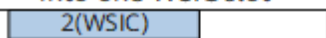
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-162** shows the slot distribution of the AR1220EVW router.

**Figure 4-162** Slot distribution of the AR1220EVW router

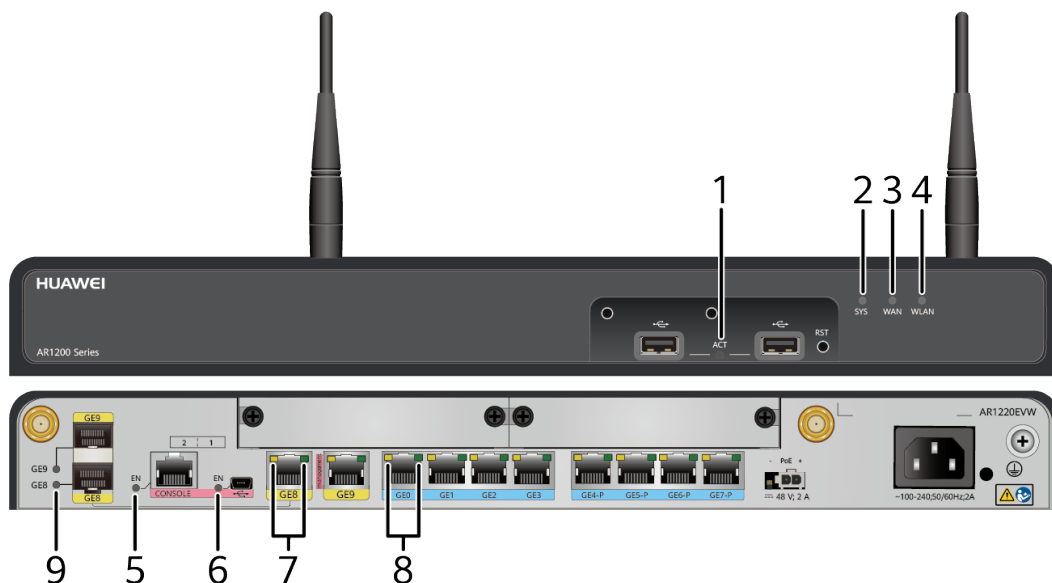
Device Model		Slot Distribution	Slot Combination
AR1220EVW	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

**Figure 4-163** shows the indicators on the AR1220EVW router.

**Figure 4-163** Indicators on the AR1220EVW



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly.
			Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.

Number	Indicator	Color	Description
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.
4	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link.
			Off: The WLAN link has not been established or is inactive.
5	EN (console interface)	Green	Steady on: The console interface is enabled.
			Off: The console interface is disabled.
	<b>NOTE</b> <ul style="list-style-type: none"><li>• The console interface and Mini USB interface are multiplexed, and only one of them can be used at a time.</li><li>• By default, the console interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li></ul>		
6	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.



Number	Indicator	Color	Description
			Off: The Mini USB interface is disabled.
7	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
8	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
9	GE optical interface indicators	Green	Steady on: A link has been established.
			Blinking: Data is being transmitted or received.
			Off: No link is established.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-531](#) lists attributes of a console interface.

**Table 4-531** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-532](#) lists attributes of a Mini USB interface.

**Table 4-532** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-533](#) lists attributes of a GE electrical interface.

**Table 4-533** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal

forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-534](#) lists attributes of a USB interface.

**Table 4-534** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-535](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-535** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi

Attribute	Description
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.6 Wi-Fi Rod Antenna</a>

## Heat Dissipation

The AR1220EVW router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-164](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-164** Airflow



## Technical Specifications

[Table 4-536](#) lists the technical specifications of the AR1220EVW router.

**Table 4-536** AR1220EVW technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces GE4 to GE7)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	22 W
Maximum power consumption	25 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: two GE combo interfaces LAN interfaces: eight GE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	2xSIC
DSP DIMM slot	Supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350DQL

## 4.7.8 AR1220F

### Version Mapping

[Table 4-537](#) lists the mapping between the AR1220F router and software versions.

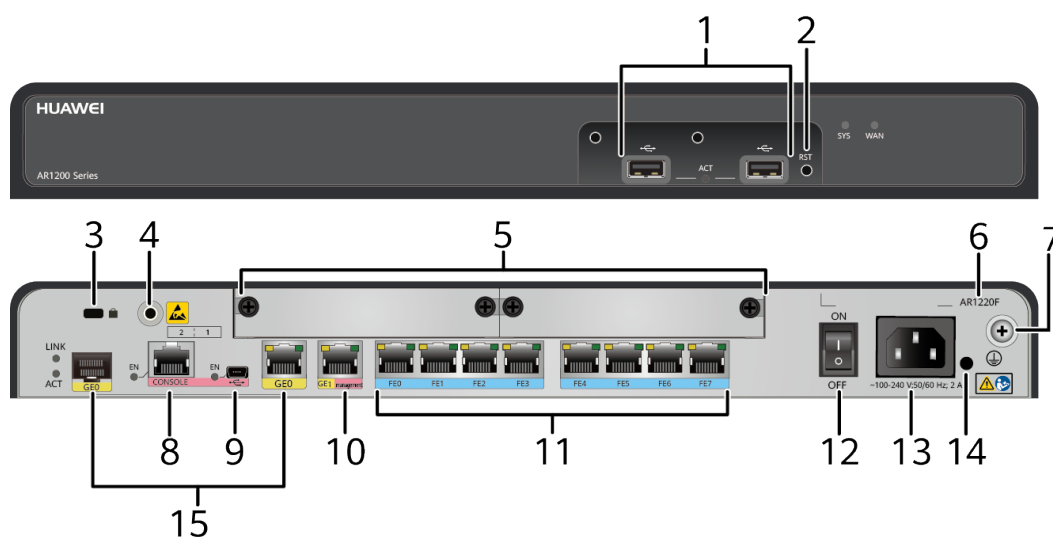
**Table 4-537** Mapping between the AR1220F router and software versions

Router Model	Software Version
AR1220F	V200R005C10 and later versions

### Appearance and Structure

[Figure 4-165](#) shows the appearance of the AR1220F router.

**Figure 4-165** AR1220F appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	Security lock	4	ESD jack <b>NOTE</b> <p>When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.</p>
5	Two SIC slots	6	Product model silkscreen
7	Ground point <b>NOTE</b> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	8	Console interface
9	Mini USB interface <b>NOTE</b> <p>The Mini USB interface and console interface cannot be used at the same time.</p>	10	WAN interface: one GE electrical interface
11	LAN interfaces: eight FE electrical interfaces <b>NOTE</b> <p>V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.</p>	12	Power switch
13	AC power jack <b>NOTE</b> <p>Use an <b>AC power cable</b> to connect the router to an external power source.</p>	14	Jack for power cable locking strap <b>NOTE</b> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>
15	WAN interface: GE combo interface	-	-

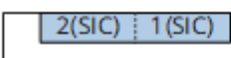
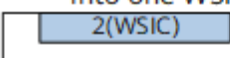
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-166 shows the slot distribution of the AR1220F router.

Figure 4-166 Slot distribution of the AR1220F router

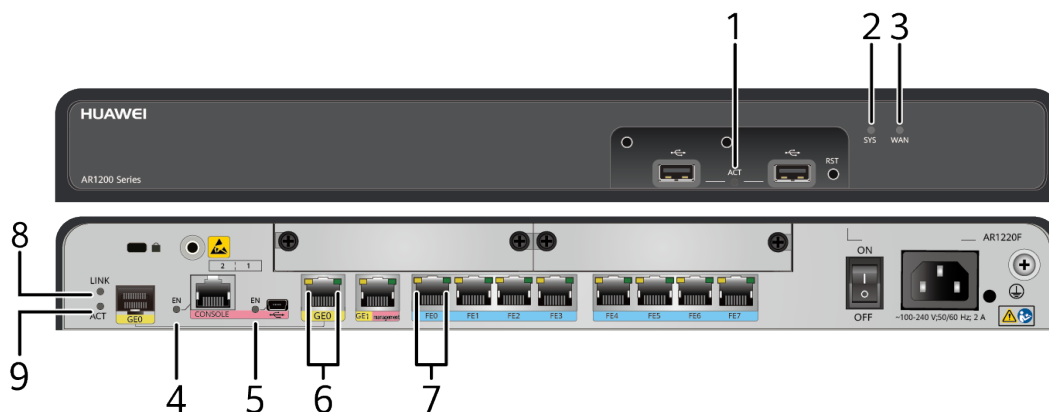
Device Model		Slot Distribution	Slot Combination
AR1220F	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

Figure 4-167 shows the indicators on the AR1220F router.

Figure 4-167 Indicators on the AR1220F



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.



Number	Indicator	Color	Description
			Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting. Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually. Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active. Off: The two GE interfaces are both disconnected or inactive.
4	EN (console interface)	Green	Steady on: The console interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The console interface and Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the console interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		Off: The console interface is disabled.
5	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
6	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
7	FE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.

Number	Indicator	Color	Description
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
8 and 9	GE optical interface indicators <ul style="list-style-type: none"> <li>• 8: LINK indicator</li> <li>• 9: ACT indicator</li> </ul>	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-538](#) lists attributes of a console interface.

**Table 4-538** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-539](#) lists attributes of a Mini USB interface.

**Table 4-539** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-540](#) lists attributes of an FE electrical interface.

**Table 4-540** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-541](#) lists attributes of a GE electrical interface.

**Table 4-541** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-542](#) lists attributes of a USB interface.

**Table 4-542** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR1220F router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-168](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-168** Airflow

## Technical Specifications

[Table 4-543](#) lists the technical specifications of the AR1220F router.

**Table 4-543** AR1220F technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	20 W
Maximum power consumption	25 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: one GE electrical interface and one GE combo interface LAN interfaces: eight FE electrical interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02356381

## 4.7.9 AR1220L

### Version Mapping

[Table 4-544](#) lists the mapping between the AR1220L router and software versions.

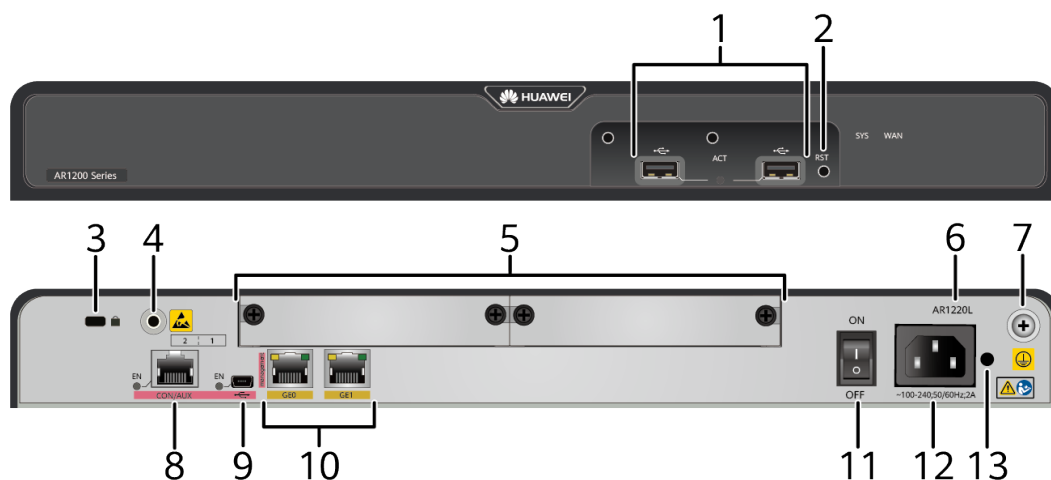
**Table 4-544** Mapping between the AR1220L router and software versions

Router Model	Software Version
AR1220L	V200R002C01 and later versions

### Appearance and Structure

[Figure 4-169](#) shows the appearance of the AR1220L router.

**Figure 4-169** AR1220L appearance





1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	Security lock	4	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
5	Two SIC slots	6	Product model silkscreen
7	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	8	CON/AUX interface <b>NOTE</b> The AR1220L does not support AUX login.
9	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	10	WAN interfaces: two GE electrical interfaces <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
11	Power switch	12	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
13	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	-	-

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-170** shows the slot distribution of the AR1220L.

**Figure 4-170** Slot distribution of the AR1220L router

Device Model		Slot Distribution	Slot Combination
AR1220L	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

**Figure 4-171** shows the indicators on the AR1220L router.

**Figure 4-171** Indicators on the AR1220L



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.

Number	Indicator	Color	Description
2	SYS	Red and green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.
4	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		Off: The CON/AUX interface is disabled.
5	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
6	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-545](#) lists the CON/AUX interface attributes.

**Table 4-545** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-546](#) lists attributes of a Mini USB interface.

**Table 4-546** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-547](#) lists attributes of a GE electrical interface.

**Table 4-547** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-548](#) lists attributes of a USB interface.

**Table 4-548** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR1220L router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-172](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-172** Airflow



## Technical Specifications

**Table 4-549** lists the technical specifications of the AR1220L router.

**Table 4-549** AR1220L technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li><li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li></ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	30 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right

Item	Specification
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354069

## 4.7.10 AR1220V

### Version Mapping

[Table 4-550](#) lists the mapping between the AR1220V router and software versions.

**Table 4-550** Mapping between the AR1220V router and software versions

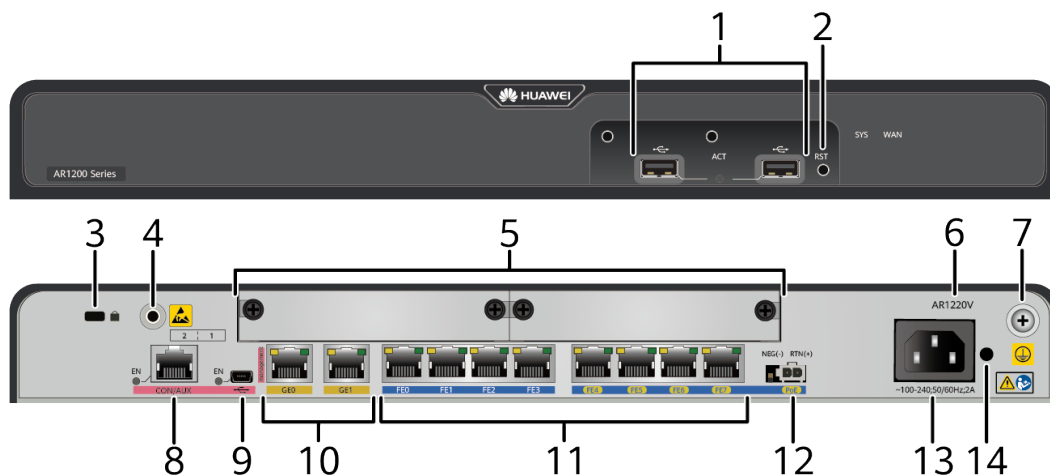
Router Model	Software Version
AR1220V	V200R001C00 and later versions

### Appearance and Structure

[Figure 4-173](#) shows the appearance of the AR1220V router.



Figure 4-173 AR1220V appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>
3	Security lock	4	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
5	Two SIC slots	6	Product model silkscreen
7	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	8	CON/AUX interface <b>NOTE</b> The AR1220V does not support AUX login.
9	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	10	WAN interfaces: two GE electrical interfaces <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.

1 1	LAN interfaces: eight FE electrical interfaces  <b>NOTE</b> V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.	1 2	PoE power jack  <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to Ethernet interfaces of the router.
1 3	AC power jack  <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.	1 4	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.

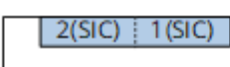
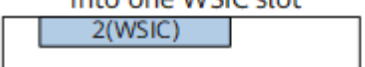
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-174** shows the slot distribution of the AR1220V router.

**Figure 4-174** Slot distribution of the AR1220V router

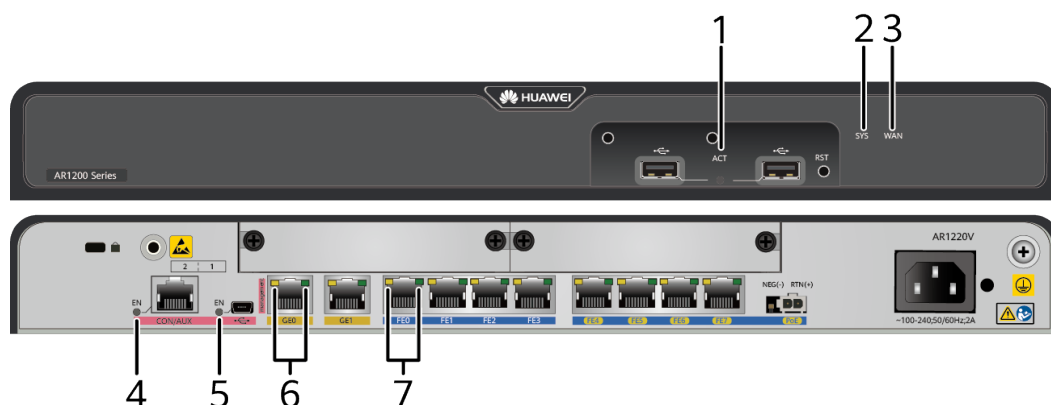
Device Model		Slot Distribution	Slot Combination
AR1220V	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

**Figure 4-175** shows the indicators on the AR1220V router.

**Figure 4-175** Indicators on the AR1220V



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly.
			Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.

Number	Indicator	Color	Description
4	EN (CON/AUX interface)  <b>NOTE</b> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>	Green	Steady on: The CON/AUX interface is enabled.
			Off: The CON/AUX interface is disabled.
5	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
6	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

Number	Indicator	Color	Description
7	FE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-551](#) lists the CON/AUX interface attributes.

**Table 4-551** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-552](#) lists attributes of a Mini USB interface.

**Table 4-552** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0

Attribute	Description
Working mode	Device

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-553](#) lists attributes of an FE electrical interface.

**Table 4-553** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-554](#) lists attributes of a GE electrical interface.

**Table 4-554** GE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-555](#) lists attributes of a USB interface.

**Table 4-555** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR1220V router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-176](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-176** Airflow



## Technical Specifications

**Table 4-556** lists the technical specifications of the AR1220V router.

**Table 4-556** AR1220V technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces FE4 to FE7)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	29 W
Maximum power consumption	34 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)



Item	Specification
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces LAN interfaces: eight FE electrical interfaces
Extended slots	2xSIC
DSP DIMM slot	Supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02352933

## 4.7.11 AR1220W

### Version Mapping

[Table 4-557](#) lists the mapping between the AR1220W router and software versions.

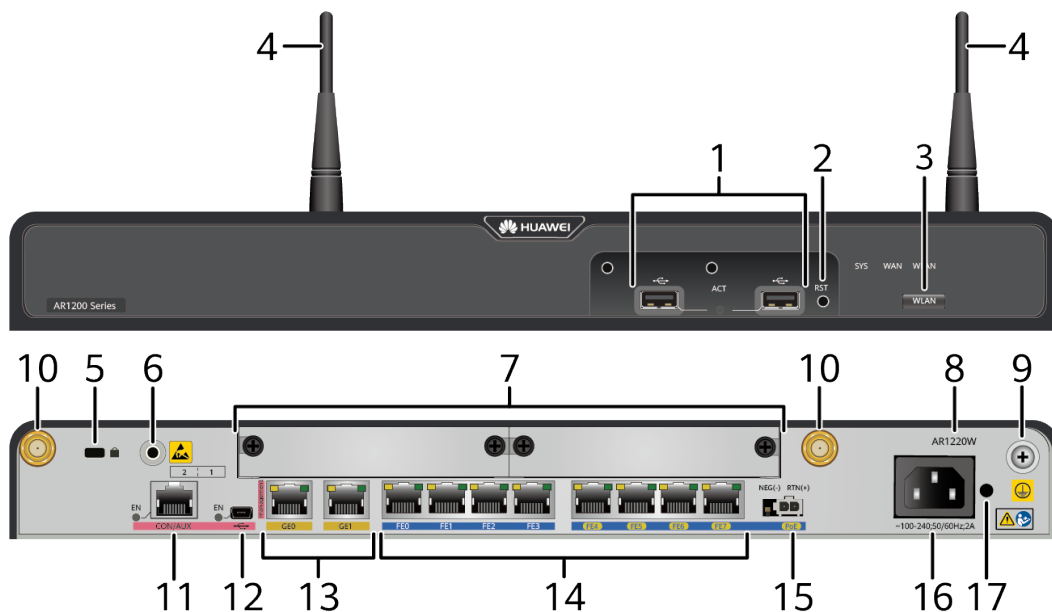
**Table 4-557** Mapping between the AR1220W router and software versions

Router Model	Software Version
AR1220W	V200R001C01 and later versions

### Appearance and Structure

[Figure 4-177](#) shows the appearance of the AR1220W router.

Figure 4-177 AR1220W appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
3	WLAN button <b>NOTE</b> This button is used to enable and disable the WLAN function.	4	Two Wi-Fi antennas
5	Security lock	6	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
7	Two SIC slots	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	10	Two Wi-Fi antenna interfaces

1 1	CON/AUX interface  <b>NOTE</b> The AR1220W does not support AUX login.	1 2	Mini USB interface  <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.
1 3	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.	1 4	LAN interfaces: eight FE electrical interfaces  <b>NOTE</b> V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.
1 5	PoE power jack  <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to Ethernet interfaces of the router.	1 6	AC power jack  <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
1 7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	-	-

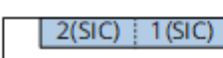
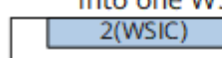
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-178** shows the slot distribution of the AR1220W router.

**Figure 4-178** Slot distribution of the AR1220W router

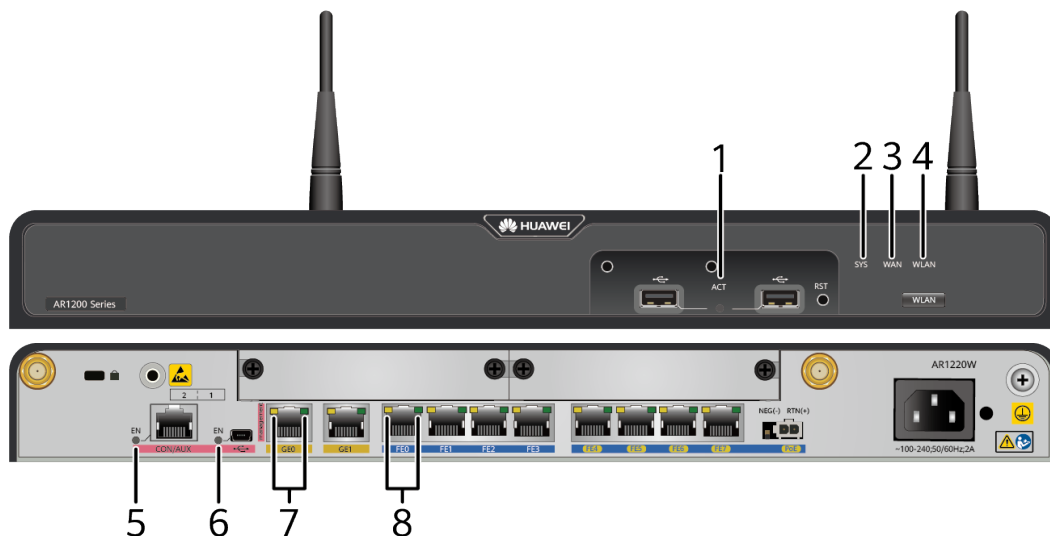
Device Model		Slot Distribution	Slot Combination
AR1220W	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

Figure 4-179 shows the indicators on the AR1220W router.

Figure 4-179 Indicators on the AR1220W



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly.
			Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.

Number	Indicator	Color	Description
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.
4	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link.
			Off: The WLAN link has not been established or is inactive.
5	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.
			Off: The CON/AUX interface is disabled.

**NOTE**

- The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.
- By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.

Number	Indicator	Color	Description
6	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
7	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
8	FE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-558](#) lists the CON/AUX interface attributes.

**Table 4-558** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<b>Console Cable</b>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-559](#) lists attributes of a Mini USB interface.

**Table 4-559** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-560](#) lists attributes of an FE electrical interface.

**Table 4-560** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-561](#) lists attributes of a GE electrical interface.

**Table 4-561** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-562](#) lists attributes of a USB interface.

**Table 4-562** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-563](#) lists attributes of a Wi-Fi antenna interface.



**Table 4-563** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"><li>• Layer 2/3 wireless access</li><li>• Wireless data encryption</li><li>• WLAN security</li></ul>
Cable type	<a href="#">8.15.6 Wi-Fi Rod Antenna</a>

## Heat Dissipation

The AR1220W router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-180](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-180** Airflow

## Technical Specifications

[Table 4-564](#) lists the technical specifications of the AR1220W router.

**Table 4-564** AR1220W technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>• With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li><li>• With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li></ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces FE4 to FE7)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	36 W
Maximum power consumption	42 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces LAN interfaces: eight FE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	2xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353527

## 4.7.12 AR1220VW

### Version Mapping

[Table 4-565](#) lists the mapping between the AR1220VW router and software versions.

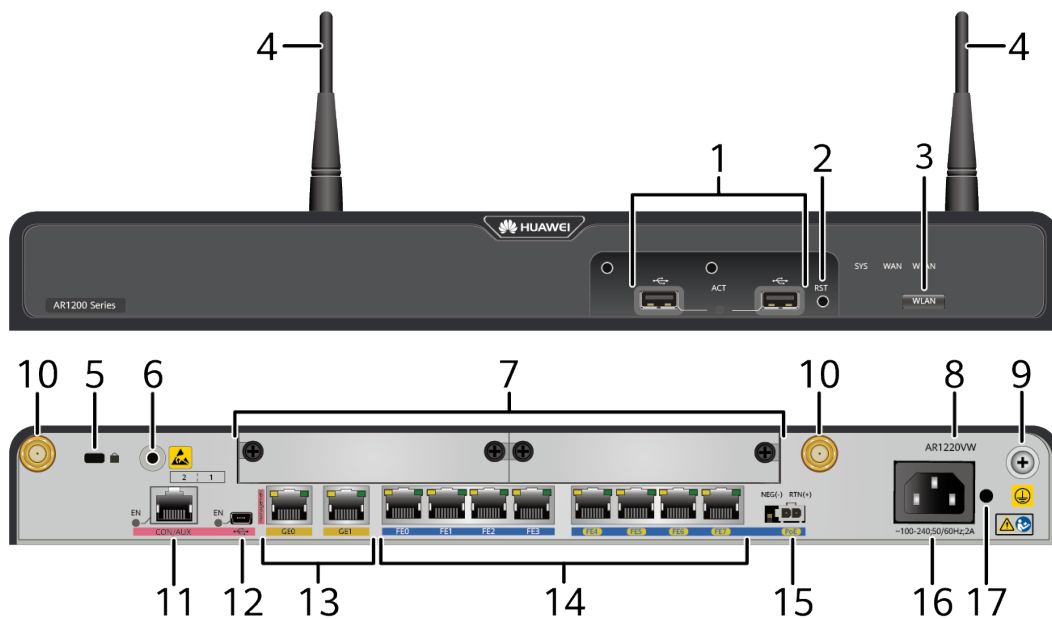
**Table 4-565** Mapping between the AR1220VW router and software versions

Router Model	Software Version
AR1220VW	V200R001C01 and later versions

### Appearance and Structure

[Figure 4-181](#) shows the appearance of the AR1220VW router.

Figure 4-181 AR1220VW appearance



1	Two USB interfaces (host)	2	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>
3	WLAN button <b>NOTE</b> This button is used to enable and disable the WLAN function.	4	Two Wi-Fi antennas
5	Security lock	6	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
7	Two SIC slots	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	10	Two Wi-Fi antenna interfaces

1 1	CON/AUX interface  <b>NOTE</b> The AR1220VW does not support AUX login.	1 2	Mini USB interface  <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.
1 3	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.	1 4	LAN interfaces: eight FE electrical interfaces  <b>NOTE</b> V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.
1 5	PoE power jack  <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to Ethernet interfaces of the router.	1 6	AC power jack  <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
1 7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	-	-

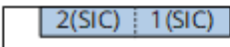
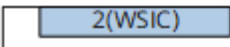
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-182** shows the slot distribution of the AR1220VW router.

**Figure 4-182** Slot distribution of the AR1220VW router

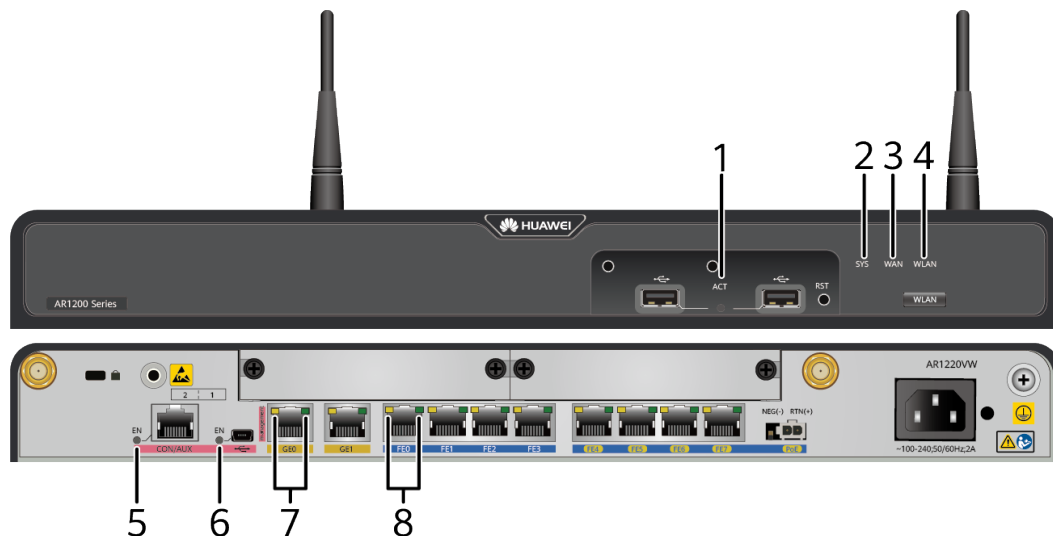
Device Model		Slot Distribution	Slot Combination
AR1220VW	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.

## Indicator Description

Figure 4-183 shows the indicators on the AR1220VW router.

Figure 4-183 Indicators on the AR1220VW



Number	Indicator	Color	Description
1	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
2	SYS	Red and green	Slow blinking: The system is running properly.
			Fast blinking: The system is being powered on or restarting.
			Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.

Number	Indicator	Color	Description
			Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: At least one GE interface is connected and active.
			Off: The two GE interfaces are both disconnected or inactive.
4	WLAN	Green	Blinking: The WLAN link is transmitting data. The blinking frequency changes with the traffic transmission rate on the link.
			Off: The WLAN link has not been established or is inactive.
5	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.
			Off: The CON/AUX interface is disabled.
	<b>NOTE</b> <ul style="list-style-type: none"><li>• The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li><li>• By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li></ul>		

Number	Indicator	Color	Description
6	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
7	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
8	FE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-566](#) lists the CON/AUX interface attributes.

**Table 4-566** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"> <li>Data circuit terminal equipment (DCE)</li> <li>AUX interface: data terminal equipment (DTE)</li> </ul>
Cable type	<b>Console Cable</b>



### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-567](#) lists attributes of a Mini USB interface.

**Table 4-567** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### FE Electrical Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-568](#) lists attributes of an FE electrical interface.

**Table 4-568** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-569](#) lists attributes of a GE electrical interface.

**Table 4-569** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-570](#) lists attributes of a USB interface.

**Table 4-570** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### Wi-Fi Antenna Interface

A Wi-Fi antenna interface connects to a Wi-Fi antenna to transmit and receive data. [Table 4-571](#) lists attributes of a Wi-Fi antenna interface.

**Table 4-571** Wi-Fi antenna interface attributes

Attribute	Description
Connector type	RP-SMA-K (screw threads outside and a pin inside)
Standards compliance	802.11b/g/n
Frequency band supported	2.4 GHz
Rate	300 Mbit/s
MIMO mode (Tx x Rx)	2x2
Gain	2.15 dBi
Services provided	<ul style="list-style-type: none"> <li>• Layer 2/3 wireless access</li> <li>• Wireless data encryption</li> <li>• WLAN security</li> </ul>
Cable type	<a href="#">8.15.6 Wi-Fi Rod Antenna</a>

## Heat Dissipation

The AR1220VW router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-184](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-184** Airflow



## Technical Specifications

[Table 4-572](#) lists the technical specifications of the AR1220VW router.

**Table 4-572** AR1220VW technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 390.0 mm x 232.5 mm (1.75 in. x 15.35 in. x 9.15 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 232.5 mm (1.75 in. x 19.00 in. x 9.15 in.)</li> </ul>
Weight	2.9 kg (6.39 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces FE4 to FE7)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	37 W
Maximum power consumption	42 W
<b>Heat dissipation</b>	
Fans	Built-in fans, not pluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces LAN interfaces: eight FE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	2xSIC
DSP DIMM slot	Supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353528

## 4.8 AR2200 Series

### 4.8.1 AR2201-48FE

#### Version Mapping

[Table 4-573](#) lists the mapping between the AR2201-48FE router and software versions.

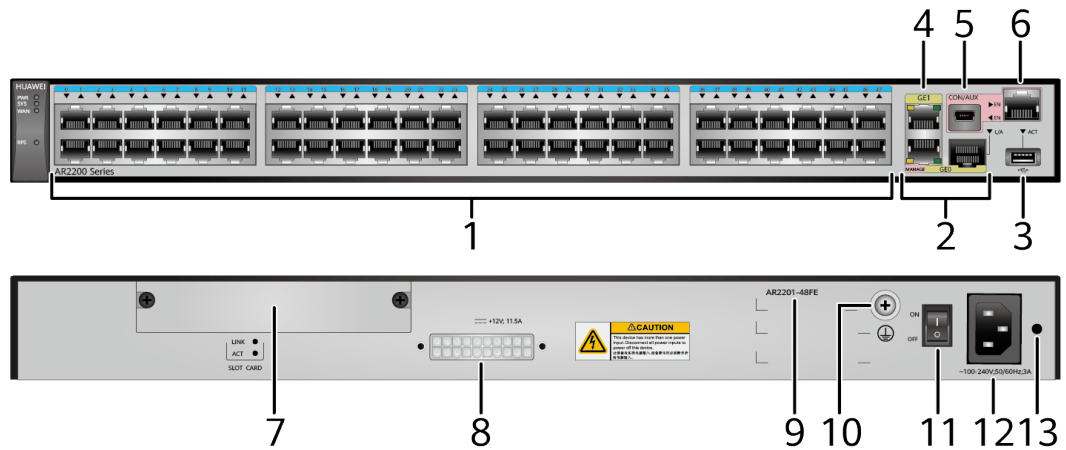
**Table 4-573** Mapping between the AR2201-48FE router and software versions

Router Model	Software Version
AR2201-48FE	V200R003C00 and later versions

#### Appearance and Structure

[Figure 4-185](#) shows the appearance of the AR2201-48FE router.

Figure 4-185 AR2201-48FE appearance

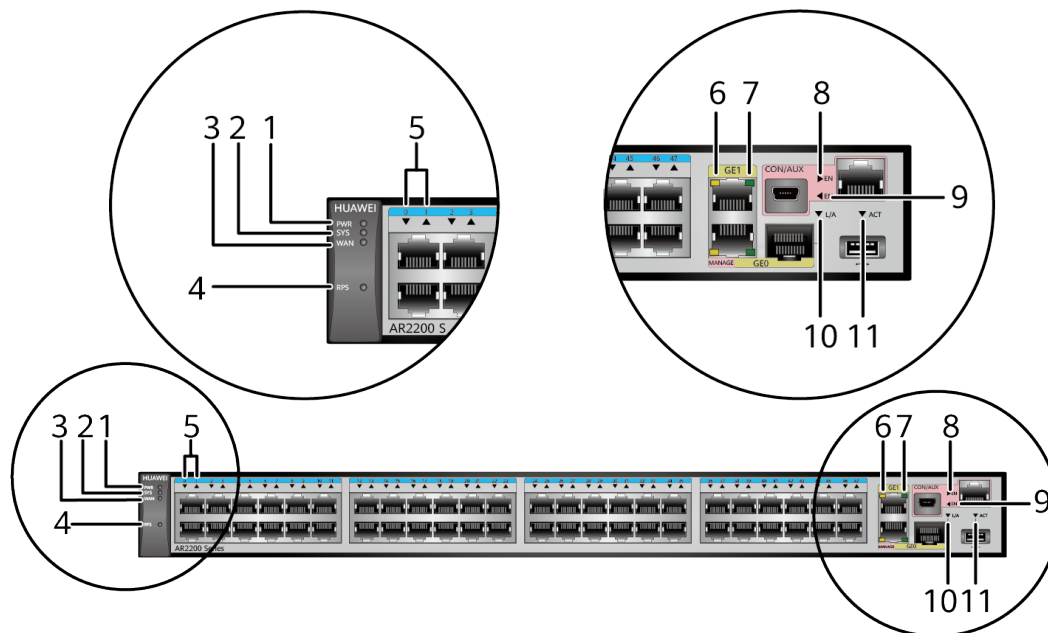


1	LAN interfaces: forty-eight FE electrical interfaces	2	WAN interface: GE combo interface
3	One USB interface (host)	4	WAN interface: one GE electrical interface
5	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	6	CON/AUX interface <b>NOTE</b> The AR2201-48FE does not support AUX login.
7	Extended card slot <b>NOTE</b> The slot is reserved, and no extended card is supported currently.	8	RPS power socket <b>NOTE</b> The router uses a <b>150 W RPS power supply</b> .
9	Product model silkscreen	10	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
11	Power switch	12	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
13	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	-	-

## Indicator Description

Figure 4-186 shows the locations of AR2201-48FE indicators.

Figure 4-186 Indicators on the AR2201-48FE



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: A WAN connection has been established and is active.

Number	Indicator	Color	Description
			Off: No WAN connection is established or active.
4	RPS	Green	Steady on: An RPS is connected to the router.
		Yellow	Steady on: An RPS is connected to the router but is not working normally. Blinking: An RPS is supplying power to the router.
		Off	No RPS is connected to the router.
5	FE electrical interface indicators	Green	Steady on: A link has been established on the FE electrical interface.
			Blinking: Data is being transmitted or received on the FE electrical interface.
			Off: No link is established on the FE electrical interface.
6 and 7	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
8	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.



Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		<p>Off: The CON/AUX interface is disabled.</p>
9	EN (Mini USB interface)	Green	<p>Steady on: The Mini USB interface is enabled.</p> <p>Off: The Mini USB interface is disabled.</p>
10	EN (SFP optical interface)	Green	<p>Steady on: A link has been established on the SFP optical interface.</p> <p>Blinking: Data is being transmitted or received on the SFP optical interface.</p> <p>Off: No link is established on the SFP optical interface.</p>
11	ACT (USB)	Red and green	<p>Steady green: The system has been upgraded or configured using a USB flash drive.</p>

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-574](#) lists the CON/AUX interface attributes.

**Table 4-574** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-575](#) lists attributes of a Mini USB interface.

**Table 4-575** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-576](#) lists attributes of a GE electrical interface.

**Table 4-576** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### FE Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-577](#) lists attributes of an FE electrical interface.

**Table 4-577** FE electrical interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>• PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>• PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-578](#) lists attributes of a USB interface.

**Table 4-578** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2201-48FE router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-187](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-187** Airflow



## Technical Specifications

[Table 4-579](#) lists the technical specifications of the AR2201-48FE routers.

**Table 4-579** AR2201-48FE routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 43.6 mm x 442.0 mm x 314.9 mm (1.72 in. x 17.40 in. x 12.40 in.)</li> <li>With mounting brackets installed: 43.6 mm x 482.6 mm x 314.9 mm (1.72 in. x 19.00 in. x 12.40 in.)</li> </ul>
Weight	4.5 kg (9.92 lb)
<b>Power specifications</b>	
Rated AC input voltage	100 V/240 V, 50 Hz or 60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	60 W
RPS power supply	Supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	35 W
Maximum power consumption	40 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and one GE electrical interface LAN interfaces: 48 FE electrical interfaces
Extended slots	None
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354244

## 4.8.2 AR2202-48FE

### Version Mapping

**Table 4-580** lists the mapping between the AR2202-48FE router and software versions.

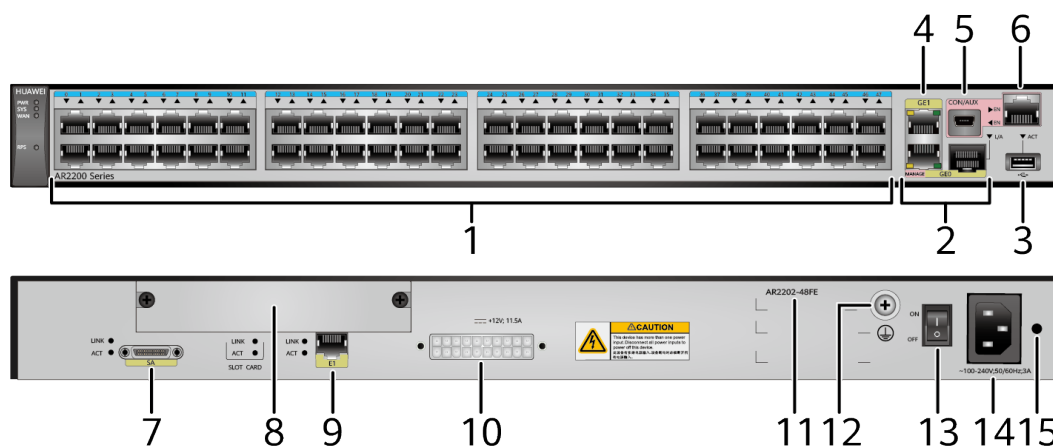
**Table 4-580** Mapping between the AR2202-48FE router and software versions

Router Model	Software Version
AR2202-48FE	V200R003C00 and later versions

### Appearance and Structure

**Figure 4-188** shows the appearance of the AR2202-48FE router.

**Figure 4-188** AR2202-48FE appearance



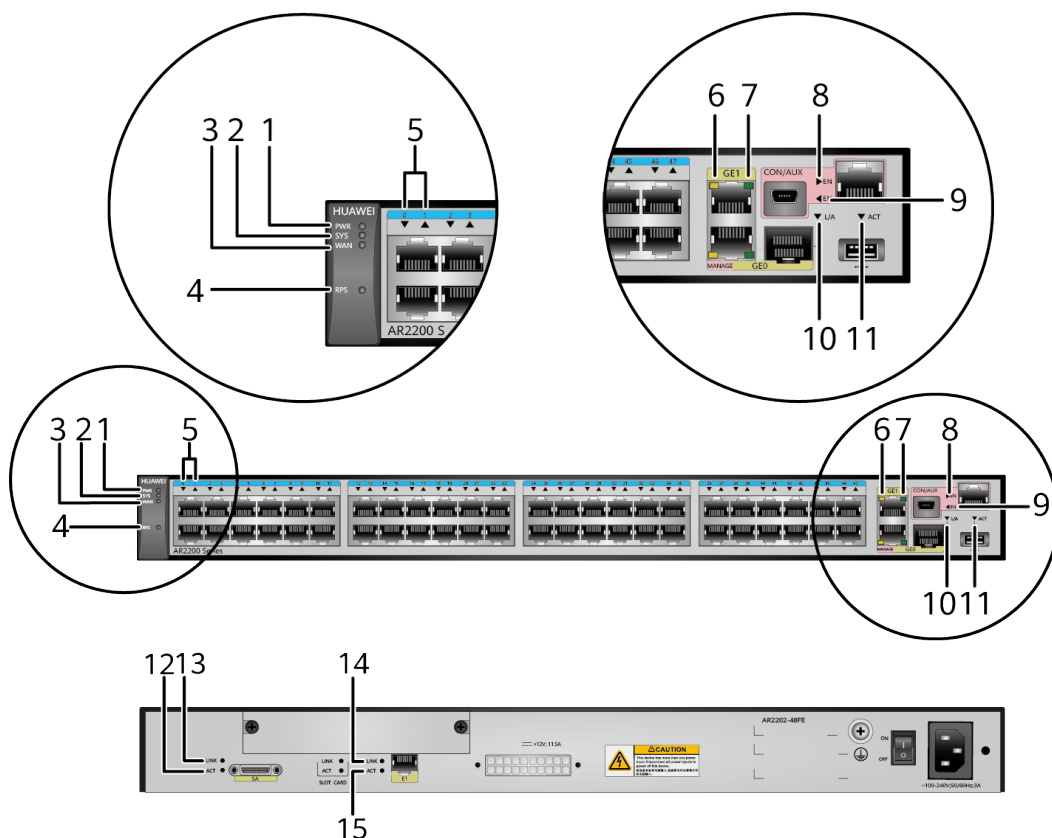
1	LAN interfaces: forty-eight FE electrical interfaces	2	WAN interface: GE combo interface
3	One USB interface (host)	4	WAN interface: one GE electrical interface
5	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	6	CON/AUX interface <b>NOTE</b> The AR2202-48FE does not support AUX login.
7	WAN interface: SA interface <b>NOTE</b> This interface can be connected to a wide area network using an <b>SA cable</b> .	8	Extended card slot <b>NOTE</b> The slot is reserved, and no extended card is supported currently.
9	WAN interface: E1 interface <b>NOTE</b> This interface can be connected to a wide area network using an <b>E1/T1 cable</b> .	10	RPS power socket <b>NOTE</b> The router uses a <b>150 W RPS power supply</b> .
11	Product model silkscreen	12	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
13	Power switch	14	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
15	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	-	-

## Indicator Description

**Figure 4-189** shows the locations of AR2202-48FE indicators.



Figure 4-189 Indicators on the AR2202-48FE



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	WAN	Green	Steady on: A WAN connection has been established and is active.

Number	Indicator	Color	Description
			Off: No WAN connection is established or active.
4	RPS	Green	Steady on: An RPS is connected to the router.
		Yellow	Steady on: An RPS is connected to the router but is not working normally. Blinking: An RPS is supplying power to the router.
		Off	No RPS is connected to the router.
5	FE electrical interface indicators	Green	Steady on: A link has been established on the FE electrical interface.
			Blinking: Data is being transmitted or received on the FE electrical interface.
			Off: No link is established on the FE electrical interface.
6 and 7	GE electrical interface indicators	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
8	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		<p>Off: The CON/AUX interface is disabled.</p>
9	EN (Mini USB interface)	Green	<p>Steady on: The Mini USB interface is enabled.</p> <p>Off: The Mini USB interface is disabled.</p>
10	EN (SFP optical interface)	Green	<p>Steady on: A link has been established on the SFP optical interface.</p> <p>Blinking: Data is being transmitted or received on the SFP optical interface.</p> <p>Off: No link is established on the SFP optical interface.</p>
11	ACT (USB)	Red and green	<p>Steady green: The system has been upgraded or configured using a USB flash drive.</p>

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
12 and 13	SA interface indicators: <ul style="list-style-type: none"> <li>13: LINK indicator, green</li> <li>12: ACT indicator, yellow</li> </ul>	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
14 and 15	E1 interface indicators: <ul style="list-style-type: none"> <li>14: LINK indicator, green</li> <li>15: ACT indicator, yellow</li> </ul>	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-581](#) lists the CON/AUX interface attributes.

**Table 4-581** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-582](#) lists attributes of a Mini USB interface.

**Table 4-582** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-583](#) lists attributes of a GE electrical interface.

**Table 4-583** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>

Attribute	Description
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### FE Interface

An FE electrical interface (10/100 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s or 100 Mbit/s. [Table 4-584](#) lists attributes of an FE electrical interface.

**Table 4-584** FE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	<ul style="list-style-type: none"><li>PoE-capable FE electrical interface: IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af, and IEEE802.3at</li><li>PoE-incapable FE electrical interface: IEEE802.3, IEEE802.3u, and IEEE802.3ab</li></ul>
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">8.3.1 Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 **NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-585](#) lists attributes of a USB interface.

**Table 4-585** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

### SA Interface

When working in synchronous mode, the SA interfaces implement interworking between enterprise branches and the headquarters over PPP links. When working in asynchronous mode, the SA interfaces are used to log in to other devices from the local device through the redirection function. [Table 4-586](#) lists attributes of a SA interface.

**Table 4-586** SA interface attributes

Attribute	Description	
	Synchronous Serial Interface	Asynchronous Serial Interface
Connector type	DB28	

Attribute	Description		
	Synchronous Serial Interface		Asynchronous Serial Interface
Standards compliance and working mode	<ul style="list-style-type: none"> <li>• V.24 DTE</li> <li>• V.24 DCE</li> </ul>	<ul style="list-style-type: none"> <li>• V.35 DTE</li> <li>• V.35 DCE</li> <li>• X.21 DTE</li> <li>• RS449 DTE</li> <li>• RS449 DCE</li> <li>• RS530 DTE</li> <li>• RS530 DCE</li> </ul>	RS232
Minimum baud rate (bit/s)	1200	1200	600
Maximum baud rate (bit/s)	64000	2048000	115200
Services provided	DDN leased line		<ul style="list-style-type: none"> <li>• Modem dial-up</li> <li>• Backup</li> </ul>
	Terminal access		<ul style="list-style-type: none"> <li>• Asynchronous leased line</li> <li>• Terminal access</li> </ul>
Cable type	<a href="#">8.10 SA Cable</a>		

### E1 Interface

An E1 interface transmits data and image signals. [Table 4-587](#) lists attributes of an E1 interface.

**Table 4-587** E1 interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	G.703, G.704
Rate	2.048 Mbit/s
Working mode	E1
Services provided	<ul style="list-style-type: none"> <li>• Backup</li> <li>• Terminal access</li> </ul>
Cable type	<a href="#">8.8 E1/T1 Cable</a>

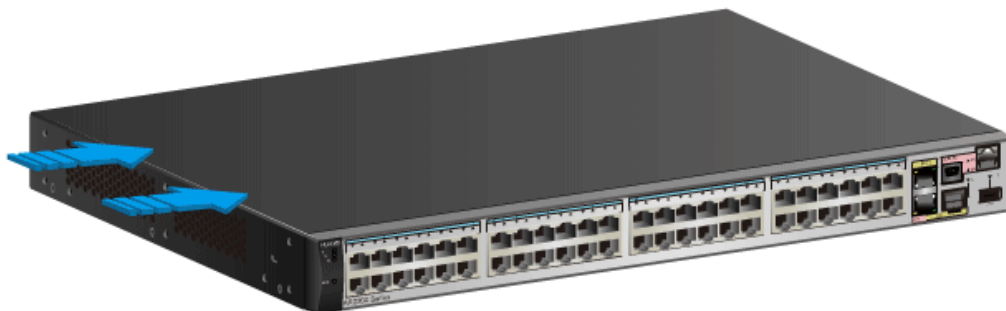


## Heat Dissipation

The AR2202-48FE router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-190](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-190** Airflow



## Technical Specifications

[Table 4-588](#) lists the technical specifications of the AR2202-48FE routers.

**Table 4-588** AR2202-48FE routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 43.6 mm x 442.0 mm x 314.9 mm (1.72 in. x 17.40 in. x 12.40 in.)</li><li>With mounting brackets installed: 43.6 mm x 482.6 mm x 314.9 mm (1.72 in. x 19.00 in. x 12.40 in.)</li></ul>
Weight	4.5 kg (9.92 lb)
<b>Power specifications</b>	
Rated AC input voltage	100 V/240 V, 50 Hz or 60 Hz

Item	Specification
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	60 W
RPS power supply	Supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	35 W
Maximum power consumption	40 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface, one GE electrical interface, one SA interface, and one E1 interface LAN interfaces: 48 FE electrical interfaces
Extended slots	None
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354243

## 4.8.3 AR2204

### Version Mapping

**Table 4-589** lists the mapping between the AR2204 router and software versions.

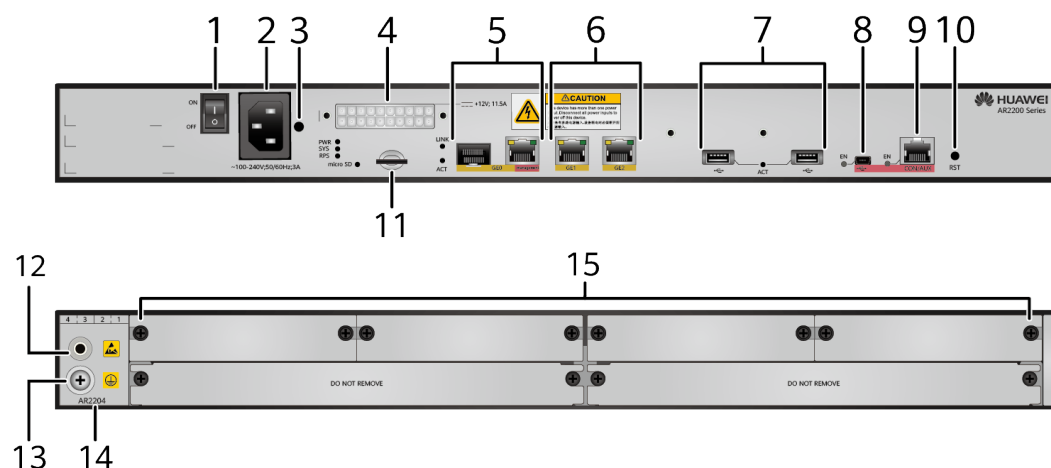
**Table 4-589** Mapping between the AR2204 router and software versions

Router Model	Software Version
AR2204	V200R003C00 and later versions

### Appearance and Structure

**Figure 4-191** shows the appearance of the AR2204 router.

**Figure 4-191** AR2204 appearance



1	Power switch	2	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
3	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	4	RPS power socket <b>NOTE</b> The router uses a <b>150 W RPS power supply</b> .
5	WAN interface: GE combo interface	6	WAN interfaces: two GE electrical interfaces

7	Two USB interfaces (host)	8	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.
9	CON/AUX interface <b>NOTE</b> The AR2204 does not support AUX login.	1 0	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>
1 1	Micro SD card slot	1 2	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
1 3	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	1 4	Product model silkscreen
1 5	Four SIC slots	-	-

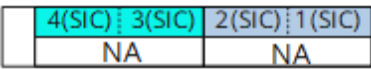
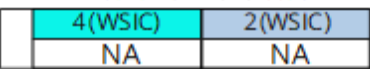
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-192** shows slot distribution of the AR2204 routers.

**Figure 4-192** Slot distribution of the AR2204 routers

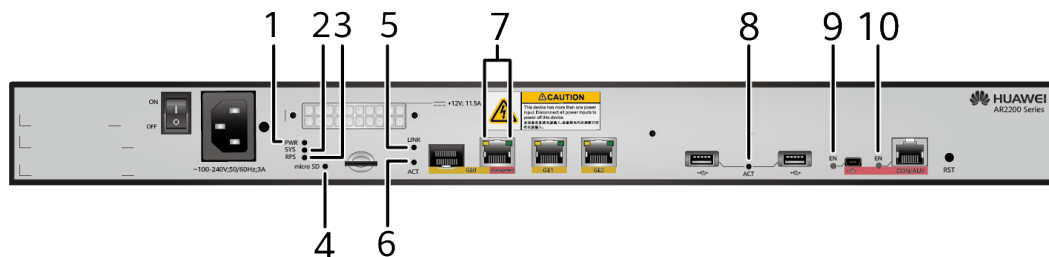
Device Model		Slot Distribution	Slot Combination
AR2204	Front view	NA	NA
	Rear view		<p>Two SIC slots are combined into one WSIC slot</p> 

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.

## Indicator Description

Figure 4-193 shows the locations of AR2204 indicators.

Figure 4-193 Indicators on the AR2204



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Red	The internal power modules of the router do not work normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	RPS	Green	Steady on: An RPS is connected to the router.
		Yellow	Steady on: An RPS is connected to the router but is not working normally.
		Blinking	Blinking: An RPS is supplying power to the router.

Number	Indicator	Color	Description
		Off	No RPS is connected to the router.
4	Micro SD card indicator	Green	Steady on: A link has been established.
			Blinking: Data is being transmitted or received.
			Off: No Micro SD card is available.
5 and 6	GE optical interface indicators: <ul style="list-style-type: none"> <li>● 5: LINK indicator</li> <li>● 6: ACT indicator</li> </ul>	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
7	GE electrical interface indicators	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
8	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
9	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.

Number	Indicator	Color	Description
			Off: The Mini USB interface is disabled.
10	EN (CON/AUX interface) <b>NOTE</b> <ul style="list-style-type: none"><li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li><li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li></ul>	Green	Steady on: The CON/AUX interface is enabled. Off: The CON/AUX interface is disabled.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-590](#) lists the CON/AUX interface attributes.

**Table 4-590** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-591](#) lists attributes of a Mini USB interface.

**Table 4-591** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-592](#) lists attributes of a GE electrical interface.

**Table 4-592** GE electrical interface attributes

Attribute	Description
Connector type	RJ45



Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-593](#) lists attributes of a USB interface.

**Table 4-593** USB interface attributes

Attribute	Description
Connector type	Type A

Attribute	Description
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204 router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-194](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-194** Airflow



## Technical Specifications

[Table 4-594](#) lists the technical specifications of the AR2204 routers.

**Table 4-594** AR2204 routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 800 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	2 GB
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	6 kg (13.23 lb)
<b>Power specifications</b>	
Rated AC input voltage	100 V/240 V, 50 Hz or 60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	150 W
RPS power supply	Supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	35 W
Maximum power consumption	55 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	4xSIC
DSP DIMM slot	Supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354250

## Related Documents

Video: [Introduction to Huawei AR2204 Series](#)

## 4.8.4 AR2204-24GE

### Version Mapping

**Table 4-595** lists the mapping between the AR2204-24GE router and software versions.

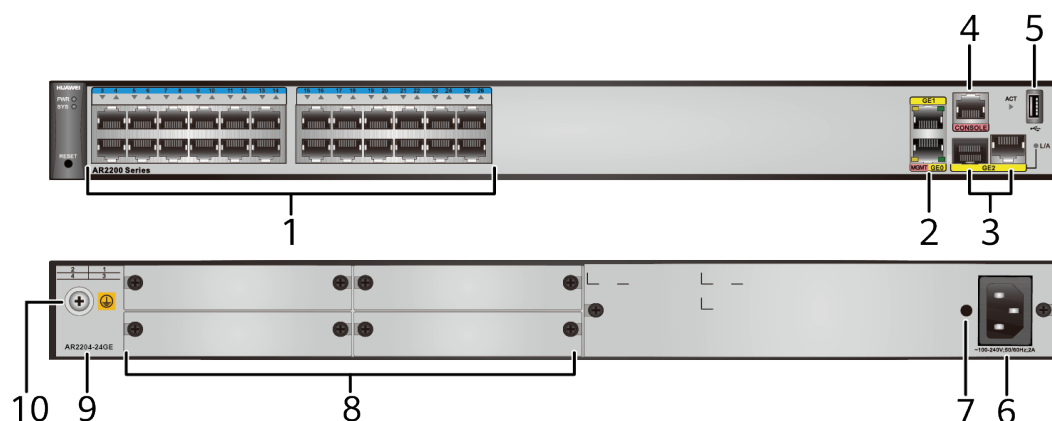
**Table 4-595** Mapping between the AR2204-24GE router and software versions

Router Model	Software Version
AR2204-24GE	V200R007C00, V200R008C50 and later versions

## Appearance and Structure

**Figure 4-195** shows the appearance of the AR2204-24GE router.

**Figure 4-195** AR2204-24GE appearance



**NOTE**

The RESET button is used to reset the router.

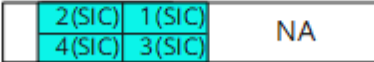
Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	LAN interfaces: twenty-four GE electrical interfaces <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Four SIC slots
9	Product model silkscreen	10	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

## Slot Distribution

Figure 4-196 shows the slot distribution of the AR2204-24GE router.

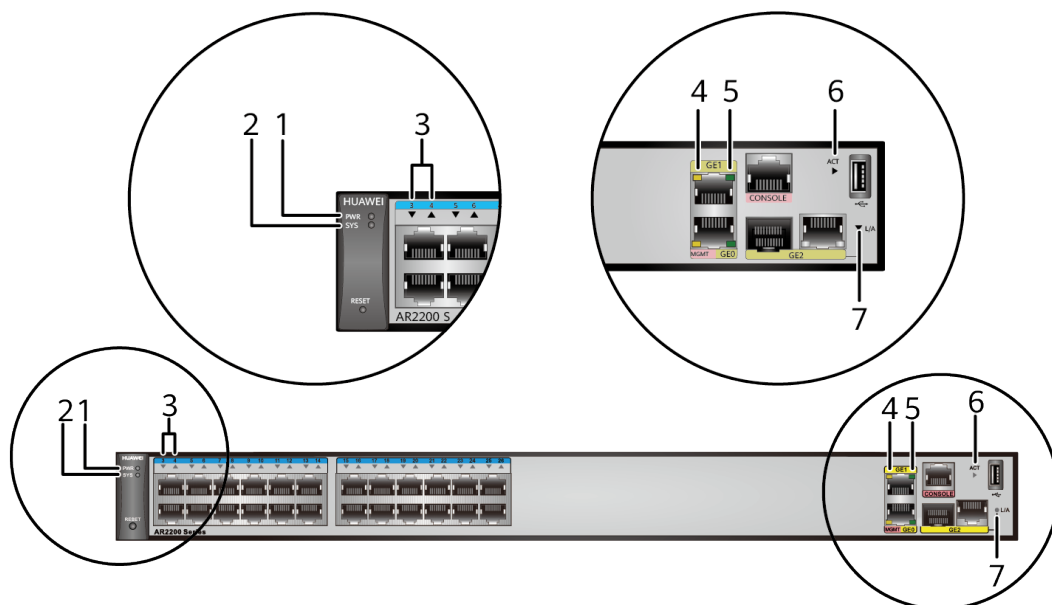
Figure 4-196 Slot distribution of the AR2204-24GE

Device Model		Slot Distribution	Slot Combination
AR2204-24GE	Front view	NA	NA
	Rear view		Not supported

## Indicator Description

Figure 4-197 shows the indicators on the AR2204-24GE router.

**Figure 4-197** Indicators on the AR2204-24GE



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the built-in power module normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	The system software is not running or is resetting.
3	GE electrical interface indicator (LAN)	Green	Steady on: A link has been established on the interface.
			Blinking: Data is being transmitted or received on the interface.
			Off: No link is established on the interface.

Number	Indicator	Color	Description
4 and 5	GE electrical interface indicator (WAN)	Green	Steady on: A link has been established on the interface.
			Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received on the interface.
			Off: No data is being transmitted or received on the interface.
6	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
7	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-596](#) lists attributes of a console interface.

**Table 4-596** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-597](#) lists attributes of a GE electrical interface.

**Table 4-597** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.



- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

**NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**USB interface (host)**

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-598](#) lists attributes of a USB interface.

**Table 4-598** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

**Heat Dissipation**

The AR2204-24GE router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-198](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-198** Airflow

## Technical Specifications

**Table 4-599** lists the technical specifications of the AR2204-24GE router.

**Table 4-599** AR2204-24GE technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	5 kg (11.02 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	30 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)

Item	Specification
Console interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: 2 GE electrical interfaces and 1 GE combo interface LAN interfaces: 24 GE electrical interfaces
Extended slots	4xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02351BXT

## 4.8.5 AR2204-27GE

### Version Mapping

**Table 4-600** lists the mapping between the AR2204-27GE router and software versions.

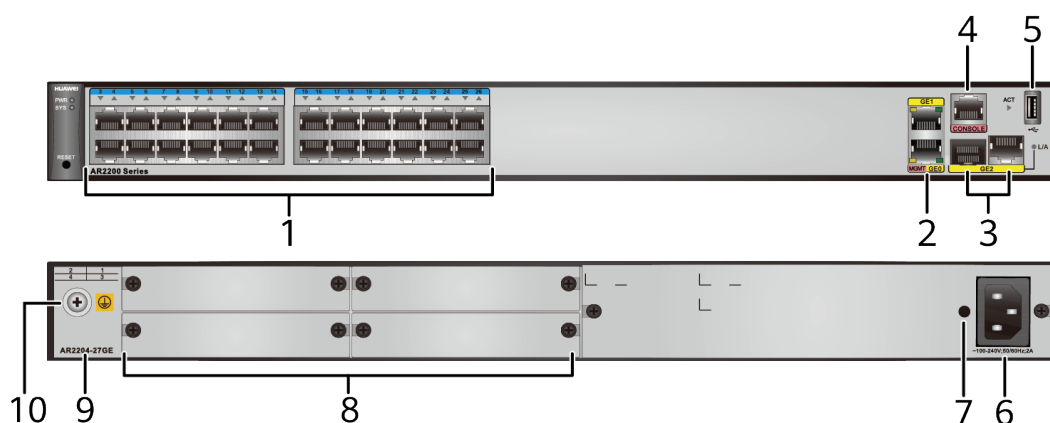
**Table 4-600** Mapping between the AR2204-27GE router and software versions

Router Model	Software Version
AR2204-27GE	V200R007C00 and later versions

### Appearance and Structure

**Figure 4-199** shows the appearance of the AR2204-27GE router.

Figure 4-199 AR2204-27GE appearance



**NOTE**

The RESET button is used to reset the router.

Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	LAN interfaces: twenty-four GE electrical interfaces  <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	AC power jack  <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Four SIC slots
9	Product model silkscreen	10	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

## Slot Distribution

Figure 4-200 shows the slot distribution on the AR2204-27GE router.

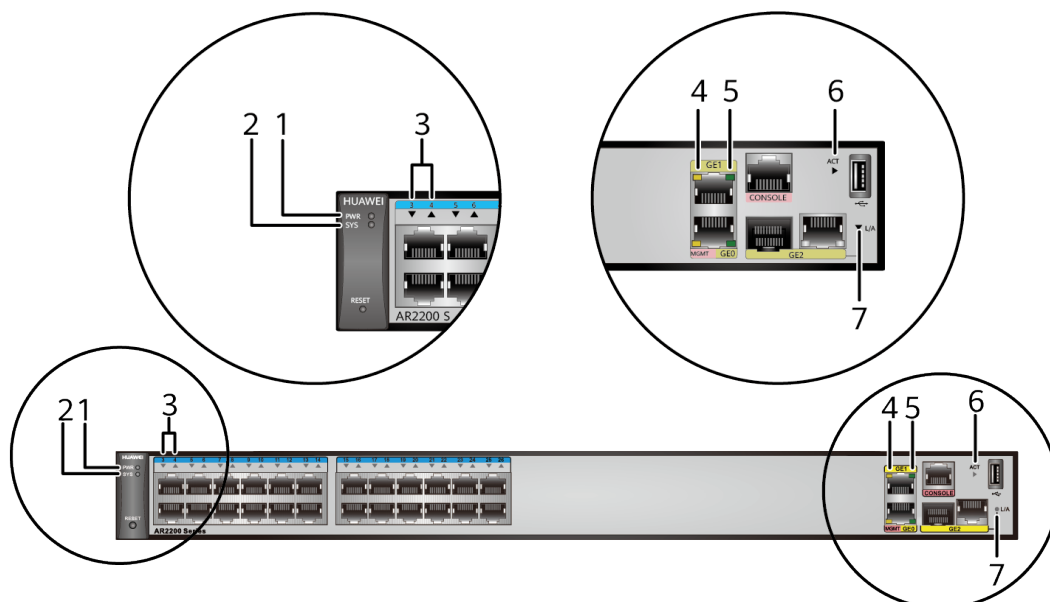
**Figure 4-200** Slot distribution of the AR2204-27GE

Device Model		Slot Distribution	Slot Combination				
AR2204-27GE	Front view	NA	NA				
	Rear view	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #e0f0ff;">2(SIC)</td> <td style="background-color: #e0f0ff;">1(SIC)</td> <td rowspan="2" style="text-align: center; vertical-align: middle;">NA</td> </tr> <tr> <td style="background-color: #e0f0ff;">4(SIC)</td> <td style="background-color: #e0f0ff;">3(SIC)</td> </tr> </table>	2(SIC)	1(SIC)	NA	4(SIC)	3(SIC)
2(SIC)	1(SIC)	NA					
4(SIC)	3(SIC)						

## Indicator Description

**Figure 4-201** shows the locations of AR2204-27GE indicators.

**Figure 4-201** Indicators on the AR2204-27GE



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.

Number	Indicator	Color	Description
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established on the GE electrical interface.
			Blinking: Data is being transmitted or received on the GE electrical interface.
			Off: No link is established on the GE electrical interface.
4 and 5	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
6	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
7	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.

Number	Indicator	Color	Description
			Off: No link is established on the GE combo interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-601](#) lists attributes of a console interface.

**Table 4-601** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-602](#) lists attributes of a GE electrical interface.

**Table 4-602** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP

Attribute	Description
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-603](#) lists attributes of a USB interface.

**Table 4-603** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204-27GE router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-202](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.



**Figure 4-202** Airflow



## Technical Specifications

**Table 4-604** lists the technical specifications of the AR2204-27GE routers.

**Table 4-604** AR2204-27GE routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	5 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported

Item	Specification
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	30 W
<b>Heat dissipation</b>	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces and one GE combo interface LAN interfaces: 24 GE electrical interfaces
Extended slots	4×SIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350JGM

## 4.8.6 AR2204-27GE-P

### Version Mapping

[Table 4-605](#) lists the mapping between the AR2204-27GE-P router and software versions.

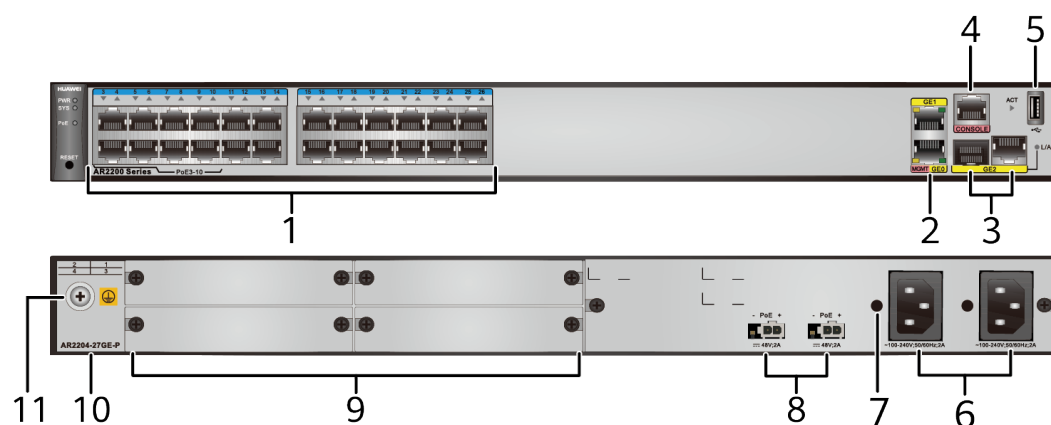
**Table 4-605** Mapping between the AR2204-27GE-P router and software versions

Router Model	Software Version
AR2204-27GE-P	V200R007C00 and later versions

## Appearance and Structure

**Figure 4-203** shows the appearance of the AR2204-27GE-P router.

**Figure 4-203** AR2204-27GE-P appearance



### NOTE

The RESET button is used to reset the router.

Resetting the router will interrupt services. Exercise caution when deciding to press this button.


1	LAN interfaces: twenty-four GE electrical interfaces  <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	Two AC power jacks  <b>NOTE</b> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use an <b>AC power cable</b> to connect the router to an external power source.</li> </ul>

7	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Two PoE power jacks <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.
9	Four SIC slots	10	Product model silkscreen
11	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Slot Distribution

Figure 4-204 shows the slot distribution on the AR2204-27GE-P router.

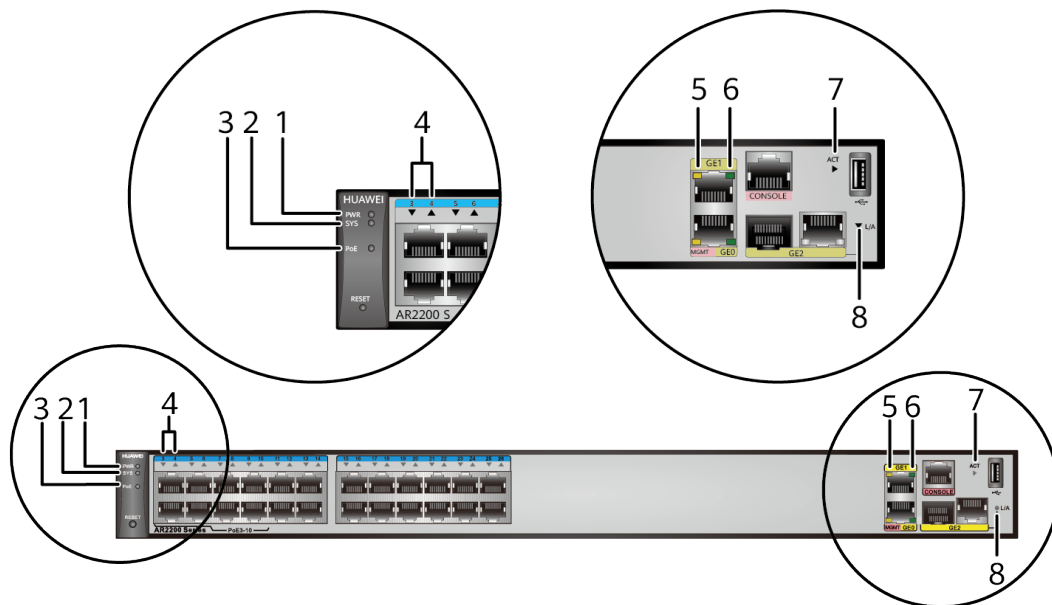
Figure 4-204 Slot distribution of the AR2204-27GE-P

Device Model		Slot Distribution	Slot Combination
AR2204-27GE-P	Front view	NA	NA
	Rear view		Not supported

## Indicator Description

Figure 4-205 shows the locations of AR2204-27GE-P indicators.

Figure 4-205 Indicators on the AR2204-27GE-P



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	PoE	Green	Steady on: The PoE power supply is normal.
		Off	Off: No PoE power supply is available.
4	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established on the GE electrical interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the GE electrical interface.
			Off: No link is established on the GE electrical interface.
5 and 6	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received on the link.
			Off: No data is being transmitted or received on the link.
7	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
8	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-606](#) lists attributes of a console interface.

**Table 4-606** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-607](#) lists attributes of a GE electrical interface.

**Table 4-607** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

**NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**USB Interface (Host)**

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-608](#) lists attributes of a USB interface.

**Table 4-608** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

**Heat Dissipation**

The AR2204-27GE-P router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-206](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-206** Airflow



**Technical Specifications**

[Table 4-609](#) lists the technical specifications of the AR2204-27GE-P routers.



**Table 4-609** AR2204-27GE-P routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	5 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (GE3 to GE10)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	30 W
<b>Heat dissipation</b>	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces and one GE combo interface LAN interfaces: 24 GE electrical interfaces
Extended slots	4×SIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350JUD

## 4.8.7 AR2204-48GE-P

### Version Mapping

**Table 4-610** lists the mapping between the AR2204-48GE-P router and software versions.

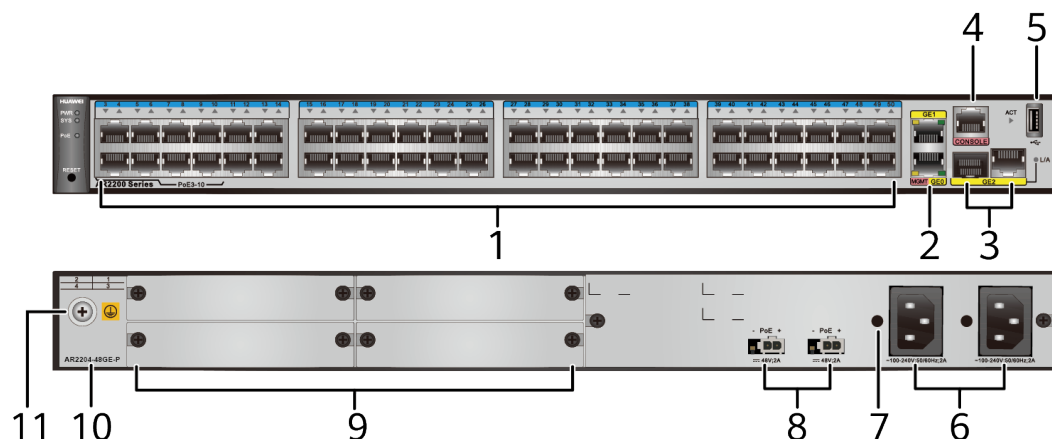
**Table 4-610** Mapping between the AR2204-48GE-P router and software versions

Router Model	Software Version
AR2204-48GE-P	V200R007C00, V200R008C50 and later versions

### Appearance and Structure

**Figure 4-207** shows the appearance of the AR2204-48GE-P router.

Figure 4-207 AR2204-48GE-P appearance



**NOTE**

The RESET button is used to reset the router.

Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	LAN interfaces: forty-eight GE electrical interfaces  <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	Two AC power jacks  <b>NOTE</b> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use an <b>AC power cable</b> to connect the router to an external power source.</li> </ul>
7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Two PoE power jacks  <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.
9	Four SIC slots	10	Product model silkscreen

1	Ground point	-	-
1	<p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>		

## Slot Distribution

Figure 4-208 shows the slot distribution of the AR2204-48GE-P router.

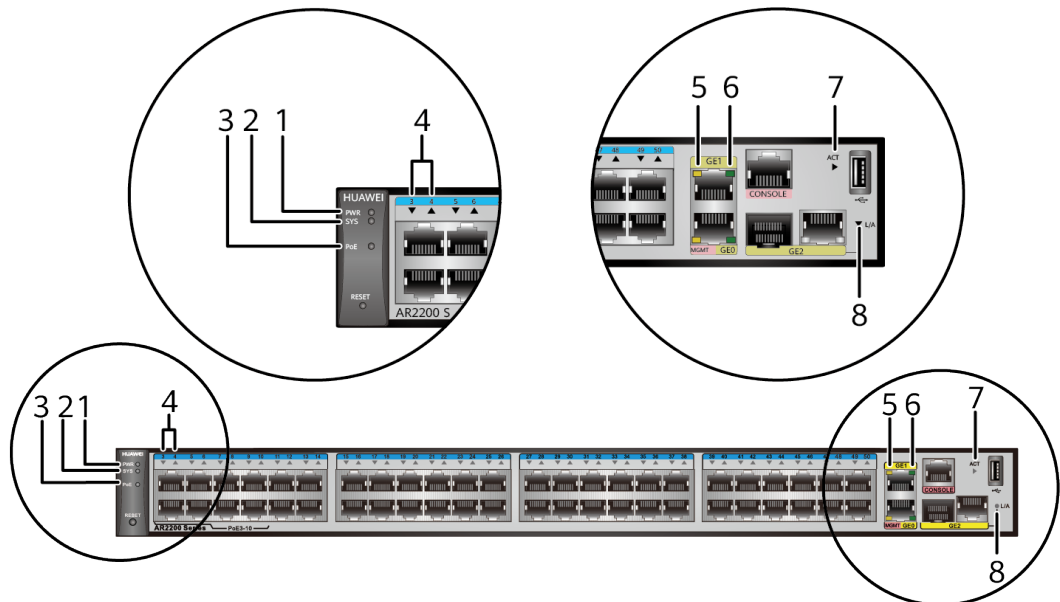
Figure 4-208 Slot distribution of the AR2204-48GE-P

Device Model		Slot Distribution	Slot Combination			
AR2204-48GE-P	Front view	NA	NA			
	Rear view	<table border="1" style="display: inline-table;"> <tr> <td>2(SIC)</td> <td>1(SIC)</td> </tr> <tr> <td>4(SIC)</td> <td>3(SIC)</td> </tr> </table> NA	2(SIC)	1(SIC)	4(SIC)	3(SIC)
2(SIC)	1(SIC)					
4(SIC)	3(SIC)					

## Indicator Description

Figure 4-209 shows the indicators on the AR2204-48GE-P router.

Figure 4-209 Indicators on the AR2204-48GE-P



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the built-in power module normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	The system software is not running or is resetting.
3	PoE	Green	Steady on: The PoE power supply is normal.
		Off	No PoE power supply is available.
4	GE electrical interface indicator (LAN)	Green	Steady on: A link has been established on the interface.
			Blinking: Data is being transmitted or received on the interface.
			Off: No link is established on the interface.
5 and 6	GE electrical interface indicator (WAN)	Green	Steady on: A link has been established on the interface.
			Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received on the interface.
			Off: No data is being transmitted or received on the interface.
7	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
8	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-611](#) lists attributes of a console interface.

**Table 4-611** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-612](#) lists attributes of a GE electrical interface.

**Table 4-612** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-613](#) lists attributes of a USB interface.

**Table 4-613** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204-48GE-P router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-210](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-210** Airflow



## Technical Specifications

[Table 4-614](#) lists the technical specifications of the AR2204-48GE-P routers.

**Table 4-614** AR2204-48GE-P technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported



Item	Specification
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	5 kg (11.02 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (GE3 to GE10)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	35 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: 2 GE electrical interfaces and 1 GE combo interface LAN interfaces: 48 GE electrical interfaces
Extended slots	4xSIC
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02351BXU

## 4.8.8 AR2204-51GE

### Version Mapping

[Table 4-615](#) lists the mapping between the AR2204-51GE router and software versions.

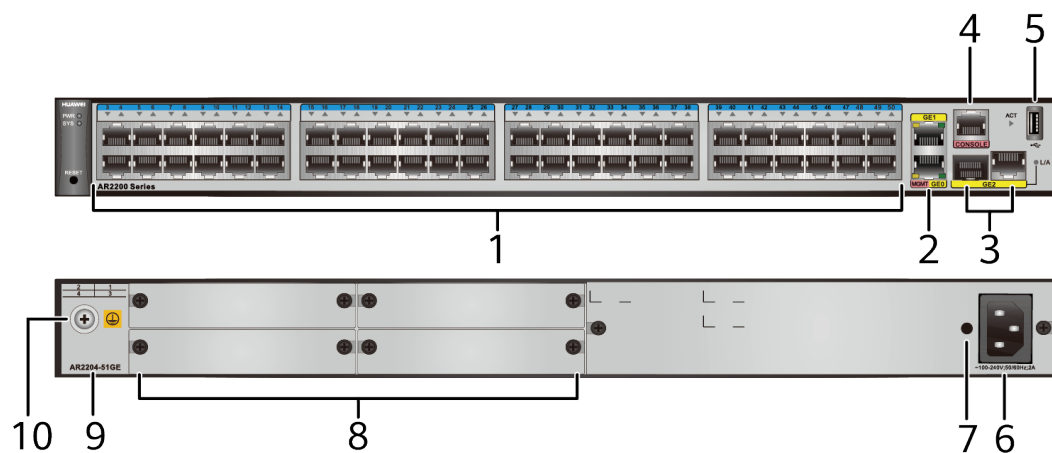
**Table 4-615** Mapping between the AR2204-51GE router and software versions

Router Model	Software Version
AR2204-51GE	V200R007C00 and later versions

### Appearance and Structure

[Figure 4-211](#) shows the appearance of the AR2204-51GE router.

**Figure 4-211** AR2204-51GE appearance



 **NOTE**

The RESET button is used to reset the router.

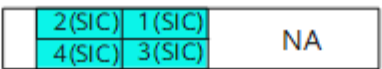
Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	LAN interfaces: forty-eight GE electrical interfaces  <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	AC power jack  <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Four SIC slots
9	Product model silkscreen	10	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

## Slot Distribution

**Figure 4-212** shows the slot distribution of the AR2204-51GE router.

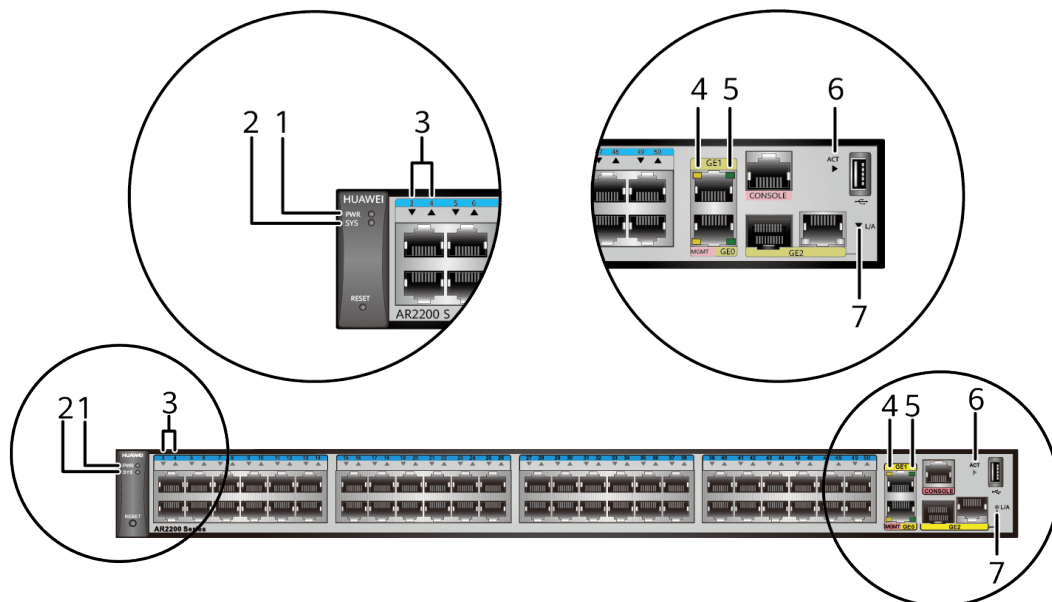
**Figure 4-212** Slot distribution of the AR2204-51GE

Device Model		Slot Distribution	Slot Combination
AR2204-51GE	Front view	NA	NA
	Rear view		Not supported

## Indicator Description

Figure 4-213 shows the indicators on the AR2204-51GE router.

Figure 4-213 Indicators on the AR2204-51GE



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the built-in power module normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	The system software is not running or is resetting.
3	GE electrical interface indicator (LAN)	Green	Steady on: A link has been established on the GE electrical interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the GE electrical interface.
			Off: No link is established on the GE electrical interface.
4 and 5	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established on the interface.
			Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
6	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
7	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-616](#) lists attributes of a console interface.

**Table 4-616** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-617](#) lists attributes of a GE electrical interface.

**Table 4-617** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-618](#) lists attributes of a USB interface.

**Table 4-618** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204-51GE router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-214](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-214** Airflow



## Technical Specifications

**Table 4-619** lists the technical specifications of the AR2204-51GE router.

**Table 4-619** AR2204-51GE technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	5 kg (11.02 lb)
<b>Power specifications</b>	
Rated AC input voltage	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	35 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interface	1 (RJ45)
Console interface	1 (RJ45)



Item	Specification
USB 2.0 interface	1
Service interfaces	WAN interfaces: two GE electrical interfaces and one GE combo interface LAN interfaces: 48 GE electrical interfaces
Extended slots	4xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350QKD

## 4.8.9 AR2204-51GE-P

### Version Mapping

**Table 4-620** lists the mapping between the AR2204-51GE-P router and software versions.

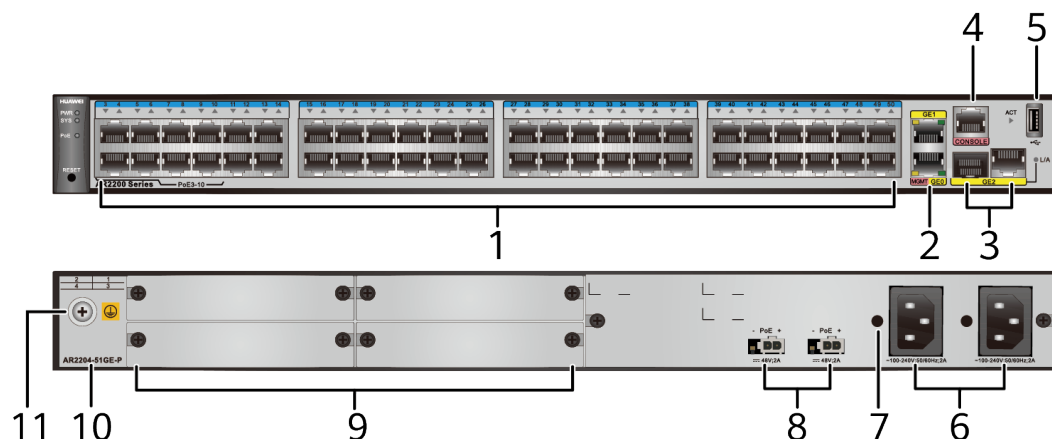
**Table 4-620** Mapping between the AR2204-51GE-P router and software versions

Router Model	Software Version
AR2204-51GE-P	V200R007C00 and later versions

### Appearance and Structure

**Figure 4-215** shows the appearance of the AR2204-51GE-P router.

Figure 4-215 AR2204-51GE-P appearance



**NOTE**

The RESET button is used to reset the router.

Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	LAN interfaces: forty-eight GE electrical interfaces  <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	Two AC power jacks  <b>NOTE</b> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use an <b>AC power cable</b> to connect the router to an external power source.</li> </ul>
7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Two PoE power jacks  <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.
9	Four SIC slots	10	Product model silkscreen

1	Ground point	-	-
1	<p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>		

## Slot Distribution

Figure 4-216 shows the slot distribution on the AR2204-51GE-P router.

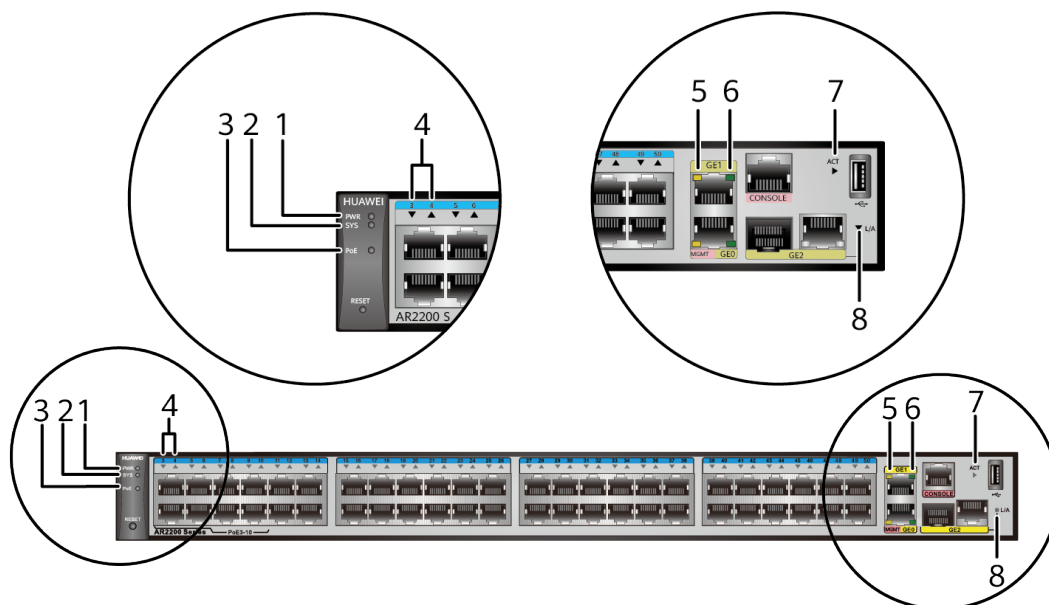
Figure 4-216 Slot distribution of the AR2204-51GE-P

Device Model		Slot Distribution	Slot Combination
AR2204-51GE-P	Front view	NA	NA
	Rear view		Not supported

## Indicator Description

Figure 4-217 shows the locations of AR2204-51GE-P indicators.

Figure 4-217 Indicators on the AR2204-51GE-P



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	PoE	Green	Steady on: The PoE power supply is normal.
		Off	Off: No PoE power supply is available.
4	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established on the GE electrical interface.
		Blinking	Blinking: Data is being transmitted or received on the GE electrical interface.
		Off	Off: No link is established on the GE electrical interface.
5 and 6	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
		Off	Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received on the link.
		Off	Off: No data is being transmitted or received on the link.
7	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.

Number	Indicator	Color	Description
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
8	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-621](#) lists attributes of a console interface.

**Table 4-621** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-622](#) lists attributes of a GE electrical interface.

**Table 4-622** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-623](#) lists attributes of a USB interface.

**Table 4-623** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204-51GE-P router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-218](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-218** Airflow



## Technical Specifications

[Table 4-624](#) lists the technical specifications of the AR2204-51GE-P routers.

**Table 4-624** AR2204-51GE-P routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	5 kg
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (GE3 to GE10)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	35 W
<b>Heat dissipation</b>	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces and one GE combo interface LAN interfaces: 48 GE electrical interfaces
Extended slots	4xSIC
<b>Environment parameters</b>	



Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350JUE

## 4.8.10 AR2204-51GE-R

### Version Mapping

**Table 4-625** lists the mapping between the AR2204-51GE-R router and software versions.

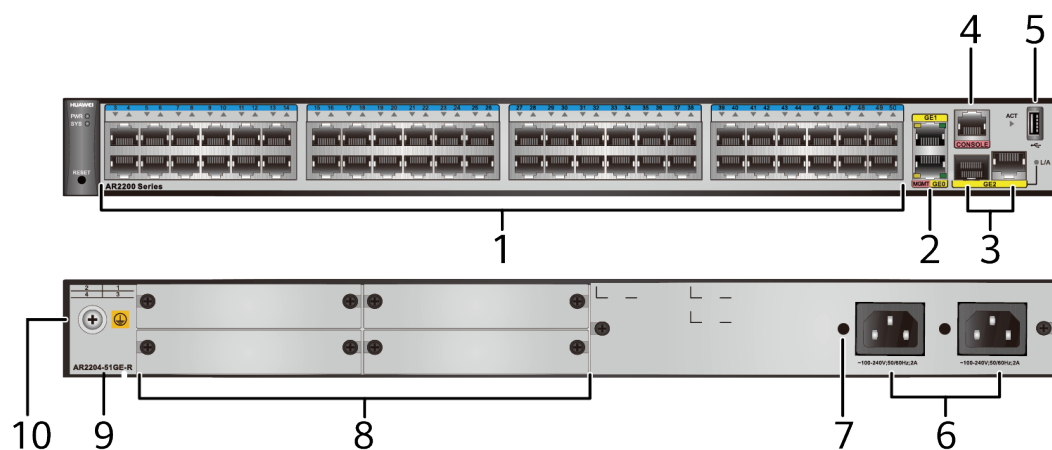
**Table 4-625** Mapping between the AR2204-51GE-R router and software versions

Router Model	Software Version
AR2204-51GE-R	V200R007C01, V200R008C30, and later versions

### Appearance and Structure

**Figure 4-219** shows the appearance of the AR2204-51GE-R router.

**Figure 4-219** AR2204-51GE-R appearance



**NOTE**


The RESET button is used to reset the router.  
Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	LAN interfaces: forty-eight GE electrical interfaces  <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	Two AC power jacks  <b>NOTE</b> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use an <b>AC power cable</b> to connect the router to an external power source.</li> </ul>
7	Jack for power cable locking strap  <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	8	Four SIC slots
9	Product model silkscreen	10	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.

## Slot Distribution

**Figure 4-220** shows the slot distribution of the AR2204-51GE-R router.

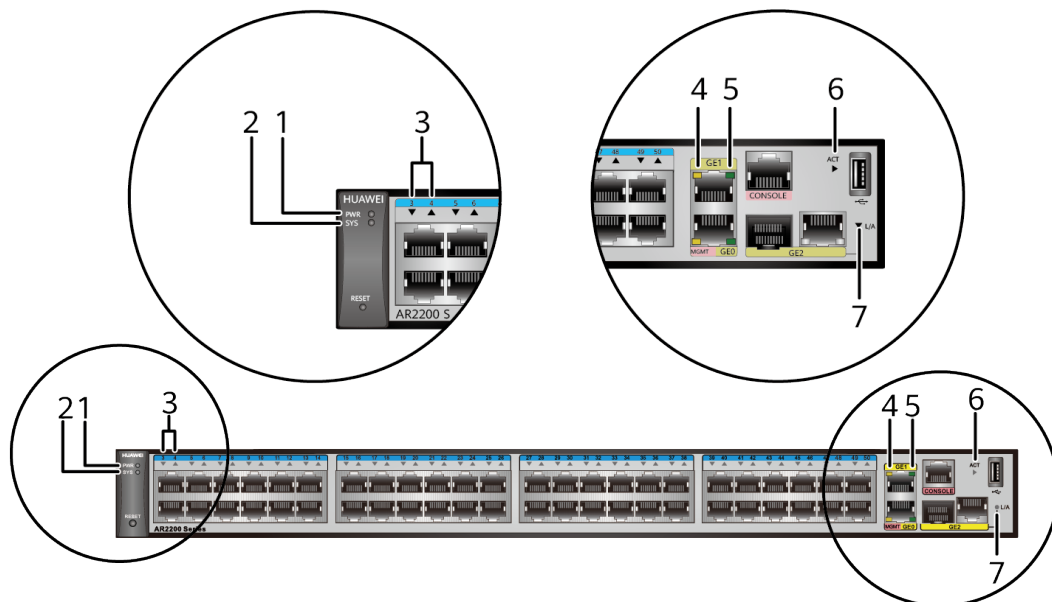
**Figure 4-220** Slot distribution of the AR2204-51GE-R

Device Model		Slot Distribution	Slot Combination
AR2204-51GE-R	Front view	NA	NA
	Rear view		Not supported

## Indicator Description

Figure 4-221 shows the indicators on the AR2204-51GE-R router.

Figure 4-221 Indicators on the AR2204-51GE-R



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the built-in power module normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	The system software is not running or is resetting.
3	GE electrical interface indicator (LAN)	Green	Steady on: A link has been established on the GE electrical interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the GE electrical interface.
			Off: No link is established on the GE electrical interface.
4 and 5	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established on the interface.
			Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
6	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
7	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-626](#) lists attributes of a console interface.

**Table 4-626** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-627](#) lists attributes of a GE electrical interface.

**Table 4-627** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

**NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**USB Interface (Host)**

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-628](#) lists attributes of a USB interface.

**Table 4-628** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

**Heat Dissipation**

The AR2204-51GE-R uses built-in fan modules for heat dissipation. These fan modules are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-222](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-222** Airflow

## Technical Specifications

**Table 4-629** lists technical specifications of the AR2204-51GE-R router.

**Table 4-629** AR2204-51GE-R technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	5 kg (11.02 lb)
<b>Power specifications</b>	
Rated AC input voltage	100 V AC to 240 V AC, 50/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	35 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interface	1 (RJ45)

Item	Specification
Console interface	1 (RJ45)
USB 2.0 interface	1
Service interfaces	WAN interfaces: two GE electrical interfaces and one GE combo interface LAN interfaces: 48 GE electrical interfaces
Extended slots	4xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350SSJ

## 4.8.11 AR2204E

### Version Mapping

[Table 4-630](#) lists the mapping between the AR2204E router and software versions.

**Table 4-630** Mapping between the AR2204E router and software versions

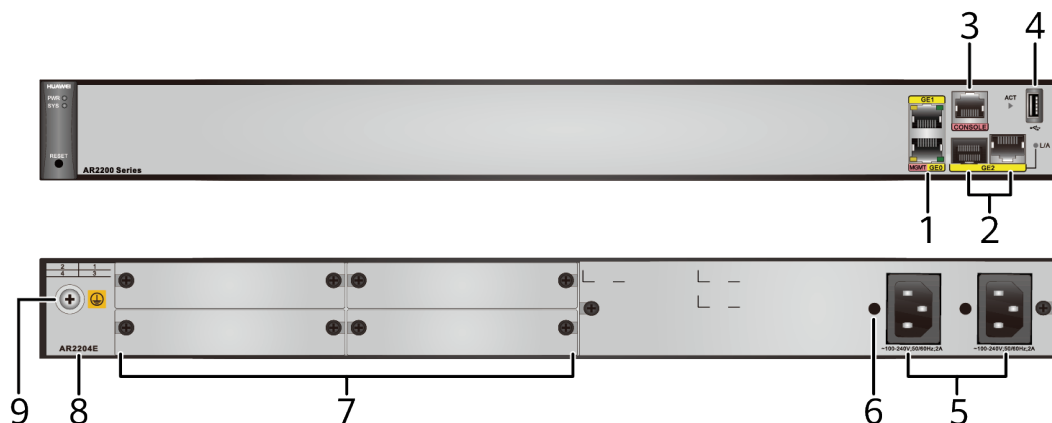
Router Model	Software Version
AR2204E	V200R007C00 and later versions

### Appearance and Structure

[Figure 4-223](#) shows the appearance of the AR2204E router.



Figure 4-223 AR2204E appearance



**NOTE**

The RESET button is used to reset the router.  
Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	WAN interfaces: two GE electrical interfaces <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.	2	WAN interface: GE combo interface
3	Console interface	4	One USB interface (host)
5	Two AC power jacks <b>NOTE</b> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use an <b>AC power cable</b> to connect the router to an external power source.</li> </ul>	6	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
7	Four SIC slots	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

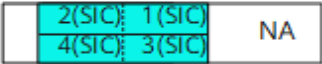
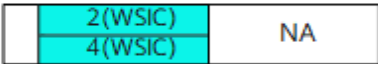
## Slot Distribution

### NOTE

- In V200R008C30 and later versions, two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-224 shows the slot distribution of the AR2204E router.

Figure 4-224 Slot distribution of the AR2204E

Device Model		Slot Distribution	Slot Combination
AR2204E	Front view	NA	NA
	Rear view		<p>Two SIC slots are combined into one WSIC slot</p> 

- Slot 1 and slot 2 can be combined into new slot 2.
- Slot 3 and slot 4 can be combined into new slot 4.

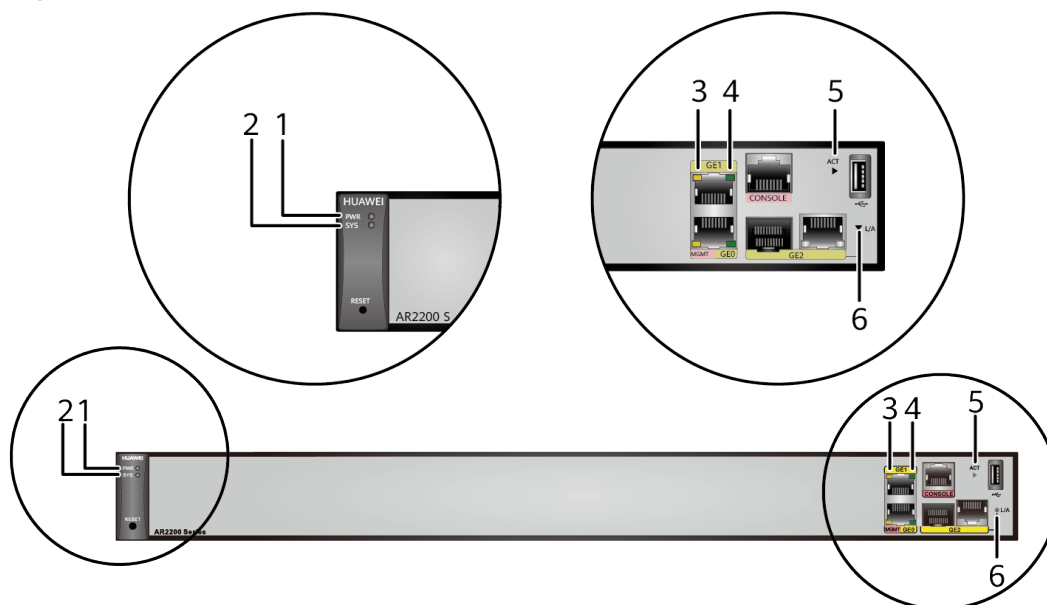
### NOTE

When only one WSIC card is installed on the router, you can only install the WSIC card in slot 4 (combined of slot 3 and slot 4).

## Indicator Description

Figure 4-225 shows the indicators on the AR2204E router.

Figure 4-225 Indicators on the AR2204E



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3 and 4	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
5	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
6	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.

Number	Indicator	Color	Description
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-631](#) lists attributes of a console interface.

**Table 4-631** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-632](#) lists attributes of a GE electrical interface.

**Table 4-632** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	<p>MDI/MDIX</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>

Attribute	Description
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB interface (host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-633](#) lists attributes of a USB interface.

**Table 4-633** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204E router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-226](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-226** Airflow



## Technical Specifications

[Table 4-634](#) lists the technical specifications of the AR2204E routers.

**Table 4-634** AR2204E routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	5 kg (11.02 lb)
<b>Power specifications</b>	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W

Item	Specification
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	30 W
<b>Heat dissipation</b>	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces and one GE combo interface
Extended slots	4xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350KGS

## 4.8.12 AR2204E-D

### Version Mapping

[Table 4-635](#) lists the mapping between the AR2204E-D router and software versions.

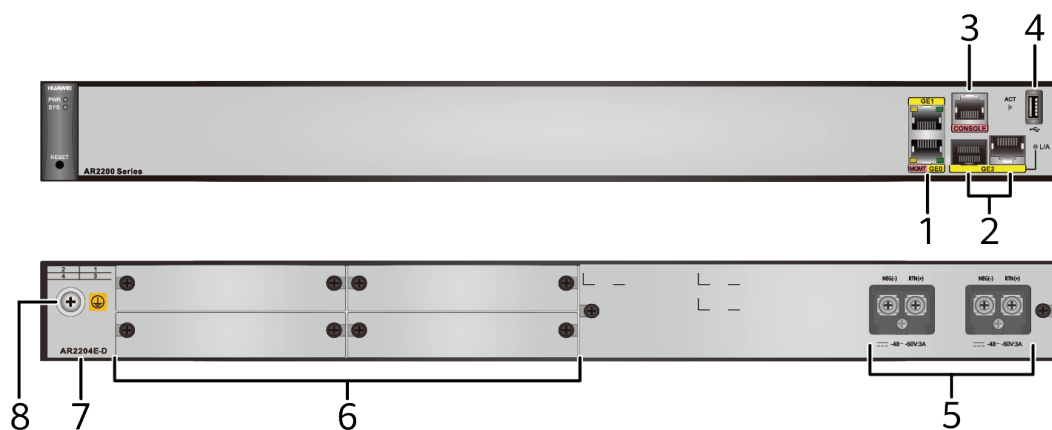
**Table 4-635** Mapping between the AR2204E-D router and software versions

Router Model	Software Version
AR2204E-D	V200R007C01, V200R008C30, and later versions

## Appearance and Structure

Figure 4-227 shows the appearance of the AR2204E-D router.

**Figure 4-227** AR2204E-D appearance



### NOTE

The RESET button is used to reset the router.

Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	WAN interfaces: two GE electrical interfaces  <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.	2	WAN interface: GE combo interface
3	Console interface	4	One USB interface (host)
5	Two DC power terminals  <b>NOTE</b> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use <b>DC power cables</b> to connect the router to an external power source.</li> </ul>	6	Four SIC slots



7	Product model silkscreen	8	Ground point  <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
---	--------------------------	---	---

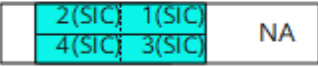
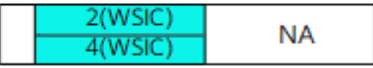
## Slot Distribution

### NOTE

- In V200R008C30 and later versions, two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-228** shows the slot distribution of the AR2204E-D router.

**Figure 4-228** Slot distribution of the AR2204E-D

Device Model		Slot Distribution	Slot Combination
AR2204E-D	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot  

- Slot 1 and slot 2 can be combined into new slot 2.
- Slot 3 and slot 4 can be combined into new slot 4.

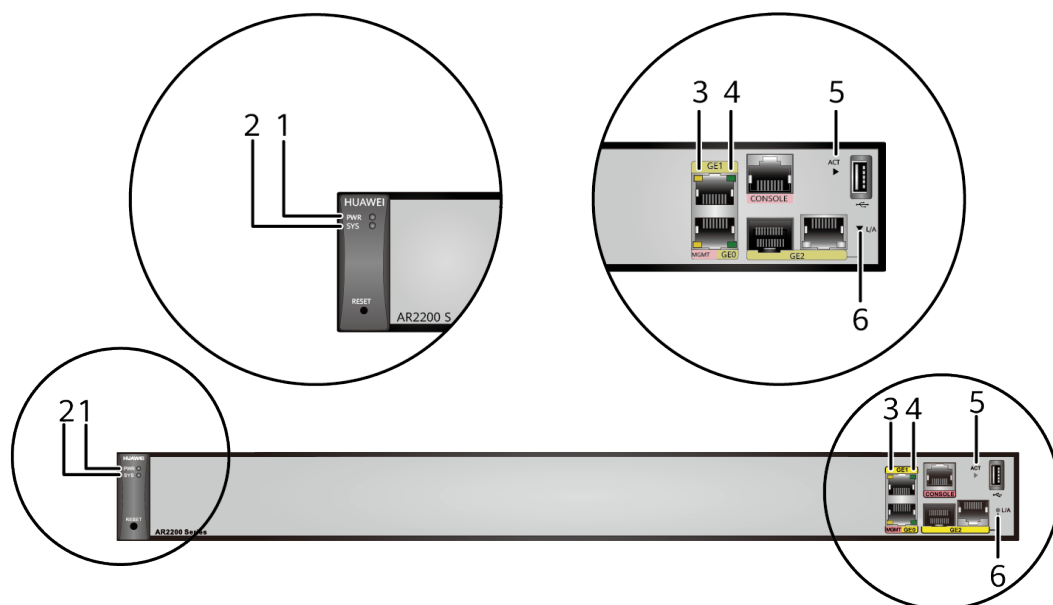
### NOTE

When only one WSIC card is installed on the router, you can only install the WSIC card in slot 4 (combined of slot 3 and slot 4).

## Indicator Description

**Figure 4-229** shows the indicators on the AR2204E-D router.

Figure 4-229 Indicators on the AR2204E-D



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the built-in power module normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	The system software is not running or is resetting.
3 and 4	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established on the interface.
		Off	No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received.
		Off	No data is being transmitted or received.

Number	Indicator	Color	Description
5	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
6	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-636](#) lists attributes of a console interface.

**Table 4-636** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-637](#) lists attributes of a GE electrical interface.

**Table 4-637** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-638](#) lists attributes of a USB interface.

**Table 4-638** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204E-D uses built-in unpluggable fan modules to cool the system.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-230](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-230** Airflow



## Technical Specifications

[Table 4-639](#) lists technical specifications of the AR2204E-D router.

**Table 4-639** AR2204E-D technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	5 kg (11.02 lb)
<b>Power specifications</b>	
Rated input voltage (DC)	-48 V DC to -60 V DC
Maximum input voltage (DC)	-38.4 V DC to -72 V DC
Maximum input current	3 A
Maximum output power	54 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	20 W
Maximum power consumption	25 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interface	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interface	1
Service interfaces	WAN interfaces: two GE electrical interfaces and one GE combo interface
Extended slots	4xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984 ft.).

Item	Specification
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02350MSN

## 4.8.13 AR2204E-D-27GE

### Version Mapping

**Table 4-640** lists the mapping between the AR2204E-D-27GE router and software versions.

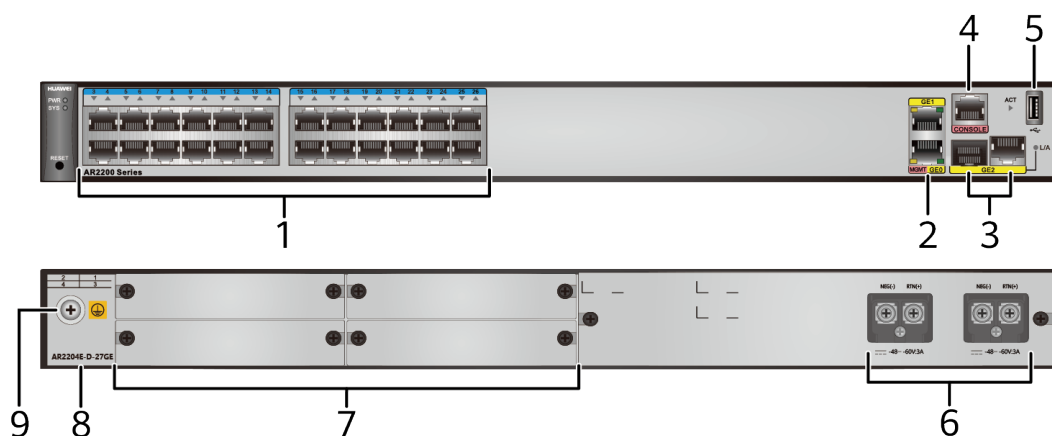
**Table 4-640** Mapping between the AR2204E-D-27GE router and software versions

Router Model	Software Version
AR2204E-D-27GE	V200R010C00 and later versions

### Appearance and Structure

**Figure 4-231** shows the appearance of the AR2204E-D-27GE router.

**Figure 4-231** AR2204E-D-27GE appearance



#### NOTE

The RESET button is used to reset the router.

Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	LAN interfaces: twenty-four GE electrical interfaces <b>NOTE</b> All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces <b>NOTE</b> GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	Console interface
5	One USB interface (host)	6	Two DC power terminals <b>NOTE</b> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use <b>DC power cables</b> to connect the router to an external power source.</li> </ul>
7	Four SIC slots	8	Product model silkscreen
9	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	-	-

## Slot Distribution

Figure 4-232 shows the slot distribution on the AR2204E-D-27GE router.

Figure 4-232 Slot distribution of the AR2204E-D-27GE

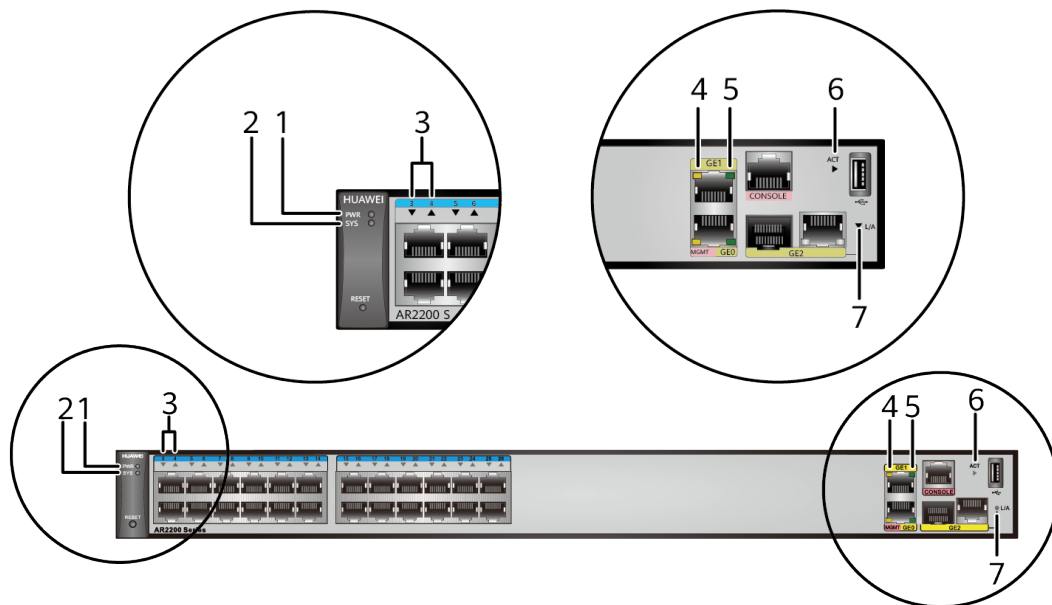
Device Model		Slot Distribution	Slot Combination
AR2204E-D-27GE	Front view	NA	NA
	Rear view		Not supported

## Indicator Description

Figure 4-233 shows the locations of AR2204E-D-27GE indicators.



Figure 4-233 Indicators on the AR2204E-D-27GE



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	GE electrical interface indicators (LAN)	Green	Steady on: A link has been established on the GE electrical interface.
			Blinking: Data is being transmitted or received on the GE electrical interface.
			Off: No link is established on the GE electrical interface.

Number	Indicator	Color	Description
4 and 5	GE electrical interface indicators (WAN)	Green	Steady on: A link has been established.
			Off: No link is established.
		Yellow	Blinking: Data is being transmitted or received.
			Off: No data is being transmitted or received.
6	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
7	L/A (GE combo interface)	Green	Steady on: A link has been established on the GE combo interface.
			Blinking: Data is being transmitted or received on the GE combo interface.
			Off: No link is established on the GE combo interface.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-641](#) lists attributes of a console interface.

**Table 4-641** Console interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-642](#) lists attributes of a GE electrical interface.

**Table 4-642** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).

- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

 NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-643](#) lists attributes of a USB interface.

**Table 4-643** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204E-D-27GE router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-234](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-234** Airflow



## Technical Specifications

[Table 4-644](#) lists the technical specifications of the AR2204E-D-27GE routers.

**Table 4-644** AR2204E-D-27GE routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	5 kg
<b>Power specifications</b>	
Rated input voltage (DC)	-48 V DC to -60 V DC
Maximum input voltage (DC)	-38.4 V DC to -72 V DC
Maximum input current	3 A
Maximum output power	54 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	25 W
Maximum power consumption	30 W
<b>Heat dissipation</b>	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces and one GE combo interface LAN interfaces: 24 GE electrical interfaces
Extended slots	4×SIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02352QEU

## 4.8.14 AR2204XE

### Version Mapping

**Table 4-645** lists the mapping between the AR2204XE series routers and software versions.

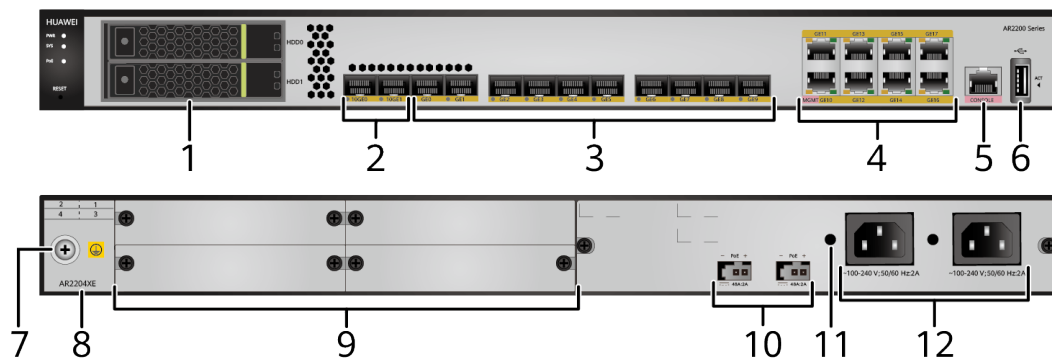
**Table 4-645** Version mapping

Router Model	Software Version
AR2204XE	V200R009C00 and later versions

### Appearance and Structure

**Figure 4-235** shows the appearance of the AR2204XE router.

Figure 4-235 AR2204XE appearance



**NOTE**

The RESET button is used to reset the router.  
Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	Two interfaces for SATA mechanical hard disks	2	WAN interfaces: two 10GE optical interfaces
3	WAN interfaces: ten GE optical interfaces	4	WAN interfaces: eight GE electrical interfaces <b>NOTE</b> GE10 is a management interface and is used to upgrade the router.
5	Console interface	6	One USB interface (host)
7	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	8	Product model silkscreen
9	Four SIC slots	10	Two PoE power jacks <b>NOTE</b> The PoE power jack connects to a <b>100 W PoE power adapter</b> to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to GE interfaces of the router.

1	Jack for power cable locking strap	1	Two AC power jacks
1	<p><b>NOTE</b></p> <p>Insert a power cable locking strap in this jack to secure the power cable.</p>	2	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Support double power supply (1:1 backup).</li> <li>Use an <b>AC power cable</b> to connect the router to an external power source.</li> </ul>

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-236 shows the slot distribution on the AR2204XE router.

Figure 4-236 Slot distribution

Device Model		Slot Distribution	Slot Combination
AR2204XE	Front view	NA	NA
	Rear view		<p>Two SIC slots are combined into one WSIC slot</p>

- Slot 1 and slot 2 can be combined into new slot 2.
- Slot 3 and slot 4 can be combined into new slot 4.

### NOTE

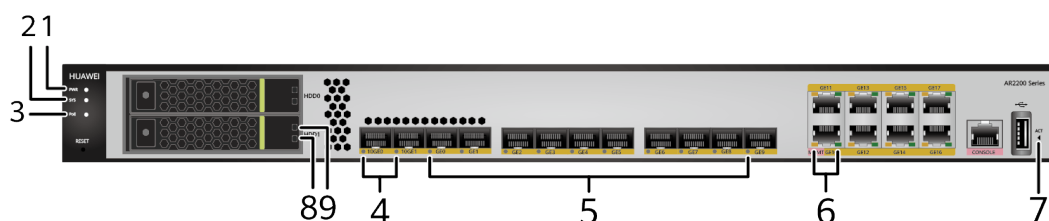
When only one WSIC card is installed on the router, you can only install the WSIC card in slot 4 (combined of slot 3 and slot 4).

- Slot 2 and slot 4 can be combined into new slot 4.

## Indicator Description

Figure 4-237 shows the indicators on the AR2204XE router.

Figure 4-237 Indicators on the AR2204XE router





Number	Indicator	Color	Description
1	PWR	Green	Steady on: The router is powered by the built-in power module normally. Off: The router is not powered on.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	The system software is not running or is resetting.
3	PoE	Green	Steady on: The PoE power supply is normal. Off: No PoE power supply is available.
4	10GE optical interface indicators (10GE0 to 10GE1)	Green	Steady on: A link has been established on the corresponding 10GE optical interface. Blinking: Data is being transmitted or received on the corresponding 10GE optical interface. Off: No link is established on corresponding 10GE optical interface.
5	GE optical interface indicators (GE0 to GE9)	Green	Steady on: A link has been established on the corresponding GE optical interface. Blinking: Data is being transmitted or received on the corresponding GE optical interface. Off: No link is established on corresponding GE optical interface.

Number	Indicator	Color	Description
6	GE electrical interface indicators (GE10 to GE17)	Green	Steady on: A link has been established on the corresponding GE electrical interface.
			Off: No link is established on the corresponding GE electrical interface.
		Yellow	Blinking: Data is being transmitted or received on the corresponding GE electrical interface.
			Off: No data is being transmitted or received on the corresponding GE electrical interface.
7	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
8	Hard disk ACT indicator	Green	Steady on: A hard disk is present. Blinking: The system is performing read-write operation on the hard disk. Off: No hard disk is present.
9	Hard disk error indicator	Red	Steady on: The hard disk does not work normally. Off: The hard disk is working normally.

## Interface Description

### Console interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-646](#) lists attributes of a console interface.

**Table 4-646** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-647](#) lists attributes of a GE electrical interface.

**Table 4-647** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE optical interface

A GE optical interface can work in FE mode and can transmit and receive service traffic at 100 Mbit/s or 1000 Mbit/s. [Table 4-648](#) lists attributes of a GE optical interface.

 NOTE

For V200R010C00SPC600 and later versions, the GE optical interface supports copper module, and the GE optical interface configured with copper module only supports GE mode.

**Table 4-648** GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.5 GE eSFP Optical Modules</a> and <a href="#">9.4 FE SFP/eSFP Optical Modules</a> .
Standards compliance	IEEE 802.3z

**10GE optical interface**

The 10GE optical interfaces cannot work in GE mode and can only transmit and receive service traffic at 10 Gbit/s. [Table 4-649](#) lists attributes of a 10GE optical interface.

**Table 4-649** 10GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.10 10GE SFP+ Optical Modules</a> .
Standards compliance	IEEE 802.3ae

**USB interface (host)**

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-650](#) lists attributes of a USB interface.

**Table 4-650** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204XE router uses built-in fans to cool the system. The fans are unpluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-238](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-238** Airflow



## Technical Specifications

[Table 4-651](#) lists the technical specifications of the AR2204XE router.

**Table 4-651** Technical specifications

Item	Specification
<b>System parameters</b>	
Processor	8-core, 1.5 GHz
Memory	4 GB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no rack-mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With rack-mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	5 kg (11.02 lb)

Item	Specification
<b>Power specifications</b>	
Rated input voltage	100 V AC to 240 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	150 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces GE10 to GE17)
<b>Power consumption (empty chassis)</b>	
Typical power consumption	70 W
Maximum power consumption	85 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
Console interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: 8 GE electrical interfaces, 2 10GE optical interfaces, and 10 GE optical interfaces
Extended slots	4xSIC
<b>Environment parameters</b>	
Operating temperature	0°C to +45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02351HLE

## 4.8.15 AR2204XE-DC

### Version Mapping

**Table 4-652** describes the matching relationship between the AR2204XE-DC router and software versions.

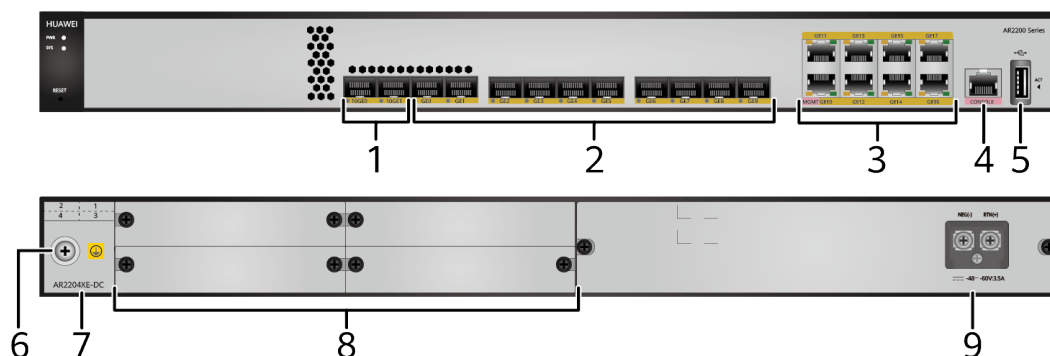
**Table 4-652** Version mapping

Router Model	Software Version
AR2204XE-DC	V200R010C00, V300R003C10 and later versions

### Appearance and Structure

**Figure 4-239** shows the appearance of the AR2204XE-DC router

**Figure 4-239** AR2204XE-DC appearance



**NOTE**

The RESET button is used to reset the router.

Resetting the router will interrupt services. Exercise caution when deciding to press this button.

1	WAN interfaces: two 10GE optical interfaces	2	WAN interfaces: ten GE optical interfaces
3	WAN interfaces: eight GE electrical interfaces  <b>NOTE</b> GE10 is a management interface and is used to upgrade the router.	4	Console interface

5	One USB interface (host)	6	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
7	Product model silkscreen	8	Four SIC slots
9	DC power terminals <b>NOTE</b> Use <b>DC power cables</b> to connect the router to an external power source.	-	-

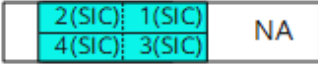
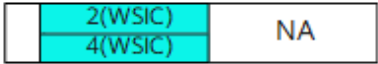
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-240** shows the slot distribution of the AR2204XE-DC router.

**Figure 4-240** Slot distribution of the AR2204XE-DC

Device Model		Slot Distribution	Slot Combination
AR2204XE-DC	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot 

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.

### NOTE

When only one WSIC card is installed on the router, you can only install the WSIC card in slot 4 (combined of slot 3 and slot 4).

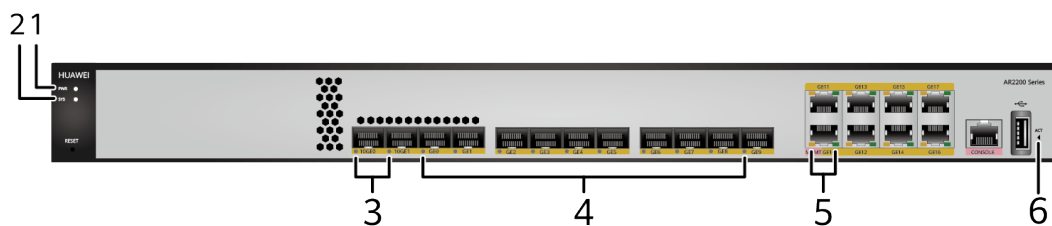
- Slot 2 and slot 4 are combined into new slot 4.

## Indicator Description

**Figure 4-241** shows the indicators on the AR2204XE-DC router.



**Figure 4-241** Indicators on the AR2204XE-DC



Number	Indicator	Color	Description
1	PWR	Green	Steady on: The router is powered by the built-in power module normally. Off: The switch is not powered on.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	10GE optical interface indicators (10GE0 and 10GE1)	Green	Steady on: A link has been established on the corresponding 10GE optical interface. Blinking: Data is being transmitted or received on the corresponding 10GE optical interface. Off: No link is established on corresponding 10GE optical interface.

Number	Indicator	Color	Description
4	GE optical interface indicators (GE0 to GE9)	Green	Steady on: A link has been established on the corresponding GE optical interface. Blinking: Data is being transmitted or received on the corresponding GE optical interface. Off: No link is established on corresponding GE optical interface.
5	GE electrical interface indicators (GE10 to GE17)	Green	Steady on: A link has been established on the corresponding GE interface.
			Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted over the link.
			Off: No data is being transmitted or received.
6	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.

## Interface Description

### Console Interface

A console interface can connect to an operation terminal for onsite configuration. [Table 4-653](#) lists attributes of a console interface.

**Table 4-653** Console interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	Data Circuit-terminating Equipment (DCE)
Cable type	<a href="#">Console Cable</a>

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-654](#) lists attributes of a GE electrical interface.

**Table 4-654** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Optical Interface

A GE optical interface can work in FE mode and can transmit and receive service traffic at 100 Mbit/s or 1000 Mbit/s. [Table 4-655](#) lists attributes of a GE optical interface.

**Table 4-655** GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.5 GE eSFP Optical Modules</a> , and <a href="#">9.4 FE SFP/eSFP Optical Modules</a> .
Standards compliance	IEEE 802.3z

### 10GE Optical Interface

The 10GE optical interfaces cannot work in GE mode and can only transmit and receive service traffic at 10 Gbit/s. [Table 4-656](#) lists attributes of a 10GE optical interface.

**Table 4-656** 10GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.10 10GE SFP+ Optical Modules</a> .
Standards compliance	IEEE 802.3ae

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-657](#) lists attributes of a USB interface.

**Table 4-657** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2204XE-DC router uses built-in fans to cool the system. The fans are unpluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-242](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-242** Airflow



## Technical Specifications

[Table 4-658](#) lists technical specifications of the AR2204XE-DC router.

**Table 4-658** AR2204XE-DC technical specifications

Item	Specification
<b>System parameters</b>	
Processor	8-core, 1.5 GHz
Memory	2 GB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.4 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With mounting brackets installed: 44.4 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	4.75 kg (10.47 lb)
<b>Power specifications</b>	
Rated input voltage (DC)	-48 V DC to -60 V DC

Item	Specification
Maximum input voltage (DC)	-38.4 V DC to -72 V DC
Maximum input current	3.5 A
Maximum output power	100 W
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	33 W
Maximum power consumption	57 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interface	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interface	1
Service interfaces (standard configuration)	WAN interfaces: eight GE electrical interfaces, two 10GE optical interfaces, and 10 GE optical interfaces
Extended slots	4 x SIC
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is 1800 m-5000 m (5906 ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984.25 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02352EFT

## 4.8.16 AR2220-AC

## Version Mapping

**Table 4-659** lists the mapping between the AR2220-AC router and software versions.

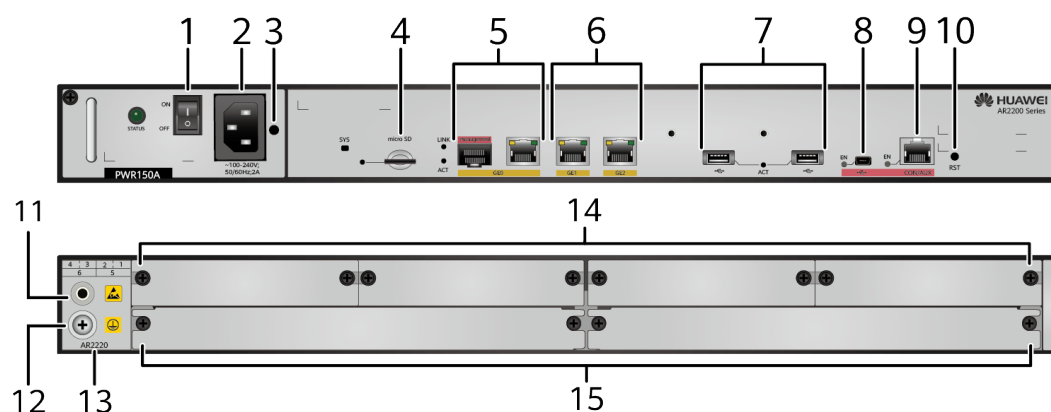
**Table 4-659** Mapping between the AR2220-AC router and software versions

Router Model	Software Version
AR2220-AC	V200R001C00 and later versions

## Appearance and Structure

**Figure 4-243** shows the appearance of the AR2220-AC router.

**Figure 4-243** AR2220-AC appearance



1	Power switch	2	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
3	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	4	Micro SD card slot
5	WAN interface: GE combo interface	6	WAN interfaces: two GE electrical interfaces
7	Two USB interfaces (host)	8	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.

9	CON/AUX interface <b>NOTE</b> The AR2220-AC does not support AUX login.	1 0	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>
1 1	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	1 2	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
1 3	Product model silkscreen	1 4	Four SIC slots
1 5	Two WSIC slots	-	-

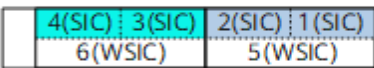
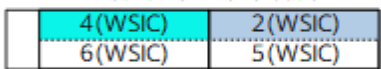
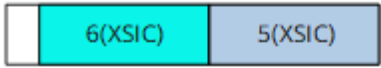
## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-244 shows slot distribution of AR2220-AC routers.

Figure 4-244 Slot distribution of the AR2220-AC routers

Device Model		Slot Distribution	Slot Combination
AR2220-AC	Front view	NA	NA
	Rear view		<p>Two SIC slots are combined into one WSIC slot</p>  <p>Two WSIC slots are combined into one XSIC slot</p> 

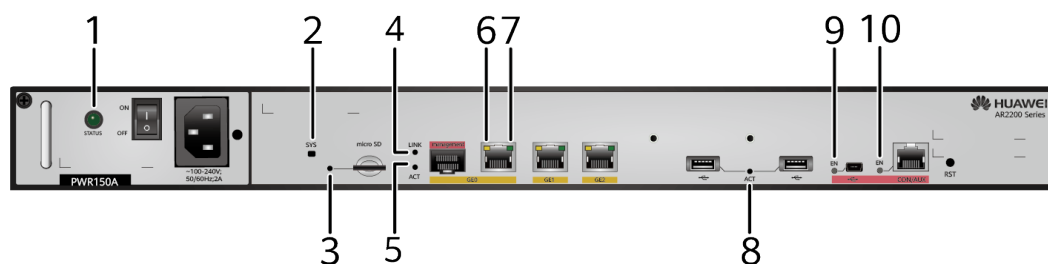


- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.
- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.

## Indicator Description

Figure 4-245 shows the locations of AR2220-AC indicators.

Figure 4-245 Indicators on the AR2220-AC



Number	Indicator	Color	Description
1	STATUS	Green	The router is powered by the internal power modules normally.
		Red	The internal power modules of the router do not work normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.

Number	Indicator	Color	Description
3	Micro SD card indicator	Green	Steady on: A link has been established. Blinking: Data is being transmitted or received. Off: No Micro SD card is available.
4 and 5	GE optical interface indicators <ul style="list-style-type: none"> <li>● 4: LINK indicator</li> <li>● 5: ACT indicator</li> </ul>	Green	LINK indicator steady on: A link has been established. LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received. ACT indicator off: No data is being transmitted or received.
6 and 7	GE electrical interface indicators <ul style="list-style-type: none"> <li>● 6: ACT indicator</li> <li>● 7: LINK indicator</li> </ul>	Green	LINK indicator steady on: A link has been established. LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received. ACT indicator off: No data is being transmitted or received.
8	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
9	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled. Off: The Mini USB interface is disabled.

Number	Indicator	Color	Description
10	EN (CON/AUX interface)  <b>NOTE</b> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>	Green	Steady on: The CON/AUX interface is enabled.  Off: The CON/AUX interface is disabled.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-660](#) lists the CON/AUX interface attributes.

**Table 4-660** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-661](#) lists attributes of a Mini USB interface.

**Table 4-661** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-662](#) lists attributes of a GE electrical interface.

**Table 4-662** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>

Attribute	Description
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-663](#) lists attributes of a USB interface.

**Table 4-663** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2220-AC router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-246](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-246** Airflow



## Technical Specifications

[Table 4-664](#) lists the technical specifications of the AR2220-AC routers.

**Table 4-664** AR2220-AC routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 600 MHz
Memory	2 GB
Flash	16 MB
Micro SD card (default: sd1)	2 GB
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.5 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With mounting brackets installed: 44.5 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	7 kg
<b>Power specifications</b>	
Rated AC input voltage	100 V/240 V, 50 Hz or 60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	150 W

Item	Specification
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	47 W
Maximum power consumption	65 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	<ul style="list-style-type: none"><li>• 4xSIC</li><li>• 2xWSIC</li></ul>
DSP DIMM slot	Supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02352934

## 4.8.17 AR2220-DC

## Version Mapping

**Table 4-665** describes the matching relationship between the AR2220-DC series routers and software versions.

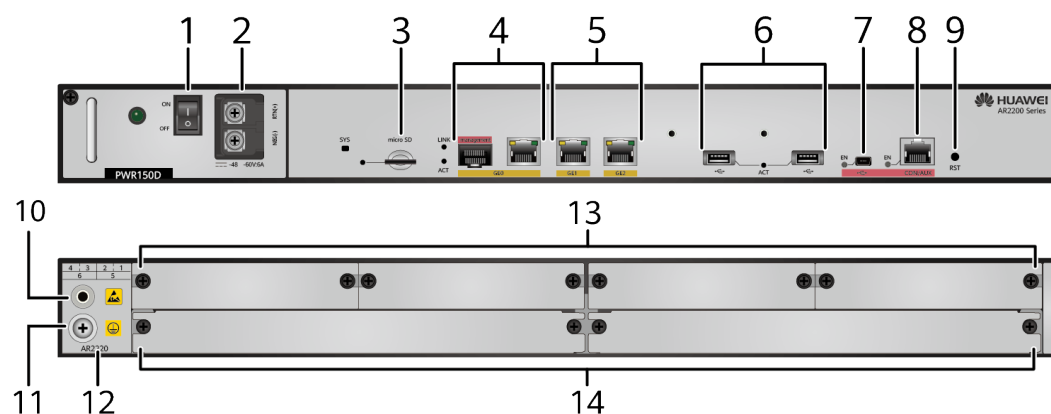
**Table 4-665** Matching between AR2220-DC series routers and software versions

Router Model	Software Version
AR2220-DC	V200R001C01 and later versions

## Appearance and Structure

**Figure 4-247** shows the appearance of the AR2220-DC router.

**Figure 4-247** AR2220-DC appearance



1	Power switch	2	DC power terminals <b>NOTE</b> Use <b>DC power cables</b> to connect the router to an external power source.
3	Micro SD card slot	4	WAN interface: GE combo interface
5	WAN interfaces: two GE electrical interfaces	6	Two USB interfaces (host)
7	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	8	CON/AUX interface <b>NOTE</b> The AR2220-DC does not support AUX login.



9	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>	1 0	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
1 1	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	1 2	Product model silkscreen
1 3	Four SIC slots	1 4	Two WSIC slots

## Slot Distribution

**NOTE**

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-248** shows the slot distribution on the AR2220-DC router.

**Figure 4-248** Slot distribution of the AR2220-DC

Device Model		Slot Distribution	Slot Combination
AR2220-DC	Front view	NA	NA
	Rear view		Two SIC slots are combined into one WSIC slot  Two WSIC slots are combined into one XSIC slot 

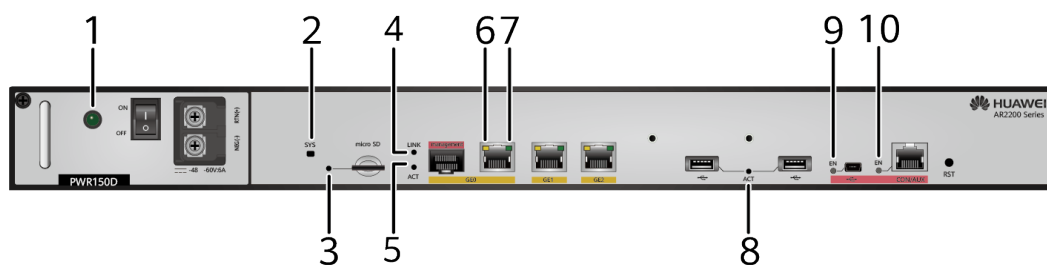
- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.

- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.

## Indicator Description

Figure 4-249 shows the AR2220-DC indicator.

Figure 4-249 Indicators on the AR2220-DC



Number	Indicator	Color	Description
1	STATUS	Green	The router is powered by the internal power modules normally.
		Red	The internal power modules of the router do not work normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	Micro SD card indicator	Green	Steady on: A link has been established. Blinking: Data is being transmitted or received. Off: No Micro SD card is available.

Number	Indicator	Color	Description
4 and 5	GE optical interface indicators <ul style="list-style-type: none"> <li>• 4: LINK indicator</li> <li>• 5: ACT indicator</li> </ul>	Green	LINK indicator steady on: A link has been established. LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received. ACT indicator off: No data is being transmitted or received.
6 and 7	GE electrical interface indicators <ul style="list-style-type: none"> <li>• 6: ACT indicator</li> <li>• 7: LINK indicator</li> </ul>	Green	LINK indicator steady on: A link has been established. LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received. ACT indicator off: No data is being transmitted or received.
8	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive. Blinking green: The system is being upgraded or configured using a USB flash drive. Steady red: The system fails to be upgraded or configured using a USB flash drive. Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
9	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled. Off: The Mini USB interface is disabled.

Number	Indicator	Color	Description
10	EN (CON/AUX interface) <b>NOTE</b> <ul style="list-style-type: none"><li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li><li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li></ul>	Green	Steady on: The CON/AUX interface is enabled. Off: The CON/AUX interface is disabled.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-666](#) lists the CON/AUX interface attributes.

**Table 4-666** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-667](#) lists attributes of a Mini USB interface.

**Table 4-667** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-668](#) lists attributes of a GE electrical interface.

**Table 4-668** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>• MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>• MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>

Attribute	Description
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-669](#) lists attributes of a USB interface.

**Table 4-669** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2220-DC router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-250](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-250** Airflow



## Technical Specifications

[Table 4-670](#) lists the technical specifications of the AR2220-DC routers.

**Table 4-670** AR2220-DC routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 600 MHz
Memory	2 GB
Flash	16 MB
Micro SD card (default: sd1)	2 GB
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	7 kg (15.43 lb)
<b>Power specifications</b>	
Rated input voltage (DC)	-48 V DC to -60 V DC
Maximum DC input voltage	-38.4 V DC to -72 V DC
Maximum input current	6 A
Maximum output power	150 W

Item	Specification
RPS power supply	Not supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	47 W
Maximum power consumption	65 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	<ul style="list-style-type: none"> <li>• 4xSIC</li> <li>• 2xWSIC</li> </ul>
DSP DIMM slot	Supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02353540

## 4.8.18 AR2220L-AC



## Version Mapping

**Table 4-671** lists the mapping between the AR2220L-AC router and software versions.

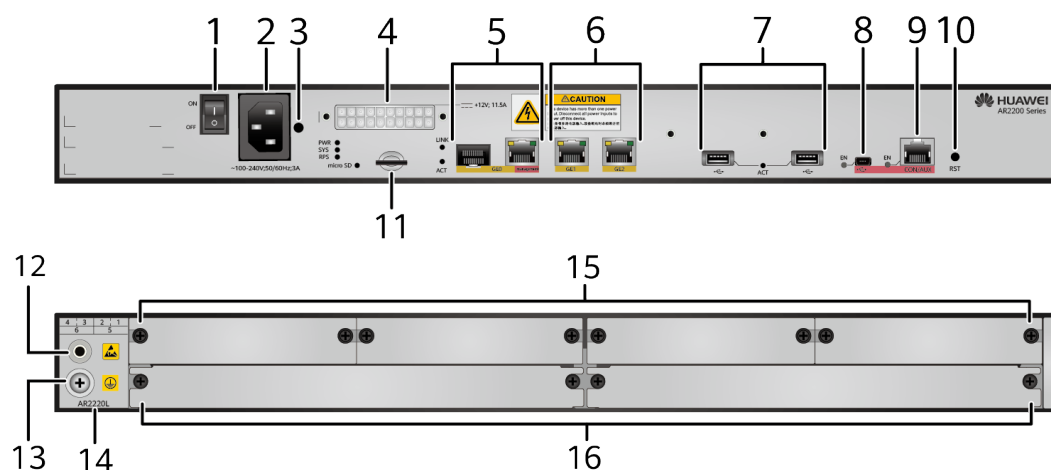
**Table 4-671** Mapping between the AR2220L-AC router and software versions

Router Model	Software Version
AR2220L-AC	V200R003C00 and later versions

## Appearance and Structure

**Figure 4-251** shows the appearance of the AR2220L-AC router.

**Figure 4-251** AR2220L-AC appearance



1	Power switch	2	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.
3	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.	4	RPS power socket <b>NOTE</b> Use an <b>RPS150 power and communication cable</b> to connect the router to a 150 W RPS power supply system.
5	WAN interface: GE combo interface	6	WAN interfaces: two GE electrical interfaces

7	Two USB interfaces (host)	8	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.
9	CON/AUX interface <b>NOTE</b> The AR2220L-AC does not support AUX login.	10	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>
11	Micro SD card slot	12	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
13	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	14	Product model silkscreen
15	Four SIC slots	16	Two WSIC slots

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

**Figure 4-252** shows slot distribution of AR2220L-AC routers.

Figure 4-252 Slot distribution of the AR2220L-AC routers

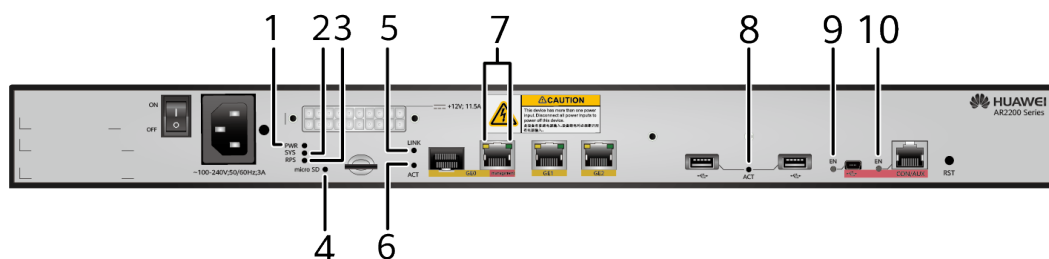
Device Model	Slot Distribution	Slot Combination					
AR2220L-AC	Front view	NA					
	Rear view	<p>Two SIC slots are combined into one WSIC slot</p> <table border="1"> <tr> <td>4(SIC)</td> <td>2(SIC)</td> </tr> <tr> <td>6(WSIC)</td> <td>5(WSIC)</td> </tr> </table> <p>Two WSIC slots are combined into one XSIC slot</p> <table border="1"> <tr> <td>6(XSIC)</td> <td>5(XSIC)</td> </tr> </table>	4(SIC)	2(SIC)	6(WSIC)	5(WSIC)	6(XSIC)
4(SIC)	2(SIC)						
6(WSIC)	5(WSIC)						
6(XSIC)	5(XSIC)						

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.
- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.

## Indicator Description

Figure 4-253 shows the locations of AR2220L-AC indicators.

Figure 4-253 Indicators on the AR2220L-AC



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Red	The internal power modules of the router do not work normally.
		Off	The router is powered off.

Number	Indicator	Color	Description
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	RPS	Green	Steady on: An RPS is connected to the router.
		Yellow	Steady on: An RPS is connected to the router but is not working normally.
			Blinking: An RPS is supplying power to the router.
		Off	No RPS is connected to the router.
4	Micro SD card indicator	Green	Steady on: A link has been established.
			Blinking: Data is being transmitted or received.
			Off: No Micro SD card is available.
5 and 6	GE optical interface indicators: <ul style="list-style-type: none"> <li>● 5: LINK indicator</li> <li>● 6: ACT indicator</li> </ul>	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
7	GE electrical interface indicators	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.

Number	Indicator	Color	Description
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
8	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
9	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
10	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.

Number	Indicator	Color	Description
	<p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li> <li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li> </ul>		Off: The CON/AUX interface is disabled.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-672](#) lists the CON/AUX interface attributes.

**Table 4-672** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)

Attribute	Description
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-673](#) lists attributes of a Mini USB interface.

**Table 4-673** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-674](#) lists attributes of a GE electrical interface.

**Table 4-674** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP

Attribute	Description
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-675](#) lists attributes of a USB interface.

**Table 4-675** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2220L-AC router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-254](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.



Figure 4-254 Airflow



## Technical Specifications

Table 4-676 lists the technical specifications of the AR2220L-AC routers.

Table 4-676 AR2220L-AC routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 800 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	2 GB
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 44.5 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li> <li>With mounting brackets installed: 44.5 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li> </ul>
Weight	6 kg (13.23 lb)
<b>Power specifications</b>	
Rated AC input voltage	100 V/240 V, 50 Hz or 60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	150 W
RPS power supply	Supported
PoE power supply	Not supported

Item	Specification
<b>Power consumption (empty chassis)</b>	
Typical power consumption	45 W
Maximum power consumption	64 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	<ul style="list-style-type: none"> <li>• 4xSIC</li> <li>• 2xWSIC</li> </ul>
DSP DIMM slot	Supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354239

## 4.8.19 AR2220L-DC

### Version Mapping

[Table 4-677](#) lists the mapping between the AR2220L-DC router and software versions.

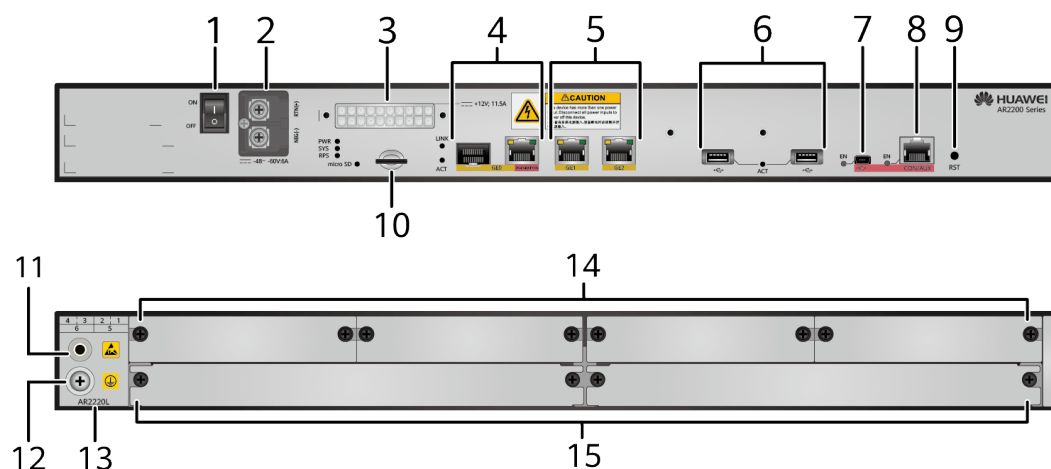
**Table 4-677** Mapping between the AR2220L-DC router and software versions

Router Model	Software Version
AR2220L-DC	V200R003C00 and later versions

## Appearance and Structure

**Figure 4-255** shows the appearance of the AR2220L-DC router.

**Figure 4-255** AR2220L-DC appearance



1	Power switch	2	DC power terminals <b>NOTE</b> Use <b>DC power cables</b> to connect the router to an external power source.
3	RPS power socket <b>NOTE</b> Use an <b>RPS150 power and communication cable</b> to connect the router to a 150 W RPS power supply system.	4	WAN interface: GE combo interface
5	WAN interfaces: two GE electrical interfaces	6	Two USB interfaces (host)
7	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	8	CON/AUX interface <b>NOTE</b> The AR2220L-DC does not support AUX login.

9	RST button <b>NOTE</b> <ul style="list-style-type: none"><li>This button is used to reset the router.</li><li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li></ul>	1 0	Micro SD card slot
1 1	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	1 2	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
1 3	Product model silkscreen	1 4	Four SIC slots
1 5	Two WSIC slots	- -	

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-256 shows slot distribution of AR2220-DC routers.

Figure 4-256 Slot distribution of the AR2220-DC routers

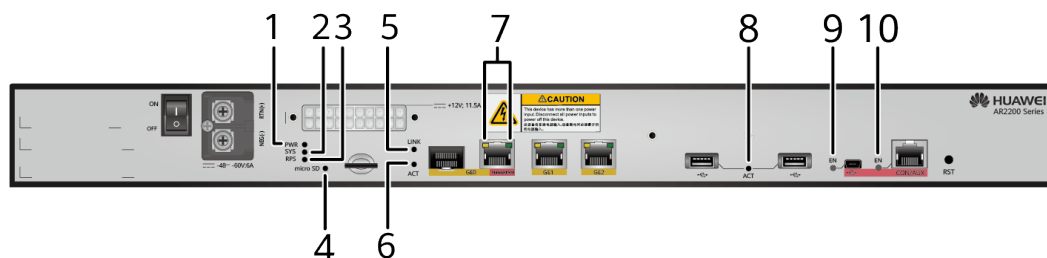
Device Model	Slot Distribution	Slot Combination					
AR2220L-DC	Front view	NA					
	Rear view	<p>Two SIC slots are combined into one WSIC slot</p> <table border="1"> <tr> <td>4(SIC)</td> <td>2(SIC)</td> </tr> <tr> <td>6(WSIC)</td> <td>5(WSIC)</td> </tr> </table> <p>Two WSIC slots are combined into one XSIC slot</p> <table border="1"> <tr> <td>6(XSIC)</td> <td>5(XSIC)</td> </tr> </table>	4(SIC)	2(SIC)	6(WSIC)	5(WSIC)	6(XSIC)
4(SIC)	2(SIC)						
6(WSIC)	5(WSIC)						
6(XSIC)	5(XSIC)						

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.
- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.

## Indicator Description

Figure 4-257 shows the indicators on the AR2220L-DC router.

Figure 4-257 Indicators on the AR2220L-DC



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Red	The internal power modules of the router do not work normally.
		Off	The router is powered off.
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	RPS	Green	Steady on: An RPS is connected to the router.
		Yellow	Steady on: An RPS is connected to the router but is not working normally.

Number	Indicator	Color	Description
			Blinking: An RPS is supplying power to the router.
		Off	No RPS is connected to the router.
4	Micro SD card indicator	Green	Steady on: A link has been established.
			Blinking: Data is being transmitted or received.
			Off: No Micro SD card is available.
5 and 6	GE optical interface indicators: <ul style="list-style-type: none"> <li>• 5: LINK indicator</li> <li>• 6: ACT indicator</li> </ul>	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
7	GE electrical interface indicators	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
8	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.

Number	Indicator	Color	Description
9	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
10	EN (CON/AUX interface) <b>NOTE</b> <ul style="list-style-type: none"><li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li><li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li></ul>	Green	Steady on: The CON/AUX interface is enabled.
			Off: The CON/AUX interface is disabled.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-678](#) lists the CON/AUX interface attributes.

**Table 4-678** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<b>Console Cable</b>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-679](#) lists attributes of a Mini USB interface.

**Table 4-679** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-680](#) lists attributes of a GE electrical interface.

**Table 4-680** GE electrical interface attributes

Attribute	Description
Connector type	RJ45



Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-681](#) lists attributes of a USB interface.

**Table 4-681** USB interface attributes

Attribute	Description
Connector type	Type A

Attribute	Description
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2220L-DC router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-258](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-258** Airflow



## Technical Specifications

[Table 4-682](#) lists the technical specifications of the AR2220L-DC routers.

**Table 4-682** AR2220L-DC routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 800 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	2 GB
Hard disk	Not supported
<b>Dimensions and weight</b>	

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.5 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With mounting brackets installed: 44.5 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	6 kg (13.23 lb)
<b>Power specifications</b>	
Rated input voltage (DC)	-48 V DC to -60 V DC
Maximum DC input voltage	-38.4 V DC to -72 V DC
Maximum input current	6 A
Maximum output power	150 W
RPS power supply	Supported
PoE power supply	Not supported
<b>Power consumption (empty chassis)</b>	
Typical power consumption	45 W
Maximum power consumption	64 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	<ul style="list-style-type: none"><li>4xSIC</li><li>2xWSIC</li></ul>
DSP DIMM slot	Supported
<b>Environment parameters</b>	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02354241

## 4.8.20 AR2220E

### Version Mapping

[Table 4-683](#) lists the mapping between the AR2220E router and software versions.

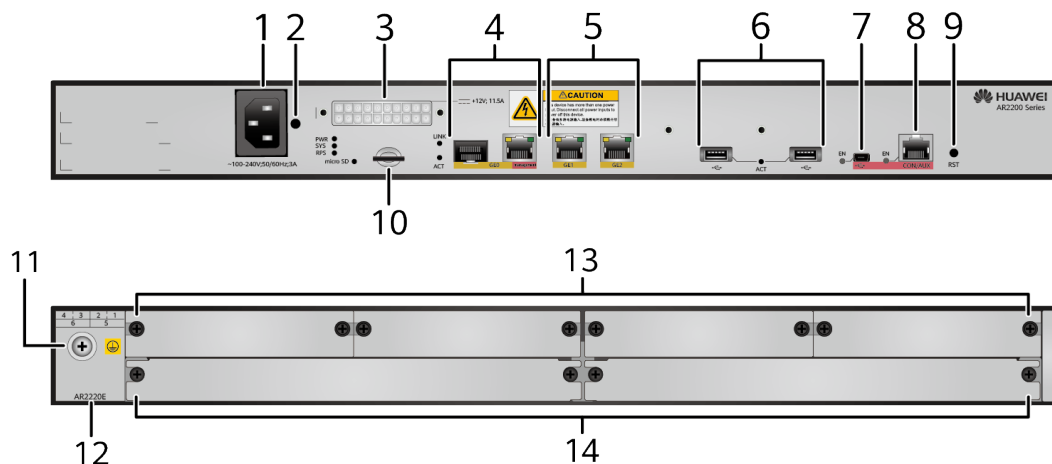
**Table 4-683** Mapping between the AR2220E router and software versions

Router Model	Software Version
AR2220E	V200R006C10 and later versions

### Appearance and Structure

[Figure 4-259](#) shows the appearance of the AR2220E router.

**Figure 4-259** AR2220E appearance



1	AC power jack <b>NOTE</b> Use an <b>AC power cable</b> to connect the router to an external power source.	2	Jack for power cable locking strap <b>NOTE</b> Insert a power cable locking strap in this jack to secure the power cable.
3	RPS power socket <b>NOTE</b> Use an <b>RPS150 power and communication cable</b> to connect the router to a 150 W RPS power supply system.	4	WAN interface: GE combo interface
5	WAN interfaces: two GE electrical interfaces	6	Two USB interfaces (host)
7	Mini USB interface <b>NOTE</b> The Mini USB interface and console interface cannot be used at the same time.	8	CON/AUX interface <b>NOTE</b> The AR2220E does not support AUX login.
9	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>	10	Micro SD card slot
11	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.	12	Product model silkscreen
13	Four SIC slots	14	Two WSIC slots

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-260 shows slot distribution of the AR2220E routers.

Figure 4-260 Slot distribution of the AR2220E routers

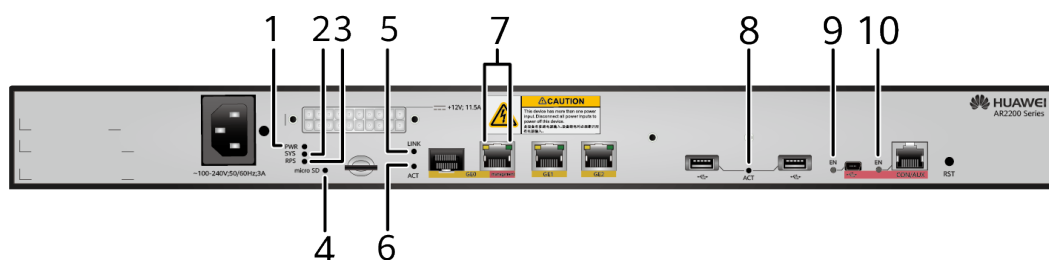
Device Model		Slot Distribution	Slot Combination
AR2220E	Front view	NA	NA
	Rear view		<p>Two SIC slots are combined into one WSIC slot</p> <p>Two WSIC slots are combined into one XSIC slot</p>

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.
- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.

### Indicator Description

Figure 4-261 shows the indicators on the AR2220E router.

Figure 4-261 Indicators on the AR2220E



Number	Indicator	Color	Description
1	PWR	Green	The router is powered by the internal power modules normally.
		Red	The internal power modules of the router do not work normally.
		Off	The router is powered off.

Number	Indicator	Color	Description
2	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	Off: The system software is not running or is resetting.
3	RPS	Green	Steady on: An RPS is connected to the router.
		Yellow	Steady on: An RPS is connected to the router but is not working normally.
			Blinking: An RPS is supplying power to the router.
		Off	No RPS is connected to the router.
4	Micro SD card indicator	Green	Steady on: A link has been established.
			Blinking: Data is being transmitted or received.
			Off: No Micro SD card is available.
5 and 6	GE optical interface indicators: <ul style="list-style-type: none"> <li>● 5: LINK indicator</li> <li>● 6: ACT indicator</li> </ul>	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
7	GE electrical interface indicators	Green	LINK indicator steady on: A link has been established.
			LINK indicator off: No link is established.

Number	Indicator	Color	Description
		Yellow	ACT indicator blinking: Data is being transmitted or received.
			ACT indicator off: No data is being transmitted or received.
8	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
9	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled.
			Off: The Mini USB interface is disabled.
10	EN (CON/AUX interface)	Green	Steady on: The CON/AUX interface is enabled.



Number	Indicator	Color	Description
	<b>NOTE</b> <ul style="list-style-type: none"><li>The CON/AUX interface and the Mini USB interface are multiplexed, and only one of them can be used at a time.</li><li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li></ul>		Off: The CON/AUX interface is disabled.

## Interface Description

### CON/AUX Interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-684](#) lists the CON/AUX interface attributes.

**Table 4-684** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)

Attribute	Description
Data equipment type	<ul style="list-style-type: none"><li>Data circuit terminal equipment (DCE)</li><li>AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB Interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-685](#) lists attributes of a Mini USB interface.

**Table 4-685** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE Electrical Interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-686](#) lists attributes of a GE electrical interface.

**Table 4-686** GE electrical interface attributes

Attribute	Description
Connector type	RJ45
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"><li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li><li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li></ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP

Attribute	Description
Cable type	<a href="#">Ethernet Cable</a>

### GE Combo Interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1 Optical Fiber](#), [9.5 GE eSFP Optical Modules](#), or [9.4 FE SFP/eSFP Optical Modules](#).

#### NOTE

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

### USB Interface (Host)

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-687](#) lists attributes of a USB interface.

**Table 4-687** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

## Heat Dissipation

The AR2220E router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-262](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

Figure 4-262 Airflow



## Technical Specifications

Table 4-688 lists the technical specifications of the AR2220E routers.

Table 4-688 AR2220E routers technical specifications

Item	Specification
<b>System parameters</b>	
Processor	Quad-core, 1 GHz
Memory	1 GB
Flash	512 MB
Micro SD card (default: sd1)	2 GB
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"><li>With no mounting bracket installed: 44.5 mm x 442.0 mm x 420.0 mm (1.75 in. x 17.40 in. x 16.54 in.)</li><li>With mounting brackets installed: 44.5 mm x 482.6 mm x 420.0 mm (1.75 in. x 19.00 in. x 16.54 in.)</li></ul>
Weight	6 kg (13.23 lb)
<b>Power specifications</b>	
Rated AC input voltage	100 V/240 V, 50 Hz or 60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	150 W
RPS power supply	Supported
PoE power supply	Not supported

Item	Specification
<b>Power consumption (empty chassis)</b>	
Typical power consumption	27 W
Maximum power consumption	29 W
<b>Heat dissipation</b>	
Fan module	Built-in fan module, not swappable
Airflow (facing the front panel)	Left-to-right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	<ul style="list-style-type: none"> <li>• 4xSIC</li> <li>• 2xWSIC</li> </ul>
DSP DIMM slot	Supported
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02350DQM

## 4.8.21 AR2240

### Version Mapping

[Table 4-689](#) describes the matching relationship between the AR2240 series routers and software versions.

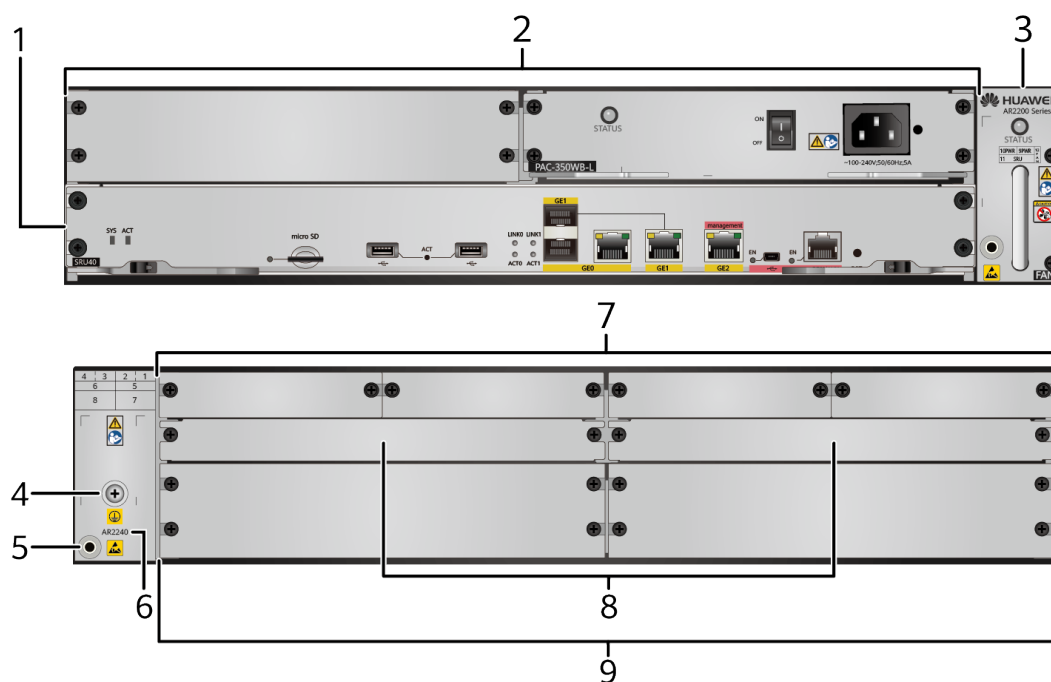
**Table 4-689** Matching between AR2240 series routers and software versions

Router Model	Software Version
AR2240	V200R001C00 and later versions

## Appearance and Structure

**Figure 4-263** shows the appearance of the AR2240 router.

**Figure 4-263** AR2240 appearance



<p>1 SRU slots</p> <p>Applicable SRUs:</p> <ul style="list-style-type: none"> <li>• <a href="#">SRU40</a></li> <li>• <a href="#">SRU60</a></li> <li>• <a href="#">SRU80</a></li> <li>• <a href="#">SRU100</a></li> <li>• <a href="#">SRU200</a></li> <li>• <a href="#">SRU400</a></li> <li>• <a href="#">SRU100E</a></li> <li>• <a href="#">SRU200E</a></li> </ul>	<p>2 Two power module slots</p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <a href="#">350 W AC Power Module</a></li> <li>• <a href="#">350 W DC Power Module</a></li> <li>• <a href="#">850 W AC PoE Power Module</a></li> </ul> <p><b>NOTE</b></p> <p>AC and DC power modules cannot be used together in a router.</p> <p>Two power modules support 1+1 backup.</p>
--	--

3	Fan module slot	4	Ground point <b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.
5	ESD jack <b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	6	Product model silkscreen
7	Four SIC slots	8	Two WSIC slots
9	Two XSIC slots	-	-

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.
- In V200R002C00 and later versions, a WSIC card can be inserted into an XSIC slot. The WSIC card is in the lower part of the slot and uses the XSIC slot ID as its own slot ID.

**Figure 4-264** shows the slot distribution on the AR2240.

**Figure 4-264** AR2240 slot distribution

Device Model		Slot Distribution	Slot Combination																						
AR2240	Front view	<table border="1"> <tr> <td>10(Power)</td> <td>9(Power)</td> <td rowspan="2">F A N</td> </tr> <tr> <td colspan="2">11(SRU)</td> </tr> </table>	10(Power)	9(Power)	F A N	11(SRU)		NA																	
	10(Power)	9(Power)	F A N																						
11(SRU)																									
	Rear view	<table border="1"> <tr> <td>4(SIC)</td> <td>3(SIC)</td> <td>2(SIC)</td> <td>1(SIC)</td> </tr> <tr> <td colspan="2">6(WSIC)</td> <td colspan="2">5(WSIC)</td> </tr> <tr> <td colspan="2">8(XSIC)</td> <td colspan="2">7(XSIC)</td> </tr> </table>	4(SIC)	3(SIC)	2(SIC)	1(SIC)	6(WSIC)		5(WSIC)		8(XSIC)		7(XSIC)		<p>Two SIC slots are combined into one WSIC slot</p> <table border="1"> <tr> <td>4(WSIC)</td> <td>2(WSIC)</td> </tr> <tr> <td>6(WSIC)</td> <td>5(WSIC)</td> </tr> <tr> <td>8(XSIC)</td> <td>7(XSIC)</td> </tr> </table> <p>Two WSIC slots are combined into one XSIC slot</p> <table border="1"> <tr> <td>6(XSIC)</td> <td>5(XSIC)</td> </tr> <tr> <td>8(XSIC)</td> <td>7(XSIC)</td> </tr> </table>	4(WSIC)	2(WSIC)	6(WSIC)	5(WSIC)	8(XSIC)	7(XSIC)	6(XSIC)	5(XSIC)	8(XSIC)	7(XSIC)
4(SIC)	3(SIC)	2(SIC)	1(SIC)																						
6(WSIC)		5(WSIC)																							
8(XSIC)		7(XSIC)																							
4(WSIC)	2(WSIC)																								
6(WSIC)	5(WSIC)																								
8(XSIC)	7(XSIC)																								
6(XSIC)	5(XSIC)																								
8(XSIC)	7(XSIC)																								

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.
- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.

### Indicator Description

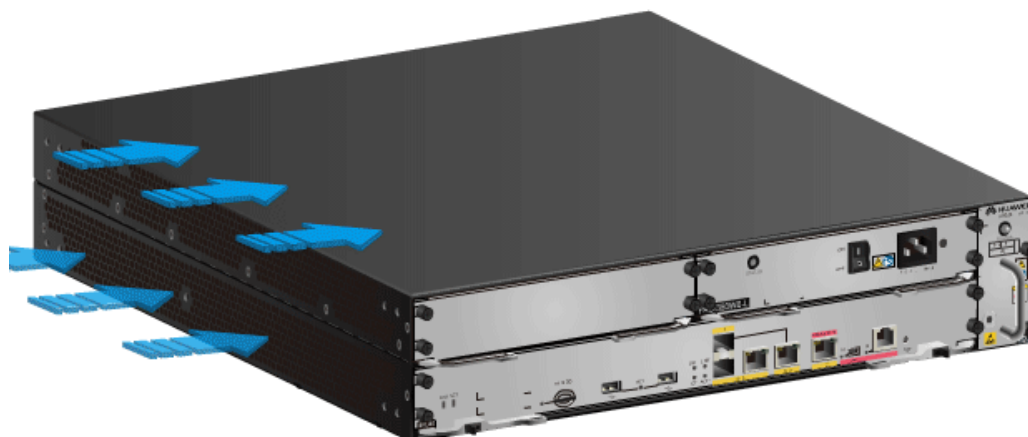
All the indicators seen on the AR2240 front panel are module indicators. For details about these indicators, see "Indicator Description" of the specific module.

### Heat Dissipation

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-265](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.



**Figure 4-265** Airflow



## Technical Specifications

**Table 4-690** lists the technical specifications of the AR2240 router.

**Table 4-690** AR2240 router technical specifications

Item	Specification
System parameters	Depending on the SRU that is used
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>Without rack-mounting bracket installed: 88.1 mm x 442.0 mm x 470.0 mm (3.47 in. x 17.40 in. x 18.50 in.)</li> <li>With rack-mounting brackets installed: 88.1 mm x 482.6 mm x 470.0 mm (3.47 in x 19.00 in. x 18.50 in.)</li> </ul>
Weight	8.85 kg
Power	<p>AC input voltage</p> <ul style="list-style-type: none"> <li>Rated input voltage range: 100 V to 240 V, 50 Hz/60 Hz</li> <li>Maximum input voltage range: 90 V to 264 V, 47 Hz to 63 Hz</li> </ul> <p>DC input voltage</p> <ul style="list-style-type: none"> <li>Rated input voltage: -48 V DC to -60 V DC</li> <li>Maximum input voltage: -38.4 V DC to -72 V DC</li> </ul>
<b>Heat dissipation</b>	

Item	Specification
Fan module	Independent pluggable fan modules
Airflow (facing the front panel)	Cold air flows into the router from the left side and is exhausted from the right side.
Interface density	Depending on the SRU that is used
Extended slots	<ul style="list-style-type: none"> <li>• 4xSIC</li> <li>• 2xWSIC</li> <li>• 2xXSIC</li> </ul>
<b>Environment</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the operating temperature reduces 1°C every time the altitude increases 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	<ul style="list-style-type: none"> <li>• 02351YCP</li> </ul> <b>NOTE</b> Only V200R010C00 and later versions are supported. <ul style="list-style-type: none"> <li>• 02358546</li> <li>• 02350NJE</li> </ul>

## 4.8.22 AR2240C

### Version Mapping

[Table 4-691](#) lists the mapping between the AR2240C router and software versions.

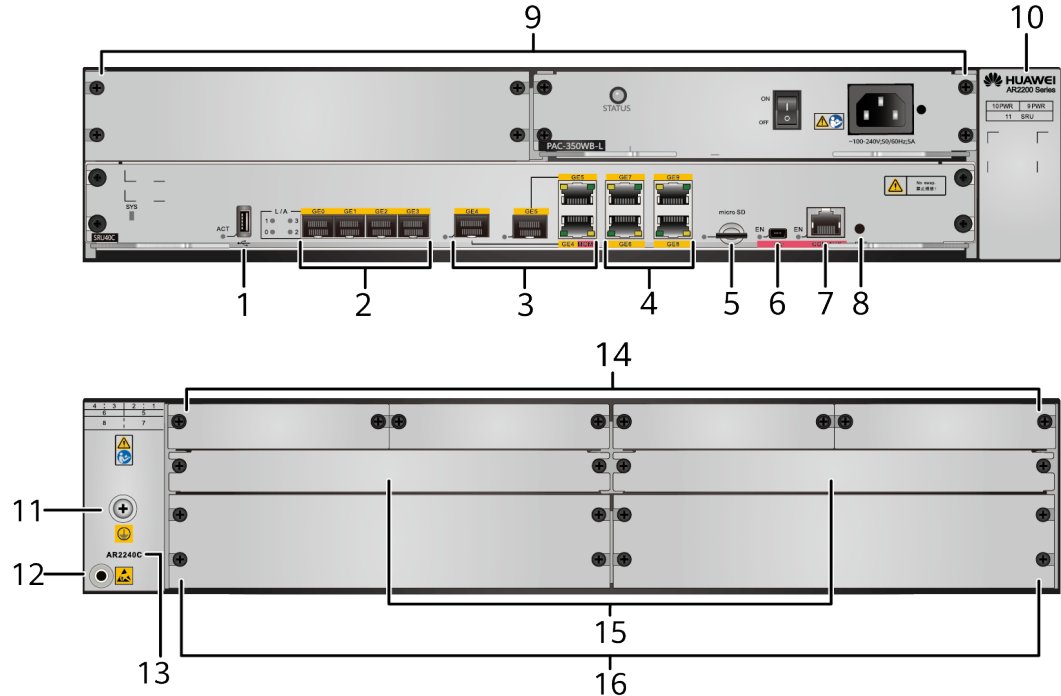
**Table 4-691** Mapping between AR2240C router and software versions

Router Model	Software Version
AR2240C	V200R007C00SPC900 and later versions

## Appearance and Structure

Figure 4-266 shows the appearance of the AR2240C router.

Figure 4-266 AR2240C appearance



1	USB interface (host)	2	WAN interfaces: four GE optical interfaces
3	WAN interfaces: two GE combo interfaces	4	WAN interfaces: four GE electrical interfaces
5	Micro SD card slot	6	Mini USB interface
7	CON/AUX interface	8	RST button <b>NOTE</b> <ul style="list-style-type: none"> <li>This button is used to reset the router.</li> <li>Resetting the router will interrupt services. Exercise caution when deciding to press this button.</li> </ul>

9	<p>Two power module slots</p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <b>350 W AC power module</b></li> <li>• <b>350 W DC power module</b></li> <li>• <b>850 W AC PoE power module</b></li> </ul> <p><b>NOTE</b> AC and DC power modules cannot be used together in a router. Two power modules support 1+1 backup.</p>	10	Built-in fan module
11	<p>Ground point</p> <p><b>NOTE</b> Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>	12	<p>ESD jack</p> <p><b>NOTE</b> When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.</p>
13	Product model silkscreen	14	Four SIC slots
15	Two WSIC slots	16	Two XSIC slots

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.
- In V200R002C00 and later versions, a WSIC card can be inserted into an XSIC slot. The WSIC card is in the lower part of the slot and uses the XSIC slot ID as its own slot ID.

**Figure 4-267** shows the slot distribution of the AR2240C.

**Figure 4-267** Slot distribution of the AR2240C

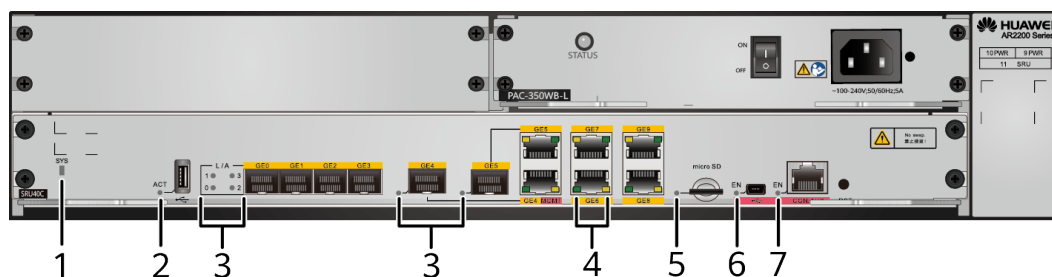
Device Model		Slot Distribution			Slot Combination																						
AR2240C	Front view	10(Power)	9(Power)	F A N	NA																						
	Rear view	<table border="1"> <tr> <td>4(SIC)</td> <td>3(SIC)</td> <td>2(SIC)</td> <td>1(SIC)</td> </tr> <tr> <td>6(WSIC)</td> <td colspan="2">5(WSIC)</td> <td></td> </tr> <tr> <td>8(XSIC)</td> <td colspan="2">7(XSIC)</td> <td></td> </tr> </table>			4(SIC)	3(SIC)	2(SIC)	1(SIC)	6(WSIC)	5(WSIC)			8(XSIC)	7(XSIC)			<p>Two SIC slots are combined into one WSIC slot</p> <table border="1"> <tr> <td>4(WSIC)</td> <td>2(WSIC)</td> </tr> <tr> <td>6(WSIC)</td> <td>5(WSIC)</td> </tr> <tr> <td>8(XSIC)</td> <td>7(XSIC)</td> </tr> </table> <p>Two WSIC slots are combined into one XSIC slot</p> <table border="1"> <tr> <td>6(XSIC)</td> <td>5(XSIC)</td> </tr> <tr> <td>8(XSIC)</td> <td>7(XSIC)</td> </tr> </table>		4(WSIC)	2(WSIC)	6(WSIC)	5(WSIC)	8(XSIC)	7(XSIC)	6(XSIC)	5(XSIC)	8(XSIC)
4(SIC)	3(SIC)	2(SIC)	1(SIC)																								
6(WSIC)	5(WSIC)																										
8(XSIC)	7(XSIC)																										
4(WSIC)	2(WSIC)																										
6(WSIC)	5(WSIC)																										
8(XSIC)	7(XSIC)																										
6(XSIC)	5(XSIC)																										
8(XSIC)	7(XSIC)																										

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.
- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.

## Indicator Description

**Figure 4-268** shows the indicators on the AR2240C router.

**Figure 4-268** Indicators on the AR2240C



Number	Indicator	Color	Description
1	SYS	Green	Slow blinking: The system is running properly. Fast blinking: The system is being powered on or restarting.
		Red	Steady on: A fault that affects services has occurred and cannot be rectified automatically. The fault needs to be rectified manually.
		Off	The system software is not running or is resetting.
2	ACT (USB)	Red and green	Steady green: The system has been upgraded or configured using a USB flash drive.
			Blinking green: The system is being upgraded or configured using a USB flash drive.
			Steady red: The system fails to be upgraded or configured using a USB flash drive.
			Off: No USB flash drive is connected, the USB interface has failed, or the indicator has failed.
3	GE optical interface indicator	Green	Steady on: A link has been established on the interface.
			Blinking: Data is being transmitted or received on the interface.
			Off: No link is established on the interface.
4	GE electrical interface indicator	Green	Steady on: A link has been established on the interface. Off: No link is established on the interface.
		Yellow	Blinking: Data is being transmitted or received on the interface. Off: No data is being transmitted or received on the interface.

Number	Indicator	Color	Description
5	Micro SD	Green	Steady on: An SD card is installed. Blinking: The SD card is transmitting or receiving data. Off: No SD card is available.
6	EN (Mini USB interface)	Green	Steady on: The Mini USB interface is enabled. Off: The Mini USB interface is disabled.
7	EN (CON/AUX interface) <b>NOTE</b> <ul style="list-style-type: none"><li>The CON/AUX interface and Mini USB interface are multiplexed, and only one of them can be used at a time.</li><li>By default, the CON/AUX interface is effective and the EN indicator is steady green, regardless of whether a cable is connected to the interface.</li></ul>	Green	Steady on: The CON/AUX interface is enabled. Off: The CON/AUX interface is disabled.

## Interface Description

### CON/AUX interface

The console interface of a router can connect to an operation terminal for onsite configuration. An AUX interface can connect to a remote management center through a modem for remote configuration. [Table 4-692](#) lists the CON/AUX interface attributes.

**Table 4-692** CON/AUX interface attributes

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Full-duplex Universal Asynchronous Receiver/Transmitter (UART)
Data equipment type	<ul style="list-style-type: none"><li>• Data circuit terminal equipment (DCE)</li><li>• AUX interface: data terminal equipment (DTE)</li></ul>
Cable type	<a href="#">Console Cable</a>

### Mini USB interface

A Mini USB interface can connect to an operation terminal for onsite configuration. The Mini USB interface and console interface cannot be used at the same time. By default, the console interface works. [Table 4-693](#) lists attributes of a Mini USB interface.

**Table 4-693** Mini USB interface attributes

Attribute	Description
Connector type	Mini USB-B-angle
Standards compliance	USB2.0
Working mode	Device

### GE electrical interface

A GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives Ethernet services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. [Table 4-694](#) lists attributes of a GE electrical interface.

**Table 4-694** GE electrical interface attributes

Attribute	Description
Connector type	RJ45



Attribute	Description
Interface attribute	MDI/MDIX <b>NOTE</b> <ul style="list-style-type: none"> <li>MDI stands for medium dependent interface, an Ethernet interface connection mode. Ethernet interfaces of most network adapters are MDI interfaces.</li> <li>MDIX stands for medium dependent interface crossover, a version of MDI. MDIX interfaces are usually used on hubs or LAN switches.</li> </ul>
Standards compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
Frame format	Ethernet_II, Ethernet_SAP, Ethernet_SNAP
Network protocol	IP
Cable type	<a href="#">Ethernet Cable</a>

### GE optical interface

A GE optical interface cannot work in FE mode and can transmit and receive service traffic at 1000 Mbit/s. [Table 4-695](#) lists attributes of a GE optical interface.

**Table 4-695** GE optical interface attributes

Attribute	Description
Connector type	LC/PC
Optical interface attributes	The optical interface attributes vary depending on the optical module used. For details, see <a href="#">9.5 GE eSFP Optical Modules</a> and <a href="#">9.8 1.25G eSFP Optical Modules</a> .
Standards compliance	IEEE 802.3z

### GE combo interface

A GE combo interface consists of an optical Ethernet interface and an electrical Ethernet interface on the panel. The two interfaces have only one internal forwarding interface. The electrical and optical interfaces are multiplexed, and only either of them can work at a time. When either of the Ethernet interfaces is working, the other interface is shut down.

- The GE electrical interface (10/100/1000 Mbit/s auto-sensing) transmits and receives services at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. It must be used with an [8.3.1 Ethernet Cable](#).
- The GE optical interface (100/1000 Mbit/s auto-sensing) transmits and receives services at 100 Mbit/s or 1000 Mbit/s. It must be used with an [8.5.1](#)

**Optical Fiber, 9.5 GE eSFP Optical Modules, 9.8 1.25G eSFP Optical Modules, or 9.4 FE SFP/eSFP Optical Modules.**

**NOTE**

- In V200R008C30 and earlier versions, a combo interface works as an electrical interface and uses a network cable to transmit and receive data by default.
- In V200R008C50 and later versions, a combo interface works in auto mode and automatically works as an optical or electrical interface by default.

**USB interface (host)**

A USB interface provides up to 480 Mbit/s upload and download rates. [Table 4-696](#) lists attributes of a USB interface.

**Table 4-696** USB interface attributes

Attribute	Description
Connector type	Type A
Standards compliance	USB2.0
Working mode	Host

**Heat Dissipation**

The AR2240C router has built-in fans to cool the system. The fans are not pluggable.

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-269](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-269** Airflow



**Technical Specifications**

[Table 4-697](#) lists the technical specifications of the AR2240C router.

**Table 4-697** AR2240C technical specifications

Item	Specification
<b>System parameters</b>	
Processor	6-core, 1.2 GHz
Memory	2 GB
Flash	32 MB
Micro SD card (default: sd1)	2 GB
Hard disk	Not supported
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 88.1 mm x 442.0 mm x 470.0 mm (3.47 in. x 17.40 in. x 18.50 in.)</li> <li>With mounting brackets installed: 88.1 mm x 482.6 mm x 470.0 mm (3.47 in. x 19.00 in. x 18.50 in.)</li> </ul>
Weight	12 kg (26.46 lb)
Power specifications	AC input voltage <ul style="list-style-type: none"> <li>Rated input voltage range: 100 V to 240 V, 50 Hz/60 Hz</li> <li>Maximum input voltage range: 90 V to 264 V, 47 Hz to 63 Hz</li> </ul> DC input voltage <ul style="list-style-type: none"> <li>Rated input voltage: -48 V DC to -60 V DC</li> <li>Maximum input voltage: -38.4 V DC to -72 V DC</li> </ul>
<b>Power consumption (empty chassis)</b>	
Typical power consumption	110 W
Maximum power consumption	125 W
<b>Heat dissipation</b>	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
<b>Interface density</b>	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces (standard configuration)	WAN interfaces: four GE electrical interfaces, two GE combo interfaces, and four GE optical interfaces
Extended slots	<ul style="list-style-type: none"> <li>• 4xSIC</li> <li>• 2xWSIC</li> <li>• 2xXSIC</li> </ul>
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	<ul style="list-style-type: none"> <li>• 02350KKF</li> <li>• 02351CXL</li> </ul> <b>NOTE</b> The routers manufactured after June 30, 2020 support only V200R010C00 and later versions. <ul style="list-style-type: none"> <li>• 02351YCH</li> </ul> <b>NOTE</b> Only V200R010C00 and later versions are supported.

## 4.9 AR3200 Series

### 4.9.1 AR3260

#### Version Mapping

[Table 4-698](#) lists the mapping between the AR3260 router and software versions.

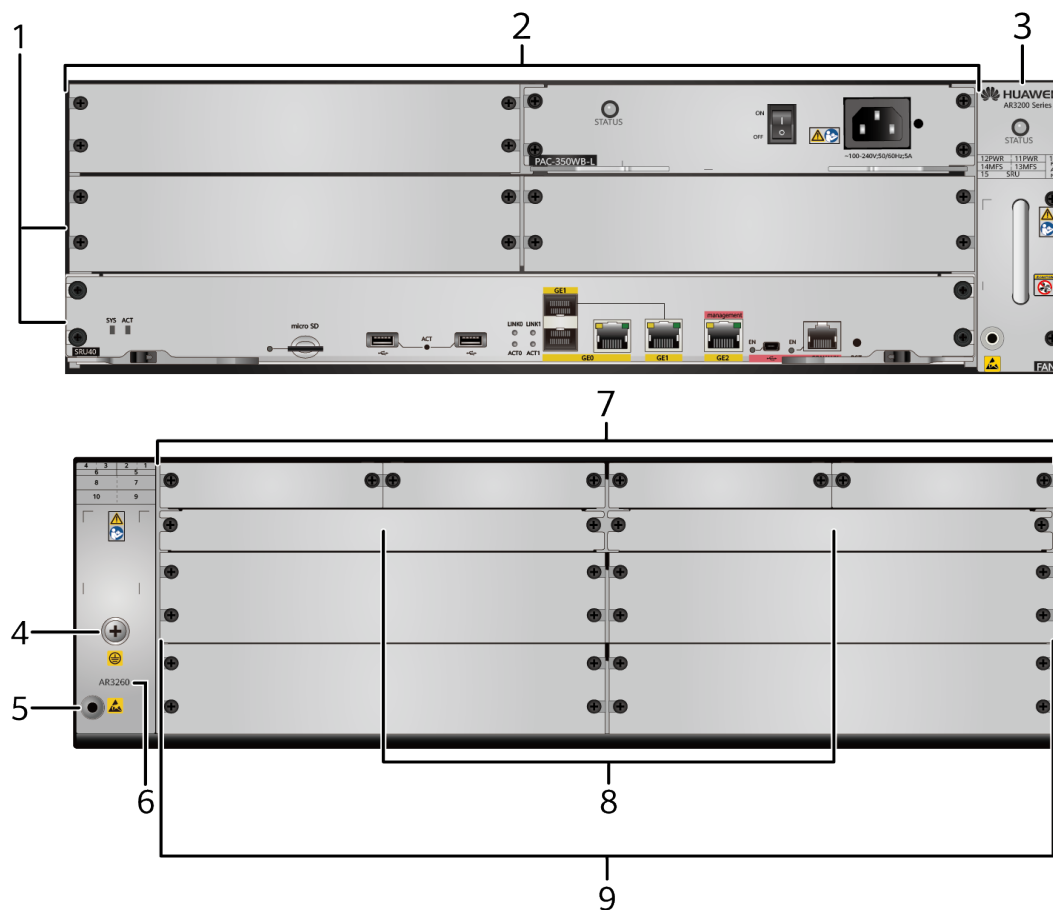
**Table 4-698** Mapping between the AR3260 router and software versions

Router Model	Software Version
AR3260	V200R001C00 and later versions

## Appearance and Structure

Figure 4-270 shows the appearance of the AR3260 router.

Figure 4-270 AR3260 appearance



1	<p>Two SRU slots</p> <p>Applicable SRUs:</p> <ul style="list-style-type: none"> <li>● <b>SRU40</b></li> <li>● <b>SRU60</b></li> <li>● <b>SRU80</b></li> <li>● <b>SRU100</b></li> <li>● <b>SRU200</b></li> <li>● <b>SRU400</b></li> <li>● <b>SRU100E</b></li> <li>● <b>SRU200E</b></li> </ul> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>● Versions earlier than V200R005C00: support a single SRU and reserve the capability to support double SRUs.</li> <li>● V200R005C00 and later versions: support double SRUs working in hot standby mode. The two SRUs must be of the same model for the double SRUs scenarios, and the two SRUs of different models cannot be used together in a router.</li> </ul>	2	<p>Two power module slots</p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>● <b>350 W AC Power Module</b></li> <li>● <b>350 W DC Power Module</b></li> <li>● <b>850 W AC PoE Power Module</b></li> </ul> <p><b>NOTE</b></p> <p>AC and DC power modules cannot be used together in a router.</p> <p>It is recommended to configure dual power supplies for the double SRUs scenarios.</p> <p>Two power modules support 1+1 backup.</p>
3	Fan module slot	4	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
5	<p>ESD jack</p> <p><b>NOTE</b></p> <p>When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.</p>	6	Product model silkscreen
7	Four SIC slots	8	Two WSIC slots
9	Four XSIC slots	-	-

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.
- In V200R002C00 and later versions, a WSIC card can be inserted into an XSIC slot. The WSIC card is in the lower part of the slot and uses the XSIC slot ID as its own slot ID.

Figure 4-271 shows the slot distribution of the AR3260.

Figure 4-271 AR3260 slot distribution

Device Model	Slot Distribution	Slot Combination																														
AR3260	Front view	<table border="1"> <tr> <td>12(Power)</td> <td>11(Power)</td> <td rowspan="3">F A N</td> </tr> <tr> <td>14(MFS)</td> <td>13(MFS)</td> </tr> <tr> <td colspan="2">15(SRU)</td> </tr> </table>	12(Power)	11(Power)	F A N	14(MFS)	13(MFS)	15(SRU)																								
	12(Power)	11(Power)	F A N																													
14(MFS)	13(MFS)																															
15(SRU)																																
Rear view	<table border="1"> <tr> <td>4(SIC)</td> <td>3(SIC)</td> <td>2(SIC)</td> <td>1(SIC)</td> </tr> <tr> <td colspan="2">6(WSIC)</td> <td colspan="2">5(WSIC)</td> </tr> <tr> <td colspan="2">8(XSIC)</td> <td colspan="2">7(XSIC)</td> </tr> <tr> <td colspan="2">10(XSIC)</td> <td colspan="2">9(XSIC)</td> </tr> </table>	4(SIC)	3(SIC)	2(SIC)	1(SIC)	6(WSIC)		5(WSIC)		8(XSIC)		7(XSIC)		10(XSIC)		9(XSIC)		<p>Two SIC slots are combined into one WSIC slot</p> <table border="1"> <tr> <td>4(WSIC)</td> <td>2(WSIC)</td> </tr> <tr> <td>6(WSIC)</td> <td>5(WSIC)</td> </tr> <tr> <td>8(XSIC)</td> <td>7(XSIC)</td> </tr> <tr> <td>10(XSIC)</td> <td>9(XSIC)</td> </tr> </table> <p>Two WSIC slots are combined into one XSIC slot</p> <table border="1"> <tr> <td>6(XSIC)</td> <td>5(XSIC)</td> </tr> <tr> <td>8(XSIC)</td> <td>7(XSIC)</td> </tr> <tr> <td>10(XSIC)</td> <td>9(XSIC)</td> </tr> </table>	4(WSIC)	2(WSIC)	6(WSIC)	5(WSIC)	8(XSIC)	7(XSIC)	10(XSIC)	9(XSIC)	6(XSIC)	5(XSIC)	8(XSIC)	7(XSIC)	10(XSIC)	9(XSIC)
4(SIC)	3(SIC)	2(SIC)	1(SIC)																													
6(WSIC)		5(WSIC)																														
8(XSIC)		7(XSIC)																														
10(XSIC)		9(XSIC)																														
4(WSIC)	2(WSIC)																															
6(WSIC)	5(WSIC)																															
8(XSIC)	7(XSIC)																															
10(XSIC)	9(XSIC)																															
6(XSIC)	5(XSIC)																															
8(XSIC)	7(XSIC)																															
10(XSIC)	9(XSIC)																															

- Slot 1 and slot 2 are combined into new slot 2.
- Slot 3 and slot 4 are combined into new slot 4.
- New slot 2 and slot 5 are combined into new slot 5.
- New slot 4 and slot 6 are combined into new slot 6.
- New slot 13 and slot 14 are combined into new slot 14.

**NOTE**

Slots 13 and 14 are two multi-function slots (MFS) on the device. This feature can be used in the following scenarios based on actual requirements:

- Slots 13 and 14 are used as power module slots to increase the total output power of the device.
- Remove the guide rails between slots 13 and 14 and combine them into one slot for the standby SRU.

## Indicator Description

All the indicators seen on the AR3260 front panel are module indicators. For details about these indicators, see "Indicator Description" of the specific module.

## Heat Dissipation

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-272](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-272** Airflow



## Technical Specifications

[Table 4-699](#) lists the technical specifications of the AR3260 router.

**Table 4-699** AR3260 router technical specifications

Item	Specification
System parameters	Depending on the SRU that is used
<b>Dimensions and weight</b>	



Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>• With no mounting bracket installed: 130.5 mm x 442.0 mm x 470.0 mm (5.14 in. x 17.40 in. x 18.50 in.)</li> <li>• With mounting brackets installed: 130.5 mm x 482.6 mm x 470.0 mm (5.14 in. x 19.00 in. x 18.50 in.)</li> </ul>
Weight	11 kg
Power specifications	<p>AC input voltage</p> <ul style="list-style-type: none"> <li>• Rated input voltage range: 100 V to 240 V, 50 Hz/60 Hz</li> <li>• Maximum input voltage range: 90 V to 264 V, 47 Hz to 63 Hz</li> </ul> <p>DC input voltage</p> <ul style="list-style-type: none"> <li>• Rated input voltage: -48 V DC to -60 V DC</li> <li>• Maximum input voltage: -38.4 V DC to -72 V DC</li> </ul>
<b>Heat dissipation</b>	
Fans	Independent pluggable fan modules
Airflow (facing the front panel)	Left to right
Interface density	Depending on the SRU that is used
Extended slots	<ul style="list-style-type: none"> <li>• 4xSIC</li> <li>• 2xWSIC</li> <li>• 4xXSIC</li> </ul>
<b>Environment parameters</b>	
Operating temperature	<p>0°C to 45°C (32°F to 113°F)</p> <p><b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.</p>
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)

Item	Specification
Part number	<ul style="list-style-type: none"><li>02358545</li><li>02350LEL</li></ul> <p><b>NOTE</b> The routers manufactured after June 30, 2020 support only V200R010C00 and later versions.</p> <ul style="list-style-type: none"><li>02350LEM</li></ul> <p><b>NOTE</b> The routers manufactured after June 30, 2020 support only V200R010C00 and later versions.</p>

## 4.10 AR3600 Series

### 4.10.1 AR3670

#### Version Mapping

[Table 4-700](#) lists the mapping between the AR3670 router and software versions.

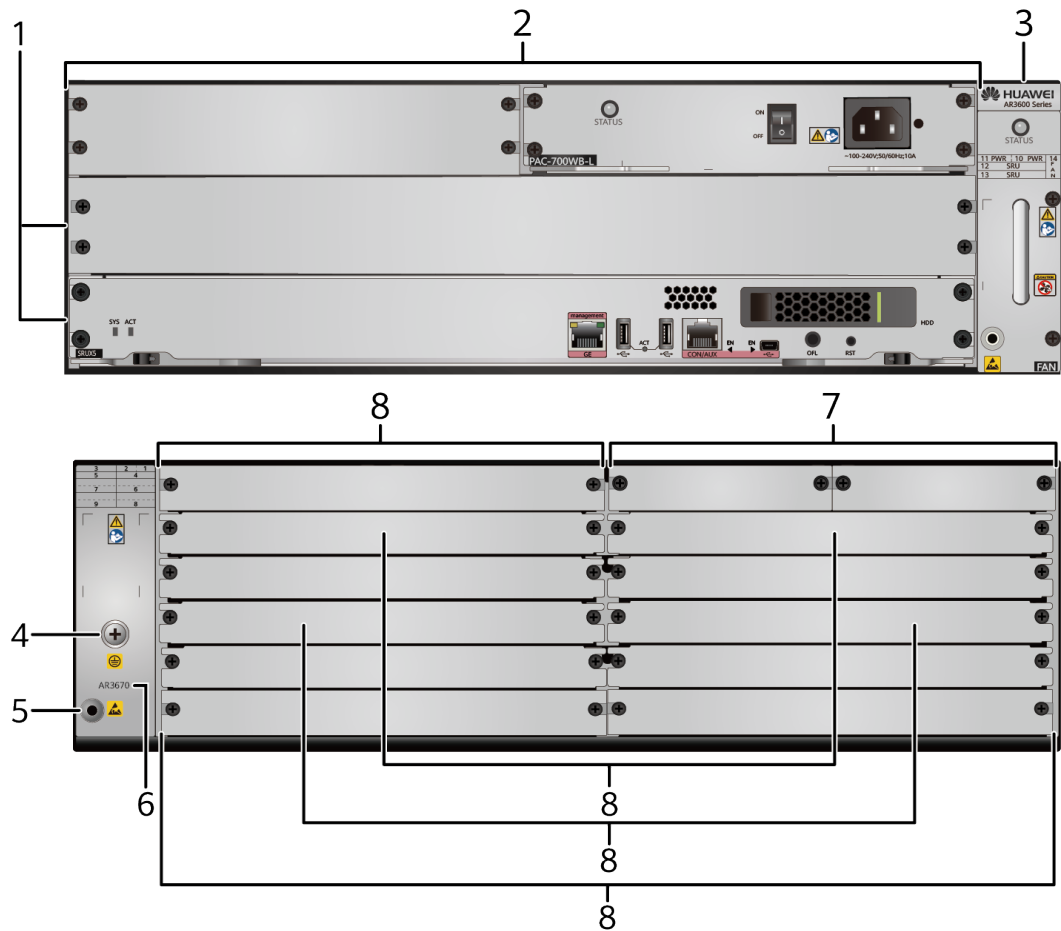
**Table 4-700** Mapping between the AR3670 router and software versions

Router Model	Software Version
AR3670	V200R006C10 and later versions

#### Appearance and Structure

[Figure 4-273](#) shows the appearance of the AR3670 router.

Figure 4-273 AR3670 appearance



1	<p>Two SRU slots</p> <p>Applicable SRUs: <b>SRUX5</b></p> <p><b>NOTE</b></p> <p>The two SRUs must be of the same model for the double SRUs scenarios, and the two SRUs of different models cannot be used together in a router.</p>	2	<p>Two power module slots</p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>● <b>700 W AC Power Module</b></li> <li>● <b>850 W AC PoE Power Module</b></li> </ul>
3	Fan module slot	4	<p>Ground point</p> <p><b>NOTE</b></p> <p>Reliably ground the router by connecting a <b>ground cable</b> to the ground point to protect the router against lightning and interference.</p>
5	<p>ESD jack</p> <p><b>NOTE</b></p> <p>When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.</p>	6	Product model silkscreen

7	Two SIC slots	8	Seven WSIC slots
---	---------------	---	------------------

## Slot Distribution

### NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.
- In V200R002C00 and later versions, a WSIC card can be inserted into an XSIC slot. The WSIC card is in the lower part of the slot and uses the XSIC slot ID as its own slot ID.

Figure 4-274 shows the slot distribution of the AR3670.

Figure 4-274 AR3670 slot distribution

Device Model		Slot Distribution			Slot Combination																					
AR3670	Front view	11(Power)	10(Power)	14	NA																					
		12(SRU)		FAN																						
		13(SRU)																								
	Rear view	<table border="1"> <tr> <td>3(WSIC)</td> <td>2(SIC)</td> <td>1(SIC)</td> </tr> <tr> <td>5(WSIC)</td> <td colspan="2">4(WSIC)</td> </tr> <tr> <td>7(WSIC)</td> <td colspan="2">6(WSIC)</td> </tr> <tr> <td>9(WSIC)</td> <td colspan="2">8(WSIC)</td> </tr> </table>			3(WSIC)	2(SIC)	1(SIC)	5(WSIC)	4(WSIC)		7(WSIC)	6(WSIC)		9(WSIC)	8(WSIC)		<p>Two SIC slots are combined into one WSIC slot</p> <table border="1"> <tr> <td>3(WSIC)</td> <td>2(WSIC)</td> </tr> <tr> <td>5(WSIC)</td> <td>4(WSIC)</td> </tr> <tr> <td>7(WSIC)</td> <td>6(WSIC)</td> </tr> <tr> <td>9(WSIC)</td> <td>8(WSIC)</td> </tr> </table>		3(WSIC)	2(WSIC)	5(WSIC)	4(WSIC)	7(WSIC)	6(WSIC)	9(WSIC)	8(WSIC)
3(WSIC)		2(SIC)	1(SIC)																							
5(WSIC)	4(WSIC)																									
7(WSIC)	6(WSIC)																									
9(WSIC)	8(WSIC)																									
3(WSIC)	2(WSIC)																									
5(WSIC)	4(WSIC)																									
7(WSIC)	6(WSIC)																									
9(WSIC)	8(WSIC)																									
					<p>Two WSIC slots are combined into one XSIC slot</p> <table border="1"> <tr> <td>5(XSIC)</td> <td>4(XSIC)</td> </tr> <tr> <td>7(XSIC)</td> <td>6(XSIC)</td> </tr> <tr> <td>9(XSIC)</td> <td>8(XSIC)</td> </tr> </table>		5(XSIC)	4(XSIC)	7(XSIC)	6(XSIC)	9(XSIC)	8(XSIC)														
5(XSIC)	4(XSIC)																									
7(XSIC)	6(XSIC)																									
9(XSIC)	8(XSIC)																									

- Slot 1 and slot 2 are combined into new slot 2.
- New slot 2 and slot 4 are combined into new slot 4.
- Slot 3 and slot 5 are combined into new slot 5.
- Slot 6 and the vacant slot above it are combined into new slot 6.
- Slot 7 and the vacant slot above it are combined into new slot 7.
- Slot 8 and the vacant slot above it are combined into new slot 8.
- Slot 9 and the vacant slot above it are combined into new slot 9.

## Indicator Description

All the indicators seen on the AR3670 front panel are module indicators. For details about these indicators, see "Indicator Description" of the specific module.

## Heat Dissipation

Seen from the front panel, the airflow is left to right, as shown in [Figure 4-275](#). Cold air flows into the router from the left side and is exhausted from the right side, taking away heat generated by the router.

**Figure 4-275** Airflow



## Technical Specifications

[Table 4-701](#) lists the technical specifications of the AR3670 router.

**Table 4-701** AR3670 router technical specifications

Item	Specification
System parameters	Depending on the SRU that is used
<b>Dimensions and weight</b>	
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>With no mounting bracket installed: 130.5 mm x 442.0 mm x 470.0 mm (5.14 in. x 17.40 in. x 18.50 in.)</li> <li>With mounting brackets installed: 130.5 mm x 482.6 mm x 470.0 mm (5.14 in. x 19.00 in. x 18.50 in.)</li> </ul>
Weight	11 kg (24.25 lb)

Item	Specification
Power specifications	AC input voltage <ul style="list-style-type: none"><li>Rated input voltage range: 100 V to 240 V, 50 Hz/60 Hz</li><li>Maximum input voltage range: 90 V to 264 V, 47 Hz to 63 Hz</li></ul>
<b>Heat dissipation</b>	
Fan module	Independent pluggable fan modules
Airflow (facing the front panel)	Left-to-right
Interface density	Depending on the SRU that is used
Extended slots	<ul style="list-style-type: none"><li>2xSIC</li><li>7xWSIC</li></ul>
<b>Environment parameters</b>	
Operating temperature	0°C to 45°C (32°F to 113°F) <b>NOTE</b> When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
<b>Part number</b>	02114484

## Related Documents

Video: [Huawei ICT-Converged Smart Class Solution](#)