

Motor controllers CMMP-AS, for servo motors



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Key features

Comparison of motor controllers			
Motor controller For motor type	CMMP-AS Servo motor	CMMS-AS Servo motor	CMMS-ST Stepper motor
Torque at standstill [Nm]	25	4.7	9.3
Peak torque [Nm]	48	9.2	9.3
Speed [rpm]	6,000	6,000	2,000
Position sets	255	63	63
Measuring system	Incremental/absolute	Incremental/absolute	Incremental
Extended I/O interface	Flexibly configurable	4 working modes	4 working modes
Notification of remaining distance	Separate for all positions	1 for n	1 for n
Torque reduction	Separate for all positions	No	No
Set linking	With branching	Linear	Linear
STO/SS1	To EN 61800-5-2	To EN 61800-5-2	To EN 61800-5-2 with external circuitry

Performance characteristics

Compactness	Motion control
<ul style="list-style-type: none"> • Small dimensions • Full integration of all components for controller and power section, including RS232 and CANopen interface • Integrated brake chopper • Integrated EMC filters 	<ul style="list-style-type: none"> • Automatic actuation for a holding brake integrated in the motor • Adheres to the current CE and EN standards without additional external measures (motor cable length of up to 25 m)

Fieldbus interfaces

Integrated:



Optional:





Input/output

- Freely programmable I/Os
- High-resolution 16-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

- Absolute and relative movements
- Point-to-point positioning with and without approximate positioning
- Position synchronisation
- Electronic gear unit
- 255 position sets
- Wide range of homing methods
- Automatic sequence of position sets without a higher-level controller
- Linear and cyclic position sequences
- Adjustable delay times
- Branches and wait positions
- Overlapping restart possible during the movement

Integrated safety functions

- The positioning controllers included in the CMMP-AS range support "Safe Torque off (STO)" and "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

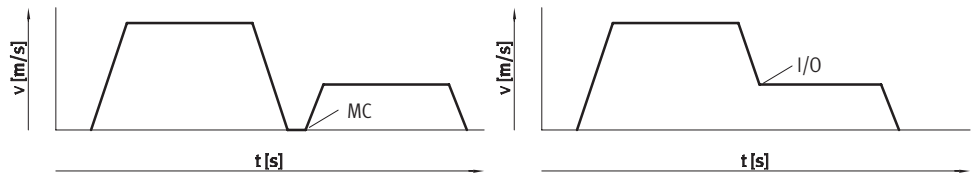
- With a suitable controller, the CMMP-AS can perform path movements with interpolation via CANopen or Sercos. The controller specifies setpoint position values in a fixed time pattern to this end. In between, the servo positioning controller independently interpolates the data values between two data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

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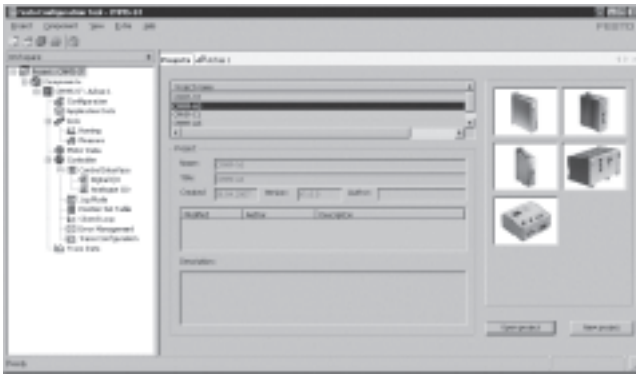
Travel program

- 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



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

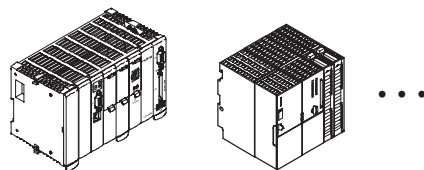
Optimised data profile

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

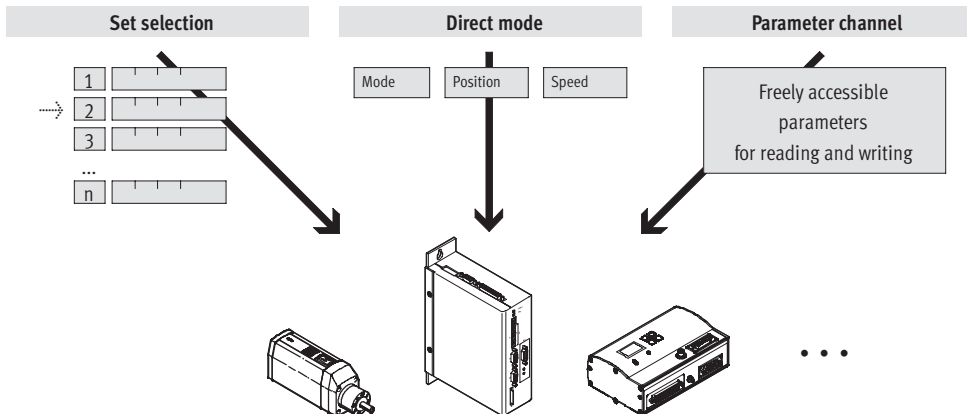
The FHPP data profile permits the actuation of Festo motor controllers, using a fieldbus interface, via standardised control and status bytes.

The following are defined, among others:

- Operating modes
- I/O data structure
- Parameter objects
- Sequence control

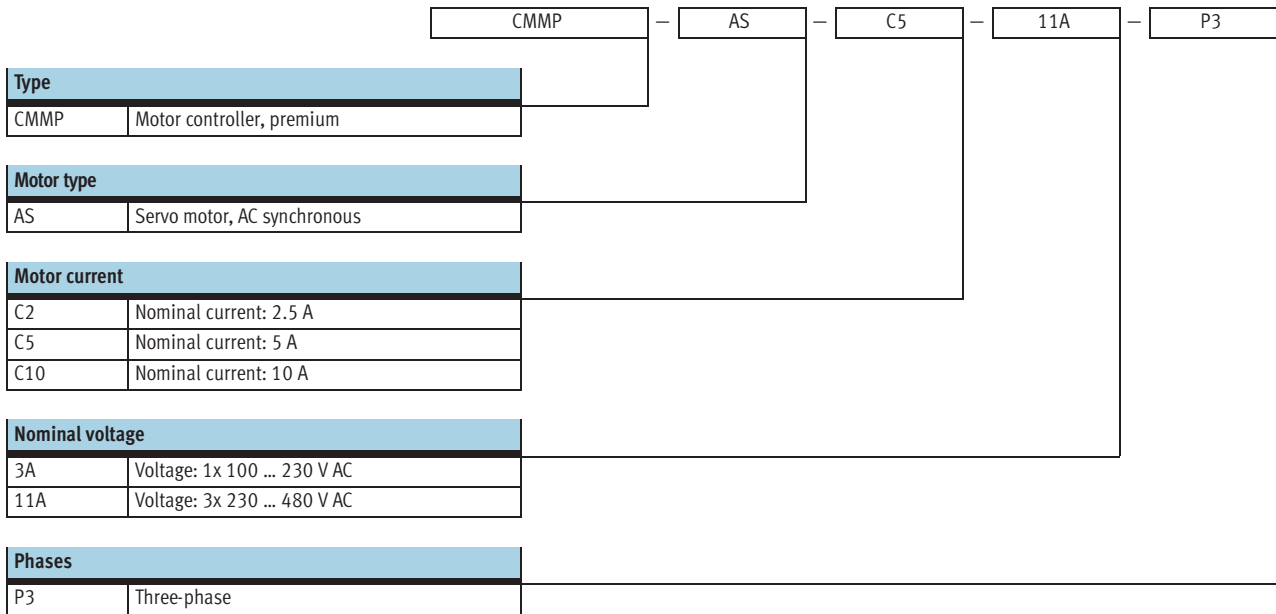


Fieldbus communication



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Type codes



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Technical data

Fieldbus interfaces



General technical data				
CMMP-AS-	C2-3A	C5-3A	C5-11A-P3	C10-11A-P3
Type of mounting	Screwed to a mounting plate			
Output frequency [Hz]	0 ... 1,000			
Display	7-segment display			
Parameterisation interface	RS232 (9,600 ... 115,000 bits/s)			
Encoder interface input	As speed/position specification for the slave drive in synchronous mode			
	Encoder signal setpoint speed			
	EnDat V2.2			
Encoder interface output	RS422			
	Actual value feedback via encoder signals in speed control mode			
	Setpoint specification for downstream slave drive			
Resolution 16 384 ppr				
Brake resistor, integrated [Ω]	165	110	68	
Pulse power of braking resistor [kVA]	1.1	1.6	8.5	
Operating range of analogue outputs [V]	±10			
Operating range of analogue inputs [V]	±10			
Number of analogue outputs	2			
Number of analogue inputs	3			
Resolution of analogue outputs	9-bit			
Characteristics of logic inputs	Freely configurable			
Characteristics of analogue outputs	Short circuit-proof			
Characteristics of analogue inputs	Differential inputs			
	Configurable for speed			
	Configurable for current			
Characteristics of digital logic outputs	Freely configurable in some cases			
Mains filter	Integrated			
Max. length of motor cable without external mains filter [m]	25			
Product weight [g]	2,000	2,100	3,700	

Technical data – Fieldbus interface				
Interfaces	I/O	CANopen	Profibus DP	DeviceNet
Operating range of logic inputs [V]	8 ... 30	–		
Number of digital logic inputs	10	–		
Number of digital logic outputs	5	–		
Process coupling	For 255 position sets	–		
Communication profile	–	DS301, FHPP	DP-V0 / FHPP	FHPP
	–	DS301, DSP402	Step7 functional modules	
Max. fieldbus transmission rate [Mbit/s]	–	1	12	0.5
Interface	Integrated	■	–	–
	Optional	–	–	■ → 10

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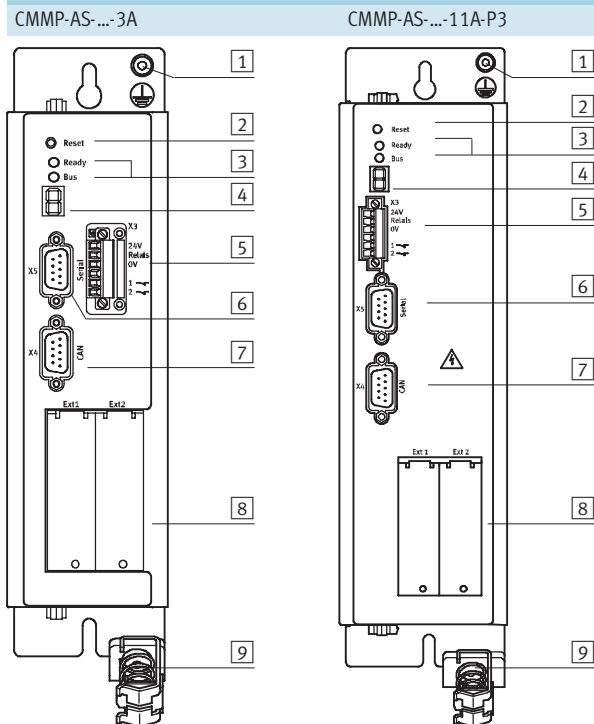
Technical data

Electrical data		C2-3A	C5-3A	C5-11A-P3	C10-11A-P3
Output connection data					
Output voltage range	[V AC]	0 ... 270		0 ... 360	
Nominal current	[A]	2.5	5	5	10
Peak current	[A]	5	10	15	20
Max. peak current duration	[s]	5		3	
Max. intermediate circuit voltage	[V DC]	380		560	
Load supply					
Nominal voltage phases		1		3	
Input voltage range	[V AC]	100 ... 230		3x 230 ... 480	
Max. nominal input current	[A]	3	6	5.5	11
Rated output	[VA]	500	1,000	3,000	6,000
Peak output	[VA]	1,000	2,000	6,000	12,000
Mains frequency	[Hz]	50 ... 60			
Logic supply					
Nominal voltage	[V DC]	24 ±20%			
Nominal current	[A]	0.55/2.55 ¹⁾		0.65/2.65 ¹⁾	
Max. current of digital logic outputs	[mA]	100			

1) Max. current with brake

Operating and environmental conditions	
Digital logic outputs	Electrically separated
Logic inputs	Electrically separated
Protection class	IP20
Ambient temperature	[°C] 0 ... +50
Storage temperature	[°C] -25 ... +70
Relative humidity	[%] 0 ... 90 (non-condensing)
CE mark (see declaration of conformity)	To EU Low Voltage Directive
STO/SS1	To EN 61800-5-2
Safety function	"Protection against unexpected start-up" to DIN EN ISO 13849-1, category 3, performance level d, SIL 2 to Table 4

View of motor controller



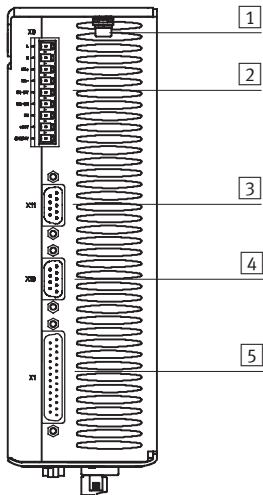
- 1 Earthing
- 2 Reset button
- 3 Ready/bus LED
- 4 Status display
- 5 Control connection for relay driver supply
- 6 Interface: RS232/RS485
- 7 Interface: CAN bus
- 8 Technology module slot
- 9 Screened connection

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Technical data

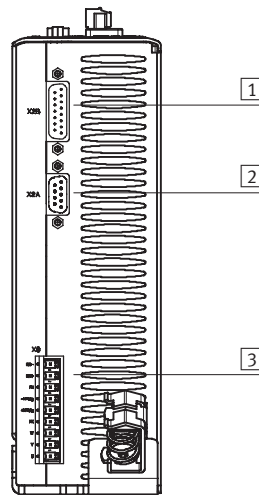
View of motor controller

From above



- 1 Earthing screw
- 2 Power supply
- 3 Increment generator output
- 4 Increment generator input
- 4 I/O interface

From below

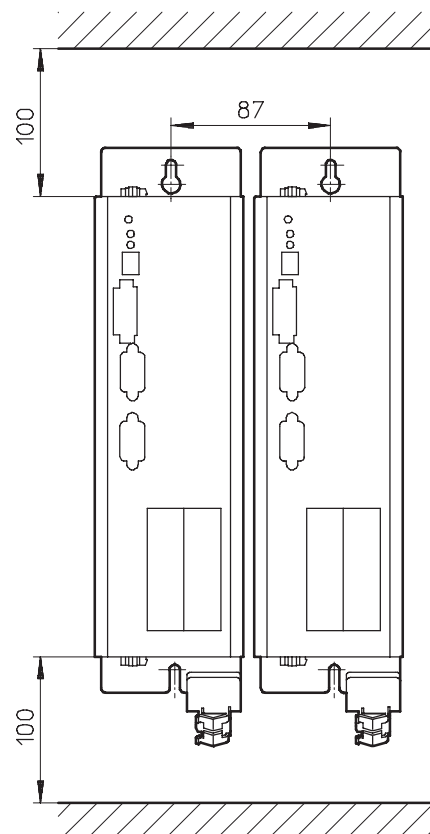
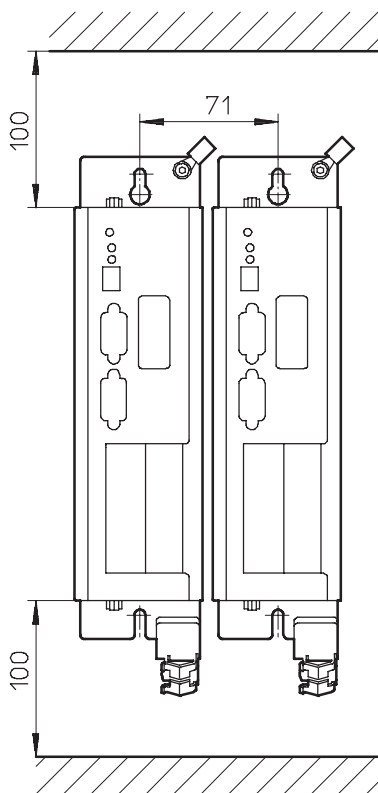


- 1 Encoder connection
- 2 Resolver connection
- 3 Motor connection

Installation clearance for motor controller

CMMP-AS-...-3A

CMMP-AS-...-11A-P3



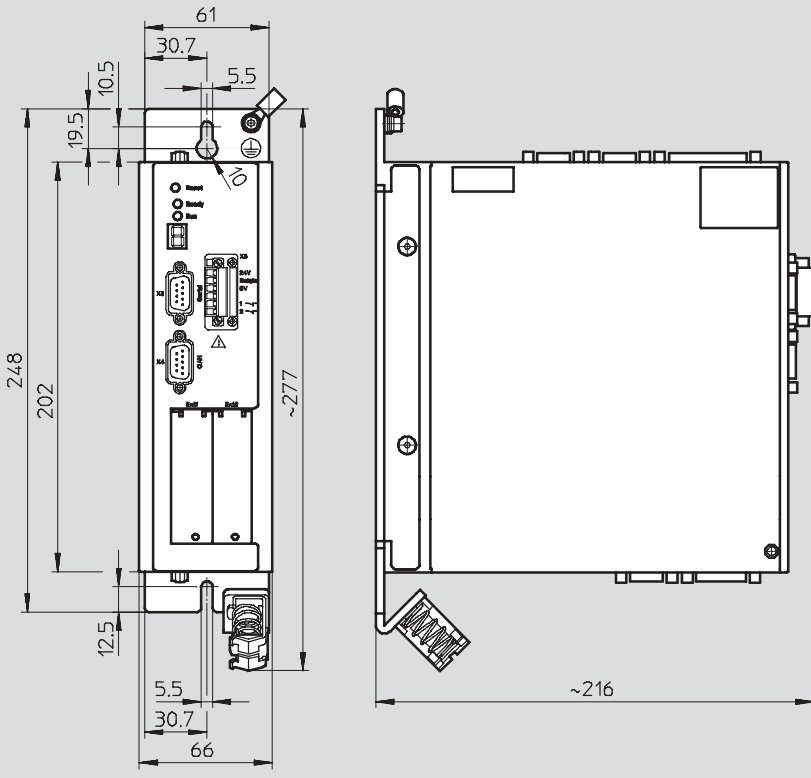
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Technical data

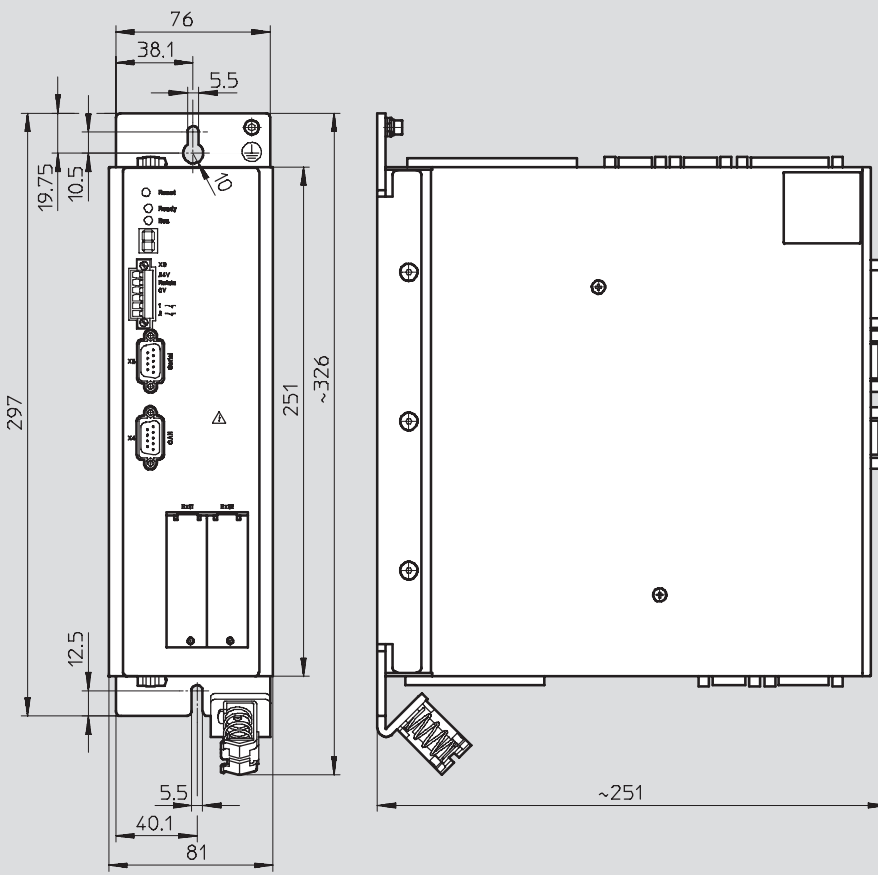
Dimensions

Download CAD data → www.festo.com

CMMP-AS-...-3A

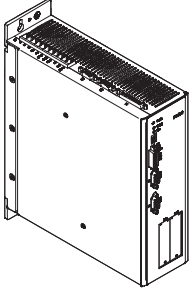


CMMP-AS-...-11A-P3



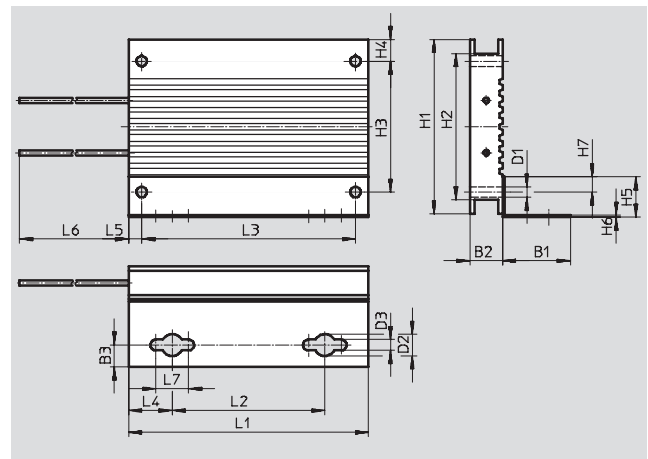
Motor controllers CMMP-AS, for servo motors

Technical data

Ordering data		Brief description	Part No.	Type
	The plug range NEKM (→ 10) and the operating package (→ 11) are included in the scope of delivery.		550 041	CMMP-AS-C2-3A
			550 042	CMMP-AS-C5-3A
			551 023	CMMP-AS-C5-11A-P3
			551 024	CMMP-AS-C10-11A-P3

Accessories

Braking resistance BRW



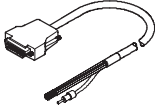
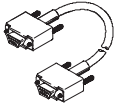
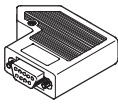
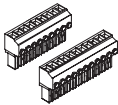
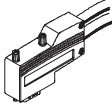

Dimensions and ordering data										
Size	B1	B2	B3	D1	D2	D3	H1	H2	H3	H4
250	31	15	10	∅	10	5	80	67	60	10
500				5						

Size	H5	H6	H7	L1	L2	L3	L4	L5	L6	L7
250	18.5	1	7	110	70	98	20	6	50	15
500				216	176	204				

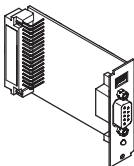
Size	Resistance value	Nominal power	Protection class	Weight	Part No.	Type
	[Ω]	[W]		[g]		
250	72±5%	100	IP65	280	538 940	BRW-250-072
500	72±5%	200	IP65	550	538 941	BRW-500-072

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Accessories


Ordering data – Cables and plugs				
	Brief description	Cable length [m]	Part No.	Type
	Control cable, for I/O interface to any controller	2.5	552 254	NEBC-S1G25-K-2.5N-LE26
	Programming cable	1.5	160 786	PS1-ZK11-NULLMODEM-1,5M
	Encoder plug	–	552 274	NECC-S-S1G9-C2M
	Plug range for CMMP-AS-...-3A	–	552 255	NEKM-C-2 ¹⁾
	Plug range for CMMP-AS-...-11A-P3	–	552 256	NEKM-C-3 ¹⁾
	Plug for Profibus interface	–	533 780	FBS-SUB-9-WS-PB-K
	Plug for DeviceNet interface	–	525 635	FBSD-KL-2X5POL


1) Comprising plug for power supply and plug for motor connection. The plug range is included in the scope of delivery

Ordering data – Plug-in cards			
	Brief description	Part No.	Type
	For Profibus interface	547 450	CAMC-PB
	For DeviceNet interface	547 451	CAMC-DN
	For Sercos interface	552 258	CAMC-SC

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Accessories

Ordering data – Software and documentation			
	Brief description	Part No.	Type
	Operating package contains: – CD-ROM – with user documentation for CMMP-AS, in de, en, es, fr, it, sv – with FCT (Festo Configuration Tool) configuration software, in de, en – Brief description This package is included in the scope of delivery	558 329	P.BP-CMMP-AS

Ordering data – Documentation ¹⁾						
	Language	Part No. Type		Part No. Type		
		for motor controller CMMP-AS-...-3A		for motor controller CMMP-AS-...-11A-P3		
	DE	557 325	P.BE-CMMP-AS-3A-HW-DE	557 331	P.BE-CMMP-AS-11A-HW-DE	
	EN	557 326	P.BE-CMMP-AS-3A-HW-EN	557 332	P.BE-CMMP-AS-11A-HW-EN	
	ES	557 327	P.BE-CMMP-AS-3A-HW-ES	557 333	P.BE-CMMP-AS-11A-HW-ES	
	FR	557 328	P.BE-CMMP-AS-3A-HW-FR	557 334	P.BE-CMMP-AS-11A-HW-FR	
	IT	557 329	P.BE-CMMP-AS-3A-HW-IT	557 335	P.BE-CMMP-AS-11A-HW-IT	
	SV	557 330	P.BE-CMMP-AS-3A-HW-SV	557 336	P.BE-CMMP-AS-11A-HW-SV	
			Festo Handling and Positioning Profile (FHPP) for the motor controller family CMM...			
	DE	555 695	P.BE-CMM-FHPP-SW-DE			
	EN	555 696	P.BE-CMM-FHPP-SW-EN			
	ES	555 697	P.BE-CMM-FHPP-SW-ES			
	FR	555 698	P.BE-CMM-FHPP-SW-FR			
	IT	555 699	P.BE-CMM-FHPP-SW-IT			
	SV	555 700	P.BE-CMM-FHPP-SW-SV			
			for Profibus interface		for DeviceNet interface	
	DE	557 337	P.BE-CMMP-FHPP-PB-SW-DE	557 349	P.BE-CMMP-FHPP-DN-SW-DE	
	EN	557 338	P.BE-CMMP-FHPP-PB-SW-EN	557 350	P.BE-CMMP-FHPP-DN-SW-EN	
	ES	557 339	P.BE-CMMP-FHPP-PB-SW-ES	557 351	P.BE-CMMP-FHPP-DN-SW-ES	
FR	557 340	P.BE-CMMP-FHPP-PB-SW-FR	557 352	P.BE-CMMP-FHPP-DN-SW-FR		
IT	557 341	P.BE-CMMP-FHPP-PB-SW-IT	557 353	P.BE-CMMP-FHPP-DN-SW-IT		
SV	557 342	P.BE-CMMP-FHPP-PB-SW-SV	557 354	P.BE-CMMP-FHPP-DN-SW-SV		
		for CANopen interface		for Sercos interface		
DE	557 343	P.BE-CMMP-CO-SW-DE	557 361	P.BE-CMMP-SC-SW-DE		
EN	557 344	P.BE-CMMP-CO-SW-EN	557 362	P.BE-CMMP-SC-SW-EN		
ES	557 345	P.BE-CMMP-CO-SW-ES	557 363	P.BE-CMMP-SC-SW-ES		
FR	557 346	P.BE-CMMP-CO-SW-FR	557 364	P.BE-CMMP-SC-SW-FR		
IT	557 347	P.BE-CMMP-CO-SW-IT	557 365	P.BE-CMMP-SC-SW-IT		
SV	557 348	P.BE-CMMP-CO-SW-SV	557 366	P.BE-CMMP-SC-SW-SV		

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