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Motor controllers CMMS-ST, for stepper motors

FESTO



- Servo Lite thanks to encoder option
- Travel program through linking of positioning records
- CANopen fieldbus interface integrated, others available as an option

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Motor controllers CMMS-ST, for stepper motors

Key features

Hardware

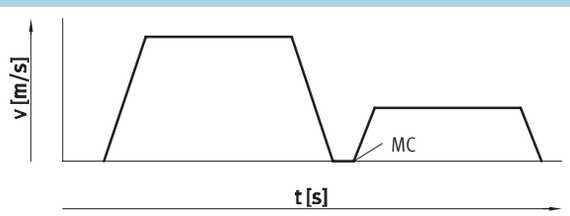
- Positioning controller with setpoint specifications for positions, rotational speed and torque
- "Servo Lite operation" (closed loop) thanks to encoder option, in other words no step losses, current following errors are corrected
- No additional controller (PLC) required for positioning tasks. All 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

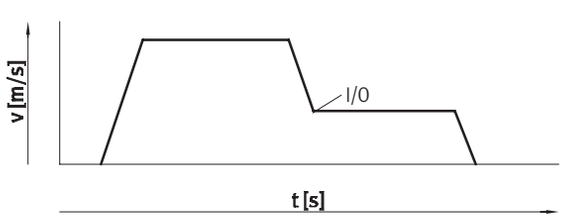
Software/firmware

- Adjustable current reduction via software
- CANopen protocol as per DS301 with application profile DSP402, including "interpolated position mode" or
- The FHPP positioning profile from Festo
- The motors are sinusoidally actuated across the entire rotational speed range, with a cycle rate of 50 kHz. This guarantees resonance-free, quiet running
- 63 positioning records, 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

Travel program

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





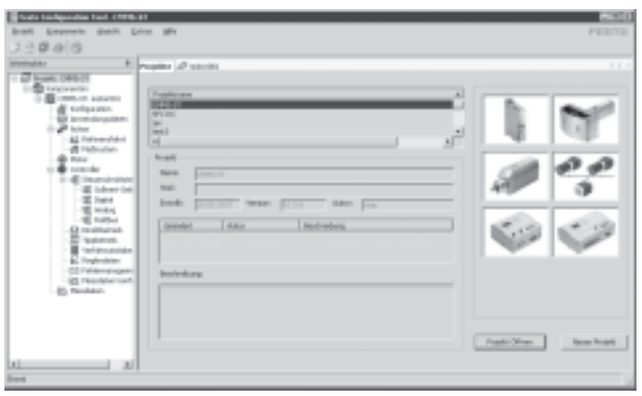
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Motor controllers CMMS-ST, for stepper motors

Key features

FCT software – Festo Configuration Tool

Software platform for electric drives from Festo



- All the 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

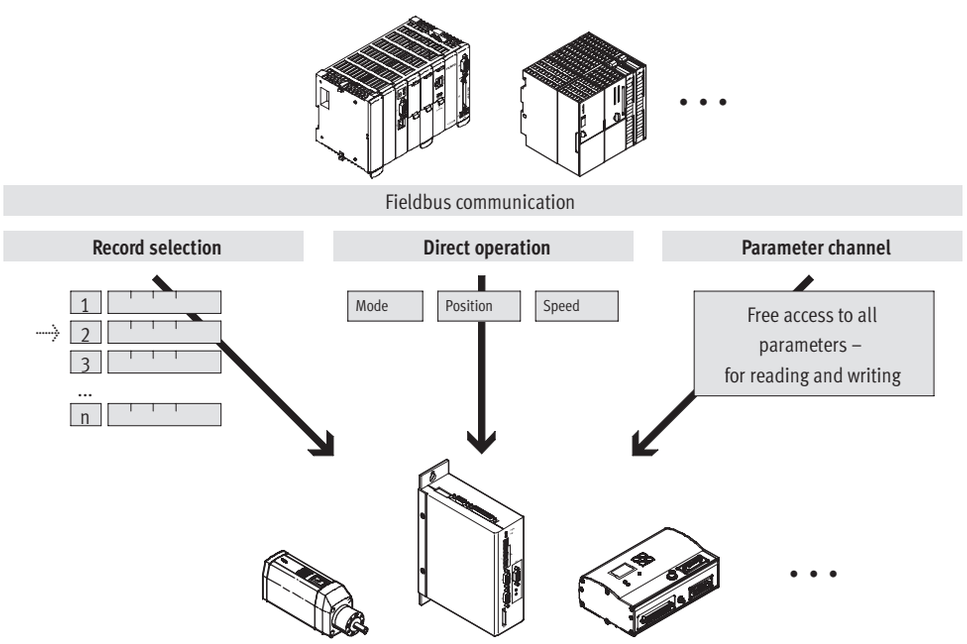
FHPP – Festo Handling and Positioning Profile

Optimised data profile

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

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

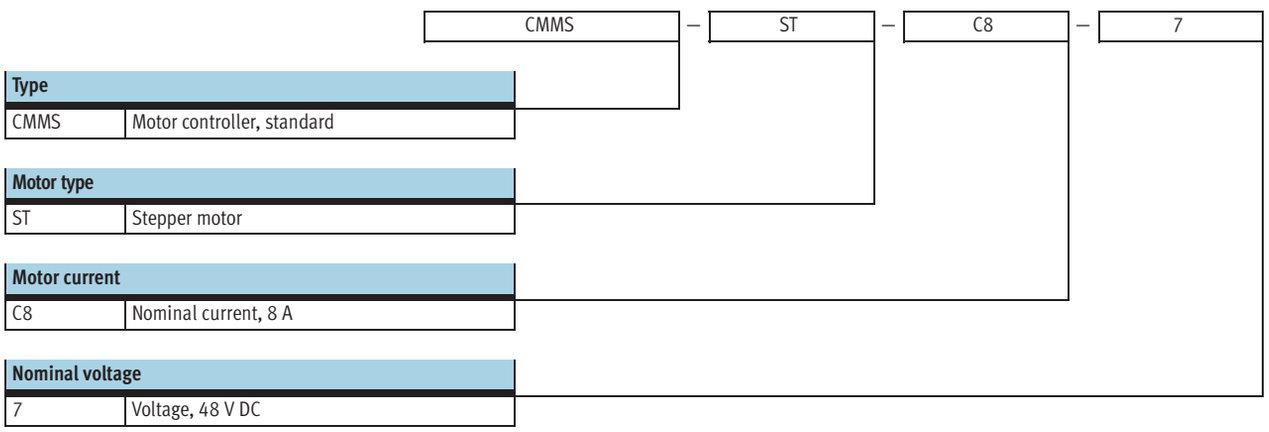
The following are defined, among others:
- Operating modes
- I/O data structure
- Parameter objects
- Sequence control



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Type codes



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Motor controllers CMMS-ST, for stepper motors

Technical data

FESTO

Fieldbus interfaces

CANopen

PROFIBUS

DeviceNet



General technical data					
Interfaces		I/O	CANopen	Profibus DP	DeviceNet
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		RS422			
Communication profile		–	DS301, FHPP	DP-V0 / FHPP	FHPP
		–	DS301, DSP402	Step7 functional modules	
Braking resistor	[Ω]	17			
		Integrated			
Impedance of setpoint input	[kΩ]	20			
Pulse power of braking resistor	[kVA]	0.5			
Working range of monitor outputs	[V]	±10			
Working range of setpoint inputs	[V]	±10			
Number of analogue monitor outputs		1			
Number of analogue setpoint inputs		1			
Mains filter		Integrated			
Product weight	[g]	2,000			

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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Motor controllers CMMS-ST, for stepper motors

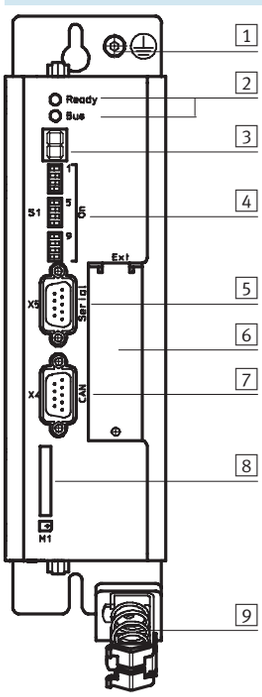
Technical data

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Operating and environmental conditions		
Digital logic outputs		Not electrically isolated
Logic inputs		Electrically isolated
Protection class		IP20
Protective function		I^2t monitoring
		Current monitoring
		Voltage failure detection
		Current following error monitoring
		Temperature monitoring
Ambient temperature	[°C]	0 ... +50
CE mark (see declaration of conformity)		In accordance with EU EMC directive
Relative air humidity	[%]	0 ... 90 (non-condensing)

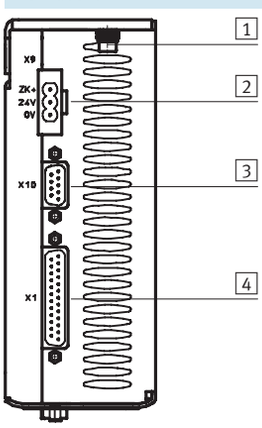
View of motor controller

From the front



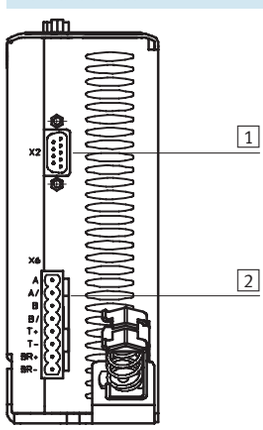
1 Earthing
2 Ready/Bus – LED
3 Status display
4 Fieldbus settings and boot loader
5 Interface: RS232/RS485
6 Technology module (optional)
7 Interface: CAN bus
8 SD memory card
9 Screened connection

From above



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

From underneath



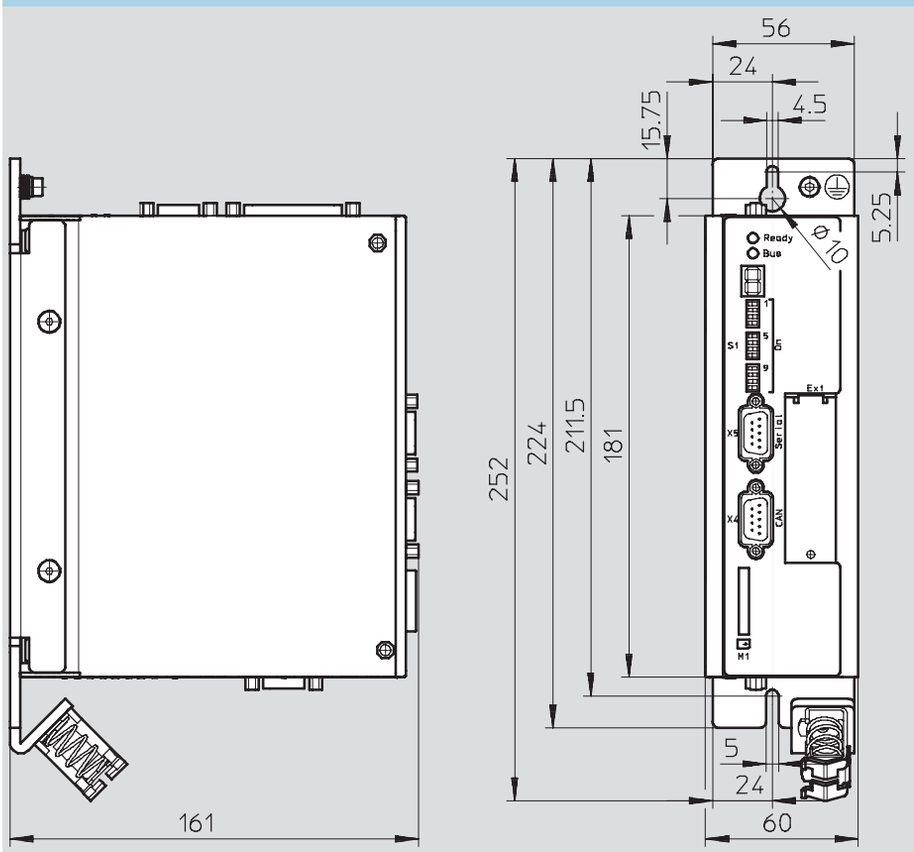
1 Increment generator input
2 Motor connection

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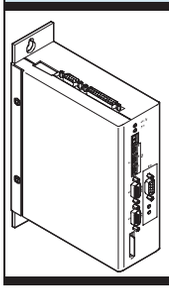
Motor controllers CMMS-ST, for stepper motors

Technical data

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



Ordering data

	Brief description	Part No.	Type
	The plug range NEKM (➔ 82) and the operator package (➔ 83) are included in the scope of delivery for the motor controller.	**547 454**	**CMMS-ST-C8-7**

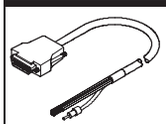
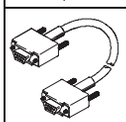
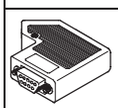
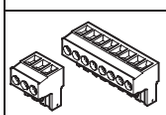
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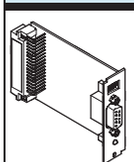
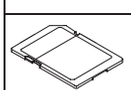
Accessories

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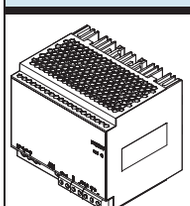
Ordering data – Cables and plugs

	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 types, 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**

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	**547 453**	**CAMC-M-S**

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

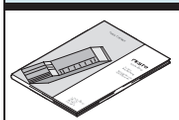
If a common power supply unit is used to supply the power section and the control section, the voltage tolerances for the supply to the control section cannot be adhered to at high braking energies. This can result in the destruction of the control section. Always use separate power supply units to supply the power section and the control section.

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Motor controllers CMMS-ST, for stepper motors

Accessories

Ordering data – Software and documentation			
	Brief description	Part No.	Type
	Operator package contains: – CD-ROM – with user documentation for CMMS-ST, in the languages de, en, es, fr, it, sv – with configuration software FCT (Festo Configuration Tool), in the languages 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

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