Motor controllers CMMS-AS, for servo motors

- 1 - **Type discontinued**
Available up until 2016

Motor controllers CMMS-AS, for servo motors

Key features

Comparison of motor controllers				
Motor controller for motor type	CMMD-AS Servo motor	CMMS-AS Servo motor	CMMP-AS Servo motor	CMMS-ST Stepper motor
Positioning records	2x 63	63	255	63
Measuring system	Incremental/absolute		Analogue/incremental/ absolute	Incremental
Extended I/O interface	4 working modes		Flexibly configurable	4 working modes
Notification of remaining distance	1 for n		Separately for all positions	1 for n
Torque reduction	No		Separately for all positions	No
Set linking	Linear		With branching	Linear
Safety functions to EN 61800-5-2	STO, SS1 (with external safety switching device)		STO, SS1, SBC, SOS, SS2, SLS, SSR, SSM	STO, SS1 (with external safety switching device)

Performance characteristics

Compactness

- Small dimensions
- Full integration of all components for controller and power section, including RS232 and CANopen interface
- Integrated brake chopper
- Integrated EMC filters
- Automatic actuation for a holding brake
- Adheres to the current CE and EN standards without additional external measures (motor cable length of up to 15 m)

Motion control

- Digital absolute shaft encoder in single-turn and multi-turn versions
- Can be operated as a torque, speed or position controller
- Integrated positioning controller
- Time-optimised (trapezoidal) or jerk-free (S-shaped) positioning
- Absolute and relative movements
- Point-to-point positioning with and without approximate positioning
- Position synchronisation
- Electronic gear unit
- 63 position sets
- 8 travel profiles
- Wide range of homing methods

Fieldbus interfaces

Integrated:

CANopen

Optional:

PROFIBUS

DeviceNet

Input/output

- Freely programmable I/Os
- High-resolution 12-bit analogue input
- Jog/teach mode
- Simple linking to a higher-level controller via I/O or fieldbus
- Synchronous operation
- Master/slave mode

Integrated sequence control

- Automatic sequence of position sets without a higher-level controller
- Linear and cyclic position sequences
- Adjustable delay times

PROFIBUS®, DeviceNet®, CANopen® is a registered trademark of its respective trademark holder in certain countries.

Motor controllers CMMS-AS, for servo motors

Key features

Performance characteristics

Integrated safety functions

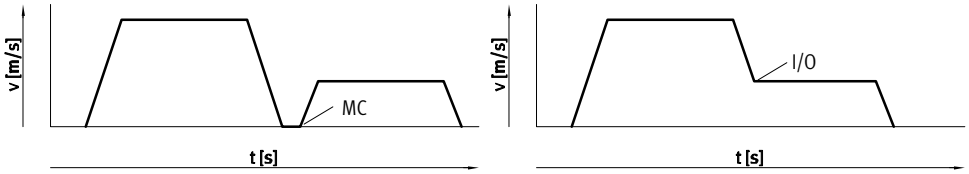
- The motor controller CMMS-AS support "Safe Torque off (STO)" and, by providing a reliable time delay, also supports "Safe Stop 1 (SS1)" functions with protection against unexpected startup in accordance with EN 61800-5-2
- Protection against unexpected start-up
- Two-channel disconnection of the output stage
- Less external circuitry
- Shorter response times in the event of an error
- Faster restart, intermediate circuit remains charged

Interpolating multi-axis movement

- With a suitable controller, the CMMS-AS can perform path movements with interpolation via CANopen. The controller specifies setpoint position values in a fixed time pattern to this end. In between, the servo positioning controller independently interpolates the data values between two data points.

Travel program

- Linking of any number of position sets into a travel program
- Further switching conditions for the travel program possible via digital inputs, for example
  MC – motion complete
  I/O – digital inputs



Library for EPLAN

EPLAN macros for fast and reliable planning of electrical projects in combination with motor controllers, motors and cables. This enables a high level of planning reliability, standardisation of documentation, no need to create symbols, graphics and master data.

ePLAN® is a registered trademark of its respective trademark holder in certain countries.

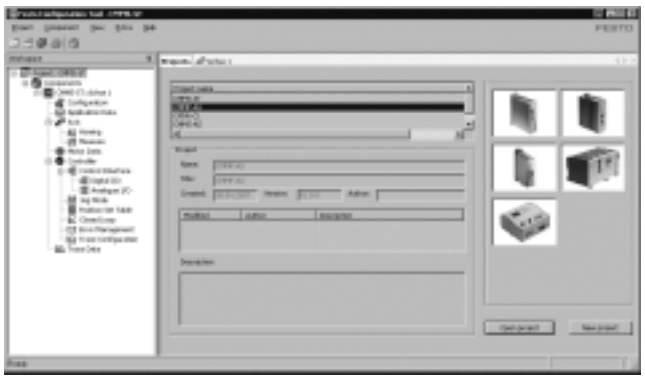
- 1 - Type discontinued
Available up until 2016

Motor controllers CMMS-AS, for servo motors

Key features

FCT software – Festo Configuration Tool

Software platform for electric drives from Festo



- All drives in a system can be managed and archived in a common project
- Project and data management for all supported device types
- Simple to use thanks to graphically-supported parameter entry
- Universal mode of operation for all drives
- Working offline at your desk or online at the machine

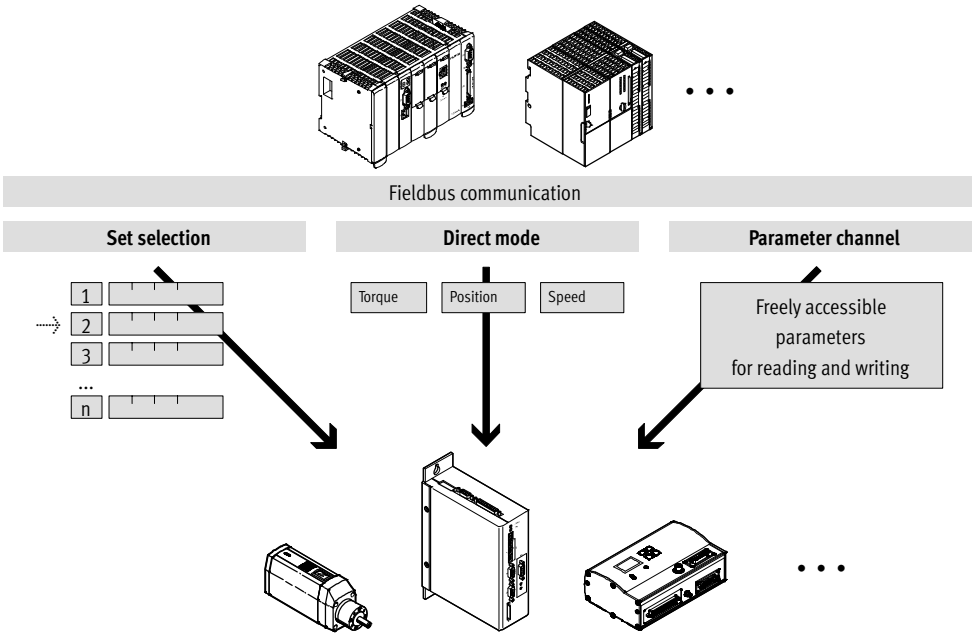
FHPP – Festo Handling and Positioning Profile

Optimised data profile

Festo has developed an optimised data profile, the "Festo Handling and Positioning Profile (FHPP)", that is tailored to handling and positioning applications.

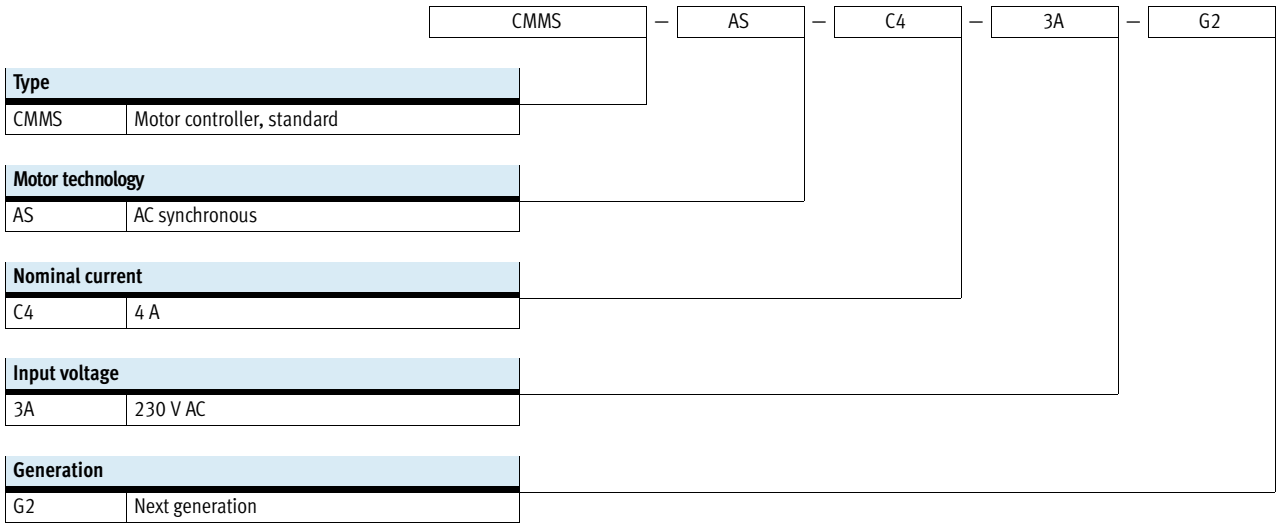
The FHPP data profile permits the actuation of Festo motor controllers, using a fieldbus interface, via standardised control and status bytes.

The following are defined, among others:
- Operating modes
- I/O data structure
- Parameter objects
- Sequence control



Motor controllers CMMS-AS, for servo motors

Type codes



Type	
CMMS	Motor controller, standard

Motor technology	
AS	AC synchronous

Nominal current	
C4	4 A

Input voltage	
3A	230 V AC

Generation	
G2	Next generation

Type discontinued
Available up until 2016

Motor controllers CMMS-AS, for servo motors

Technical data

FESTO

Fieldbus interfaces

General technical data		
Type of mounting		Screwed to a mounting plate
Display		7-segment display
Parameterisation interface		RS232 (9,600 ... 115,000 bits/s)
Encoder interface input		Setpoint position value as encoder signal
		EnDat V2.1 serial / V2.2
Encoder interface output		Actual value feedback via encoder signals in speed control mode
		Setpoint specification for downstream slave drive
		Resolution 4,096 ppr
Braking resistor, integrated	[Ω]	230
Pulse power of braking resistor	[kVA]	0.7
Braking resistor, external	[Ω]	≥ 100
Impedance of setpoint input	[kΩ]	20
Number of analogue outputs		1
Operating range of analogue outputs	[V]	0 ... 10
Resolution of analogue outputs	[Bit]	8
Characteristics of analogue outputs		Short circuit-proof
Number of analogue inputs		1
Operating range of analogue inputs	[V]	±10
Characteristics of analogue inputs		Differential inputs
		Configurable for speed
		Configurable for torque
Mains filter		Integrated
Max. length of motor cable	[m]	15 (without external mains filter)
Product weight	[g]	1,400

Technical data – Fieldbus interface					
Interfaces		I/O	CANopen	Profibus DP	DeviceNet
Number of digital logic outputs		5			
Characteristics of digital logic outputs		Freely configurable in some cases			
Number of digital logic inputs		14			
Operating range of logic inputs	[V]	12 ... 30			
Characteristics of logic inputs		Freely configurable			
Process coupling		For 63 position sets	For 63 position sets		
Communication profile		–	DS301, FHPP	DP-V0 / FHPP	FHPP
		–	DS301, DSP402	–	
Max. fieldbus transmission rate	[Mbit/s]	–	1	12	0.5
Interface	Integrated	■	■	–	–
	Optional	–	–	■ → 11	■ → 11

Motor controllers CMMS-AS, for servo motors

Technical data

FESTO

Function blocks for PLC programming				
Programming software	Controller manufacturer	Interfaces		
		CANopen	Profibus DP	DeviceNet
CoDeSys	Festo	■	■	■
	Beckhoff			
	Other manufacturers			
RSLogix5000	Rockwell Automation	–	–	■
Step 7	Siemens	–	■	–

Electrical data		
Output connection data		
Output voltage range	[V AC]	0 V up to input voltage
Nominal output current	[A]	4
Peak current	[A]	10
Max. peak current duration	[s]	2
Max. intermediate circuit voltage	[V DC]	320
Output frequency	[Hz]	0 ... 1,000
Load supply		
Nominal voltage phases		1
Input voltage range	[V AC]	95 ... 255
Max. nominal input current	[A]	4
Rated output	[VA]	600
Peak output	[VA]	1,200
Mains frequency	[Hz]	50 ... 60
Logic supply		
Nominal voltage	[V DC]	24 ±20%
Nominal current	[A]	0.35
Max. current (incl. holding brake)	[A]	1.7
Max. current of digital logic outputs	[mA]	100

Safety characteristics	
Safety function to EN 61800-5-2	Safe torque off (STO)
Performance Level (PL) to EN ISO 13849-1	Category 3, Performance Level d
Safety integrity level (SIL) to EN 61800-5-2, EN 62061, EN 61508	SIL 2
MTTFd	STO/2521 years
PFH	4.53×10^{-8}
Approval	BIA
Certificate issuing authority	BG MFS 09030
CE marking (see declaration of conformity)	To EU Low Voltage Directive
	To EU EMC Directive[1)]
	To EC Machinery Directive
Vibration resistance	To EN 61800-5-1

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

CoDeSys®, Rockwell Automation® is a registered trademark of its respective trademark holder in certain countries.

- 1 - **Type discontinued**
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Motor controllers CMMS-AS, for servo motors

Technical data

Operating and environmental conditions		
Digital logic outputs		Not galvanically isolated
Logic inputs		Galvanically connected to logic potential
Degree of protection		IP20
Protective function		I^2t monitoring
		Intermediate circuit over/undervoltage
		Output stage short circuit
		Standstill monitoring
		Temperature monitoring
Ambient temperature	[°C]	0 ... +50
Note on ambient temperature		4% reduction per °C above 40 °C
Storage temperature	[°C]	–25 ... +70
Relative air humidity	[%]	0 ... 90 (non-condensing)
CE marking (see declaration of conformity)		To EU Low Voltage Directive
		To EU EMC Directive[1)]
		To EU Machinery Directive
Approval		c UL - Recognised (OL)
		UL listed (OL)
		C-Tick
Note on materials		RoHS-compliant

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

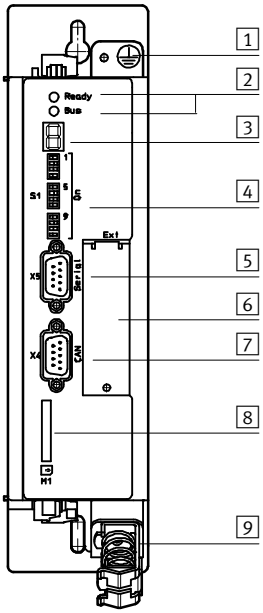
Motor controllers CMMS-AS, for servo motors

Technical data

FESTO

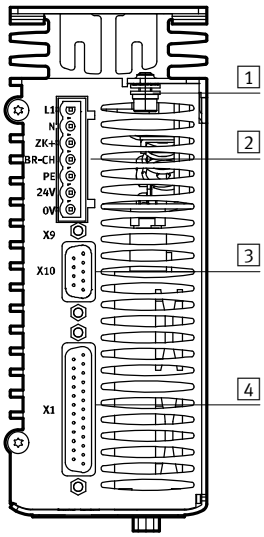
View of motor controller

From the front



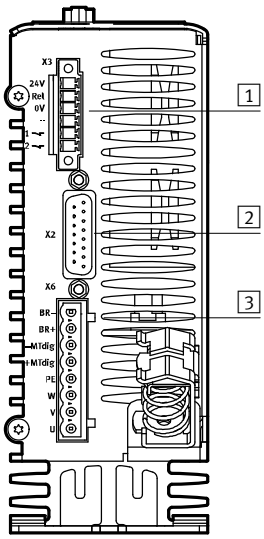
1 Earthing
2 Ready/bus LED
3 Status display
4 Fieldbus settings and boot loader
5 Interface: RS232/RS485
6 Technology module (optional)
7 Interface: CAN bus
8 SD memory card
9 Screened connection

From above



1 Earthing screw
2 Power supply
3 Incremental encoder interface (bidirectional)
4 I/O interface

From underneath



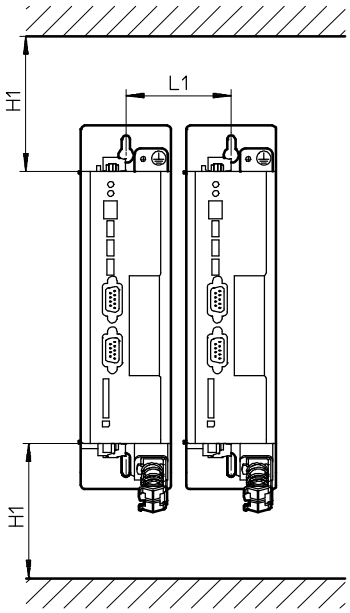
1 Safe stop
2 Encoder connection
3 Motor connection

Motor controllers CMMS-AS, for servo motors

Technical data

FESTO

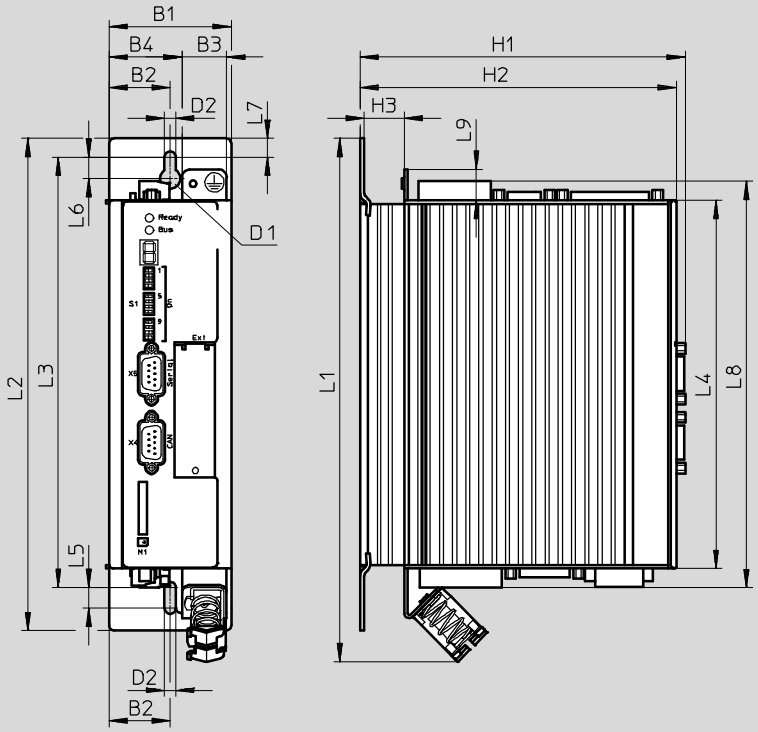
Installation clearance for motor controller



H1	L1
100	70

Dimensions

Download CAD data ➔ **www.festo.com**



Type	B1	B2	B3	B4	D1 ∅	D2 ∅	H1	H2	H3
CMMS-AS	60	30	22	35.8	10	5.5	160	155.5	19.7

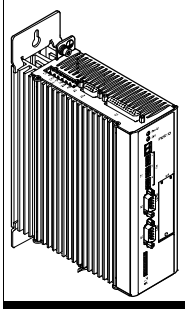
Type	L1	L2	L3	L4	L5	L6	L7	L8	L9
CMMS-AS	257.6	242.1	211.9	181	10	10.5	9.25	200	15.3

Motor controllers CMMS-AS, for servo motors

Technical data and accessories

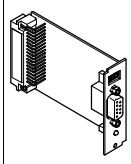
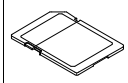
FESTO

Ordering data

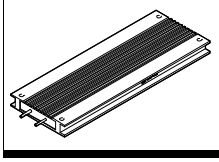
	Brief description	Part No.	Type
	The plug assortment NEKM (➔ 13) and the operator package (➔ 13) are included in the scope of delivery.	**572986**	**CMMS-AS-C4-3A-G2**

Accessories

Ordering data – Plug-in cards

	Brief description	Part No.	Type
	Interface, for Profibus interface	**547450**	**CAMC-PB**
	Interface, for DeviceNet interface	**547451**	**CAMC-DN**
	Memory card, for data backup and firmware downloads	**1436343**	**CAMC-M-S-F10-V1**

Ordering data – Braking resistances

	Resistance value [Ω]	Nominal power [W]	Part No.	Type
	100	500	**1336615**	**CACR-LE2-100-W500**

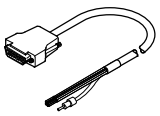
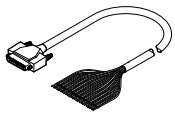
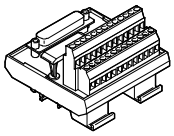
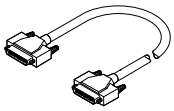
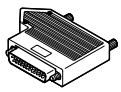
- 1 - Type discontinued
Available up until 2016

Motor controllers CMMS-AS, for servo motors

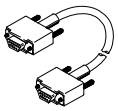
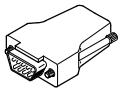
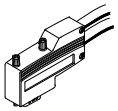
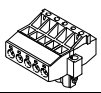
Accessories

FESTO

Ordering data – Connection options from I/O interface to controller

	Description	Cable length [m]	Part No.	Type
Control cable				
	• For I/O interface to any controller • Recommended for analogue signals since the cable is shielded	2.5	**552254**	**NEBC-S1G25-K-2.5-N-LE26**
	• For I/O interface to any controller • Cannot be used if the incremental encoder interface (input) is in use	3.2	**8001373**	**NEBC-S1G25-K-3.2-N-LE25**
Connection block				
	Ensures simple and clear wiring. The connection to the motor controller is established via the connecting cable NEBC-S1G25-K-...	–	**8001371**	**NEFC-S1G25-C2W25-S7**
Connecting cable				
	Connects the motor controller to the connection block	1.0	**8001374**	**NEBC-S1G25-K-1.0-N-S1G25**
		2.0	**8001375**	**NEBC-S1G25-K-2.0-N-S1G25**
		5.0	**8001376**	**NEBC-S1G25-K-5.0-N-S1G25**
Plug connector				
	25-pin Sub-D plug. Each wire can be individually assembled using screw terminals	–	**8001372**	**NEFC-S1G25-C2W25-S6**

Ordering data – Cables and plugs

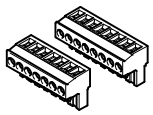
	Description	Cable length [m]	Part No.	Type
Programming cable				
	–	1.5	**160786**	**PS1-ZK11-NULLMODEM-1,5M**
Encoder plug				
	For incremental encoder interface	–	**564264**	**NECC-A-S-S1G9-C2M**
Plug connector				
	For PROFIBUS interface	–	**533780**	**FBS-SUB-9-WS-PB-K**
	For CANopen interface	–	**533783**	**FBS-SUB-9-WS-CO-K**
	For DeviceNet interface	–	**525635**	**FBSD-KL-2X5POL**

Motor controllers CMMS-AS, for servo motors

Accessories

FESTO

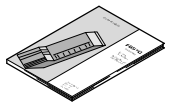
Ordering data – Plug assortment

	Description	Part No.	Type
	• Comprising plug for power supply and motor connection • The plug assortment is included in the scope of delivery of the motor controller	**560504**	**NEKM-C-4**

Ordering data – Software and documentation

	Description	Part No.	Type
	Operator package contains: – CD-ROM – With user documentation for the CMMS-AS, in de, en, es, fr, it – With FCT (Festo Configuration Tool) configuration software, in de, en – Brief description The package is included in the scope of delivery	**573740**	**GSIB-CMMS-AS-G2-ML**

Ordering data – Documentation[1)]

	Language	Part No.	Type		Part No.	Type
		For motor controller			Festo Handling and Positioning Profile (FHPP) for the motor controller range CMM...	
	DE	**564227**	**P.BE-CMMS-AS-3A-HW-DE**		**555695**	**P.BE-CMM-FHPP-SW-DE**
	EN	**564228**	**P.BE-CMMS-AS-3A-HW-EN**		**555696**	**P.BE-CMM-FHPP-SW-EN**
	ES	**564229**	**P.BE-CMMS-AS-3A-HW-ES**		**555697**	**P.BE-CMM-FHPP-SW-ES**
	FR	**564230**	**P.BE-CMMS-AS-3A-HW-FR**		**555698**	**P.BE-CMM-FHPP-SW-FR**
	IT	**564231**	**P.BE-CMMS-AS-3A-HW-IT**		**555699**	**P.BE-CMM-FHPP-SW-IT**
		For CANopen interface			For PROFIBUS interface	
	DE	**554351**	**P.BE-CMMS-FHPP-CO-SW-DE**		**554345**	**P.BE-CMMS-FHPP-PB-SW-DE**
	EN	**554352**	**P.BE-CMMS-FHPP-CO-SW-EN**		**554346**	**P.BE-CMMS-FHPP-PB-SW-EN**
	ES	**554353**	**P.BE-CMMS-FHPP-CO-SW-ES**		**554347**	**P.BE-CMMS-FHPP-PB-SW-ES**
	FR	**554354**	**P.BE-CMMS-FHPP-CO-SW-FR**		**554348**	**P.BE-CMMS-FHPP-PB-SW-FR**
	IT	**554355**	**P.BE-CMMS-FHPP-CO-SW-IT**		**554349**	**P.BE-CMMS-FHPP-PB-SW-IT**
		For DeviceNet interface				
	DE	**554357**	**P.BE-CMMS-FHPP-DN-SW-DE**			
	EN	**554358**	**P.BE-CMMS-FHPP-DN-SW-EN**			
	ES	**554359**	**P.BE-CMMS-FHPP-DN-SW-ES**			
	FR	**554360**	**P.BE-CMMS-FHPP-DN-SW-FR**			
	IT	**554361**	**P.BE-CMMS-FHPP-DN-SW-IT**			

1) User documentation in paper form is not included in the scope of delivery