

Motor controllers CMMS-ST, for stepper motors

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Key features

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Hardware

- Positioning controller with setpoint specifications for position, speed and torque
- “Servo Lite operation” (closed loop) thanks to encoder option, in other words no step losses, following errors are corrected
- No additional controller (PLC) required for positioning tasks. All necessary functions are integrated
- Integrated braking resistor
- Interfaces:
 - Integrated:
 - Analogue
 - I/O interface
 - CW/CCW
 - Pulse/direction signals
 - A/B signals (encoder)
 - CANopen
 - Optional:
 - Profibus DP
 - DeviceNet

CANopen

PROFIBUS

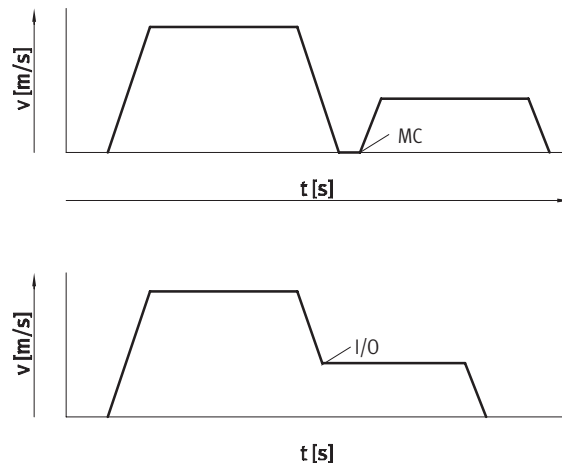
DeviceNet

Software/firmware

- Adjustable current reduction via software
- CANopen protocol as per DS301 with application profile DSP402, including “interpolated position mode” or
- The positioning profile FHPP from Festo
- The motors are sinusoidally actuated across the entire speed range, with a cycle rate of 50 kHz. This guarantees resonance-free, quiet running
- 63 position sets, selectable via I/O signals or fieldbus
- Analogue speed specification with 12-bit resolution
- One of the digital inputs is set up as a high-speed input, response time < 100 µs

Path program

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

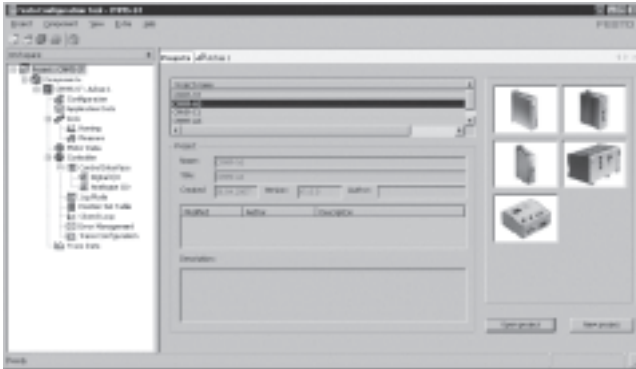


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Key features

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

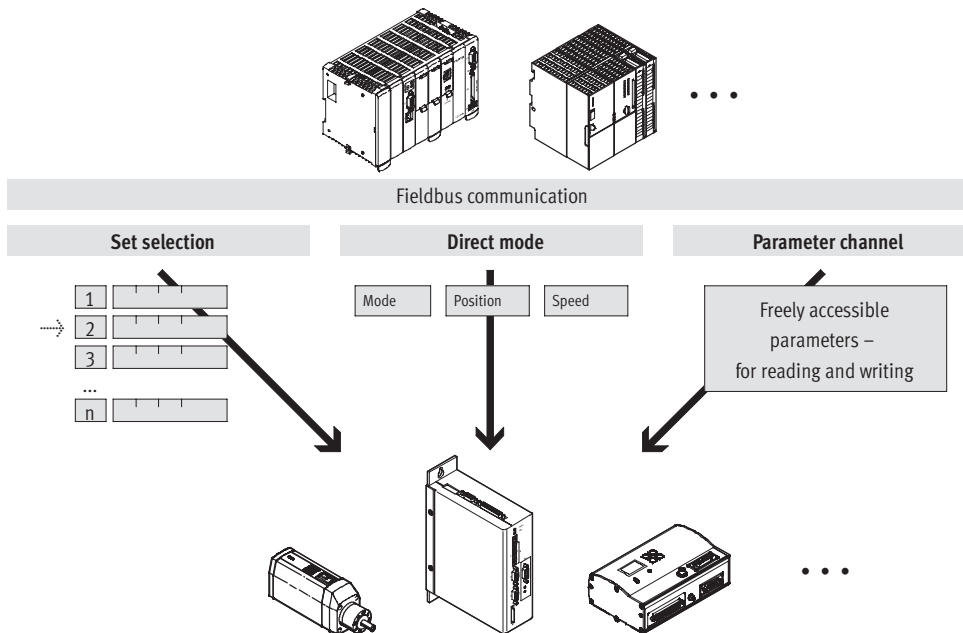
Optimised data profile

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



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Type codes

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		CMMS	—	ST	—	C8	—	7
Type								
CMMS	Motor controller, standard							
Motor type								
ST	Stepper motor							
Motor current								
C8	Nominal current, 8 A							
Nominal voltage								
7	Voltage, 48 V DC							

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Technical data

Fieldbus interfaces

CANopen
PROFIBUS
DeviceNet


General technical data		
Type of mounting	Screwed to a mounting plate	
Operating mode	PWM MOSFET power amplifier	
Motor actuation	Sinusoidal current impressing	
Cycle rate	[kHz]	Constant 50
Rotary position generator	Encoder	
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	
	RS422	
Encoder interface output	Setpoint specification for downstream slave drive	
Brake resistor, integrated	[Ω]	17
Pulse power of braking resistor	[kVA]	0.5
Impedance of setpoint input	[kΩ]	20
Operating range of analogue outputs	[V]	±10
Operating range of analogue inputs	[V]	±10
Number of analogue outputs	1	
Number of analogue inputs	1	
Characteristics of digital logic outputs	Freely configurable in some cases	
Mains filter	Integrated	
Product weight	[g]	2,000

Technical data – Fieldbus interface				
Interfaces	I/O	CANopen	Profibus DP	DeviceNet
Communication profile	–	DS301, FHPP	DP-V0 / FHPP	FHPP
	–	DS301, DSP402	Step7 functional modules	
Max. fieldbus transmission rate	[Mbit/s]	1	12	0.5

Electrical data		
General		
Nominal current setting	Via software	
Max. peak current duration	[s]	2
Max. intermediate circuit voltage	[V DC]	75
Load supply		
Nominal voltage	[V DC]	24 ... 75
Nominal current	[A]	8
Peak current	[A]	12
Logic supply		
Nominal voltage	[V DC]	24 ±20%
Nominal current	[A]	0.3
Max. current of digital logic outputs	[mA]	100

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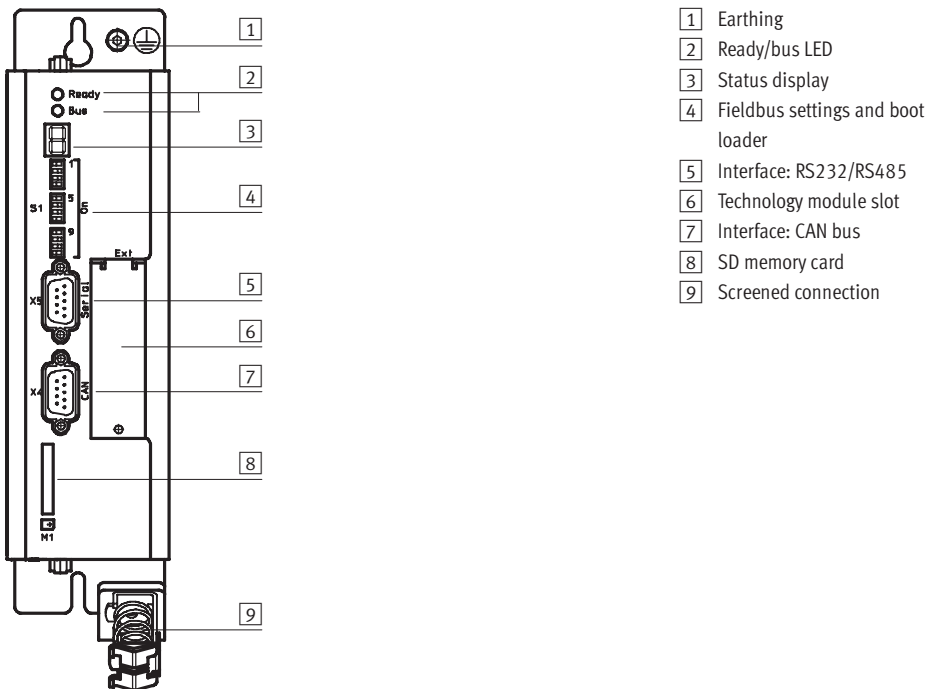
Technical data

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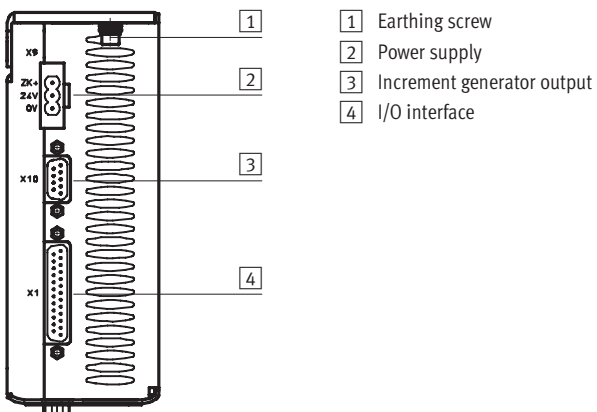
Operating and environmental conditions		
Digital logic outputs		Not electrically separated
Logic inputs		Electrically separated
Protection class		IP20
Protective function		I ² t monitoring
		Current monitoring
		Voltage failure detection
		Following error monitoring
		Temperature monitoring
Ambient temperature	[°C]	0 ... +50
Storage temperature	[°C]	-25 ... +70
CE mark (see declaration of conformity)		To EU EMC Directive
Relative humidity	[%]	0 ... 90 (non-condensing)

View of motor controller

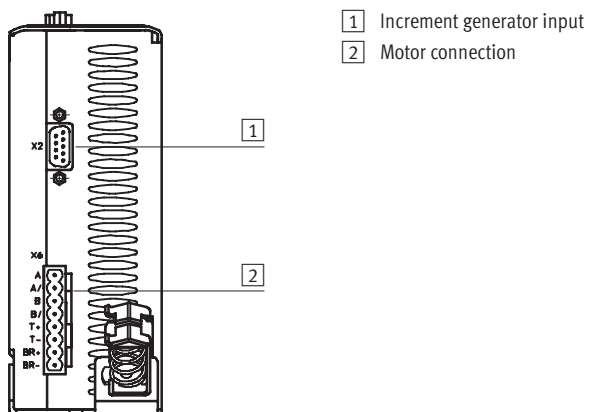
From the front



From above



From underneath

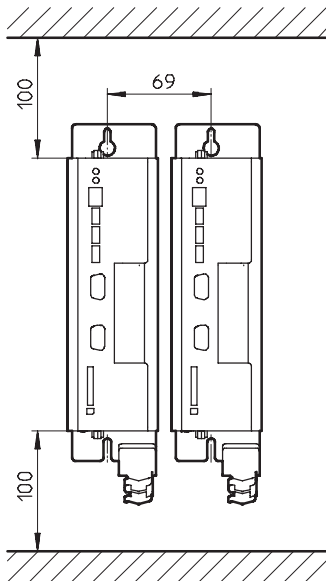


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Technical data

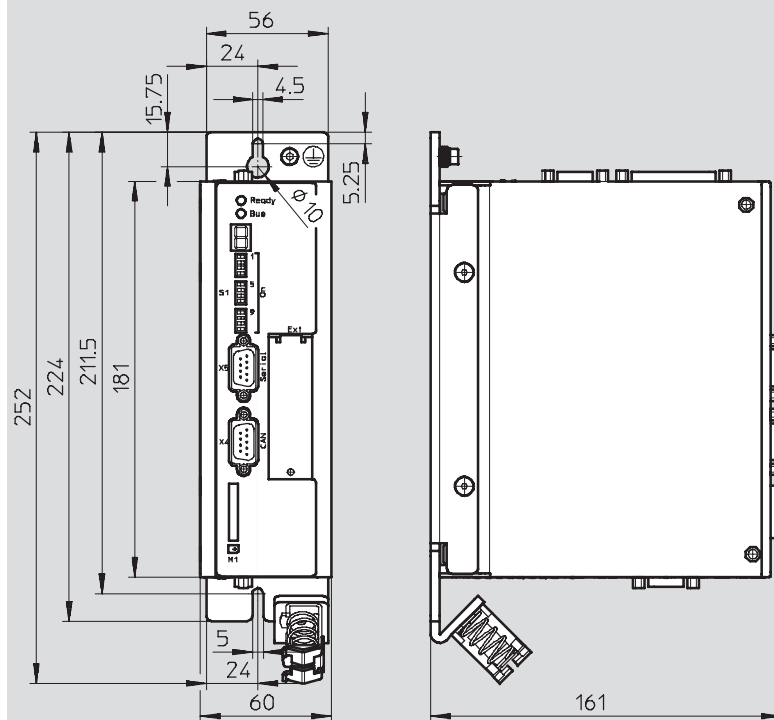
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Installation clearance for motor controller

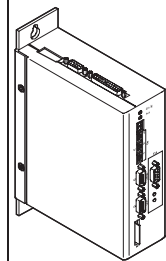


Dimensions

Download CAD data → www.festo.com



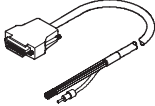
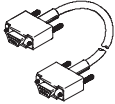
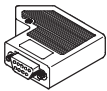
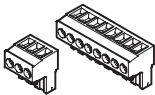
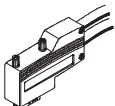
Ordering data

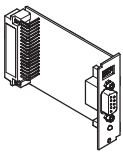
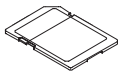
	Brief description	Part No.	Type
	The plug range NEKM (→ 8) and the operating package (→ 9) are included in the scope of delivery.	547 454	CMMS-ST-C8-7

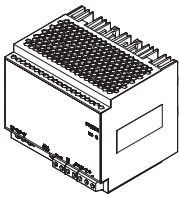
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Accessories

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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, comprising plug for power supply and plug for motor connection. The plug range is included in the scope of delivery	–	547 452	NEKM-C-1
	Plug for Profibus interface	–	533 780	FBS-SUB-9-WS-PB-K
	Plug for DeviceNet interface	–	525 635	FBSD-KL-2X5POL

Ordering data – Plug-in cards			
	Brief description	Part No.	Type
	Interface, for Profibus interface	547 450	CAMC-PB
	Interface, for DeviceNet interface	547 451	CAMC-DN
	Memory card, for data backup and firmware downloads	560 626	CAMC-M-S-F1-V1

Ordering data – Power supply units					
	Brief description	Input voltage range [V AC]	Nominal output voltage [V DC]	Nominal output current [A]	Part No. Type
	Power supply for motor controller	100 ... 240	24	5	547 867 SVG-1/230VAC-24VDC-5A
				10	547 868 SVG-1/230VAC-24VDC-10A
			48	5	542 403 SVG-1/230VAC-48VDC-5A
				10	542 404 SVG-1/230VAC-48VDC-10A
		400 ... 500		20	542 405 SVG-3/400VAC-48VDC-20A

 **Note**

If a common power supply unit is used to supply the power section and the control section, the voltage tolerances for the supply to the control section cannot be maintained at high braking power. This can result in damage to the control section.

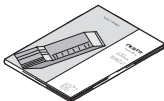
Always use separate power supply units to supply the power section and the control section.

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Ordering data – Software and documentation			
	Brief description	Part No.	Type
	Operating package contains: – CD-ROM – with user documentation for CMMS-ST, 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	558 330	P.BP-CMMS-ST

Ordering data – Documentation ¹⁾					
	Language	Part No. Type		Part No. Type	
		for motor controller		Festo Handling and Positioning Profile (FHPP) for the motor controller family CMM...	
	DE	554 339	P.BE-CMMS-ST-HW-DE	555 695	P.BE-CMM-FHPP-SW-DE
	EN	554 340	P.BE-CMMS-ST-HW-EN	555 696	P.BE-CMM-FHPP-SW-EN
	ES	554 341	P.BE-CMMS-ST-HW-ES	555 697	P.BE-CMM-FHPP-SW-ES
	FR	554 342	P.BE-CMMS-ST-HW-FR	555 698	P.BE-CMM-FHPP-SW-FR
	IT	554 343	P.BE-CMMS-ST-HW-IT	555 699	P.BE-CMM-FHPP-SW-IT
	SV	554 344	P.BE-CMMS-ST-HW-SV	555 700	P.BE-CMM-FHPP-SW-SV
		for CANopen interface		for Profibus interface	
	DE	554 351	P.BE-CMMS-CO-SW-DE	554 345	P.BE-CMMS-FHPP-PB-SW-DE
	EN	554 352	P.BE-CMMS-CO-SW-EN	554 346	P.BE-CMMS-FHPP-PB-SW-EN
	ES	554 353	P.BE-CMMS-CO-SW-ES	554 347	P.BE-CMMS-FHPP-PB-SW-ES
	FR	554 354	P.BE-CMMS-CO-SW-FR	554 348	P.BE-CMMS-FHPP-PB-SW-FR
	IT	554 355	P.BE-CMMS-CO-SW-IT	554 349	P.BE-CMMS-FHPP-PB-SW-IT
	SV	554 356	P.BE-CMMS-CO-SW-SV	554 350	P.BE-CMMS-FHPP-PB-SW-SV
		for DeviceNet interface			
	DE	554 357	P.BE-CMMS-FHPP-DN-SW-DE		
	EN	554 358	P.BE-CMMS-FHPP-DN-SW-EN		
	ES	554 359	P.BE-CMMS-FHPP-DN-SW-ES		
	FR	554 360	P.BE-CMMS-FHPP-DN-SW-FR		
	IT	554 361	P.BE-CMMS-FHPP-DN-SW-IT		
	SV	554 362	P.BE-CMMS-FHPP-DN-SW-SV		

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