

Motor controllers CMMP-AS, for servo motors

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Motor controllers CMMP-AS, for servo motors

Key features

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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
Torque at standstill [Nm]	2x 4.7	4.7	25	9.3
Peak torque [Nm]	2x 9.2	9.2	48	9.3
Speed [rpm]	2x 6,000	6,000	6,000	2,000
Positioning records	2x 63	63	255	63
Measuring system	Incremental/absolute		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
STO/SS1	To EN 61800-5-2		To EN 61800-5-2	To EN 61800-5-2 with external circuitry

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 integrated in the motor
- Complies with the current CE and EN standards without additional external measures (motor cable length of up to 25 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 position controller
- Time-optimised (trapezoidal) or jerk-free (S-shaped) positioning
- Absolute and relative movements
- Point-to-point positioning with and without motion path smoothing
- Position synchronisation
- Electronic gear unit
- 255 position sets
- Wide range of homing methods

Fieldbus interfaces

Integrated:

CANopen

Optional:

PROFIBUS

DeviceNet

SERCOS interface

EtherCAT

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
- Additional I/Os with the plug-in card CAMC-D-8E8A → 12

Integrated sequence control

- Automatic sequence of position sets without a higher-level controller
- Linear and cyclical position sequences
- Adjustable delay times
- Branches and wait positions
- Overlapping restart possible during the movement

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Performance characteristics

Integrated safety functions

- The position controllers of the CMMP-AS family range support the “Safe Torque off (STO)” and “Safe Stop 1 (SS1)” safety functions with protection against unexpected start-up 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

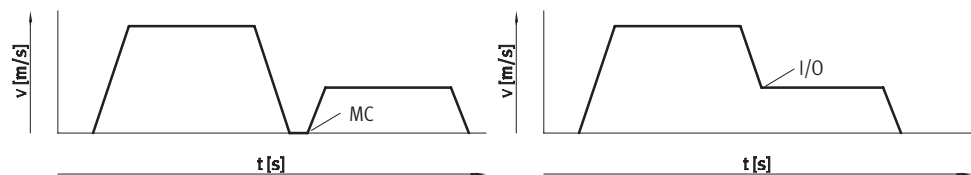
Interpolating multi-axis movement

- With a suitable controller, the CMMP-AS can perform path movements with interpolation via CAN-open or Sercos. The controller specifies setpoint position values in

a fixed time pattern to this end. In between, the servo position controller independently interpolates the data values between two data points.

Travel program

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



Library for EPLAN

→ 13



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.

Cam disc functionality

→ 13

The “electronic cam disc” application type creates optimised motion profiles that generate less vibration and acceleration force at the machine. In addition, the motion of the motor is always synchronous in position with a master axis, which enables easy definition of overlapping, time-optimised motion sequences. To be able to use the cam disc function, you will need the Festo Configuration Tool (FCT) and also the curve → 13

Key features:

- High flexibility of the system. The mechanism does not need to be modified if the requirements for the lobe shapes change
- User-friendly motion plan editor. All limits for position, speed and acceleration are immediately displayed in the editor
- Up to 16 cam discs with a total of up to 2,048 data points can be managed. The data points can be randomly distributed along the cam discs
- There are four digital trip cams coupled with each cam disc
- Each cam disc can be offset by a certain amount from the master axis

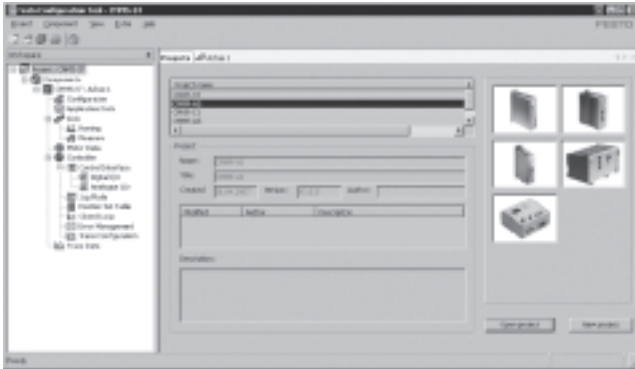
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Key features

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FCT software – Festo Configuration Tool

Software platform for electric drives from Festo



- All drives in a system can be managed and saved 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

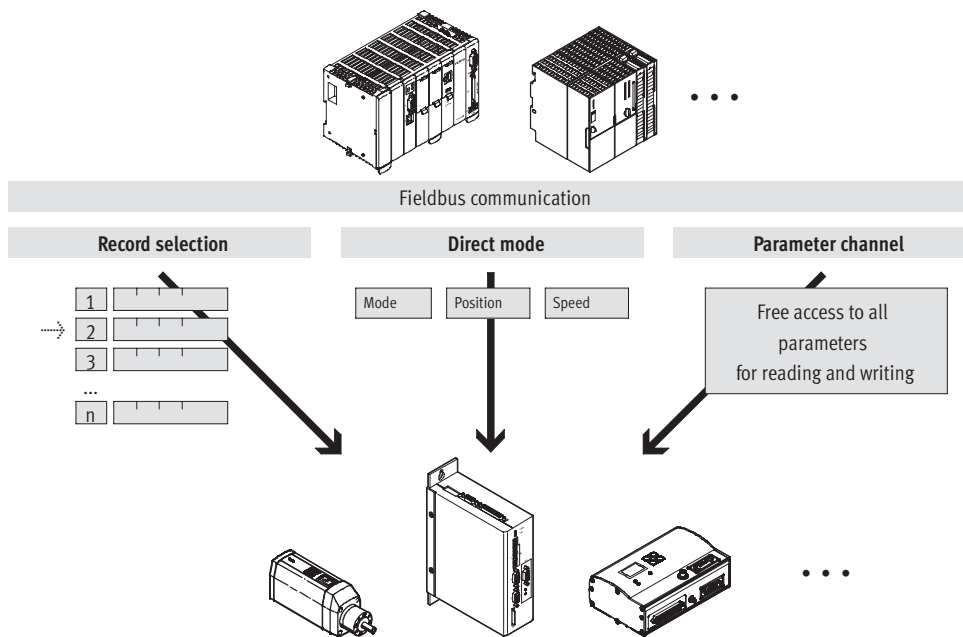
Optimised data profile

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



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Type codes

		CMMP	AS	C5	11A	P3
Type						
CMMP	Motor controller, premium					
Motor technology						
AS	AC synchronous					
Nominal current						
C2	2.5 A					
C5	5 A					
C10	10 A					
Input voltage						
3A	230 V AC					
11A	400 V AC					
Number of phases						
P3	3-phase					

Motor controllers CMMP-AS, for servo motors

Technical data

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Fieldbus interfaces

CANopen

PROFIBUS

DeviceNet

SERCOS
interface

EtherCAT

UL LISTED



General technical data				
CMMP-AS-	C2-3A	C5-3A	C5-11A-P3	C10-11A-P3
Type of mounting	Screwed to a mounting plate			
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			
	RS422			
	HIPERFACE			
	SINCOS			
Encoder interface output	Actual value feedback via encoder signals in speed control mode			
	Setpoint specification for downstream slave drive			
	Resolution 16,384 ppr			
Braking resistor, integrated	[Ω]	165	110	68
Pulse power of braking resistor	[kVA]	1.1	1.6	8.5
Braking resistor, external	[Ω]	≥ 100	≥ 80	≥ 60
Impedance of setpoint input	[kΩ]	20		
Number of analogue outputs		2		
Operating range of analogue outputs	[V]	±10		
Resolution of analogue outputs		9 bits		
Characteristics of analogue outputs		Short circuit proof		
Number of analogue inputs		3		
Operating range of analogue inputs	[V]	±10		
Characteristics of analogue inputs		Differential inputs		
		Configurable for speed		
		Configurable for current		
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	EtherCat	Profibus DP	DeviceNet
Number of digital logic outputs	5	–			
Characteristics of digital logic outputs	Freely configurable	–			
Number of digital logic inputs	10	–			
Operating range of logic inputs	[V]	8 ... 30			
Characteristics of logic inputs	Freely configurable	–			
Process coupling	For 16 position sets	–			
	For 255 position sets ¹⁾	–			
Communication profile	–	DS301, FHPP	DS301, FHPP	DP-V0/FHPP	FHPP
	–	DS301, DSP402	DS301, DSP402	–	–
Max. fieldbus transmission rate	[Mbps]	1	100	12	0.5
Interface	Integrated	■	■	–	–
	Optional	–	–	■ → 12	■ → 12

1) With plug-in card CAMC-D-8E8A → 12.

Motor controllers CMMP-AS, for servo motors

Technical data

Function blocks for PLC programming					
Programming software	Controller manufacturer	Interfaces			
		CANopen	EtherCat	Profibus DP	DeviceNet
CoDeSys	Festo	■	■	■	■
	Beckhoff				
	Other manufacturers				
RSLogix5000	Rockwell Automation	–	–	–	■
Step7	Siemens	–	–	■	–

Electrical data										
CMMP-AS-		C2-3A		C5-3A		C5-11A-P3		C10-11A-P3		
Output port data										
Output voltage range		[V AC]	0 ... 270				0 ... 360			
Nominal output 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			
Output frequency		[Hz]	0 ... 1,000							
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⁾		1/3 ¹⁾			
Max. current of digital logic outputs		[mA]	100							

1) Max. current with brake

Operating and environmental conditions	
Digital logic outputs	Galvanically isolated
Logic inputs	Galvanically isolated
Protection class	IP20
Ambient temperature	[°C] 0 ... +50
Storage temperature	[°C] –25 ... +70
Relative air humidity	[%] 0 ... 90 (non-condensing)
CE mark (see declaration of conformity)	To EU Low Voltage Directive
	To EU EMC Directive ¹⁾
	To EU Machinery Directive
Certification	c UL us - Listed (OL)
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

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com → Support → 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.

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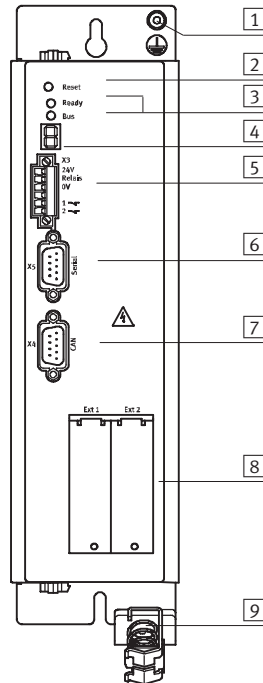
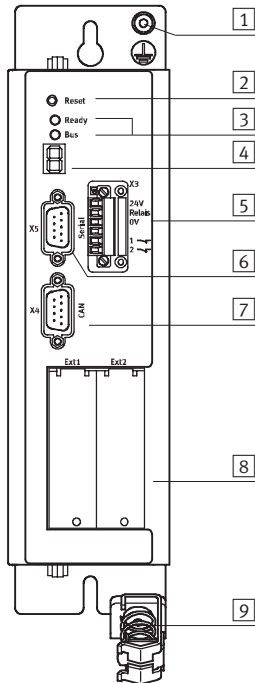
Technical data

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View of motor controller

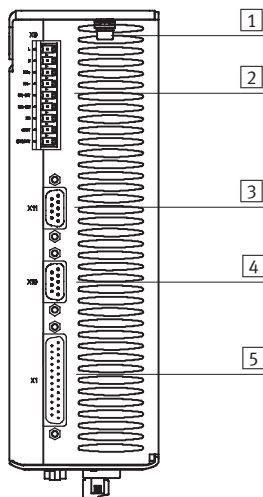
CMMP-AS-...-3A

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



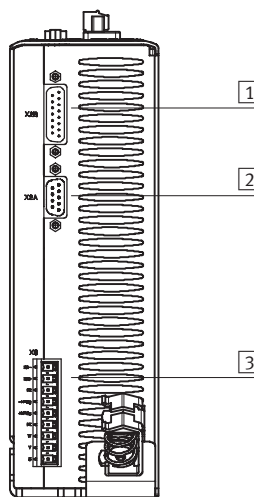
- 1 Earthing
- 2 Reset button
- 3 Ready/bus LED
- 4 Status display
- 5 Control connection for relay driver supply
- 6 Interface: RS232/RS485
- 7 Interface: CAN bus
- 8 Technology module slot
- 9 Screened connection

From above



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

From underneath



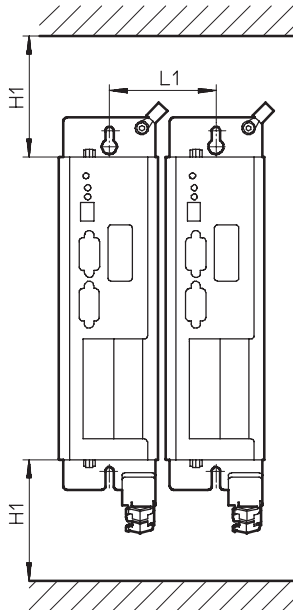
- 1 Encoder connection
- 2 Resolver connection
- 3 Motor connection

Motor controllers CMMP-AS, for servo motors

Technical data

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Installation clearance for motor controller

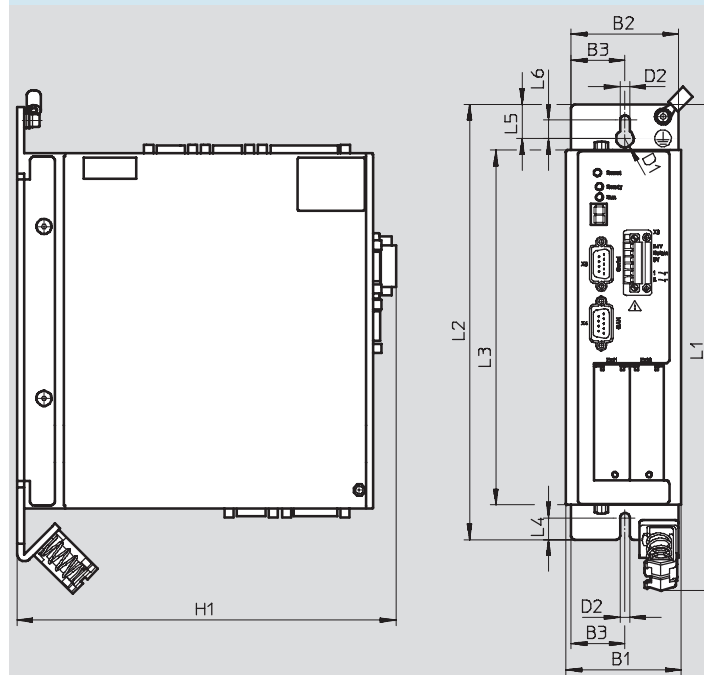


Type	H1	L1
CMMP-AS-...-3A	100	71
CMMP-AS-...-11A-P3	100	87

Dimensions

Download CAD Data → www.festo.com/us/cad

CMMP-AS-...-3A



Type	B1	B2	B3	D1 Ø	D2 Ø	H1	L1	L2	L3	L4	L5	L6
CMMP-AS-...-3A	66	61	30.7	10	5.5	216	277	248	202	12.5	19.5	10.5

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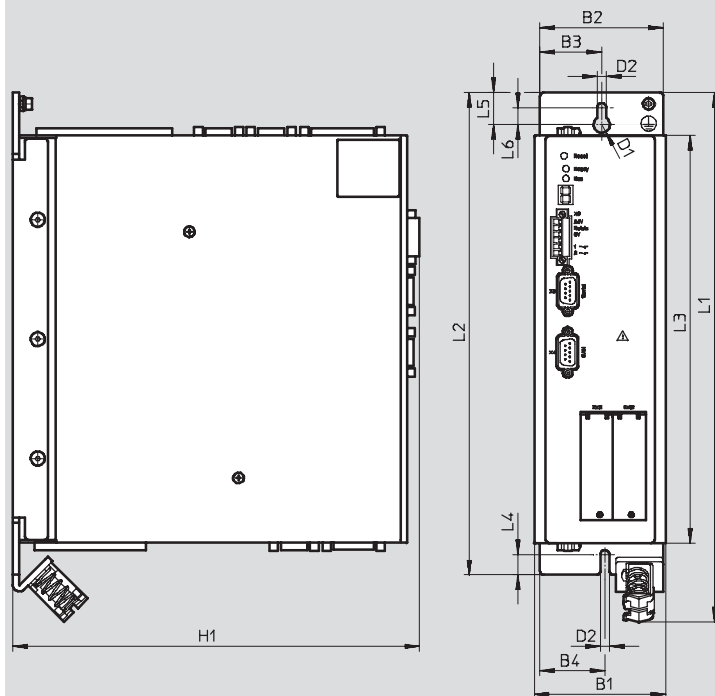
Technical data

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Dimensions

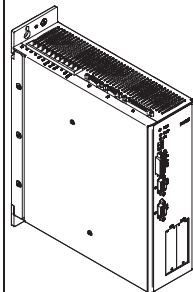
Download CAD Data → www.festo.com/us/cad

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



Type	B1	B2	B3	B4	D1 Ø	D2 Ø	H1	L1	L2	L3	L4	L5	L6
CMMP-AS-...-11A-P3	81	76	38.1	40.1	10	5.5	251	326	297	251	12.5	19.75	10.5

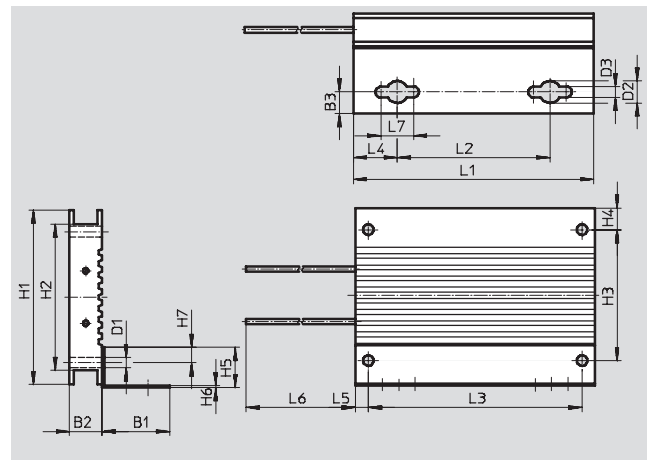
Ordering data

	Brief description	Part No.	Type
	The plug assortment NEKM (→ 13) and the operator package (→ 13) are included in the scope of delivery.	550041	CMMP-AS-C2-3A
		550042	CMMP-AS-C5-3A
		551023	CMMP-AS-C5-11A-P3
		551024	CMMP-AS-C10-11A-P3

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Accessories

Brake resistor BRW



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

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	Rated output	Protection class	Weight	Part No.	Type
	[Ω]	[W]		[g]		
250	72±5%	100	IP65	280	538940	BRW-250-072
500	72±5%	200	IP65	550	538941	BRW-500-072

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Accessories

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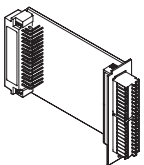
Interface CAMC-D-8E8A

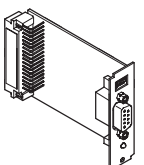
The interface is used to extend the digital I/Os.

Up to two interfaces are supported simultaneously.



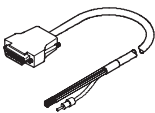
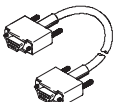
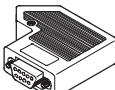
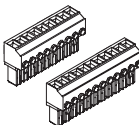
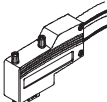

Technical data		
General information		
Max. cable cross section	[mm ²]	0.5
Digital inputs		
Number		8
Nominal voltage	[V DC]	24
Voltage range	[V]	−30 ... +30 (protected against reverse polarity and short circuit proof)
Nominal value for True	[V]	8
Nominal value for False	[V]	2
Input impedance	[kΩ]	4.7
Digital outputs		
Number		8
Nominal voltage	[V DC]	24
Voltage range	[V]	+18 ... +30 (protected against reverse polarity and short circuit proof, protection in the event of thermal overload)
Output current	[mA]	100
Short circuit, overcurrent protection	[mA]	500

Ordering data – Plug-in card			
	Brief description	Part No.	Type
	For additional I/Os (the plugs are included in the scope of delivery. Plug NEKM for reorder → 13.)	567855	CAMC-D-8E8A

Ordering data – Plug-in cards for fieldbus interface			
	Brief description	Part No.	Type
	For Profibus interface	547450	CAMC-PB
	For DeviceNet interface	547451	CAMC-DN
	For Sercos interface	552258	CAMC-SC
	For EtherCat interface	567856	CAMC-EC


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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	552254	NEBC-S1G25-K-2.5N-LE26
	Programming cable	1.5	160786	PS1-ZK11-NULLMODEM-1,5M
	Encoder plug	–	552274	NECC-S-S1G9-C2M
	Plug range for CMMP-AS-...-3A	–	552255	NEKM-C-2 ¹⁾
	Plug range for CMMP-AS-...-11A-P3	–	552256	NEKM-C-3 ¹⁾
	Plug range interface CAMC-D-8E8A	–	569959	NEKM-C-5 ²⁾
	Plug for Profibus interface	–	533780	FBS-SUB-9-WS-PB-K
	Plug for CANopen interface	–	533783	FBS-SUB-9-WS-CO-K
	Plug for DeviceNet interface	–	525635	FBSD-KL-2X5POL

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

2) Plugs are included in the scope of delivery of the interface card CAMC-D-8E8A.

Ordering data – Software and documentation			
	Brief description	Part No.	Type
	Operator package contains: – CD-ROM – with manual 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	558329	PBP-CMMP-AS

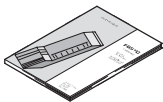
Ordering data – Software for EPLAN			
	Brief description	Part No.	Type
	EPLAN macros for fast and reliable planning of electrical projects in combination with motor controllers, motors and cables. The CD-ROM is not included in the scope of delivery.	572327	GSWC-CD-EP-MC-1-ML

Ordering data – Software and documentation for the curve editor			
	Brief description	Part No.	Type
	Software package contains: – CD-ROM – with manual in de – with additional functions for the cam disc functionality The software package is not included in the scope of delivery	570903	GSPF-CAM-MC-ML

Motor controllers CMMP-AS, for servo motors

Accessories

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Ordering data – Documentation ¹⁾			
	Language	Part No.	Type
		For motor controller CMMP-AS-...-3A	
	DE	557325	P.BE-CMMP-AS-3A-HW-DE
	EN	557326	P.BE-CMMP-AS-3A-HW-EN
	ES	557327	P.BE-CMMP-AS-3A-HW-ES
	FR	557328	P.BE-CMMP-AS-3A-HW-FR
	IT	557329	P.BE-CMMP-AS-3A-HW-IT
	SV	557330	P.BE-CMMP-AS-3A-HW-SV
		Festo Handling and Positioning Profile (FHPP) for the motor controller range CMM...	
	DE	555695	P.BE-CMM-FHPP-SW-DE
	EN	555696	P.BE-CMM-FHPP-SW-EN
	ES	555697	P.BE-CMM-FHPP-SW-ES
	FR	555698	P.BE-CMM-FHPP-SW-FR
	IT	555699	P.BE-CMM-FHPP-SW-IT
	SV	555700	P.BE-CMM-FHPP-SW-SV
		For Profibus interface	
	DE	557337	P.BE-CMMP-FHPP-PB-SW-DE
	EN	557338	P.BE-CMMP-FHPP-PB-SW-EN
	ES	557339	P.BE-CMMP-FHPP-PB-SW-ES
	FR	557340	P.BE-CMMP-FHPP-PB-SW-FR
	IT	557341	P.BE-CMMP-FHPP-PB-SW-IT
	SV	557342	P.BE-CMMP-FHPP-PB-SW-SV
		For DeviceNet interface	
		557349	P.BE-CMMP-FHPP-DN-SW-DE
		557350	P.BE-CMMP-FHPP-DN-SW-EN
		557351	P.BE-CMMP-FHPP-DN-SW-ES
		557352	P.BE-CMMP-FHPP-DN-SW-FR
		557353	P.BE-CMMP-FHPP-DN-SW-IT
		557354	P.BE-CMMP-FHPP-DN-SW-SV
		For CANopen interface	
	DE	557343	P.BE-CMMP-CO-SW-DE
	EN	557344	P.BE-CMMP-CO-SW-EN
	ES	557345	P.BE-CMMP-CO-SW-ES
	FR	557346	P.BE-CMMP-CO-SW-FR
	IT	557347	P.BE-CMMP-CO-SW-IT
	SV	557348	P.BE-CMMP-CO-SW-SV
		For EtherCat interface	
		570923	P.BE-CMMX-EC-SW-DE
		570924	P.BE-CMMX-EC-SW-EN
		570925	P.BE-CMMX-EC-SW-ES
		570926	P.BE-CMMX-EC-SW-FR
		570927	P.BE-CMMX-EC-SW-IT
		570928	P.BE-CMMX-EC-SW-SV
		For Sercos interface	
	DE	557361	P.BE-CMMP-SC-SW-DE
	EN	557362	P.BE-CMMP-SC-SW-EN
	ES	557363	P.BE-CMMP-SC-SW-ES
	FR	557364	P.BE-CMMP-SC-SW-FR
	IT	557365	P.BE-CMMP-SC-SW-IT
	SV	557366	P.BE-CMMP-SC-SW-SV

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

Product Range and Company Overview

A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



Electromechanical
Electromechanical actuators, motors, controllers & drives



Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!

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