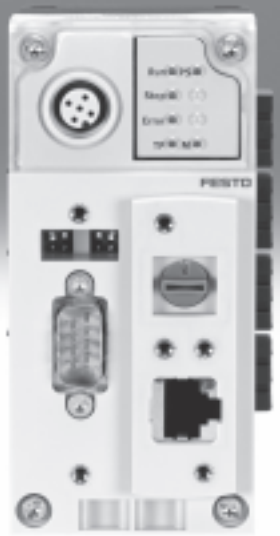
Control block CPX-CMXX

FESTO

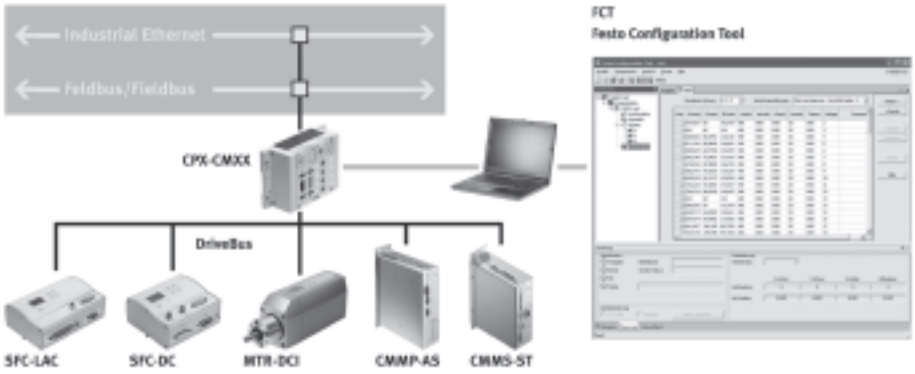


Control block CPX-CMXX

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

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).

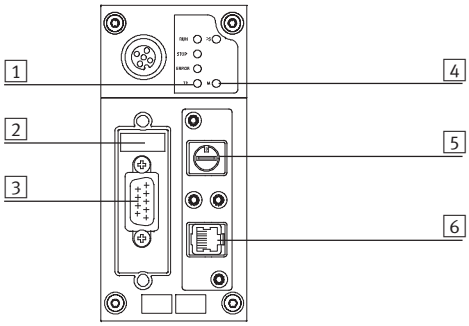
- Configuration of two axes groups with up to four axes each is possible
- There are 1024 position sets available per axes group
- Input or Teach-In of positions in specified set structure
- Parameterisation via Ethernet
- Communication protocol: FHPP-MAX, Festo handling and positioning profile for multi-axis 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
Materials		
Housing		Reinforced polyamide, polycarbonate
Note on materials		RoHS-compliant

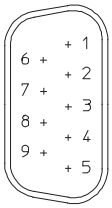
Technical data – Interfaces		
Ethernet		
Ethernet interface		Socket RJ45, 8-pin, for configuration only
Interface		
Control interface		CAN bus
Baud rate	[Mbit/s]	1

Operating and environmental conditions		
Ambient temperature	[°C]	–5 ... +50
Storage temperature	[°C]	–20 ... +70

Connection and display components



1 LED display, bus-specific
2 DIL switch
3 Control interface (plug, Sub-D, 9-pin)
4 LED display, product-specific
5 16-position rotary switch (RUN/STOP)
6 Ethernet interface (RJ45, socket, 8-pin)

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)[1)]
	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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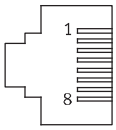
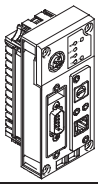
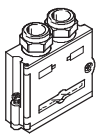
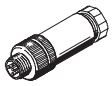
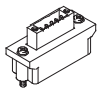
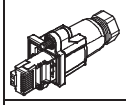
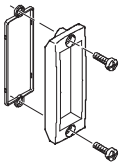
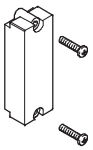
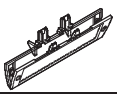
Technical data

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	**555667**	**CPX-CMXX**

Ordering data – Bus connection			
Designation		Part No.	Type
	Sub-D plug, 9-pin	**532219**	**FBS-SUB-9-BU-2x5POL-B**
	Bus connection, plug 2xM12, 5-pin	**525632**	**FBA-2-M12-5POL**
	Plug socket for fieldbus connection, M12, 5-pin	**18324**	**FBSD-GD-9-5POL**
	Plug M12, 5-pin	**175380**	**FBS-M12-5GS-PG9**
	Bus connection, 5-pin	**525634**	**FBA-1-SL-5POL**
	Bus connection, screw terminal, 5-pin	**525635**	**FBSD-KL-2x5POL**
	Plug RJ45, 8-pin	**534494**	**FBS-RJ45-8-GS**
	Cover for RJ45 connection	**534496**	**AK-RJ45**
	Inspection cover, transparent for plug/socket Sub-D	**533334**	**AK-SUB-9/15-B**
	Cover for plug/socket Sub-D	**557010**	**AK-SUB-9/15**
	Inscription label holder for connection block	**536593**	**CPX-ST-1**

Documentation				
Designation		Language	Part No.	Type
	Description of control block CPX-CMXX	German	**564221**	**P.BE-CPX-CMXX-DE**
		English	**564222**	**P.BE-CPX-CMXX-EN**
	Description of Festo handling and positioning profile for multi-axis movements FHPP-MAX	German	**564223**	**P.BE-CMXX-FHPP-SW-DE**
		English	**564224**	**P.BE-CMXX-FHPP-SW-EN**