Motor controllers CMMO-ST

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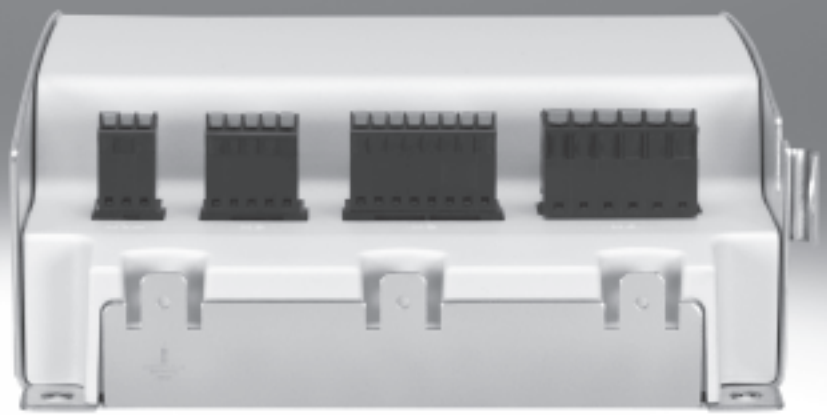


New

Motor controllers CMMO-ST

Key features

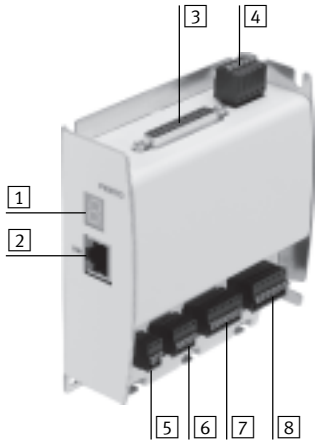
At a glance

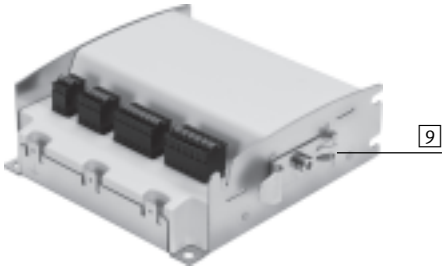
- The motor controller CMMO-ST serves as a closed-loop and open-loop position controller
- Separate load and logic supply
- Supports the "Safe Torque Off" (STO) safety function
- Easy actuation via:
  – I/O interface
- Monitoring of freely definable position zones
- Backup file enables seamless device replacement
- H-rail mounting possible
- Encoder option (closed loop), in other words no step losses, following errors are corrected

Parameterisation possible via:

- FCT (Festo Configuration Tool) configuration package
- Ethernet interface with integrated web server

Description of the interfaces





1 7-segment display
2 Ethernet interface (RJ45)
3 I/O interface
4 Power supply
5 Reference switch
6 STO safety function
7 Encoder
8 Motor
9 Mounting bracket to fit onto an H-rail

For actuating

Electric cylinder EPCO

Stepper motor EMMS-ST

Motor controllers CMMO-ST

Key features

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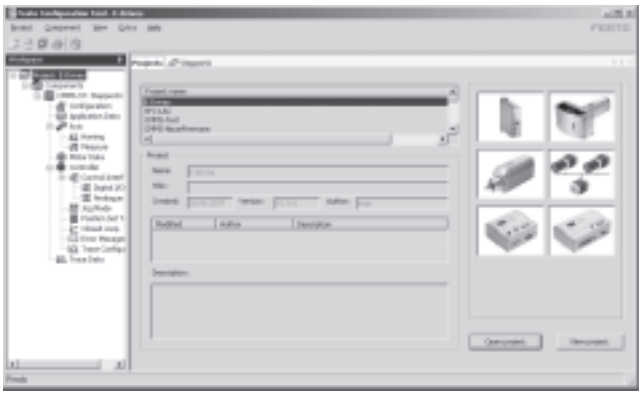
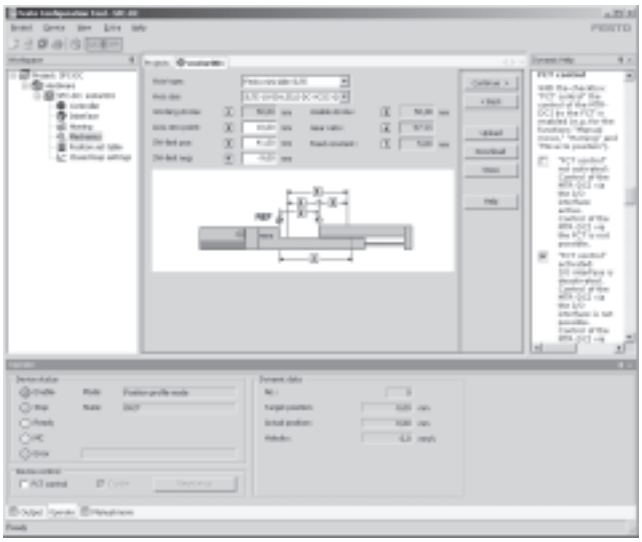
FCT software – Festo Configuration Tool

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
- Work offline at your desk or online at the machine

Mechanical reference positions and limit positions



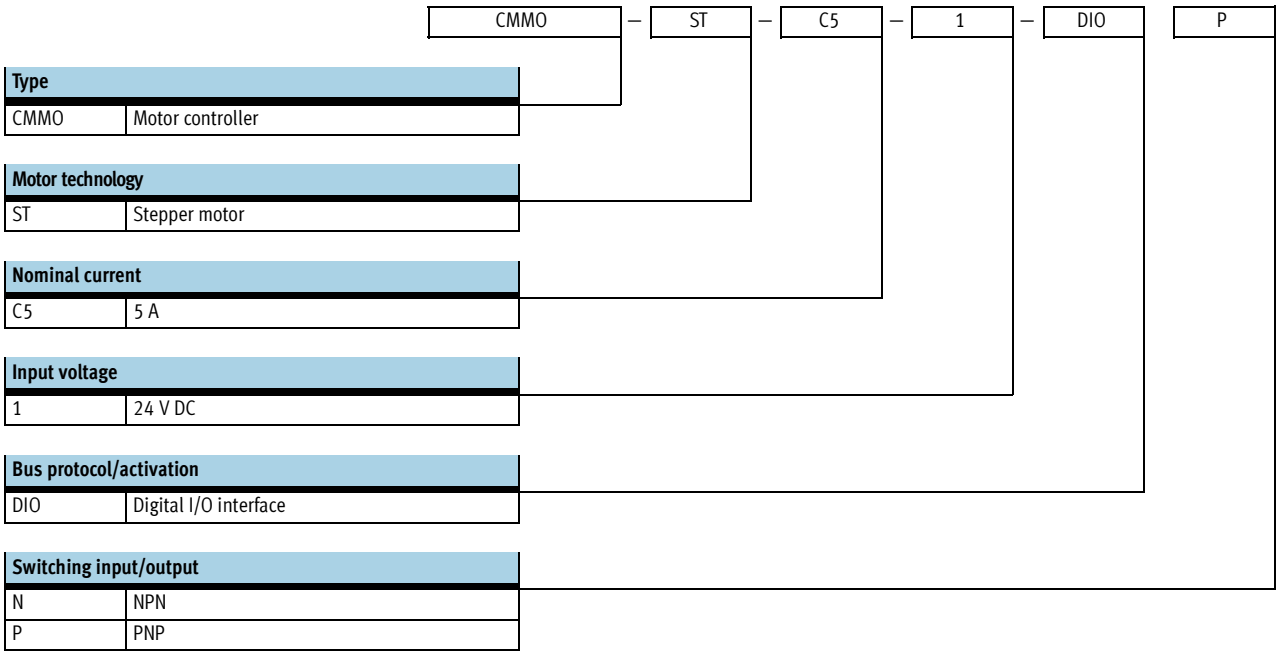
- Reference positions can be either edited or taught in
- Flexible adaptation to installation conditions
- Settings are displayed clearly

Positioning record table

- 31 positioning records ensure flexibility in positioning
- Absolute or relative positioning values can be used
- The following parameters can be set flexibly for each application:
  - Position
  - Speed
  - Acceleration
  - Braking ramps
- Force control
- Complete function test

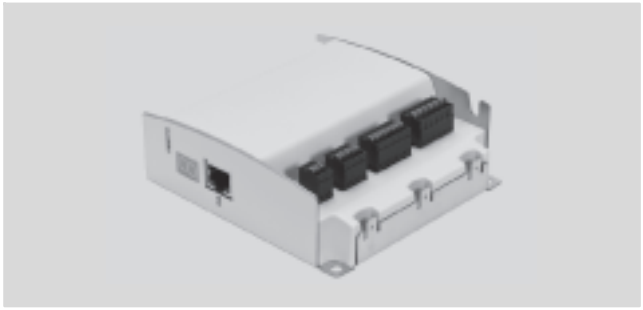
Motor controllers CMMO-ST

Type codes



Motor controllers CMMO-ST

Technical data



General technical data		
Mode		Cascade controller with
		PI speed controller
		PI current controller
		P position controller
		PWM MOSFET power end stage
Operating mode		
Open-loop operation		Micro step, 12,800 steps/rev
Closed-loop operation		Sinusoidal current control, within the cascade controller
Rotary position encoder		Encoder
Display		7-segment display
Parameterisation interface		Ethernet
Ethernet, supported protocols		TCP/IP
Encoder interface input		RS422
Process coupling		I/O coupling for 32 positioning records
Number of digital logic inputs		11
Number of digital logic outputs		11
Characteristics of digital logic outputs		Freely configurable in some cases
Adjustable current reduction		Via software
Nominal current setting		Via software
Braking resistor	[Ω]	15
Pulse power of braking resistor	[kVA]	0.1
Mains filter		Integrated
Type of mounting		Screwed onto connecting plate, lying down or upright
		Via H-rail
Product weight	[g]	290

Electrical data		
General		
Max. intermediate circuit voltage	[V DC]	28
Nominal output current	[A]	5.7
Load supply		
Nominal voltage	[V DC]	24 ±15%
Nominal current	[A]	6
Peak current	[A]	8
Logic supply		
Nominal voltage	[V DC]	24 ±15%
Nominal current	[A]	0.3
Operating range of logic input	[V]	24
Max. current per output (digital logic outputs)	[mA]	100
Switching logic, input/output		
CMMO-ST-...-DIOP		PNP
CMMO-ST-...-DION		NPN

Motor controllers CMMO-ST

Technical data

Safety characteristics	
Conforms to	EN ISO 13849-1
Safety function	Safe Torque Off (STO)
Performance level (PL)	STO / Cat. 3, PLe
Safety integrity level (SIL)	STO / SIL 3
CE marking (see declaration of conformity)	To EU EMC Directive[1)]
	To EU Machinery Directive
Shock resistance	As per EN 60068-2-29
Vibration resistance	As per EN 60068-2-6

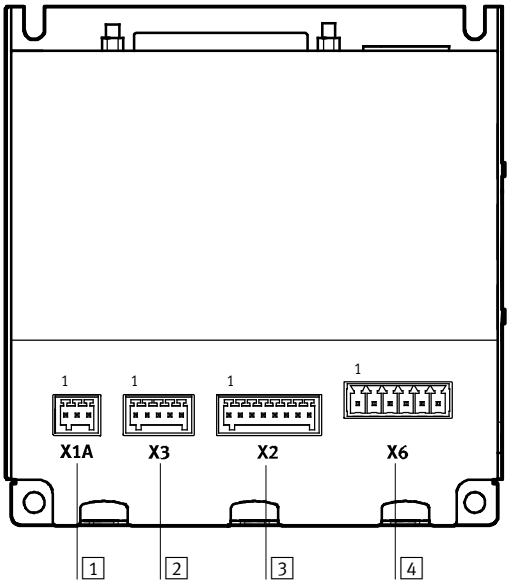
1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com → Support → User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures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

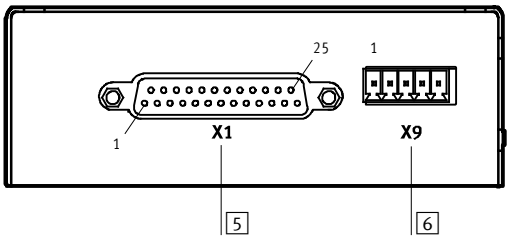
Operating and environmental conditions		
Characteristics of digital logic outputs		Not galvanically isolated
Characteristics of logic inputs		Galvanically connected to logic potential
Logic input specification		Based on IEC 61131-2
Protection class		IP40
Protective function		I^2t monitoring
		Following error monitoring
		Software end-position detection
		Voltage failure detection
		Current monitoring
		Temperature monitoring
Ambient temperature	[°C]	0 ... +50
UL ambient temperature	[°C]	0 ... +40
Storage temperature	[°C]	−25 ... +75
Relative air humidity	[%]	0 ... 90 (non-condensing)
Certification		cULus listed (OL)
		C-Tick
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

Motor controllers CMMO-ST

Technical data

Pin allocation





1 Reference switch	
Pin	Function
1	+24 V (logic output)
2	Signal
3	0 V

2 STO safety function	
Pin	Function
1	+24 V (logic output)
2	STO 1
3	STO 2
4	Diagnostics 1
5	Diagnostics 2

3 Encoder	
Pin	Function
1	A
2	A/
3	B
4	B/
5	N
6	N/
7	+5 V (output)
8	0 V

4 Motor	
Pin	Function
1	String A
2	String A/
3	String B
4	String B/
5	Brake +24 V (switched output)
6	Brake 0 V

5 I/O interface, 25-pin Sub-D plug	
Pin	Function
1	Input 1
2	Input 2
3	Input 3
4	Input 4
5	Input 5
6	Input 6
7	Input 7
8	Input 8
9	Input 9
10	Input 10
11	Input 11
12	Output 1
13	Output 2
14	Output 3
15	Output 4
16	Output 5
17	Output 6
18	Output 7
19	Output 8
20	Output 9
21	Output 10
22	Output 11
23	n.c.
24	+24 V (logic output)
25	0 V

6 Power supply	
Pin	Function
1	n.c.
2	n.c.
3	+24 V (logic)
4	0 V
5	+24 V (load)

Motor controllers CMMO-ST

Technical data

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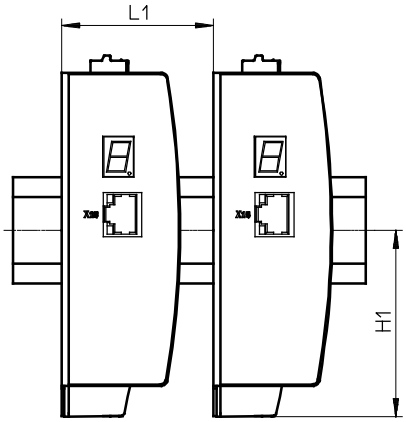
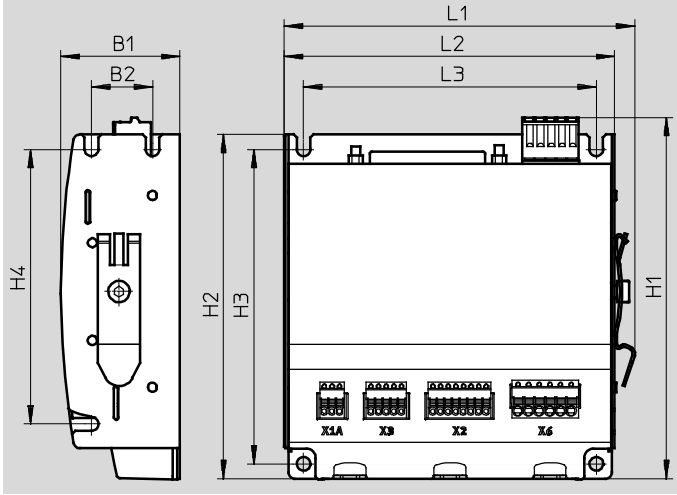
Minimum distance between two motor controllers



Type	L1	H1
CMMO-ST-...	41	61.35

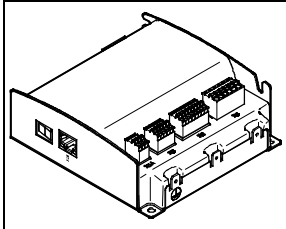
Dimensions

Download CAD data ➔ **www.festo.com**



Type	B1	B2	H1	H2	H3	H4	L1	L2	L3
CMMO-ST-...	39	20	118.7	113.1	103.1	90	115	108.8	96

Ordering data

Motor controller	Brief description	Part No.	Type
	With I/O interface		
	Switching input/output PNP	**1512316**	**CMMO-ST-C5-1-DIOP**
	Switching input/output NPN	**1512317**	**CMMO-ST-C5-1-DION**

Motor controllers CMMO-ST

Accessories

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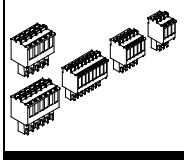
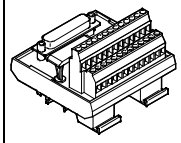
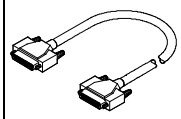
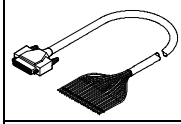
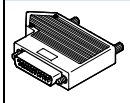
Ordering data			
	Description	Part No.	Type
Plug			
	Plug assortment for motor cable, encoder cable, power supply, reference switch, STO safety function	**576005**	**NEKM-C-10**[2]

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

Ordering data – Connection options from I/O interface to controller				
	Description	Cable length [m]	Part No.	Type
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**
Control cable				
	Is connected to the motor controller. The other end comprises individual flying leads	3.2	**8001373**	**NEBC-S1G25-K-3.2-N-LE25**
Plug				
	25-pin sub-D plug. Each wire can be individually assembled using screw terminals	–	**8001372**	**NEFC-S1G25-C2W25-S6**

Motor controllers CMMO-ST

Accessories

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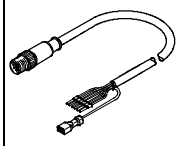
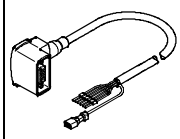
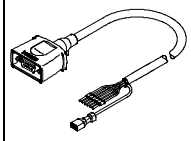
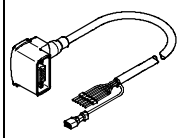
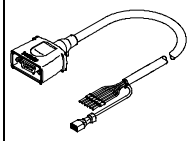
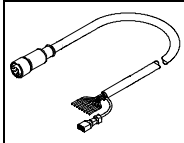
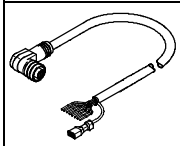
Ordering data – Cables[1]					
	For type	Description	Cable length [m]	Part No.	Type
Motor cable					
	EPCO-16 EMMS-ST-28	Straight plug – Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1449600**	**NEBM-M12G8-E-1.5-Q5-LE6**
			2.5	**1449601**	**NEBM-M12G8-E-2.5-Q5-LE6**
			5	**1449602**	**NEBM-M12G8-E-5-Q5-LE6**
			7	**1449603**	**NEBM-M12G8-E-7-Q5-LE6**
			10	**1449604**	**NEBM-M12G8-E-10-Q5-LE6**
	EPCO-25/-40 EMMS-ST-42/-57	Angled plug – Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1450736**	**NEBM-S1W9-E-1.5-Q5-LE6**
			2.5	**1450737**	**NEBM-S1W9-E-2.5-Q5-LE6**
			5	**1450738**	**NEBM-S1W9-E-5-Q5-LE6**
			7	**1450739**	**NEBM-S1W9-E-7-Q5-LE6**
			10	**1450740**	**NEBM-S1W9-E-10-Q5-LE6**
		Straight plug – Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1450368**	**NEBM-S1G9-E-1.5-Q5-LE6**
			2.5	**1450369**	**NEBM-S1G9-E-2.5-Q5-LE6**
			5	**1450370**	**NEBM-S1G9-E-5-Q5-LE6**
			7	**1450371**	**NEBM-S1G9-E-7-Q5-LE6**
			10	**1450372**	**NEBM-S1G9-E-10-Q5-LE6**
	EMMS-ST-87	Angled plug – Min. bending radius: 80 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1450943**	**NEBM-S1W15-E-1.5-Q7-LE6**
			2.5	**1450944**	**NEBM-S1W15-E-2.5-Q7-LE6**
			5	**1450945**	**NEBM-S1W15-E-5-Q7-LE6**
			7	**1450946**	**NEBM-S1W15-E-7-Q7-LE6**
			10	**1450947**	**NEBM-S1W15-E-10-Q7-LE6**
		Straight plug – Min. bending radius: 80 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1450834**	**NEBM-S1G15-E-1.5-Q7-LE6**
			2.5	**1450835**	**NEBM-S1G15-E-2.5-Q7-LE6**
			5	**1450836**	**NEBM-S1G15-E-5-Q7-LE6**
			7	**1450837**	**NEBM-S1G15-E-7-Q7-LE6**
			10	**1450838**	**NEBM-S1G15-E-10-Q7-LE6**
Encoder cable					
	EPCO-16/-25/-40 EMMS-ST-28/-42/ -57/-87	Straight plug – Min. bending radius: 68 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1451586**	**NEBM-M12G8-E-1.5-LE8**
			2.5	**1451587**	**NEBM-M12G8-E-2.5-LE8**
			5	**1451588**	**NEBM-M12G8-E-5-LE8**
			7	**1451589**	**NEBM-M12G8-E-7-LE8**
			10	**1451590**	**NEBM-M12G8-E-10-LE8**
	EPCO-25/-40 EMMS-ST-42/-57/-87	Angled plug – Min. bending radius: 68 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1451674**	**NEBM-M12W8-E-1.5-LE8**
			2.5	**1451675**	**NEBM-M12W8-E-2.5-LE8**
			5	**1451676**	**NEBM-M12W8-E-5-LE8**
			7	**1451677**	**NEBM-M12W8-E-7-LE8**
			10	**1451678**	**NEBM-M12W8-E-10-LE8**

1) Other cable lengths on request.