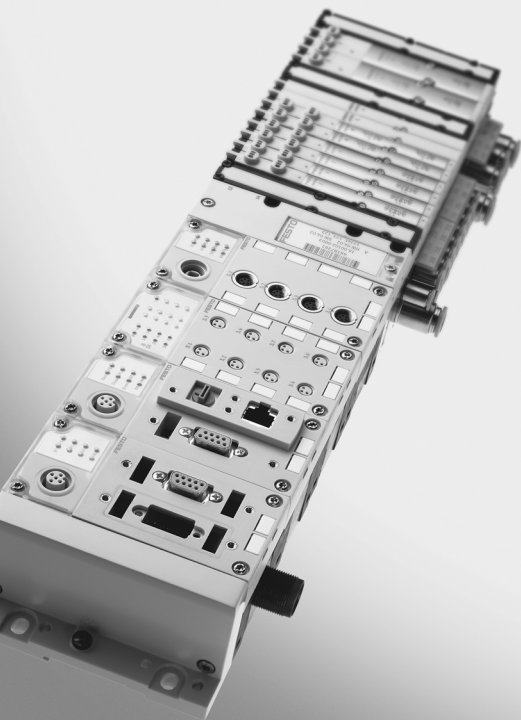


Terminal CPX



FESTO

Brief description

Electrical
interface
CPX-CTEL-4-
M12-5POL

– English



8101605
2018-11c
[8101607]

Translation of the original instructions

Documentation on the product



For all available product documentation
→ www.festo.com/pk

Copyright:
Festo SE & Co. KG
Ruiter Straße 82
73734 Esslingen
Germany

Internet: <http://www.festo.com>
E-Mail: service_international@festo.com

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English 3

1 User information

The module CPX-CTEL-4-M12-5POL (CTEL master module) has been designed exclusively for the control of pneumatic and electric actuators, for interrogating sensor signals by means of input modules and for communication via I-Port.

The specified limits for technical data must be adhered to. You can find detailed information in the module description (→ P.BE-CPX-CTEL-...) and in the CPX system description (→ P.BE-CPX-SYS-...).



Warning

Danger of electric shock

- Switch off power supplies prior to any mounting or installation work.
- For the electrical power supply, use only PELV voltage sources in accordance with IEC 60204-1 (Protective Extra-Low Voltage, PELV).
- Observe the requirements of IEC 60204-1 for PELV circuits.
- Place only a completely mounted and wired CPX terminal into operation.



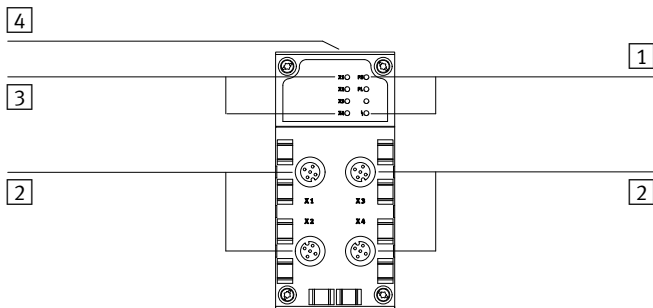
Note

Electrostatically sensitive devices

- Do not touch any components.
- Observe the handling specifications for electrostatically sensitive devices.



2 Connection and display components



- 1 Status LEDs for I-Port interfaces X1 ... X4
- 2 I-Port interfaces X1 ... X4
- 3 CPX-specific LEDs
- 4 Rating plate

Status LEDs I-Ports X1 ... X4		CPX-specific LEDs	
X1 ... X4	Status I-Port X1 ... X4 (green/red) – Connection status OK – Device error – Configuration error or compatibility error	PS	Power system (green)
		PL	Power load (green)
		⚡	CPX peripheral error (red)

2.1 Significance of the LED statuses

LED	Behaviour and significance
PS	– Illuminated green: operating voltage $U_{EL/SEN}$ OK – Flashes green: undervoltage $U_{EL/SEN}$ – Off: operating voltage $U_{EL/SEN}$ too low or not applied
PL	– Illuminated green: load voltage U_{VAL} OK – Flashes green: undervoltage U_{VAL} – Off: load voltage U_{VAL} not applied or not used
⌚	– Illuminated red: CPX starting or CPX error – Off: CPX communication OK
X1 ... X4	– Illuminates green: device OK – Flashes green: diagnostics – Illuminated red: I-port error – Flashes red: configuration error – Off: no device detected

3 Installation instructions

3.1 Mounting

The CTEL master module is designed for mounting in a CPX interlinking block.



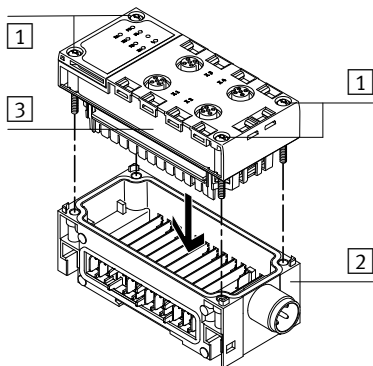
Warning

Electric voltage

Injury caused by electric shock, damage to machine and to system

- Switch supply power off before mounting work.

- 1 Screws
(tightening torque
0.9 ... 1.1 Nm)
- 2 Interlinking block
(here with additional
power supply, as an
example)
- 3 Electrical interface
CPX-CTEL-4-M12-5POL
(CTEL master module)



Dismantling:

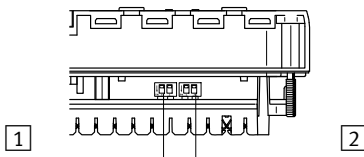
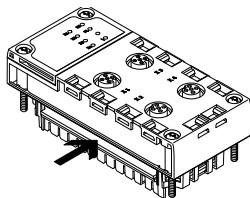
- Remove the screws and lift off the module.

Mounting:

1. Check seal and sealing surfaces and put the module back on.
2. Tighten the screws by hand in diagonally opposite sequence (tightening torque 0.9 ... 1.1 Nm).

3.2 Setting the DIL-switches

- 1 DIL switch group 1
(I/O mode)
- 2 DIL switch group 2
(I/O length)

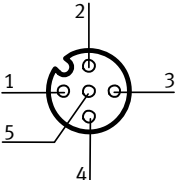


DIL switch 1	Setting	Function
	DIL 1.1: OFF DIL 1.2: OFF (factory setting)	Module unused, no devices connected
	DIL 1.1: OFF DIL 1.2: ON	Operation as pure output module
	DIL 1.1: ON DIL 1.2: OFF	Operation as pure input module
	DIL 1.1: ON DIL 1.2: ON	Mixed operation (inputs and outputs)

DIL switch 2	Setting	Function
	DIL 2.1: OFF DIL 2.2: OFF (factory setting)	8 bytes I/O (2 bytes per I-Port)
	DIL 2.1: OFF DIL 2.2: ON	16 bytes I/O (4 bytes per I-Port)
	DIL 2.1: ON DIL 2.2: OFF	24 bytes I/O (6 bytes per I-Port)
	DIL 2.1: ON DIL 2.2: ON	32 bytes I/O (8 bytes per I-Port)

3.3 I-port interfaces

Pin allocation of the I-Port interfaces X1 ... X4:

M12 socket (A-coded)	Pin	Allocation	Function
	1	24 V $U_{EL/SEN}$ (PS)	Operating voltage
	2	24 V $U_{VAL/OUT}$ (PL)	Load voltage
	3	0 V $U_{EL/SEN}$ (PS)	Operating voltage
	4	C/Q _{I-Port}	Communication
	5	0 V $U_{VAL/OUT}$ (PL)	Load voltage



Note

Operative malfunction due to impermissible cabling.

- To connect the devices, use only I-Port connecting cables from the Festo catalogue (→ www.festo.com/catalogue).
- Comply with the maximum permissible length of 20 m for the I-Port connecting cables.



To ensure degree of protection IP65/IP67, the unused I-Port interfaces must be sealed with cover caps. These must be ordered separately (type ISK-M12).

4 Technical data

General characteristics	
General technical data	➔ CPX system description P.BE-CPX-SYS-...
Degree of protection through housing ¹⁾ in accordance with IEC 60529, completely mounted, plug connector inserted or with protective caps.	IP65/IP67
Protection against electric shock Protection against direct and indirect contact in accordance with IEC 60204-1	Through the use of PELV circuits (Protected Extra Low Voltage)
Module code (CPX-specific)	194 (0xC2)
Module identifier (in operator unit)	CTEL
Dimensions W x L x H	50 mm × 107 mm × 55 mm (incl. interlinking block)
Product weight	Approx. 110 g
Information on materials - housing	PA-reinforced, PC
Note on materials	RoHS-compliant
Ambient temperature	-5 ... +50 °C
Storage temperature	-20 ... +70 °C
Moisture/heat	95 %/50 °C
¹⁾ Connected devices may only satisfy a lower degree of protection or a smaller temperature range, etc.	

General characteristics

Vibration and shock (dependent on mounting)¹⁾

Vibration	Wall mounting	SL2
	H-rail mounting	SL1
Shock	Wall mounting	SL2
	H-rail mounting	SL1
Continuous shock resistance,	Wall mounting	SL1
	H-rail mounting	SL1

¹⁾ SL = severity level

Power supply

Operation/load voltage range	18 ... 30 V DC
Nominal operating voltage	24 V DC
Intrinsic current consumption at 24 V from operating voltage supply $U_{EL/SEN}$ (without connected devices)	Typ. 65 mA
Maximum current consumption per I-Port at 24 V	
From operating voltage supply $U_{EL/SEN}$ (PS)	1.6 A
From load voltage supply U_{VAL} (PL)	1.6 A
Electrical isolation	
Between operating voltage supply $U_{EL/SEN}$ (PS) and load voltage supply U_{VAL} (PL)	Yes, with potential-isolated supply
Supply PS/PL between the I-Ports	No

CTEL system

Version:

Protocol	I-Port
Number of I-Port interfaces	4
Maximum number of devices per I-Port	1
Maximum cable length per I-Port	20 m
Number of module inputs/outputs	32 bytes I/32 bytes O
Transmission rate (per I-Port)	230.4 kBit/s
Electrical connection	4 x socket M12, 5-pin, A-coded
Short-circuit protection	
Power supply for devices (PS) and load supply (PL)	Internal (electronic), separate for each I-port
Behaviour after short circuit	Dependent on parameter "Behaviour after I-Port short circuit"
Reverse polarity protection	Separate for each system and load voltage, not separated per I-Port

CTEL system	
Parameterisation	Module parameter Diagnostic behaviour Fail safe (per channel) Forcing (per channel) Idle mode (per channel)
Diagnostics	
Module-oriented diagnostics	Undervoltage PS
Undervoltage/short circuit of modules	Undervoltage PL (via device)
I-Port	Communication error Short-circuit PS/PL Device error