

# Control block CPX-CMXX



## Control block CPX-CMXX

Key features

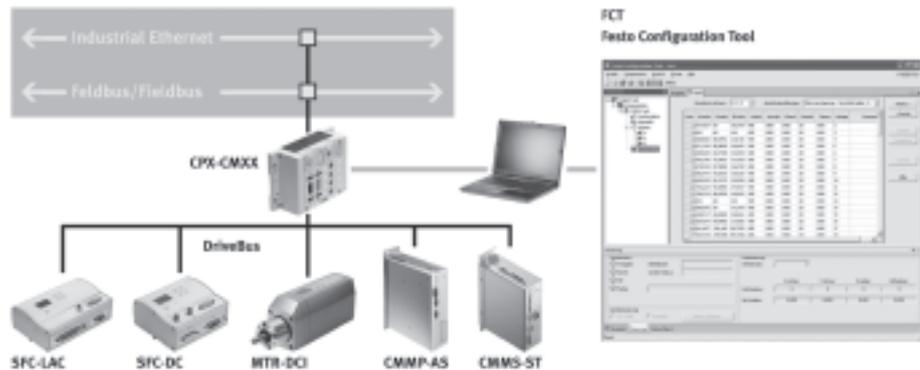
### Co-ordinated movement of multiple electrical axes

The control block CPX-CMXX is an intelligent module in the CPX terminal for controlling electric drive units from Festo.

Both individual axis movements and co-ordinated movements can be controlled via CAN bus. Cartesian kinematic systems are supported.

With just a small number of control signals from a higher-order controller or a control unit in the CPX terminal, the control block co-ordinates the entire motion sequence.

Two axes groups with max. four axes per group can be controlled.



### Advantages for users

#### Simple, yet efficient

CPX-CMXX provides a PLC-compatible interface for multi-dimensional axis control within the CPX system. This is achieved physically via various fieldbus nodes for easy adaptation to the general control technology.

#### Convenient

- The control block does not have to be programmed, but instead receives the sequence via parameterisation or teach-in.
- Easy application configuration with the Festo Configuration Tool (FCT).
- There are 1024 position sets available per axes group.
- Operating function in the FCT for commissioning without connection to the controller.
- Preliminary test of the application is possible without controller.

#### Flexible

Different operating modes guarantee universal use of the control block.

- Record Select mode: the user can simply select the record number of the position set and the control block takes care of the motion sequence.
- Direct mode: with the higher-order controller, position values, speed and acceleration are assigned to the individual axes and loaded in a selected position set. The position set is executed as in Record Select mode.

#### Optimised

Co-ordinated movement in conjunction with the CPX-CMXX means:

- Synchronous movement: the values for movement of the axes are calculated so that the axes reach their destination simultaneously.
- Linking: position sets can be executed in sequence without an additional start signal.

## Control block CPX-CMXX

Technical data

**FESTO**

The control block CPX-CMXX is an intelligent module in the CPX terminal for controlling electric drive units. Individual axis and simple multi-axis applications can easily be implemented. Programming is not necessary. Configuration, parameterisation and commissioning of the application is easily achieved with the Festo Configuration Tool (FCT).

- Configuration of two axes groups with up to four axes each is possible
- There are 1024 position sets available per axes group
- Input or teach-in of positions in specified set structure
- Parameterisation via Ethernet
- Communication protocol: FHPP-MAX, Festo handling and positioning profile for multi-axis movements.
- Control of drive units via CANopen



General technical data	
Protocol	FHPP-Max
Maximum address volume for inputs [byte]	16
Maximum address volume for outputs [byte]	16
LED displays (bus-specific)	RUN: Program is executed
	STOP: Program is stopped
	ERR: Error in the program execution
	TP: Status of Ethernet connection
LED displays (product-specific)	M: Modify, parameterisation
	PS: Electronic supply, sensor supply
Device-specific diagnostics	Diagnostic memory
	Channel and module-oriented diagnostics
	Undervoltage/short circuit of modules
Parameterisation	System parameters
Operating elements	Rotary switch for RUN/STOP
Configuration support	Festo Configuration Tool (FCT)
Additional functions	System status can be displayed using process data
	Additional diagnostic interface for FCT
Supported kinematic system	2-axis gantries (X-Z / Y-Z / X-Y)
	3-axis gantries (X-Y-Z)
Total number of axes	8
Distribution of axes	2 groups with max. 4 axes
Nominal operating voltage [V DC]	24
Operating voltage range [V DC]	18 ... 30
Power failure bridging [ms]	10
Intrinsic current consumption at nominal operating voltage [mA]	Typ. 85
Protection class to EN 60529	IP65/IP67
Dimensions W x L x H (including interlinking block) [mm]	50 x 107 x 55
Product weight [g]	155
<b>Materials</b>	
Housing	Reinforced polyamide, polycarbonate
Note on materials	RoHS-compliant

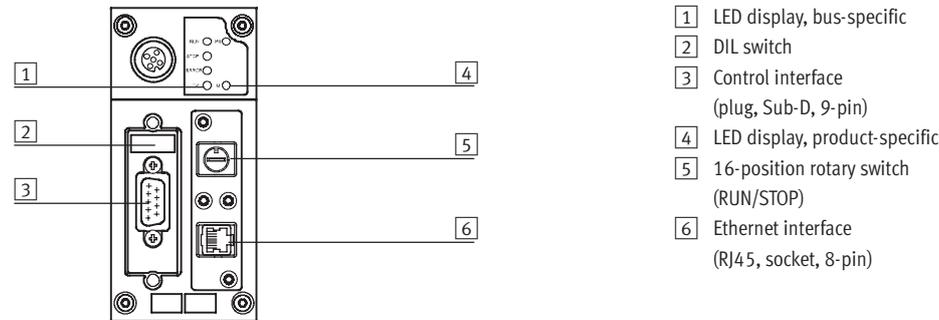
# Control block CPX-CMXX

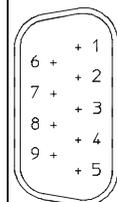
Technical data

Technical data – Interfaces		
Ethernet		
Ethernet interface		Socket RJ45, 8-pin, for configuration only
Baud rate	[Mbit/s]	10/100
Interface		
Control interface		CAN bus
Baud rate	[Mbit/s]	1

Operating and environmental conditions		
Ambient temperature	[°C]	-5 ... +50
Storage temperature	[°C]	-20 ... +70
Certification		cULus listed (OL)
CE mark (see declaration of conformity)		To EU Low Voltage Directive

## Connection and display components

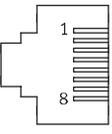


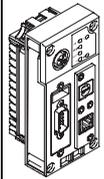
Pin allocation – Control interface			
	Pin	Signal	Meaning
Sub-D plug			
	1	n.c.	Not connected
	2	CAN_L	CAN low
	3	CAN_GND	CAN ground
	4	n.c.	Not connected
	5	CAN_SHLD	Connection to functional earth (FE)
	6	CAN_GND	CAN ground (optional) <sup>1)</sup>
	7	CAN_H	CAN high
	8	n.c.	Not connected
	9	n.c.	Not connected
	Housing	Screened	Plug housing must be connected to FE

1) If a drive controller is connected to an external power supply, CAN ground (optional), pin 6, cannot be used on the CPX-CMXX.

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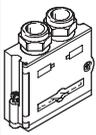
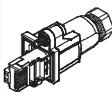
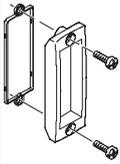
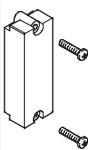
Technical data

Pin allocation – Ethernet interface			
	Pin	Signal	Meaning
Plug RJ45			
	1	TD+	Transmitted data+
	2	TD-	Transmitted data-
	3	RD+	Received data+
	4	n.c.	Not connected
	5	n.c.	Not connected
	6	RD-	Received data-
	7	n.c.	Not connected
	8	n.c.	Not connected
	Housing	Screened	Screened

Ordering data			
Designation	Part No.	Type	
	Control block	<b>555 667</b>	<b>CPX-CMXX</b>

# Control block CPX-CMXX

Accessories

Ordering data – Bus connection			
Designation		Part No.	Type
	Sub-D plug, 9-pin	532 219	FBS-SUB-9-BU-2x5POL-B
	Bus connection, plug 2xM12, 5-pin	525 632	FBA-2-M12-5POL
	Plug socket for fieldbus connection, M12, 5-pin	18 324	FBSD-GD-9-5POL
	Plug M12, 5-pin	175 380	FBS-M12-5GS-PG9
	Bus connection, 5-pin	525 634	FBA-1-SL-5POL
	Bus connection, screw terminal, 5-pin	525 635	FBSD-KL-2x5POL
	Plug RJ45, 8-pin	534 494	FBS-RJ45-8-GS
	Cover for RJ45 connection	534 496	AK-RJ45
	Inspection cover, transparent for plug/socket Sub-D	533 334	AK-SUB-9/15-B
	Cover for plug/socket Sub-D	557 010	AK-SUB-9/15
	Inscription label holder for connection block	536 593	CPX-ST-1

Documentation			
Designation		Language	Part No. Type
	Description of control block CPX-CMXX	German	564 221 P.BE-CPX-CMXX-DE
	Description of Festo handling and positioning profile for multi-axis movements FHPP-MAX	German	564 223 P.BE-CMXX-FHPP-SW-DE

## What must be observed when using Festo components?

Specified limit values for technical data and any specific instructions must be adhered to by the user in order to ensure recommended operating conditions.

When pneumatic components are used, the user shall ensure that they are operated using correctly prepared compressed air without aggressive media.

When Festo components are used in safety-oriented applications, the user shall ensure that all applicable

national and local safety laws and regulations, for example the machine directive, together with the relevant references to standards are observed. Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permissible.

Festo does not accept any liability for resulting damages.

You should contact Festo's advisors if one of the following apply to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.

All technical data applies at the time of going to print.

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