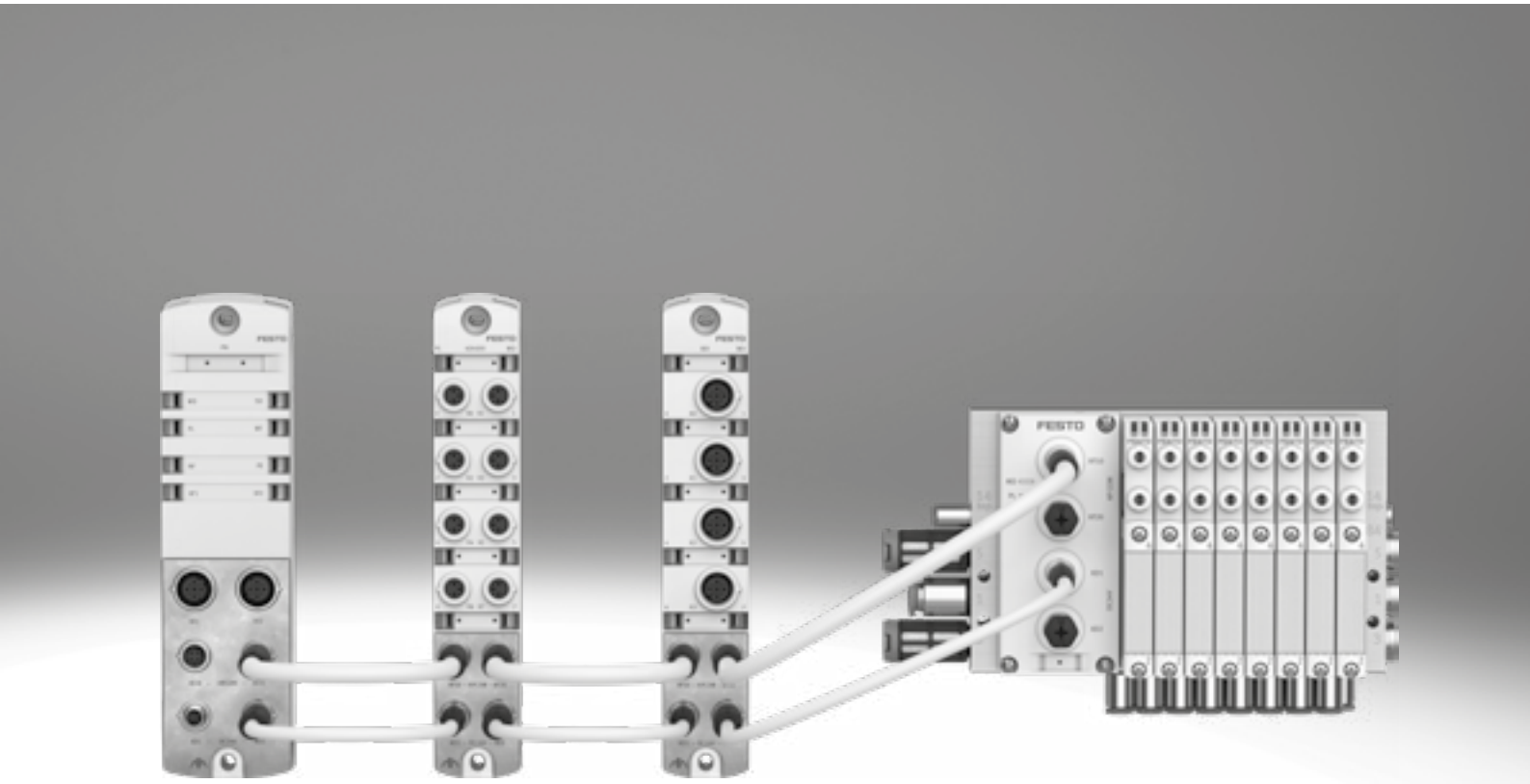
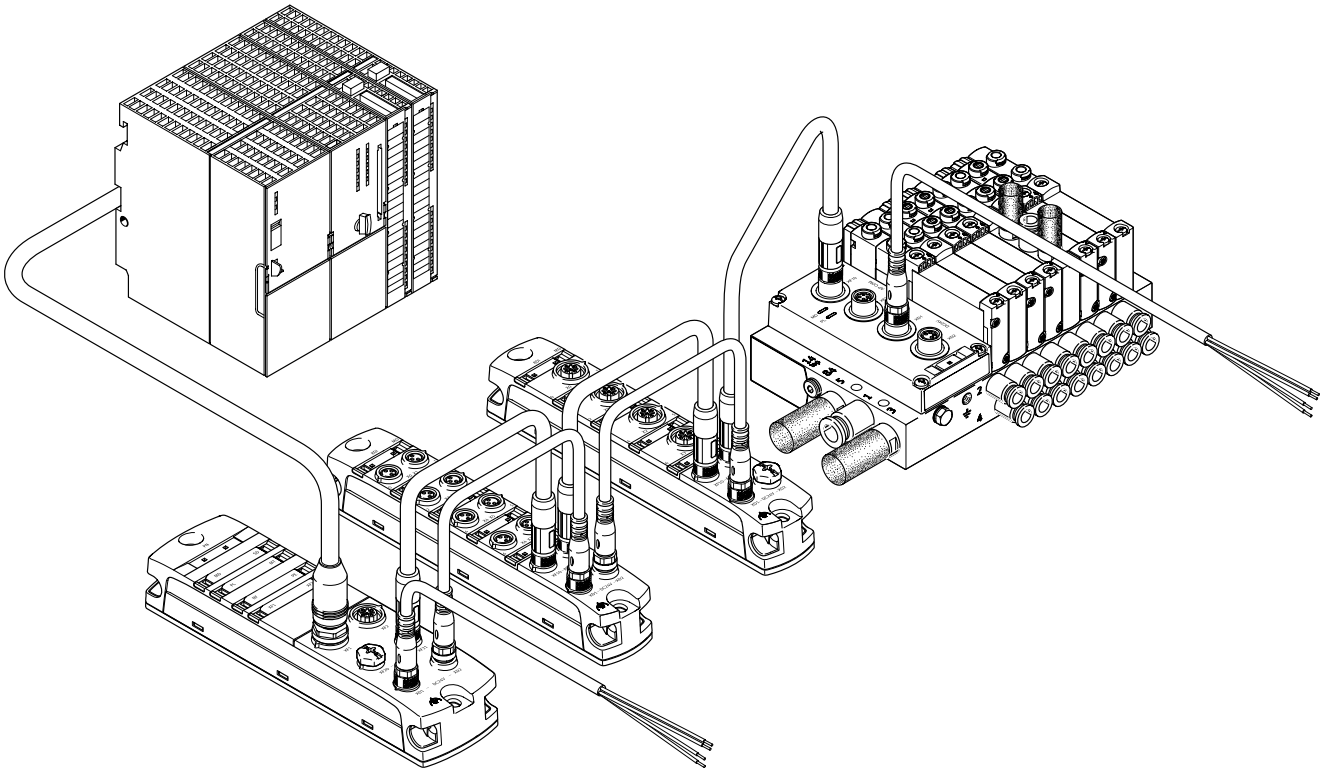
Automation system CPX-AP-I



Key features



Key features

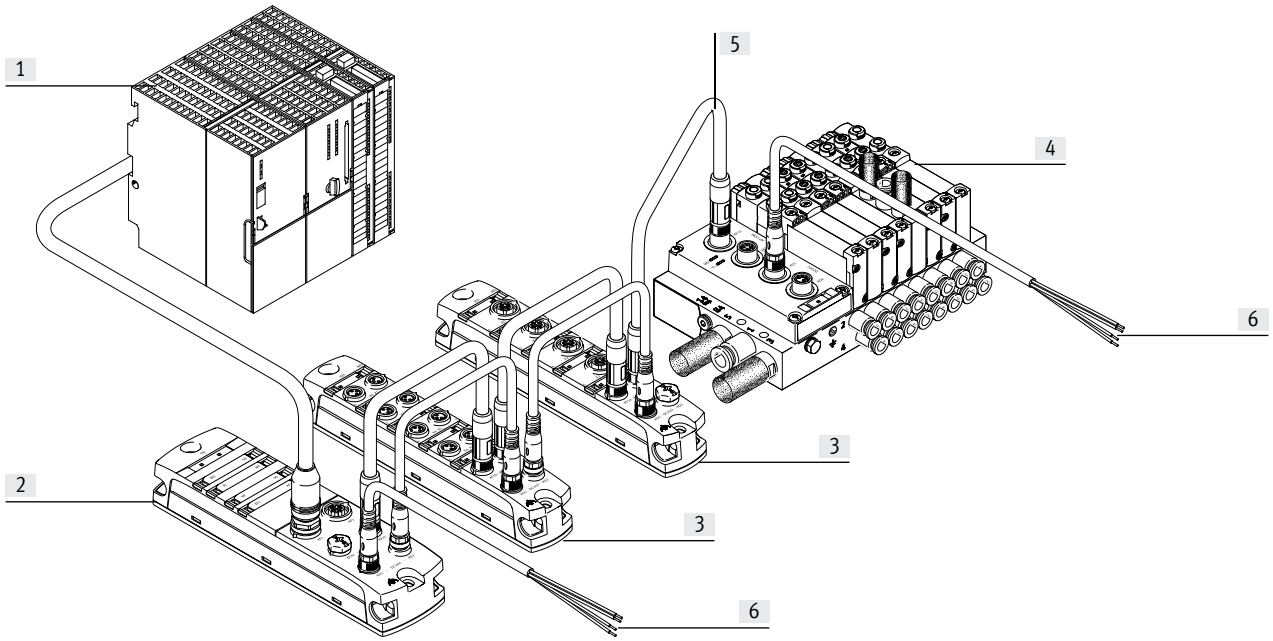
CPX-AP-I is a flexible, decentralised, compact and lightweight automation system with high degree of protection IP65/IP67.
The performance of the system is future-proof in terms of the forthcoming demands on the digital factory, and advantageous compared with a slow point-to-point connection.

The simple structure and high degree of scalability ensure the automation system CPX-AP-I is equipped for future applications:
- Extremely easy to assemble
- Separate cables for communication and power supply to form voltage zones and for stable data transfer
- Electrical isolation of output channels
- Digital electronic rating plate available
- Easy to update firmware
- Simple maintenance access to the system via Ethernet
- Easy to integrate
- Realtime capability
- Up to 80 individual modules/valve terminals per bus interface
- Easy to adapt to different control systems by exchanging the bus interface
- Direct connection of valve terminals
- Choice of M8 or M12 electrical connections
- Cable length up to 50 m cable length between the modules

An automation system CPX-AP-I consists of a bus interface and at least one other module. System communication between the modules takes place via connecting cables. The process data is exchanged cyclically.
The following module types are available:
- Bus interface
- IO-Link master
- Input modules
- Input/output modules
- Interface to the valve terminal

Key features

Overview



[1] Higher-order controller

[2] Bus interface for connecting the automation system CPX-AP-I to a higher-order controller via a standard bus protocol such as PROFINET

[3] Input module, output module or input/output module; allows sensors and actuators to be connected to the automation system CPX-AP-I. Up to 80 modules per bus interface possible

[4] Valve terminal with electrical interface for CPX-AP-I. Behaves like an output module within the automation system CPX-AP-I

[5] Connecting cable for communication between the modules and the bus interface. The maximum line length from the bus interface to the module is 50 m

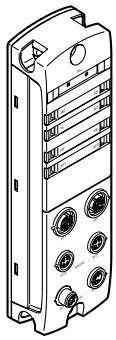
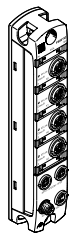
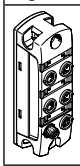
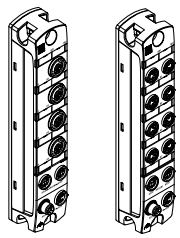
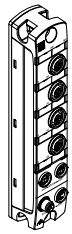
[6] Connecting cable for supplying power to the components of the automation system CPX-AP-I. Each module can be connected individually or a central supply is transmitted from module to module

Note

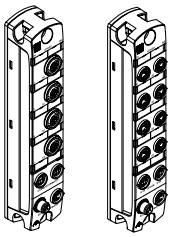
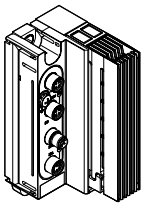
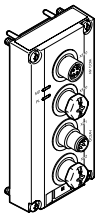
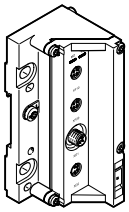
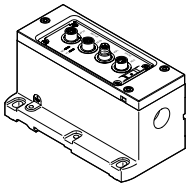
The connecting cables are specially designed for the requirements of the automation system CPX-AP-I.

If variants other than those specified in the accessories are used, the correct operation of the system cannot be guaranteed.

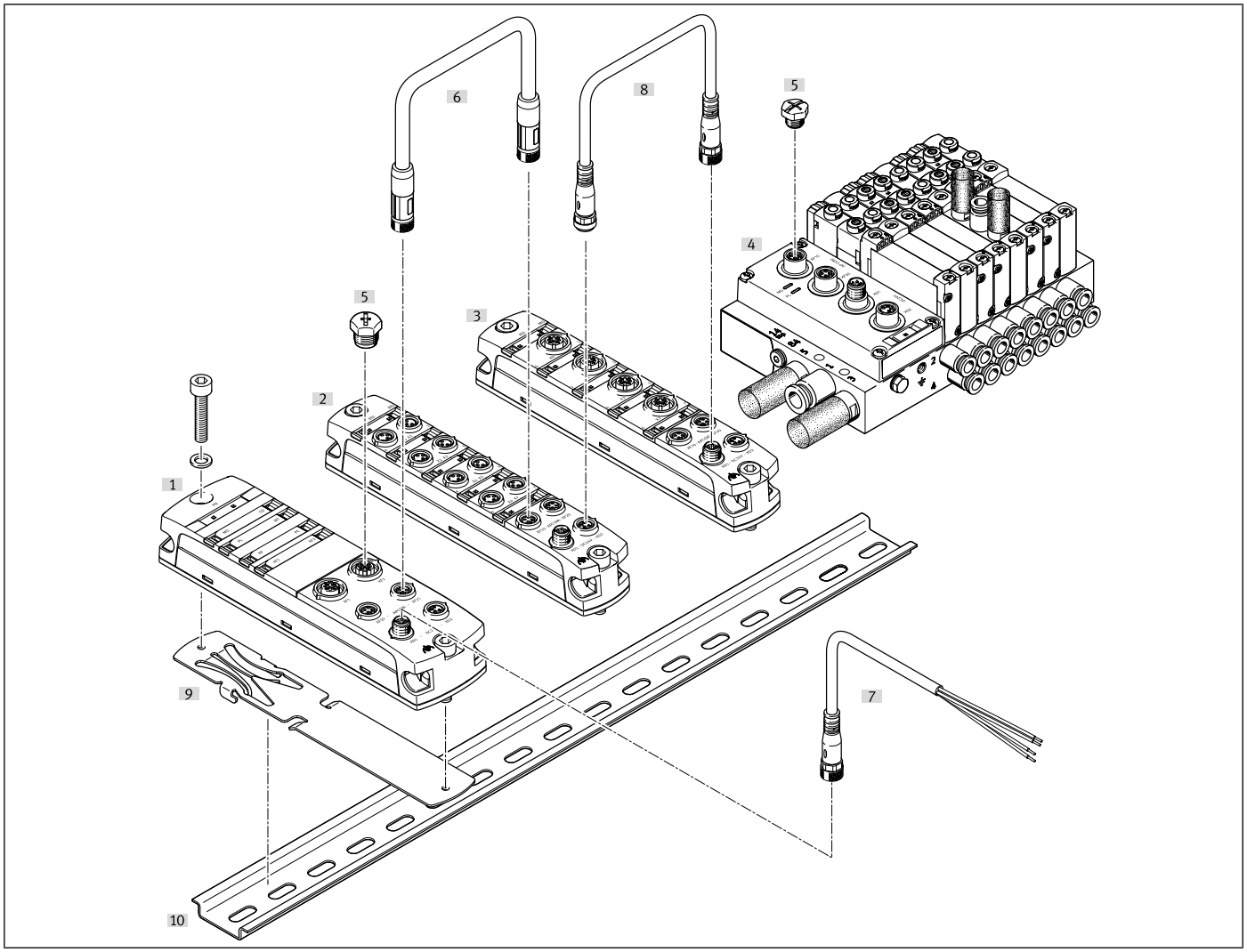
Product range overview

Function	Design		Type		→ Page/ Internet
Bus interface	**Interface**				
		PROFINET	CPX-AP-I-PN-M12	• Control via PROFINET • Two PROFINET connections • Two connections for system communication • Two connections for power supply and transmission	11
		PROFIBUS	CPX-AP-I-PB-M12	• Control via PROFIBUS • Two PROFIBUS connections • Two connections for system communication • Two connections for power supply and transmission	17
		EtherCAT	CPX-AP-I-EC-M12	• Control via EtherCAT • Two EtherCAT connections • Two connections for system communication • Two connections for power supply and transmission	23
		EtherNet/IP	CPX-AP-I-EP-M12	• Control via EtherNet/IP • Two Ethernet connections • Two connections for system communication • Two connections for power supply and transmission	23
IO-Link master		4 IO-Link connections	CPX-AP-I-4IOL-M12	• LED display • Master V 1.1 • Electrical connection M12x1, 5-pin	35
Input module	**Digital**				
		4 inputs	CPX-AP-I-4DI	• LED display • PNP (positive switching) • Characteristic curve of inputs according to IEC 61131-2, type 3 • Electrical connection M8x1, 3-pin	41
		8 inputs	CPX-AP-I-8DI	• LED display • PNP (positive switching) • Characteristic curve of inputs according to IEC 61131-2, type 3 • Electrical connection M8x1, 3-pin • Electrical connection M12x1, 5-pin	47
	Analogue				
		4 inputs	CPX-AP-I-4AI	• LED display • Current, voltage, temperature or resistance measurement • Electrical connection M12x1, 5-pin	54

Product range overview

Function	Design		Type		→ Page/ Internet
Input/output module	**Digital**				
		• 4 inputs • 4 outputs	CPX-AP-I-4DI4DO	• LED display • PNP (positive switching) • Characteristic curve of inputs according to IEC 61131-2, type 3 • Characteristic curve outputs to IEC 61131-2, type 0.5 • Electrical connection M8x1, 3-pin • Electrical connection M12x1, 5-pin	60
Electrical interface for valve terminal	**Valve terminal VTUX**				
		• Maximum of 32 valve positions • Up to 32 solenoid coils	VABX-A-P-EL-E12-APA-SHUH	• LED indicator • 1 valve size (10 mm) • 2x 3/2-way valves • 5/2-way valves • 5/3-way valve • Modular design • Flow rates up to 670 l/min	66
	Valve terminal VTUG				
		• 12 or 24 valve positions • Up to 48 solenoid coils	VAEM-L1-S	• LED display • 3 valve sizes (10 mm, 14 mm and 18 mm) • 2x 3/2-way valves • 3/2-way valves • 5/2-way valves • 5/3-way valves • Fixed-grid linkage • 130 ... 1000 l/min flow rate	72
	Valve terminal MPA-L				
		• 32 valve positions • Up to 32 solenoid coils	VMPAL-EPL-AP	• LED display • 3 valve sizes (10 mm, 14 mm and 20 mm) • 2x 2/2-way valves • 2x 3/2-way valves • 3/2-way valves • 5/2-way valves • 5/3-way valves • Modular design • Flow rates of up to 870 l/min	78
	Valve terminal VTSA				
		• 12 valve positions • Up to 24 solenoid coils	VABA-S6-1-AP	• LED indicator • 4 valve sizes (18 mm, 26 mm, 42 mm and 52 mm) • 2x 2/2-way valves • 2x 3/2-way valves • 5/2-way valves • 5/3-way valves • Modular design • Flow rates of up to 2900 l/min	vtsa

Peripherals overview

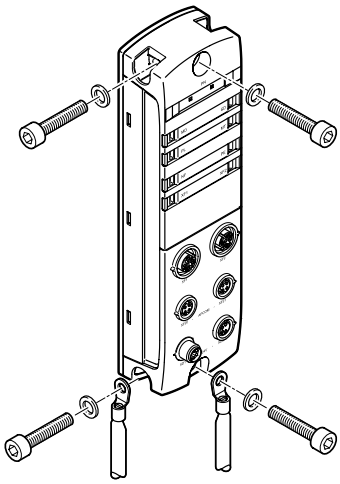


		Type	Description	→ Page/Internet
[1]	Bus interface	CPX-AP-I-PN-M12	Connection of the CPX-AP-I to a higher-order controller	11
		CPX-AP-I-PB-M12		17
		CPX-AP-I-EC-M12		23
		CPX-AP-I-EP-M12		29
[2]	Module with M8 connections	CPX-AP-I-4DI-M8-3P	Digital input and input/output modules	41
		CPX-AP-I-8DI-M8-3P		47
		CPX-AP-I-4DI4DO-M8-3P		60
[3]	Module with M12 connections	CPX-AP-I-4IOL-M12	IO-Link master	35
		CPX-AP-I-8DI-M12-5P	Digital and analogue input and input/output modules	47
		CPX-AP-I-4AI-U-I-RTD-M12		54
		CPX-AP-I-4DI4DO-M12-5P		60
[4]	Electrical interface for valve terminal	VABX-A-P-EL-E12-APA-SHUH	For valve terminal VTUX	66
		VAEM-L1-S	For valve terminal VTUG	72
		VMPAL-EPL-AP	For valve terminal MPA-L	78
		VABA-S6-1-AP	For valve terminal VTSA	vtsa
[5]	Cover cap	ISK-M8	For sealing unused electrical connections, connection size M8 and M12	isk
		ISK-M12		
[6]	Connecting cable	NEBC	For connecting the modules for communication	nebc
[7]	Connecting cable	NEBL	For connecting the power supply	nebl
[8]	Connecting cable	NEBL	For power transmission from module to module	nebl
[9]	H-rail mounting	CAFM	For mounting a module on H-rails to EN 60715	cafm
[10]	DIN mounting rail	NRH-35-2000	H-rail to EN 60715	nrh

Key features – Mounting

Mounting

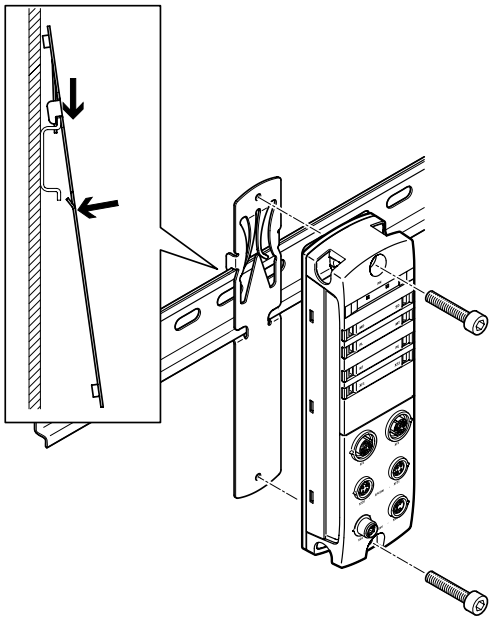
Wall mounting – Modules



The modules can be mounted on flat surfaces in almost any position using the mounting holes provided (with screws up to 4 mm in diameter). Secure mounting requires two screws with correctly sized washers (not included in the scope of delivery).

The mounting holes also include the earthing connection for the modules.

H-rail mounting – Modules

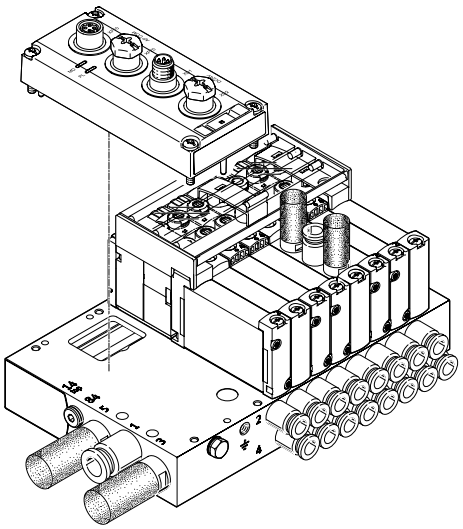


The H-rail mounting CAFM can be used to mount the modules on H-rails to EN 60715. Secure mounting requires two screws with metric thread M4 and correctly sized washers (not included in the scope of delivery).

For mounting, first the H-rail mounting is hooked onto the H-rail and latched in, and then the module is firmly screwed onto the H-rail mounting.

The mounting holes also include the earthing connection for the modules.

Assembly – Electrical interface

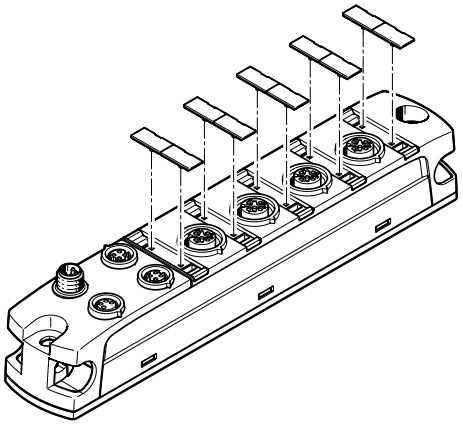


The electrical interfaces are mounted directly on the associated valve terminal.

Options for wall mounting or H-rail mounting depend on the mounting options for the valve terminal in question.

Key features – Power supply

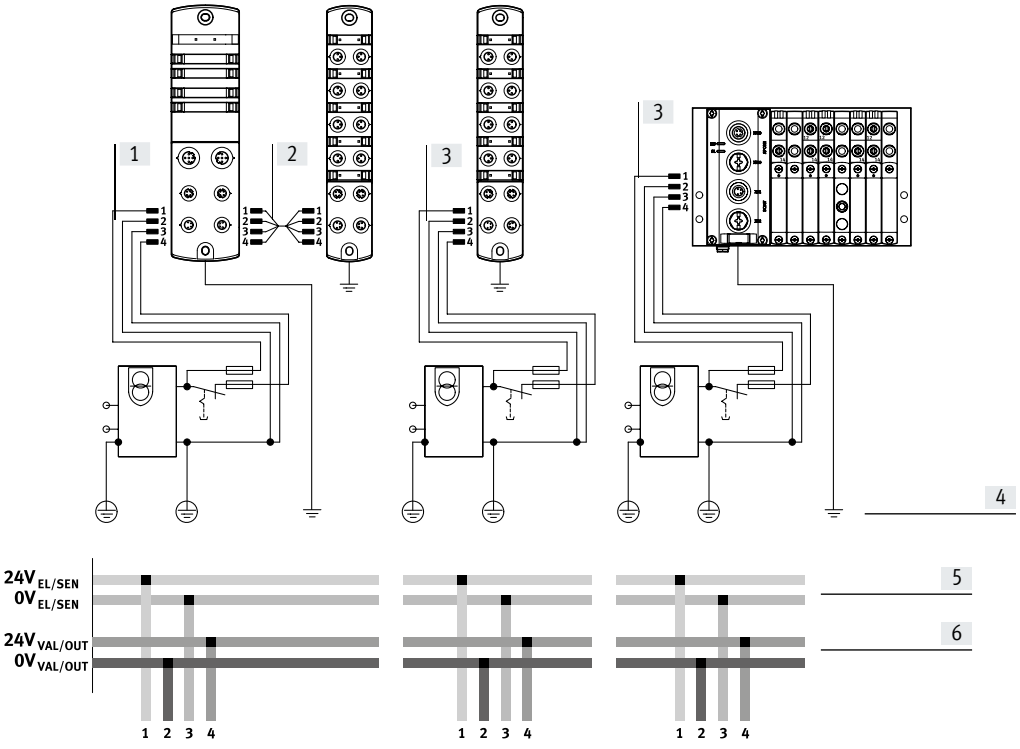
Labelling



All modules are supplied with the same clip-on inscription labels.
The inscription label is made up of two parts and can be divided into two smaller units if required.

Labelling templates can be downloaded from the Support Portal:
➔ Internet: CPX-AP-I
In the “Software” area.

Power supply concept



[1] Power supply to the module via 4-pin push-in connector M8
[2] Power transmission from module to module via 4-pin push-in connector M8
[3] Separate power supply for an individual module
[4] Earthing connection
[5] Power supply for the internal electronics and sensors
[6] Power supply for electrical outputs and valves

In principle, the automation system CPX-AP-I has two separate electrical circuits:
- For the module electronics and the power supply for connected sensors
- For connected outputs and valves

At the same time, the automation system allows each individual module to be separately supplied with power, or for the power supply to be transmitted from module to module.
This creates electrically isolated, all-pin disconnectable potential groups/ voltage segments.

All modules have the same connections for power supply, even when a module does not require all of these itself (e.g. an input module also has connections for outputs and valves).

Key features – Diagnostics

System performance

Diagnostics

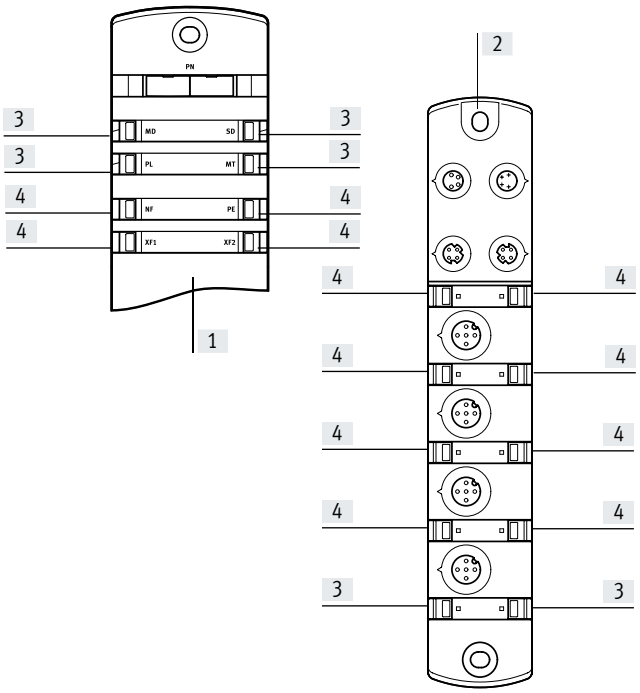
Detailed diagnostic functions are needed in order to quickly locate the causes of errors in the electrical installation and therefore reduce downtimes in the production plant.
A basic distinction is made between on-the-spot diagnostics using LEDs and diagnostics using a bus interface.

The automation system CPX-AP-I supports on-the-spot diagnostics using LED indicators on each module. This is separate from the connection area and therefore provides good visual access to status and diagnostic information.

Module and channel-specific diagnostics are supported, for example:
- Undervoltage identification
- Short circuit detection

The diagnostic messages can be read out via the bus interface in the higher-order controller and visualised so error causes can be recorded centrally and evaluated. This is done using the individual bus-specific channels.

Indicator lights



Each module has a row of LEDs for indicating the operating status of the module and of the connected sensors or actuators.

[1] LED indicators on the bus interface
[2] LED indicators on the input module, input/output module
[3] System-specific LED indicator (e.g. power supply)
[4] Communication-specific LED indicator (e.g. status of network connection, switching status of sensor)

Parameterisation

Various parameters are available for reading out information about the modules of the automation system CPX-AP-I and adapting the modules to the application situation.

The parameters are typically accessed via the higher-order controller.

Key features – Addressing

Addressing

The various modules of the CPX-AP-I occupy a different number of addresses within the CPX-AP-I system. The maximum address space for the bus interface depends on the performance of the fieldbus systems.

Maximum system configuration:
- 1 bus interface
- 80 input and/or input/output modules and/or electrical interfaces

The maximum system configuration can be limited in individual cases by exceeding the address space or limitations of the higher-order controller.

Addresses are allocated automatically. The bus interface is allocated the address "1", all other modules are assigned an address in increasing value from left to right, viewed from the bus interface. The modules of the first string (XF20) come first, then the modules of the second string (XF21).

Note

Please refer to the detailed description of the configuration/addressing rules in the technical data for the CPX-AP-I bus interface.

Overview – Address space for CPX-AP-I bus interface

	Protocol	Max. total	
		Inputs	Outputs
CPX-AP-I-PN-M12	PROFINET	1024 bytes	1024 bytes
CPX-AP-I-PB-M12	PROFIBUS	244 bytes	244 bytes
CPX-AP-I-EC-M12	EtherCAT	2048 bytes	2048 bytes
CPX-AP-I-EP-M12	EtherNet/IP	1324 bytes	1324 bytes

Note

The bandwidth of the bus interface can be restricted by the choice of module and the maximum number of modules.

Overview – Allocated addresses for CPX-AP-I modules

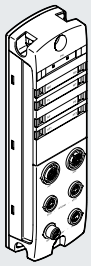
		Inputs [bytes]	Outputs [bytes]
CPX-AP-I-4IOL-M12	IO-Link master	12 ... 132	8 ... 128
CPX-AP-I-4DI-M8-3P	Digital input module, 4 inputs	1	–
CPX-AP-I-8DI-M8-3P	Digital input module, 8 inputs	1	–
CPX-AP-I-8DI-M12-5P	Digital input module, 8 inputs	1	–
CPX-AP-I-4AI-U-I-RTD-M12	Analogue input module, 4 inputs	8	–
CPX-AP-I-4DI4DO-M8-3P	Digital input/output module, 4 inputs/4 outputs	1	1
CPX-AP-I-4DI4DO-M12-5P	Digital input/output module, 4 inputs/4 outputs	1	1
VABX-A-P-EL-E12-APA-SHUH	Pneumatical interface to valve terminal VTUX, max. 32 valve positions	–	4
VAEM-L1-S-12-AP	Electrical interface to valve terminal VTUG, 12 valve positions	–	3
VAEM-L1-S-24-AP	Electrical interface to valve terminal VTUG, 24 valve positions	–	6
VMPAL-EPL-AP	Electrical interface to valve terminal MPA-L, 32 valve positions	–	4

Example of CPX-AP-I-PN-M12 (PROFINET)

	Inputs [bytes]	Outputs [bytes]	Remarks
26x CPX-AP-I-8DI-M8-3P	26	–	• The maximum number of modules is 80 CPX-AP-I modules • The available address space (1024 bytes) is not fully used up • No additional modules can be configured
45x CPX-AP-I-4DI4DO-M12-5P	45	45	
6x VAEM-L1-S-12-AP	–	18	
3x VAEM-L1-S-24-AP	–	18	
Allocated address space	71	81	

Technical data – PROFINET interface

Interface for operating the automation system CPX-AP-I on PROFINET. Data is transferred on the basis of the Ethernet standard and TCP/IP technology for communication in an industrial environment.



Bus connection

Communication with a higher-order controller takes place via PROFINET with real-time protocol (real time RT or isochronous real time IRT).

The bus connection is provided via two equivalent D-coded M12 sockets which meet Ethernet requirements.

The integrated switch supports star and line topology and enables the network to be divided into segments.

General technical data		
Fieldbus interface		
Protocol		PROFINET IRT
		PROFINET RT
Function		Bus connection incoming/outgoing
Transmission rate	[Mbps]	100
Type		Ethernet
Connection type		2 x socket
Connection technology		M12x1, D-coded to EN 61076-2-101
Number of pins/wires		4
Galvanic isolation		Yes
Max. address volume for outputs	[byte]	1024
Max. address capacity inputs	[byte]	1024
Communication interface		
Protocol		AP
Function		System communication XF10 IN / XF20 OUT
Connection type		2 x socket
Connection technology		M8x1, D-coded to EN 61076-2-114
Number of pins/wires		4
Screening		Yes

Technical data – PROFINET interface

General data		
Configuration support		GSDML file
Maximum number of modules		80
Diagnostics via LED		Network error
		Diagnostics per module
		Power supply, electronics/sensors
		Power supply load
		System diagnostics
		Maintenance required
Diagnostics via bus		Load overvoltage
		Load undervoltage
		Load switch-off
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
		Logic supply undervoltage
		APDD invalid
		Communication to AP module interrupted
Diagnostics via internal communication		Module error
		Short circuit/overload in sensor supply
		Short circuit/overload at output
		Undervoltage in load supply
Maximum cable length	[m]	50 system communication
Information on maximum cable length		Power supply according to nominal voltage
Reverse polarity protection		Yes

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Permissible voltage fluctuations, load	[%]	±25
Note on operating voltage		SELV/PELV power supply units required
		Note voltage drop
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Intrinsic current consumption at nominal operating voltage for electronics/ sensors	[mA]	Typically 80
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 5
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	186
Dimensions W x L x H	[mm]	45 x 170 x 35
Tightening torque	[Nm]	1.2

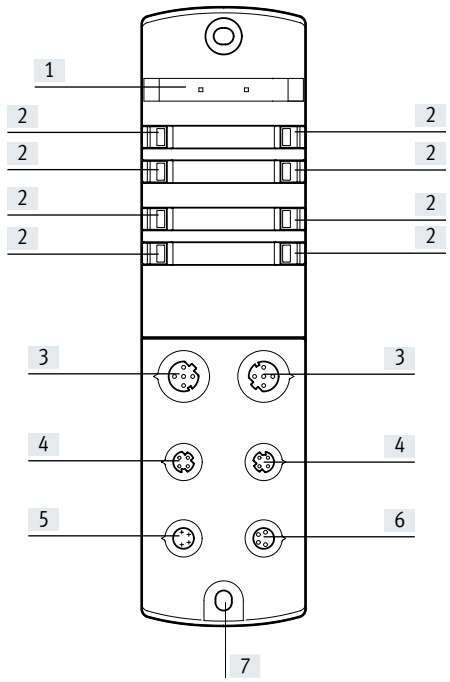
Technical data – PROFINET interface

Materials	
Housing	PA
	PC
	Nickel-plated, die-cast zinc
O-ring	FPM
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

Operating and environmental conditions		
Ambient temperature	[°C]	–20 … +50
Storage temperature	[°C]	–40 … +70
Corrosion resistance class CRC[1)]		1
Relative humidity	[%]	5 … 95
		Non-condensing
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

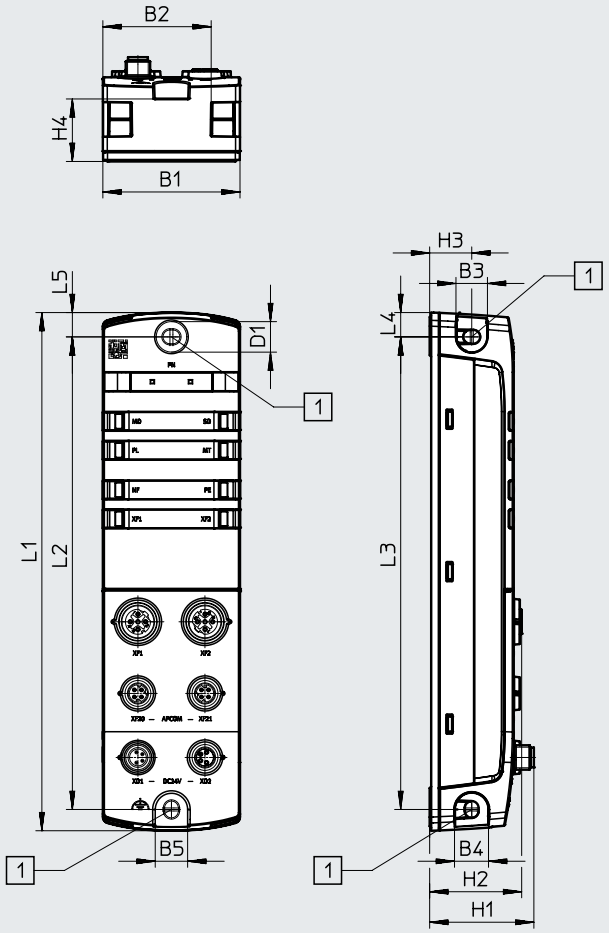
Connection and display components



[1] Space for inscription label
[2] LED indicators
[3] Network connections 1 and 2, PROFINET
[4] Communication interface
[5] Electrical connection, power supply
[6] Electrical connection, power transmission
[7] Earthing connection

Technical data – PROFINET interface

Dimensions Download CAD data ➔ www.festo.com

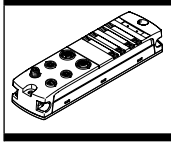


[1] Mounting hole for M4 screws

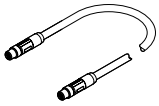
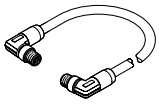
	B1	B2	B3	B4	B5	D1 ø	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-PN-M12	45	35.5	10	11	11	10	34.2	30.2	13.8	20.5	170	155	155	8	8

Technical data – PROFINET interface

Ordering data

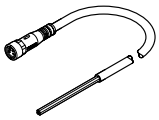
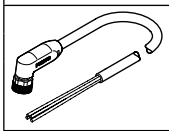
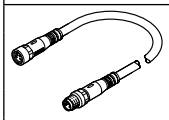
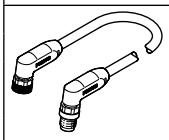
		Part No.	Type
	PROFINET Interface	**8086607**	**CPX-AP-I-PN-M12**

Ordering data – Accessories

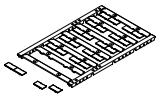
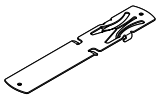
	Description				Part No.	Type
Pre-assembled plugs						
	For bus connection	Straight plug, M12x1, 4-pin, D-coded			**543109**	**NECU-M-S-D12G4-C2-ET**
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
	For communication interface	Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**

Technical data – PROFINET interface

Ordering data – Accessories

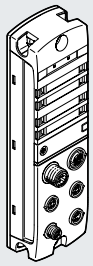
	Description				Part No.	Type
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
	For power transmission	Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

Ordering data – Accessories

	Description		Pack size	Part No.	Type
Inscription label					
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each	240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap					
	For sealing unused connections	For connection M8x1	10	**177672**	**ISK-M8**
H-rail mounting					
	For mounting a module on H-rails to EN 60715		–	**8095158**	**CAFM-X4-H**

Technical data – PROFIBUS interface

Interface for operating the automation system CPX-AP-I in a PROFIBUS-DP network. PROFIBUS is designed for fast, time-critical and complex communications tasks and is incorporated into the international standards IEC 61158 and IEC 61784.



Bus connection

The bus connection is provided by two network connections PROFIBUS DP-IN (M12 plug) and PROFIBUS DP-OUT (M12 socket).

The network can be divided and enlarged using additional repeaters.

This makes it possible to structure the network and implement greater network expansions.

General technical data

Fieldbus interface						
Protocol		PROFIBUS DP-V1				
Function		Incoming bus connection				
Transmission rate	[kbps]	9.6	19.2	93.75	187.5	500
	[Mbps]	1.5	3	6	12	
Type		PROFIBUS				
Connection type		Plug				
Connection technology		M12x1, B-coded to EN 61076-2-101				
Number of pins/wires		5				
Galvanic isolation		Yes				
Fieldbus interface 2						
Protocol		PROFIBUS DP-V1				
Function		Bus connection outgoing				
Transmission rate	[kbps]	9.6	19.2	93.75	187.5	500
	[Mbps]	1.5	3	6	12	
Type		PROFIBUS				
Connection type		Socket				
Connection technology		M12x1, B-coded to EN 61076-2-101				
Number of pins/wires		5				
Galvanic isolation		Yes				
Note on fieldbus interface		Terminating resistor at socket possible				
Communication interface						
Protocol		AP				
Function		System communication XF10 IN / XF20 OUT				
Connection type		2 x socket				
Connection technology		M8x1, D-coded to EN 61076-2-114				
Number of pins/wires		4				
Screening		Yes				

Technical data – PROFIBUS interface

General data		
Configuration support		GSD file
Maximum number of modules		56
Max. address volume for outputs	[byte]	244
Max. address capacity inputs	[byte]	244
Diagnostics via LED		Buffer error LED (BF)
		Diagnostics per module
		Power supply, electronics/sensors
		Power supply load
		System diagnostics
		Maintenance required
Diagnostics via bus		Load switch-off
		Load overvoltage
		Load undervoltage
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
		APDD invalid
		Communication to AP module interrupted
Maximum cable length	[m]	50 system communication
Reverse polarity protection		Yes

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Permissible voltage fluctuations, load	[%]	±25
Note on operating voltage		SELV/PELV power supply units required
		Note voltage drop
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Intrinsic current consumption at nominal operating voltage for electronics/sensors	[mA]	Typically 80
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 5
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	186
Dimensions W x L x H	[mm]	45 x 170 x 35

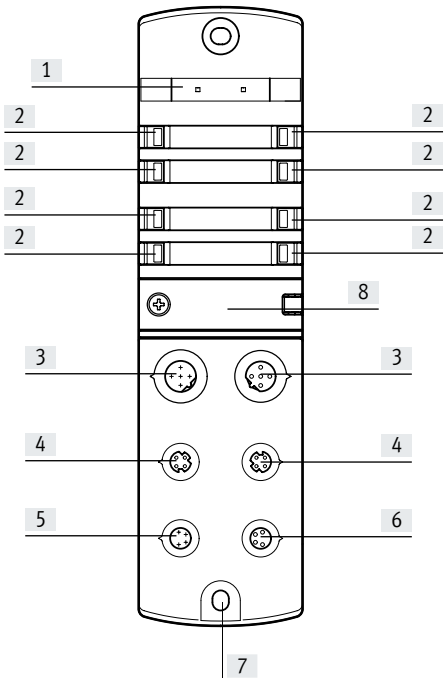
Materials	
Housing	PA
	PC
	Nickel-plated, die-cast zinc
O-ring	FPM
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

Technical data – PROFIBUS interface

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1]		1
Relative humidity	[%]	5 ... 95
		Non-condensing
CE marking (see declaration of conformity)[3]		To EU EMC Directive[2]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

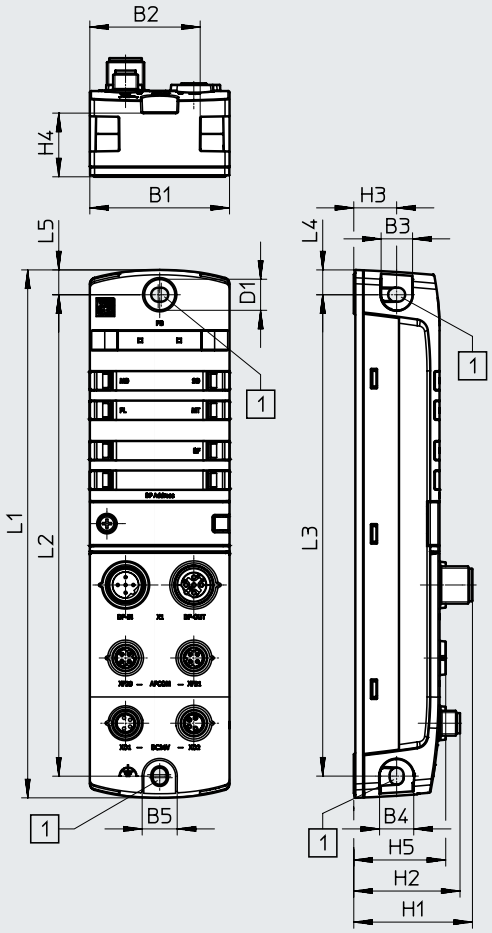
Connection and display components



[1] Space for inscription label
[2] LED indicators
[3] Network connections 1 and 2, PROFINET
[4] Communication interface
[5] Electrical connection, power supply
[6] Electrical connection, power transmission
[7] Earthing connection
[8] DIL switch

Technical data – PROFIBUS interface

Dimensions Download CAD data ➔ www.festo.com

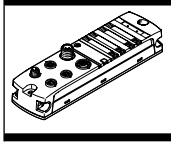


[1] Mounting hole for M4 screws

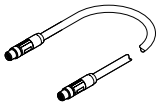
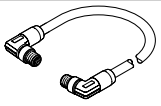
	B1	B2	B3	B4	B5	D1 ø	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5
CPX-AP-I-PB-M12	45	35.5	10	11	11	10	38.2	34.2	13.8	20.5	29.6	170	155	155	8	8

Technical data – PROFIBUS interface

Ordering data

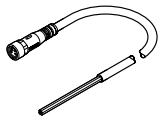
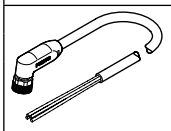
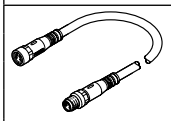
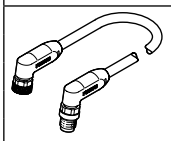
		Part No.	Type
	PROFIBUS interface	**8086608**	**CPX-AP-I-PB-M12**

Ordering data – Accessories

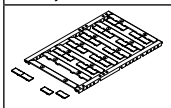
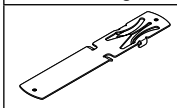
	Description				Part No.	Type
Pre-assembled plugs						
	For bus connection	Straight socket, M12x1, 5-pin, B-coded			**1067905**	**NECU-M-B12G5-C2-PB**
		Straight plug, M12x1, 5-pin, B-coded			**1066354**	**NECU-M-S-B12G5-C2-PB**
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
	For communication interface	Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**

Technical data – PROFIBUS interface

Ordering data – Accessories

	Description				Part No.	Type
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

Ordering data – Accessories

	Description			Pack size	Part No.	Type
Inscription label						
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap						
	For sealing unused connections		For connection M8x1	10	**177672**	**ISK-M8**
H-rail mounting						
	For mounting a module on H-rails to EN 60715			–	**8095158**	**CAFM-X4-H**

Technical data – EtherCAT interface

Interface for operating the automation system CPX-AP-I on EtherCAT. Data is transferred on the basis of the Ethernet standard for communication in an industrial environment.

General technical data		
Fieldbus interface		
Protocol		EtherCAT
Function		Bus connection incoming/outgoing
Transmission rate	[Mbps]	100
Type		Ethernet
Connection type		2 x socket
Connection technology		M12x1, D-coded to EN 61076-2-101
Number of pins/wires		4
Galvanic isolation		Yes
Max. address volume for outputs	[byte]	2048
Max. address capacity inputs	[byte]	2048
Communication interface		
Protocol		AP
Function		System communication XF10 IN / XF20 OUT
Connection type		2 x socket
Connection technology		M8x1, D-coded to EN 61076-2-114
Number of pins/wires		4
Screening		Yes

Technical data – EtherCAT interface

General data		
Configuration support		ESI file
Maximum number of modules		80
Diagnostics via LED		Diagnostics per module
		EtherCAT RUN
		Power supply, electronics/sensors
		Power supply load
		System diagnostics
		Maintenance required
Diagnostics via bus		Load switch-off
		Load overvoltage
		Load undervoltage
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
		APDD invalid
		Communication to AP module interrupted
Diagnostics via internal communication		Module error
		Short circuit/overload in sensor supply
		Short circuit/overload at output
		Undervoltage in load supply
Maximum cable length	[m]	50 system communication
Information on maximum cable length		Power supply according to nominal voltage
Reverse polarity protection		Yes

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Permissible voltage fluctuations, load	[%]	±25
Note on operating voltage		SELV/PELV power supply units required
		Note voltage drop
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Intrinsic current consumption at nominal operating voltage for electronics/sensors	[mA]	Typically 90
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 5
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	186
Dimensions W x L x H	[mm]	45 x 170 x 35
Tightening torque	[Nm]	1.2

Technical data – EtherCAT interface

Materials	
Housing	PA
	PC
	Nickel-plated, die-cast zinc
O-ring	FPM
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

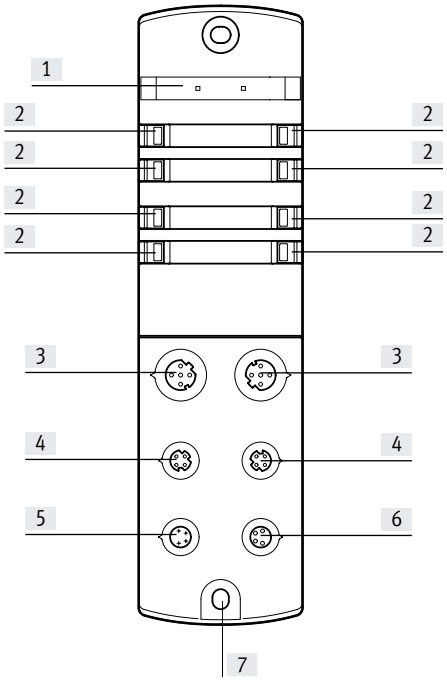
Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1)]		1
Relative humidity	[%]	5 ... 95
		Non-condensing
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

3) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

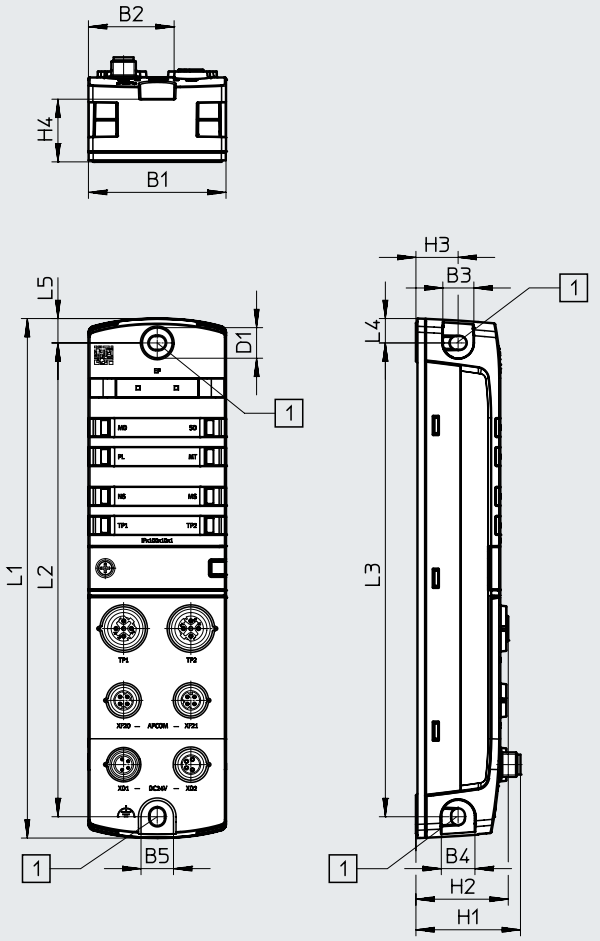
Connection and display components



[1] Space for inscription label
[2] LED indicators
[3] Network connections 1 and 2, EtherCAT
[4] Communication interface
[5] Electrical connection, power supply
[6] Electrical connection, power transmission
[7] Earthing connection

Technical data – EtherCAT interface

Dimensions Download CAD data ➔ www.festo.com

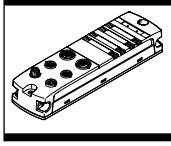


[1] Mounting hole for M4 screws

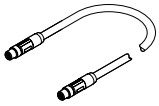
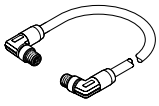
	B1	B2	B3	B4	B5	D1 ø	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-EC-M12	45	35.5	10	11	11	10	34.2	30.2	13.8	20.5	170	155	155	8	8

Technical data – EtherCAT interface

Ordering data

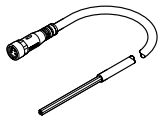
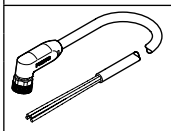
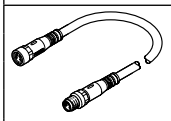
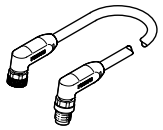
		Part No.	Type
	EtherCAT interface	**8086609**	**CPX-AP-I-EC-M12**

Ordering data – Accessories

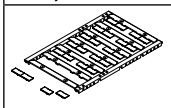
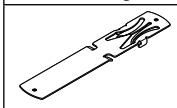
	Description				Part No.	Type
Pre-assembled plugs						
	For bus connection	Straight plug, M12x1, 4-pin, D-coded			**543109**	**NECU-M-S-D12G4-C2-ET**
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
	For communication interface	Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**

Technical data – EtherCAT interface

Ordering data – Accessories

	Description				Part No.	Type
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

Ordering data – Accessories

	Description			Pack size	Part No.	Type
Inscription label						
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap						
	For sealing unused connections		For connection M8x1	10	**177672**	**ISK-M8**
H-rail mounting						
	For mounting a module on H-rails to EN 60715			–	**8095158**	**CAFM-X4-H**

Technical data – EtherNet/IP interface

EtherNet/IP™

Interface for operating the automation system CPX-AP-I in an Ethernet network using the protocols EtherNet/IP or Modbus/TCP. Data is transmitted on the basis of Industrial Ethernet.

General technical data		
Fieldbus interface		
Protocol		EtherNet/IP
Function		Bus connection incoming/outgoing
Transmission rate	[Mbps]	100
Type		Ethernet
Connection type		2 x socket
Connection technology		M12x1, D-coded to EN 61076-2-101
Number of pins/wires		4
Galvanic isolation		Yes
Max. address volume for outputs	[byte]	1324
Max. address capacity inputs	[byte]	1324
Communication interface		
Protocol		AP
Function		System communication XF10 IN / XF20 OUT
Connection type		2 x socket
Connection technology		M8x1, D-coded to EN 61076-2-114
Number of pins/wires		4
Screening		Yes

Technical data – EtherNet/IP interface

General data		
Configuration support		EDS file
Maximum number of modules		80
Diagnostics via LED		Diagnostics per module
		Network status EtherNet/IP
		Power supply, electronics/sensors
		Power supply load
		System diagnostics
		Maintenance required
Diagnostics via bus		Load switch-off
		Load overvoltage
		Load undervoltage
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
		APDD invalid
		Communication to AP module interrupted
Diagnostics via internal communication		Module error
		Short circuit/overload at output
		Short circuit/overload in sensor supply
		Undervoltage in load supply
Maximum cable length	[m]	50 system communication
Information on maximum cable length		Power supply according to nominal voltage
Reverse polarity protection		Yes

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Permissible voltage fluctuations, load	[%]	±25
Note on operating voltage		SELV/PELV power supply units required
		Note voltage drop
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Intrinsic current consumption at nominal operating voltage for electronics/sensors	[mA]	Typically 90
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 5
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	194
Dimensions W x L x H	[mm]	45 x 170 x 35
Tightening torque	[Nm]	1.2

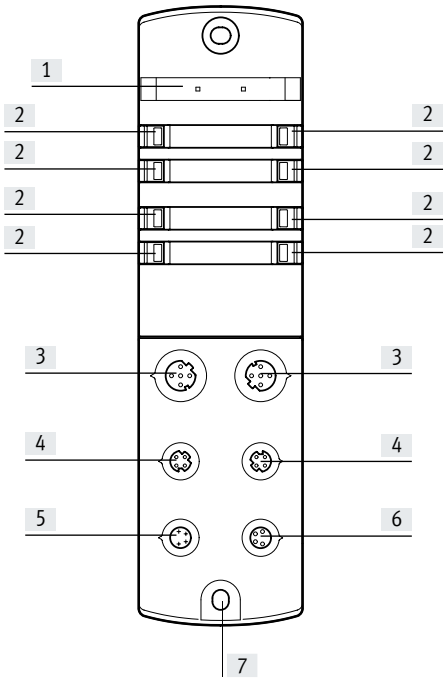
Technical data – EtherNet/IP interface

Materials	
Housing	PA
	PC
	Nickel-plated, die-cast zinc
O-ring	FPM
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1)]		1
Relative humidity	[%]	5 ... 95
		Non-condensing
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

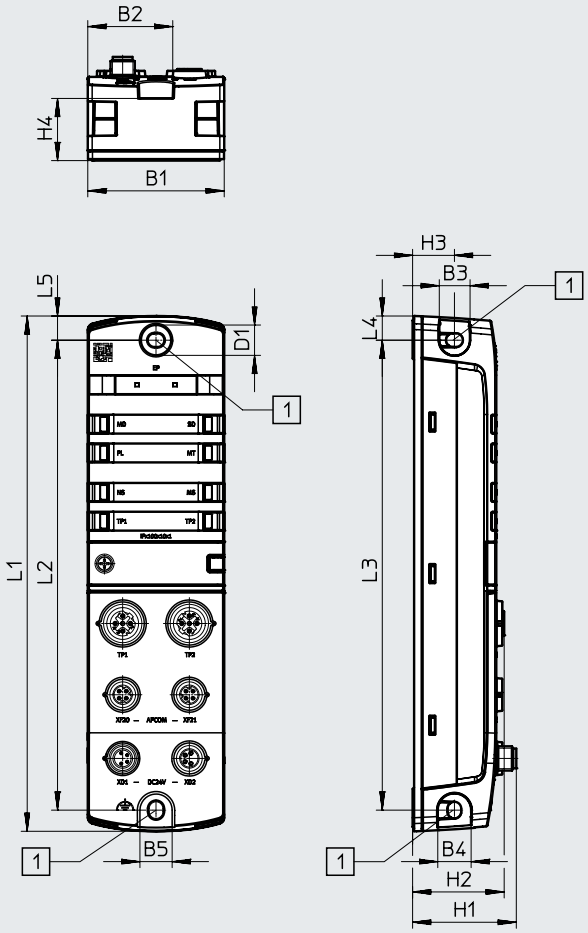
Connection and display components



[1] Space for inscription label
[2] LED indicators
[3] Network connections 1 and 2, EtherNet/IP
[4] Communication interface
[5] Electrical connection, power supply
[6] Electrical connection, power transmission
[7] Earthing connection

Technical data – EtherNet/IP interface

Dimensions Download CAD data ➔ www.festo.com

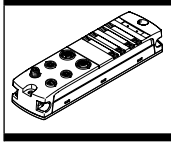


[1] Mounting hole for M4 screws

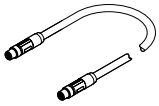
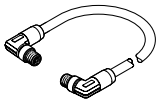
	B1	B2	B3	B4	B5	D1 ø	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-EP-M12	45	35.5	10	11	11	10	34.2	30.2	13.8	20.5	170	155	155	8	8

Technical data – EtherNet/IP interface

Ordering data

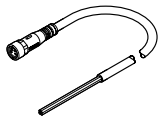
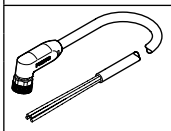
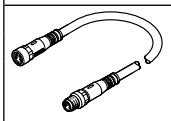
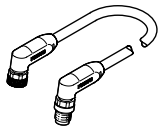
		Part No.	Type
	EtherNet/IP interface	**8086610**	**CPX-AP-I-EP-M12**

Ordering data – Accessories

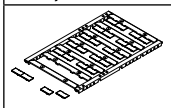
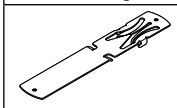
	Description				Part No.	Type
Pre-assembled plugs						
	For bus connection	Straight plug, M12x1, 4-pin, D-coded			**543109**	**NECU-M-S-D12G4-C2-ET**
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**

Technical data – EtherNet/IP interface

Ordering data – Accessories

	Description				Part No.	Type
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

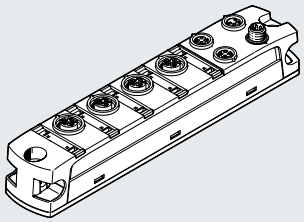
Ordering data – Accessories

	Description			Pack size	Part No.	Type
Inscription label						
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap						
	For sealing unused connections		For connection M8x1	10	**177672**	**ISK-M8**
H-rail mounting						
	For mounting a module on H-rails to EN 60715			–	**8095158**	**CAFM-X4-H**

Technical data – IO-Link master

Function
The IO-Link master has 4 IO-Link connections, which enable any IO-Link components and Festo components with an I-Port connection to be linked up to the automation system CPX-AP-I.

- IO-Link master
- Connection M12x1, 5-pin
- Status and error indication via LED



Description

The IO-Link communication system is used to exchange serial data from decentralised function modules (devices) at the field level.
The IO-Link master provides four external IO-Link interfaces, at each of which a device can be connected.

The connection type corresponds to a star topology, which means that only one device can be connected to each port.
In the factory settings, each IO-Link port has an address space with 9 bytes of input data and 8 bytes of output data.

Address space, master port and the connected devices can be parameterised with the aid of the IO-Link device tool.
DIL switches are available for a range of further settings.

A 30-day trial version of the IO-Link device tool can be downloaded from the Support Portal. A licence is required at the end of the trial period.
The necessary licence for continued use can be purchased via the Festo AppWorld.

General technical data	
Protocol	IO-Link
IO-Link	
Protocol version	Master V 1.1
Communication mode	Configurable via software
Communication mode	SIO, COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd)
Port class	B
No. of ports	4
Process data width OUT	Can be parameterised, 8 ... 128 bytes
Process data width IN	Can be parameterised, 12 ... 132 bytes
Minimum cycle time	Depending on minimum supported cycle time of connected IO-Link device
Communication	C/Q LED, green
Electrical connection, IO-Link	
Connection type	4 x socket
Connection technology	M12x1, A-coded to EN 61076-2-101
Number of pins/wires	5
Communication interface	
Protocol	AP
Function	System communication XF10 IN / XF20 OUT
Connection type	2 x socket
Connection technology	M8x1, D-coded to EN 61076-2-114
Number of pins/wires	4
Screening	Yes

Technical data – IO-Link master

General data		
Diagnostics via LED		Diagnostics per channel
		Diagnostics per module
		Power supply load
		Status per channel
		Status per module
Diagnostics via internal communication		IO-Link event
		Short circuit/overload in sensor supply
		Electronics/sensors overvoltage
		Load overvoltage
		Electronics/sensors undervoltage
		Load undervoltage
Maximum cable length	[m]	20 for IO-Link operation
	[m]	50 system communication
Reverse polarity protection		Yes

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations, load	[%]	±25
Note on operating voltage		Note voltage drop
		SELV/PELV power supply units required
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Intrinsic current consumption at nominal operating voltage for electronics/sensors	[mA]	Typically 55
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 5
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	126
Dimensions W x L x H	[mm]	30 x 170 x 35

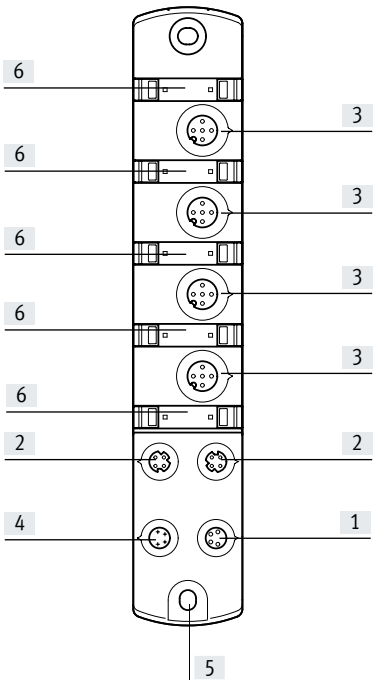
Materials	
Housing	PA
	PC
	Nickel-plated, die-cast zinc
O-ring	FPM
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

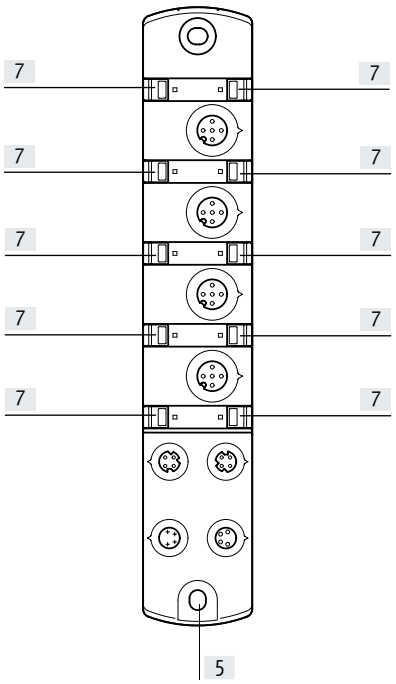
Technical data – IO-Link master

Operating and environmental conditions		
Ambient temperature	[°C]	–20 … +50
Storage temperature	[°C]	–40 … +70
Corrosion resistance class CRC[1]		1
Relative humidity	[%]	5 … 95
		Non-condensing
CE marking (see declaration of conformity)[3]		To EU EMC Directive[2]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

Connection and display components

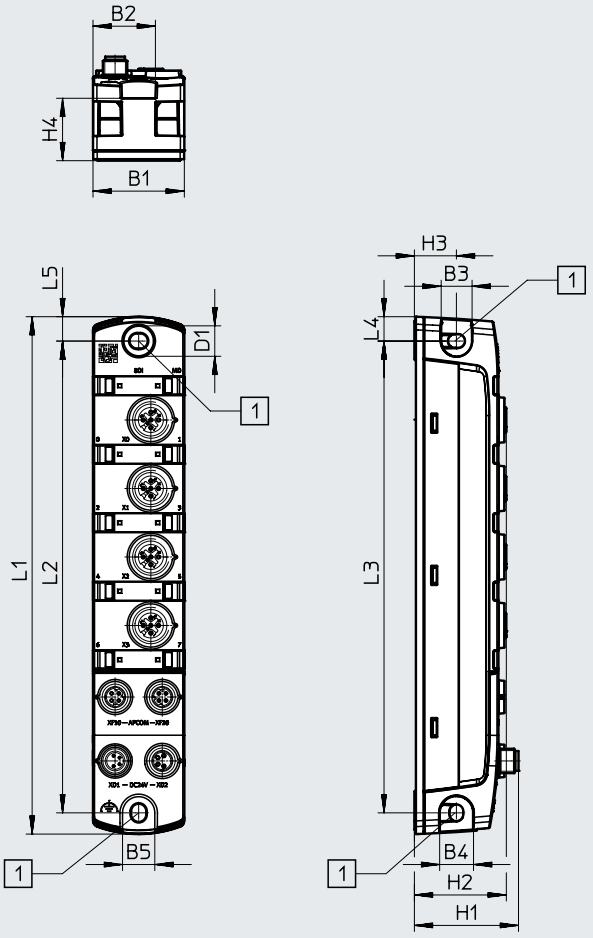




[1] Electrical connection, power transmission
[2] Communication interface
[3] Electrical connection, inputs
[4] Electrical connection, power supply
[5] Earthing connection
[6] Space for inscription label
[7] LED indicators

Technical data – IO-Link master

Dimensions Download CAD data ➔ www.festo.com

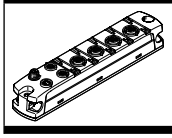


[1] Mounting hole for M4 screws

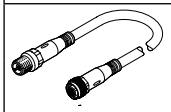
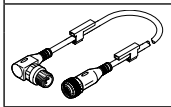
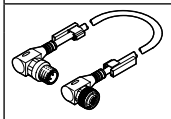
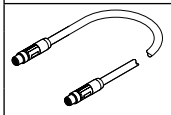
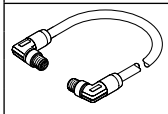
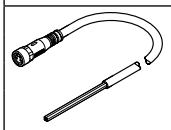
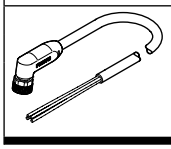
	B1	B2	B3	B4	B5	D1 ⌀	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-4IOL-M12	30	20.5	10	11	11	10	34.2	30.2	13.8	20.5	170	155	155	8	8

Technical data – IO-Link master

Ordering data

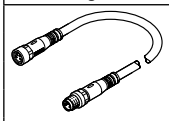
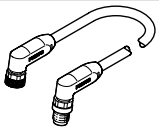
			Part No.	Type
	IO-Link master	Electrical connection, IO-Link 4x sockets M12x1, 5-pin	**8086604**	**CPX-AP-I-4IOL-M12**

Ordering data – Accessories

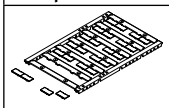
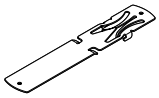
	Description				Part No.	Type
Pre-assembled plugs						
	For IO-Link	Straight plug, M12x1, 5-pin, A-coded	Screw terminal		**175487**	**SEA-M12-5GS-PG7**
Connecting cable						
	For IO-Link	Straight socket, M12x1, 5-pin, A-coded	Straight plug, M12 x 1, 5-pin, A-coded	0.5 m	**8000208**	**NEBU-M12G5-K-0.5-M12G4**
				5.0 m	**574321**	**NEBU-M12G5-E-5-Q8N-M12G5**
				7.5 m	**574322**	**NEBU-M12G5-E-7.5-Q8N-M12G5**
			Angled plug, M12x1, 5-pin, A-coded	0.5 m	**8003617**	**NEBU-M12G5-K-0.5-M12W5**
				2.0 m	**8003618**	**NEBU-M12G5-K-2-M12W5**
		Angled socket, M12x1, 5-pin, A-coded	Angled plug, M12x1, 5-pin, A-coded	0.5 m	**570733**	**NEBU-M12W5-K-0.5-M12W5**
				2.0 m	**570734**	**NEBU-M12W5-K-2-M12W5**
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**

Technical data – IO-Link master

Ordering data – Accessories

	Description				Part No.	Type
Connecting cable						
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

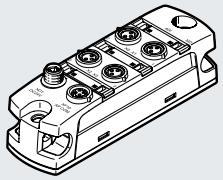
Ordering data – Accessories

	Description		Pack size	Part No.	Type
Inscription label					
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each	240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap					
	For sealing unused connections	For connection M8x1	10	**165592**	**ISK-M12**
H-rail mounting					
	For mounting a module on H-rails to EN 60715		–	**8095158**	**CAFM-X4-H**

Technical data – Digital 4-way input modules

Function
Digital input modules facilitate the connection of electric sensors to IEC 61131-2 type 3 (inductive, capacitive) with an operating voltage of 24 V DC.

- Input modules for 24 V DC operating voltage
- Connection M8x1, 3-pin
- Status and error indication via LED



General technical data		
Type		CPX-AP-I-4DI-M8-3P
Number of inputs		4
Electrical connection, input		
Function		Digital input
Connection type		4 x socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		3
Switching logic at inputs		PNP (positive switching)
		2-wire sensors to IEC 61131-2
		3-wire sensors to IEC 61131-2
Characteristic curve of inputs		To IEC 61131-2, type 3
Switching level	[V]	Signal 0: ≤5
	[V]	Signal 1: ≥11
Fuse protection inputs (short circuit)		Internal electronic fuse per module
Input debounce time	[ms]	0.1
	[ms]	3
	[ms]	10
	[ms]	20
Communication interface		
Protocol		AP
Function		System communication XF10 IN
Connection type		Socket
Connection technology		M8x1, D-coded to EN 61076-2-114
Number of pins/wires		4
Screening		Yes

General data		
Electrical isolation between channel and internal communication		Yes
Electrical isolation between channels		No
Diagnostics via LED		Diagnostics per module
		Status per channel
Diagnostics via internal communication		Short circuit/overload in sensor supply
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
Maximum cable length	[m]	30 inputs
	[m]	50 system communication
Reverse polarity protection		Yes

Technical data – Digital 4-way input modules

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Note on operating voltage		Note voltage drop
		SELV/PELV power supply units required
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Max. residual current of inputs per module	[A]	0.8
Intrinsic current consumption at nominal operating voltage for electronics/ sensors	[mA]	Typically 32
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
Product weight	[g]	81
Dimensions W x L x H	[mm]	30 x 102.5 x 35

Materials		
Housing		PA
		PC
		Nickel-plated, die-cast zinc
Seals		NBR
O-ring		FPM
Note on materials		RoHS-compliant
PWIS conformity		VDMA24364-B2-L

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1)]		1
Relative humidity	[%]	5 ... 95
		Non-condensing
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

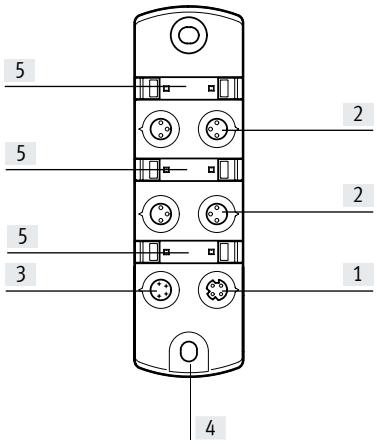
1) Additional information: www.festo.com/x/topic/kbk

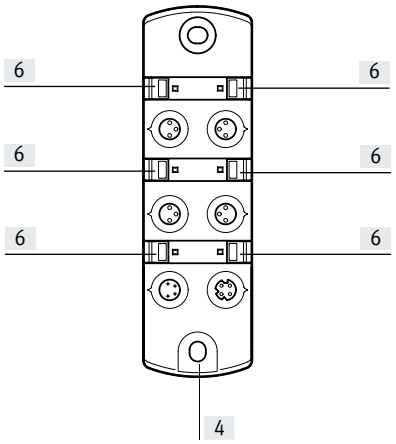
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

3) Additional information: www.festo.com/catalogue/... → Support/Downloads.

Technical data – Digital 4-way input modules

Connection and display components

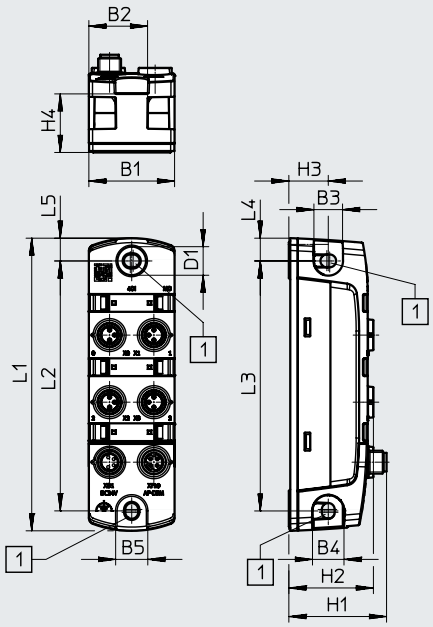




[1] Communication interface
[2] Electrical connection, inputs
[3] Electrical connection, power supply
[4] Earthing connection
[5] Space for inscription label
[6] LED indicators

Technical data – Digital 4-way input modules

Dimensions Download CAD data ➔ www.festo.com

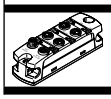


[1] Mounting hole for M4 screws

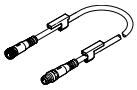
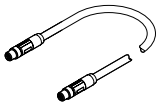
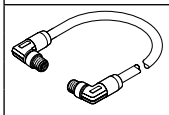
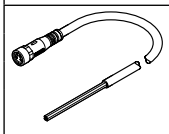
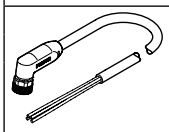
	B1	B2	B3	B4	B5	D1 ⌀	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-4DI-M8-3P	30	20.5	10	11	11	10	34.2	29.6	13.8	20.5	102.5	87.5	87.5	8	8

Technical data – Digital 4-way input modules

Ordering data

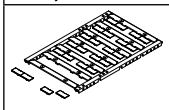
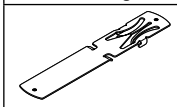
			Part No.	Type
	Digital input module	Electrical connection input 4x socket, 3-pin, M8x1	**8086605**	**CPX-AP-I-4DI-M8-3P**

Ordering data – Accessories

	Description				Part No.	Type
Pre-assembled plugs						
	For inputs	Straight plug, M8x1, 3-pin, A-coded	Screw terminal		**192009**	**SEA-3GS-M8-S**
			Solder connection		**18696**	**SEA-GS-M8**
Connecting cable						
	For inputs	Straight plug, M8x1, 3-pin, A-coded	Straight socket, M8 x 1, 3-pin, A-coded	0.5 m	**541346**	**NEBU-M8G3-K-0.5-M8G3**
				1.0 m	**541347**	**NEBU-M8G3-K-1-M8G3**
				1.5 m	**8003133**	**NEBU-M8G3-K-1.5-M8G3**
				2.0 m	**8003131**	**NEBU-M8G3-K-2-M8G3**
				2.5 m	**541348**	**NEBU-M8G3-K-2.5-M8G3**
				3.0 m	**8003132**	**NEBU-M8G3-K-3-M8G3**
				3.5 m	**559364**	**NEBU-M8G3-E-3.5-M8G3**
				5.0 m	**541349**	**NEBU-M8G3-K-5-M8G3**
				10.0 m	**569844**	**NEBU-M8G3-K-10-M8G3**
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**

Technical data – Digital 4-way input modules

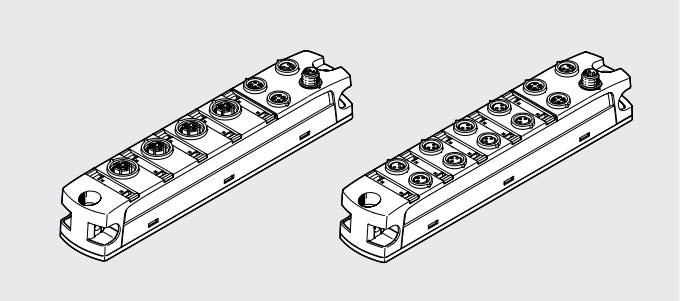
Ordering data – Accessories

	Description			Pack size	Part No.	Type
Inscription label						
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap						
	For sealing unused connections		For connection M8x1	10	**177672**	**ISK-M8**
H-rail mounting						
	For mounting a module on H-rails to EN 60715			–	**8095158**	**CAFM-X4-H**

Technical data – Digital 8-way input modules

Function
Digital input modules facilitate the connection of electric sensors to IEC 61131-2 type 3 (inductive, capacitive) with an operating voltage of 24 V DC.

- Input modules for 24 V DC operating voltage
- Connection M8x1 3-pin or M12x1 5-pin
- Status and error indication via LED



General technical data			
Type		CPX-AP-I-8DI-M8-3P	CPX-AP-I-8DI-M12-5P
Number of inputs		8	
Electrical connection, input			
Function		Digital input	
Connection type		8 x socket	4 x socket
Connection technology		M8x1, A-coded to EN 61076-2-104	M12x1, A-coded to EN 61076-2-101
Number of pins/wires		3	5
Switching logic at inputs		PNP (positive switching)	
		2-wire sensors to IEC 61131-2	
		3-wire sensors to IEC 61131-2	
Characteristic curve of inputs		To IEC 61131-2, type 3	
Switching level	[V]	Signal 0: ≤5	
	[V]	Signal 1: ≥11	
Fuse protection inputs (short circuit)		Internal electronic fuse per module	
Input debounce time	[ms]	0.1	
	[ms]	3	
	[ms]	10	
	[ms]	20	
Communication interface			
Protocol		AP	
Function		System communication XF10 IN / XF20 OUT	
Connection type		2 x socket	
Connection technology		M8x1, D-coded to EN 61076-2-114	
Number of pins/wires		4	
Screening		Yes	

General data		
Electrical isolation between channel and internal communication		Yes
Electrical isolation between channels		No
Diagnostics via LED		Diagnostics per module
		Status per channel
Diagnostics via internal communication		Short circuit/overload in sensor supply
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
Maximum cable length	[m]	30 inputs
	[m]	50 system communication
Information on maximum cable length		Power supply according to nominal voltage
Reverse polarity protection		Yes

Technical data – Digital 8-way input modules

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Note on operating voltage		Note voltage drop
		SELV/PELV power supply units required
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Max. residual current of inputs per module	[A]	1.8
Intrinsic current consumption at nominal operating voltage for electronics/ sensors	[mA]	Typically 32
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	126
Dimensions W x L x H	[mm]	30 x 170 x 35
Tightening torque	[Nm]	1.2

Materials		
Housing		PA
		PC
		Nickel-plated, die-cast zinc
O-ring		FPM
Note on materials		RoHS-compliant
PWIS conformity		VDMA24364-B2-L

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1)]		1
Relative humidity	[%]	5 ... 95
		Non-condensing
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

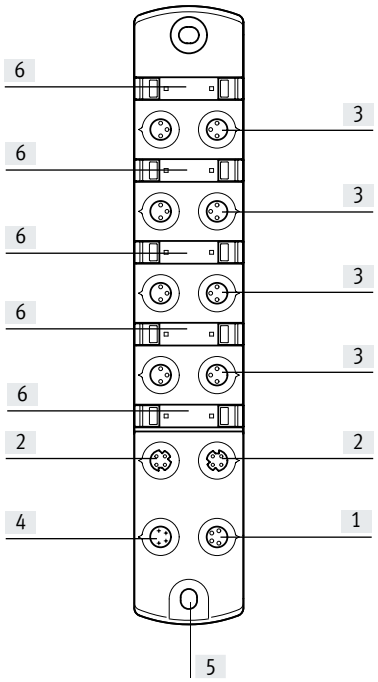
1) Additional information: www.festo.com/x/topic/kbk

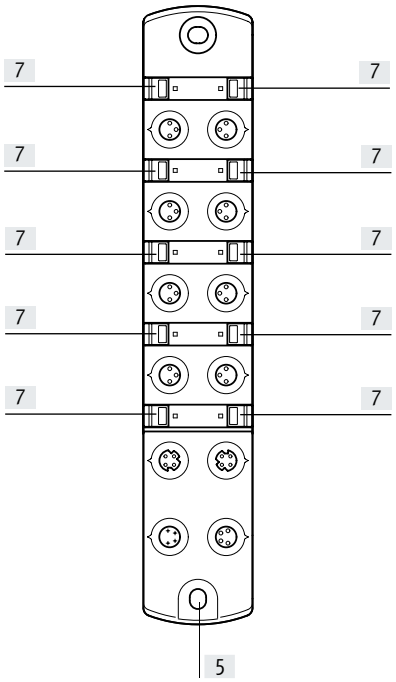
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

3) Additional information: www.festo.com/catalogue/... → Support/Downloads.

Technical data – Digital 8-way input modules

Connection and display components



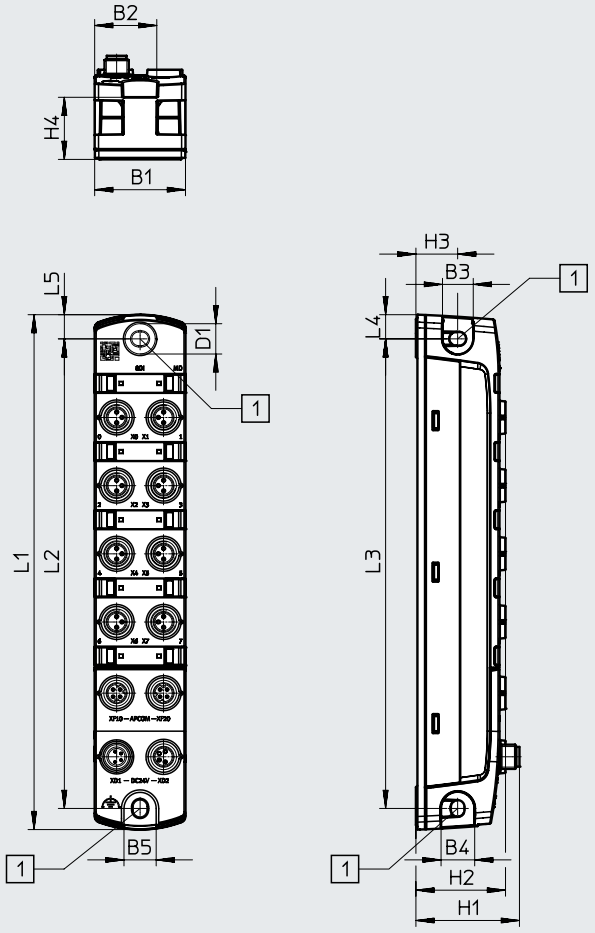


[1] Electrical connection, power transmission
[2] Communication interface
[3] Electrical connection, inputs
[4] Electrical connection, power supply
[5] Earthing connection
[6] Space for inscription label
[7] LED indicators

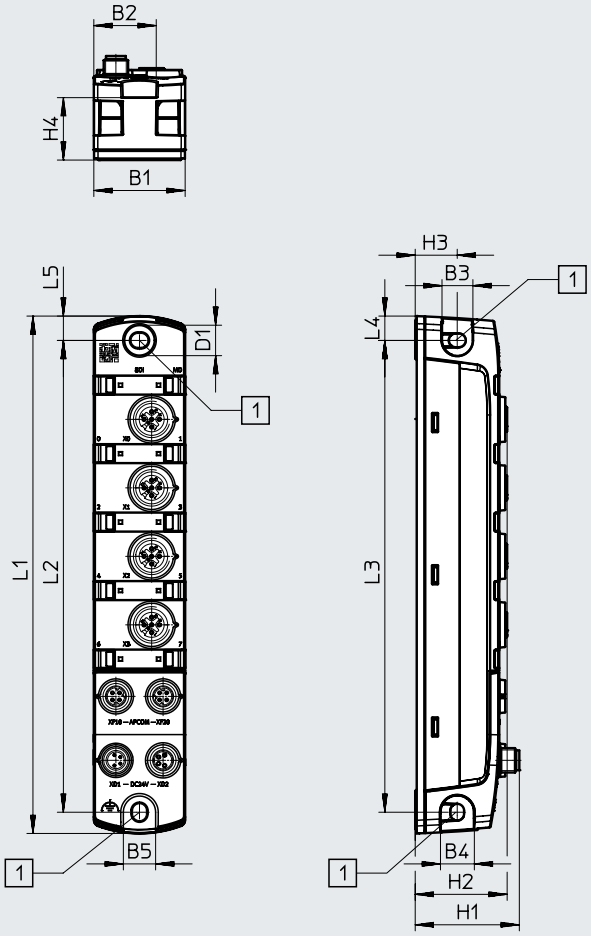
Technical data – Digital 8-way input modules

Dimensions Download CAD data ➔ www.festo.com

CPX-AP-I-8DI-M8-3P



CPX-AP-I-8DI-M12-5P

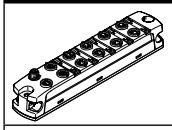
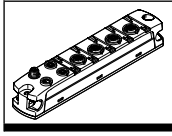


[1] Mounting hole for M4 screws

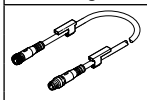
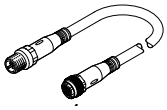
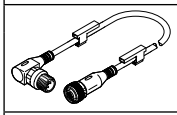
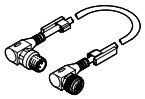
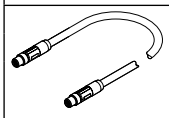
	B1	B2	B3	B4	B5	D1 ⌀	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-8DI-M8-3P	30	20.5	10	11	11	10	34.2	29.6	13.8	20.5	170	155	155	8	8
CPX-AP-I-8DI-M12-5P	30	20.5	10	11	11	10	34.2	30.2	13.8	20.5	170	155	155	8	8

Technical data – Digital 8-way input modules

Ordering data

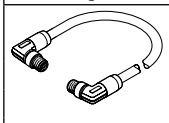
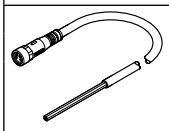
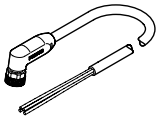
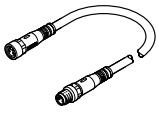
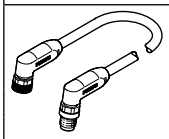
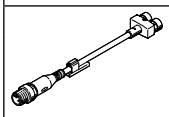
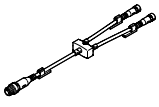
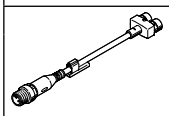
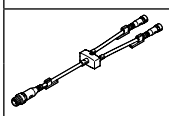
			Part No.	Type
	Digital input module	Electrical connection input 8x socket, 3-pin, M8x1	**8086600**	**CPX-AP-I-8DI-M8-3P**
		Electrical connection input 4x socket, 5-pin, M12x1	**8086602**	**CPX-AP-I-8DI-M12-5P**

Ordering data – Accessories

	Description				Part No.	Type
Pre-assembled plugs						
	For inputs	Straight plug, M8x1, 3-pin, A-coded	Screw terminal		**192009**	**SEA-3GS-M8-S**
			Solder connection		**18696**	**SEA-GS-M8**
		Straight plug, M12x1, 5-pin, A-coded	Screw terminal		**175487**	**SEA-M12-5GS-PG7**
Connecting cable						
	For inputs	Straight plug, M8x1, 3-pin, A-coded	Straight socket, M8 x 1, 3-pin, A-coded	0.5 m	**541346**	**NEBU-M8G3-K-0.5-M8G3**
				1.0 m	**541347**	**NEBU-M8G3-K-1-M8G3**
				1.5 m	**8003133**	**NEBU-M8G3-K-1.5-M8G3**
				2.0 m	**8003131**	**NEBU-M8G3-K-2-M8G3**
				2.5 m	**541348**	**NEBU-M8G3-K-2.5-M8G3**
				3.0 m	**8003132**	**NEBU-M8G3-K-3-M8G3**
				3.5 m	**559364**	**NEBU-M8G3-E-3.5-M8G3**
				5.0 m	**541349**	**NEBU-M8G3-K-5-M8G3**
				10.0 m	**569844**	**NEBU-M8G3-K-10-M8G3**
		Straight plug, M12x1, 5-pin, A-coded	Straight socket, M12 x 1, 3-pin, A-coded	0.5 m	**8000208**	**NEBU-M12G5-K-0.5-M12G4**
				5.0 m	**574321**	**NEBU-M12G5-E-5-Q8N-M12G5**
				7.5 m	**574322**	**NEBU-M12G5-E-7.5-Q8N-M12G5**
		Angled plug, M12x1, 5-pin, A-coded	Straight socket, M12 x 1, 3-pin, A-coded	0.5 m	**8003617**	**NEBU-M12G5-K-0.5-M12W5**
				2.0 m	**8003618**	**NEBU-M12G5-K-2-M12W5**
			Angled socket, M12x1, 3-pin, A-coded	0.5 m	**570733**	**NEBU-M12W5-K-0.5-M12W5**
				2.0 m	**570734**	**NEBU-M12W5-K-2-M12W5**
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**

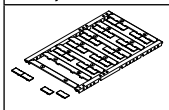
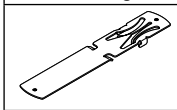
Technical data – Digital 8-way input modules

Ordering data – Accessories

	Description				Part No.	Type
Connecting cable						
	For communication interface	Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**
Distributor						
	For inputs	Straight plug, M12x1, 4-pin, A-coded	2x straight socket, M8x1, 3-pin, A-coded	–	**8005311**	**NEDY-L2R1-V1-M8G3-N-M12G4**
			2x straight socket, M12x1, 5-pin, A-coded	–	**8005310**	**NEDY-L2R1-V1-M12G5-N-M12G4**
			2x straight socket, M8x1, 3-pin, A-coded	2.5 m	**8005301**	**NEDY-L2R1-V1-M8G3-U-M12G4-2.5R**
				5.0 m	**8005302**	**NEDY-L2R1-V1-M8G3-U-M12G4-5R**
				0.3 m 2.5 m	**8032309**	**NEDY-L2R1-V1-M8G3-U-0.3L-M12G4-2.5R**
				0.3 m 5.0 m	**8035484**	**NEDY-L2R1-V1-M8G3-U-0.3L-M12G4-5R**
			2x straight socket, M12x1, 5-pin, A-coded	2.5 m	**8005305**	**NEDY-L2R1-V1-M12G5-U-M12G4-2.5R**
				5.0 m	**8005306**	**NEDY-L2R1-V1-M12G5-U-M12G4-5R**
				0.3 m 2.5 m	**8035775**	**NEDY-L2R1-V1-M12G5-U-0.3L-M12G4-2.5R**
				0.3 m 5.0 m	**8035776**	**NEDY-L2R1-V1-M12G5-U-0.3L-M12G4-5R**

Technical data – Digital 8-way input modules

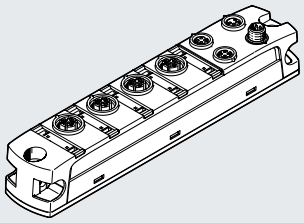
Ordering data – Accessories

	Description		Pack size	Part No.	Type
Inscription label					
	For modules CPX-AP-I Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap					
	For sealing unused connections	For connection M8x1	10	**177672**	**ISK-M8**
		For connection M12x1	10	**165592**	**ISK-M12**
H-rail mounting					
	For mounting a module on H-rails to EN 60715		–	**8095158**	**CAFM-X4-H**

Technical data – Analogue input modules

Function
Analogue input modules make it possible to detect 4 analogue input signals. All 4 channels can be set separately to measure current, voltage, temperature or resistance.

- Input modules for 24 V DC operating voltage
- Connection M12x1, 5-pin
- Status and error indication via LED



General technical data		
Number of inputs		4
Electrical connection, input		
Function		Analogue input
Connection type		4 x socket
Connection technology		M12x1, A-coded to EN 61076-2-101
Note on connection technology		To achieve the technical specifications, the opposite side must be shielded and designed with gold contact surfaces.
Number of pins/wires		5
Fuse protection inputs (short circuit)		Internal electronic fuse per module
Signal range	[V]	1 ... 5
	[V]	–5 ... 5
	[V]	0 ... 10
	[V]	–10 ... 10
	[mA]	0 ... 20
	[mA]	4 ... 20
	[ohm]	0 ... 500
Data format		15 bits + prefix
		Linear scaling
Measured variable		Voltage
		Current
		Resistance
		Temperature
Repetition accuracy	[%]	±0.025 at 25°C
Operating error limit related to the ambient temperature range	[%]	±0.15 for voltage
	[%]	±0.15 for current
	[%]	±0.35 for resistance
	[%]	±0.9 for temperature
Basic error limit at 25°C	[%]	±0.1 for voltage
	[%]	±0.1 for current
	[%]	±0.2 for resistance
	[%]	±0.4 for temperature
Communication interface		
Protocol		AP
Function		System communication XF10 IN / XF20 OUT
Connection type		2 x socket
Connection technology		M8x1, D-coded to EN 61076-2-114
Number of pins/wires		4
Screening		Yes

Technical data – Analogue input modules

General data		
Electrical isolation between channel and internal communication		Yes
Electrical isolation between channels		No
Diagnostics via LED		Diagnostics per module
		Status per channel
Diagnostics via internal communication		Short circuit/overload in sensor supply
		Wire break
		Module error
		Parameter error
		Parameterisation error
		Overload at analogue inputs
		Upper limit value not observed
		Underflow/overflow
		Lower limit value not observed
Maximum cable length	[m]	30 inputs
	[m]	50 system communication
Reverse polarity protection		Yes

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Note on operating voltage		Note voltage drop
		SELV/PELV power supply units required
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Max. residual current of inputs per module	[A]	1
Intrinsic current consumption at nominal operating voltage for electronics/sensors	[mA]	Typically 38
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	166
Dimensions W x L x H	[mm]	30 x 170 x 35

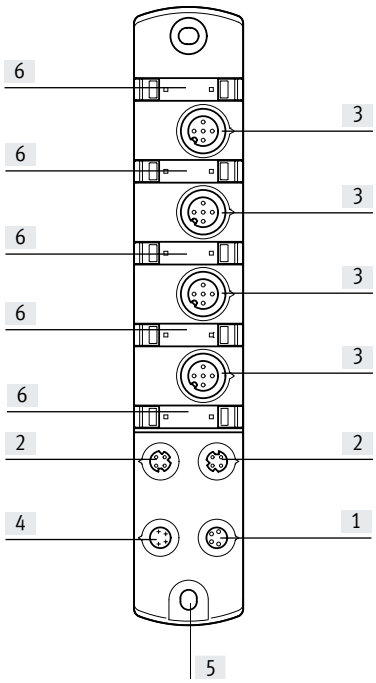
Materials	
Housing	PA
	PC
	Nickel-plated, die-cast zinc
Seals	NBR
O-ring	FPM
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

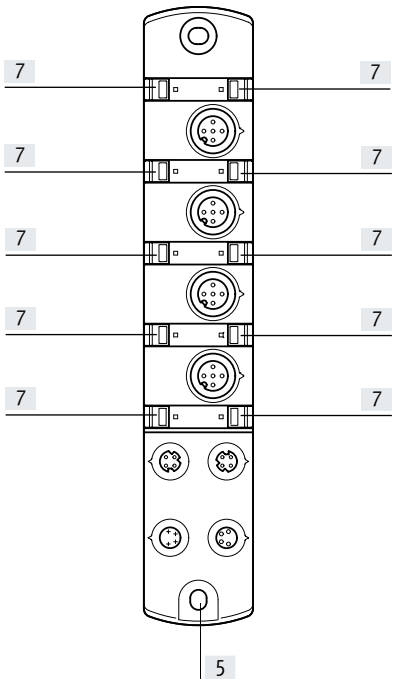
Technical data – Analogue input modules

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1)]		1
Relative humidity	[%]	5 ... 95
		Non-condensing
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

Connection and display components

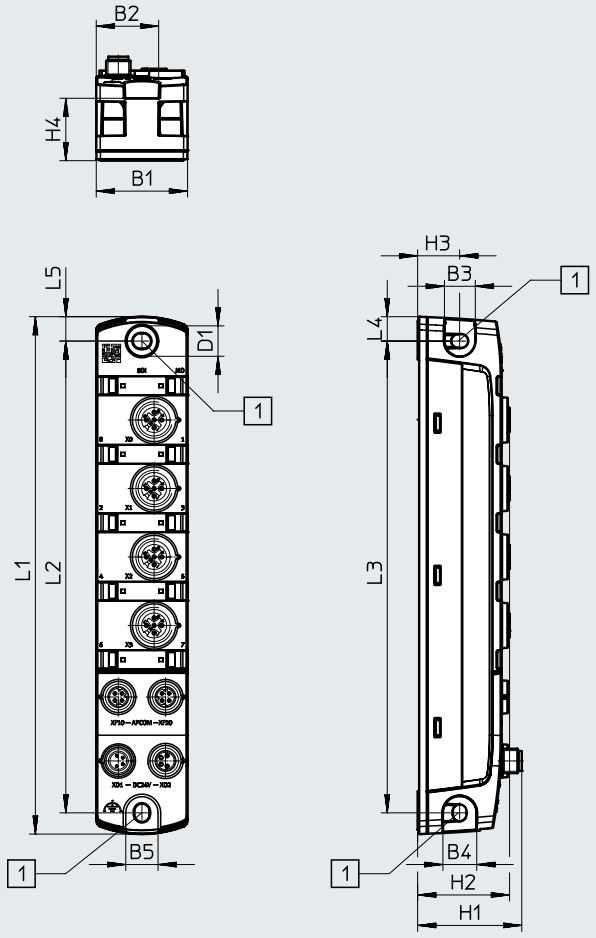




[1] Electrical connection, power transmission
[2] Communication interface
[3] Electrical connection, inputs
[4] Electrical connection, power supply
[5] Earthing connection
[6] Space for inscription label
[7] LED indicators

Technical data – Analogue input modules

Dimensions Download CAD data ➔ www.festo.com

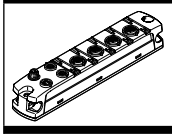


[1] Mounting hole for M4 screws

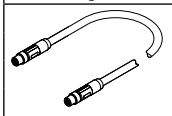
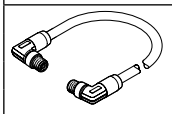
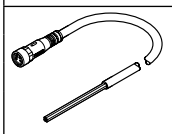
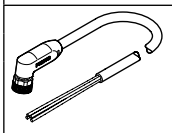
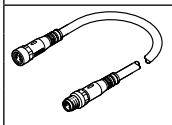
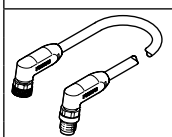
	B1	B2	B3	B4	B5	D1 ⌀	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-4AI-U-I-RTD-M12	30	20.5	10	11	11	10	34.2	30.2	13.8	20.5	170	155	155	8	8

Technical data – Analogue input modules

Ordering data

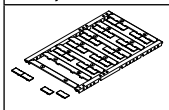
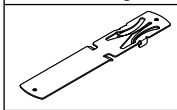
			Part No.	Type
	Analogue input module	Electrical connection input 4x socket, 5-pin, M12x1	**8086606**	**CPX-AP-I-4AI-U-I-RTD-M12**

Ordering data – Accessories

	Description				Part No.	Type
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

Technical data – Analogue input modules

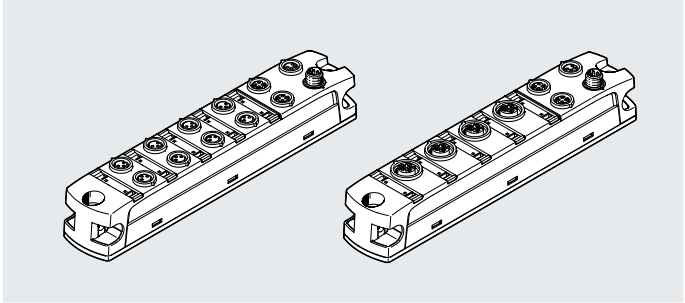
Ordering data – Accessories

	Description		Pack size	Part No.	Type
Inscription label					
	For modules CPX-AP-I Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap					
	For sealing unused connections	For connection M8x1	10	**177672**	**ISK-M8**
		For connection M12x1	10	**165592**	**ISK-M12**
H-rail mounting					
	For mounting a module on H-rails to EN 60715		–	**8095158**	**CAFM-X4-H**

Technical data – Digital input/output modules

Function
Digital input/output modules facilitate the connection of electric sensors to IEC 61131-2 type 3 (inductive, capacitive) and of electrical consumers to IEC 1131-2 type 0.5 with an operating voltage of 24 V DC.

- Input/output modules for 24 V DC operating voltage
- Connection M8x1 3-pin or M12x1 5-pin
- Status and error indication via LED



General technical data			
Type		CPX-AP-I-4DI4DO-M8-3P	CPX-AP-I-4DI4DO-M12-5P
Number of inputs		4	
Number of outputs		4	
Electrical connection, input			
Function		Digital input	
Connection type		4 x socket	2 x socket
Connection technology		M8x1, A-coded to EN 61076-2-104	M12x1, A-coded to EN 61076-2-101
Number of pins/wires		3	5
Switching logic at inputs		PNP (positive switching)	
		2-wire sensors to IEC 61131-2	
		3-wire sensors to IEC 61131-2	
Characteristic curve of inputs		To IEC 61131-2, type 3	
Switching level	[V]	Signal 0: ≤5	
	[V]	Signal 1: ≥11	
Fuse protection inputs (short circuit)		Internal electronic fuse per module	
Input debounce time	[ms]	0.1	
	[ms]	3	
	[ms]	10	
	[ms]	20	
Electrical isolation of inputs between channel and internal communication		Yes	
Electrical isolation of inputs between channels		No	
Electrical connection, output			
Function		Digital output	
Connection type		4 x socket	2 x socket
Connection technology		M8x1, A-coded to EN 61076-2-104	M12x1, A-coded to EN 61076-2-101
Number of pins/wires		3	5
Switching logic at outputs		PNP (positive switching)	
Characteristic curve of outputs		To IEC 61131-2, type 0.5	
Output delay with resistive load	[µs]	Signal change from 0 to 1: <200	
	[µs]	Signal change from 1 to 0: <200	
Fuse protection outputs (short circuit)		Internal electronic fuse per channel	
Electrical isolation of outputs between channel and internal communication		Yes	
Electrical isolation of outputs between channels		No	
Communication interface			
Protocol		AP	
Function		System communication XF10 IN / XF20 OUT	
Connection type		2 x socket	
Connection technology		M8x1, D-coded to EN 61076-2-114	
Number of pins/wires		4	
Screening		Yes	

Technical data – Digital input/output modules

General data		
Diagnostics via LED		Diagnostics per module
		Status per channel
		Power supply load
Diagnostics via internal communication		Load overvoltage
		Load undervoltage
		Load switch-off
		Short-circuit/overload output signal
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
		Short circuit/overload in sensor supply
Maximum cable length	[m]	30 outputs
	[m]	30 inputs
	[m]	50 system communication
Information on maximum cable length		Power supply according to nominal voltage
Reverse polarity protection		Yes

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Permissible voltage fluctuations, load	[%]	±25
Note on operating voltage		Note voltage drop
		SELV/PELV power supply units required
Power failure buffering	[ms]	10
Max. power supply	[A]	2x 4
		External fuse required
Max. power supply per channel	[A]	0.5
Max. residual current of inputs per module	[A]	1.8
Max. total current of outputs per module	[A]	2
Intrinsic current consumption at nominal operating voltage for electronics/ sensors	[mA]	Typically 35
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 10
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Mechanical components		
Type of mounting		Via through-hole
		On H-rail with accessories
Product weight	[g]	129
Dimensions W x L x H	[mm]	30 x 170 x 35
Tightening torque	[Nm]	1.2

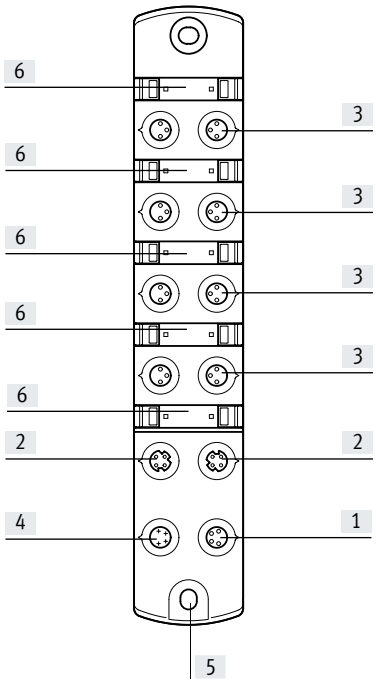
Materials	
Housing	PA
	PC
	Nickel-plated, die-cast zinc
O-ring	FPM
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

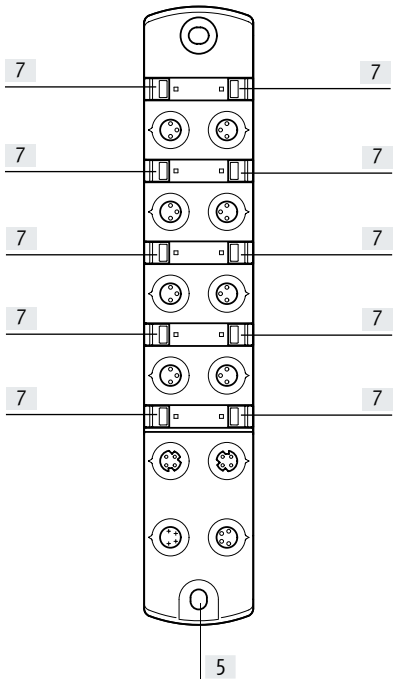
Technical data – Digital input/output modules

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1]		1
Relative humidity	[%]	5 ... 95
		Non-condensing
CE marking (see declaration of conformity)[3]		To EU EMC Directive[2]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Listed (OL)
Certificate-issuing authority		UL E239998
Degree of protection		IP65
		IP67
Note on degree of protection		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... ➔ Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

Connection and display components



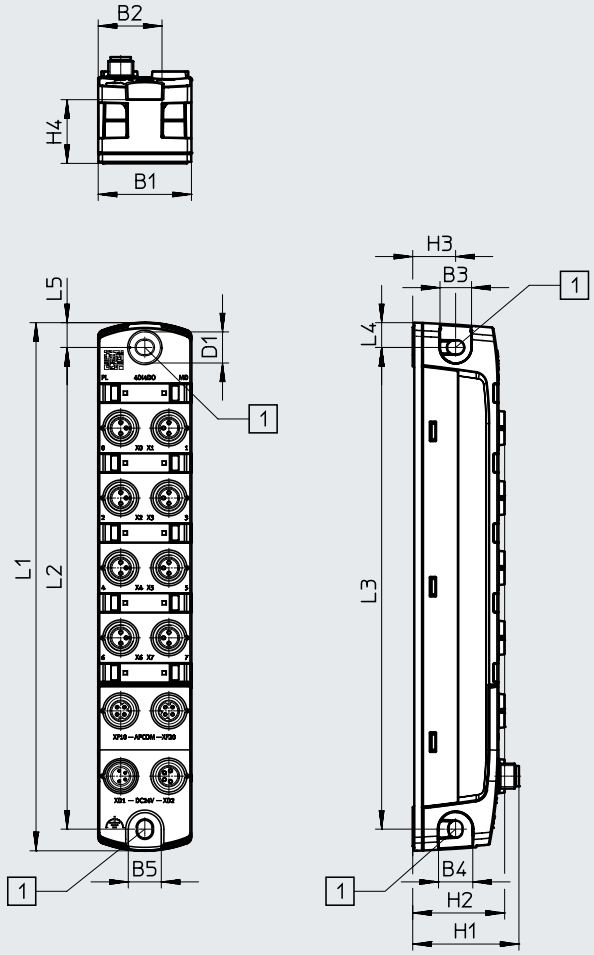


[1] Electrical connection, power transmission
[2] Communication interface
[3] Electrical connection, inputs/outputs
[4] Electrical connection, power supply
[5] Earthing connection
[6] Space for inscription label
[7] LED indicators

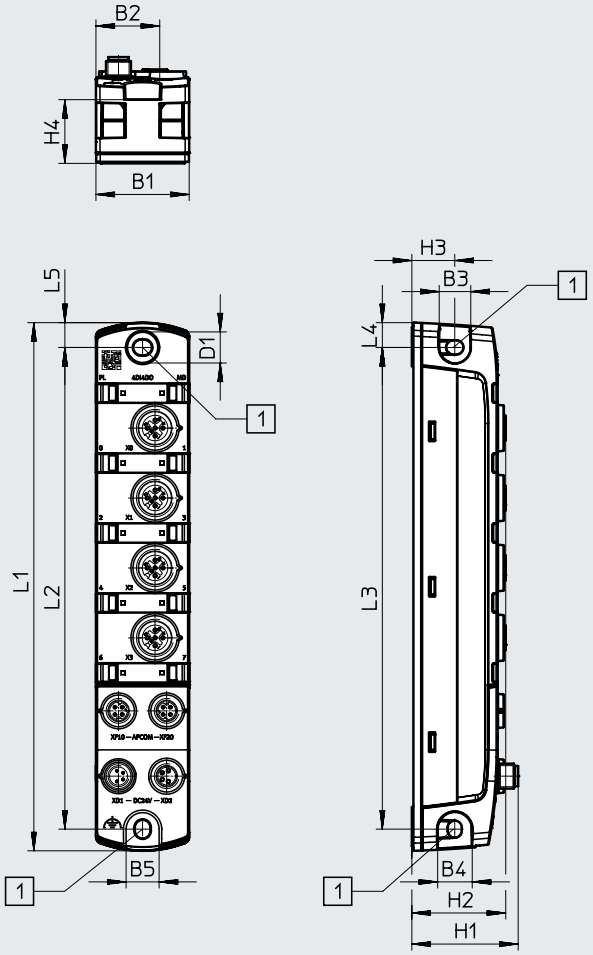
Technical data – Digital input/output modules

Dimensions Download CAD data ➔ www.festo.com

CPX-AP-I-4DI4DO-M8-3P



CPX-AP-I-4DI4DO-M12-5P

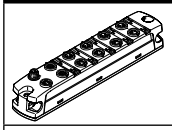
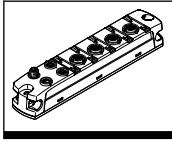


[1] Mounting hole for M4 screws

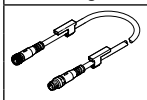
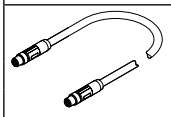
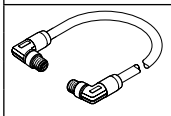
	B1	B2	B3	B4	B5	D1 ø	H1	H2	H3	H4	L1	L2	L3	L4	L5
CPX-AP-I-4DI4DO-M8-3P	30	20.5	10	11	11	10	34.2	29.6	13.8	20.5	170	155	155	8	8
CPX-AP-I-4DI4DO-M12-5P	30	20.5	10	11	11	10	34.2	30.2	13.8	20.5	170	155	155	8	8

Technical data – Digital input/output modules

Ordering data

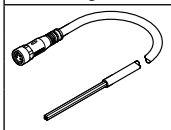
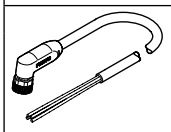
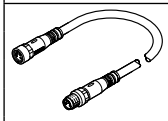
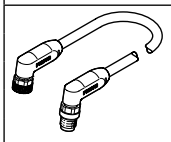
			Part No.	Type
	Digital input/output module	• Electrical connection input 4x socket, 3-pin, M8x1 • Electrical connection output 4x socket, 3-pin, M8x1	**8086601**	**CPX-AP-I-4DI4DO-M8-3P**
		• Electrical connection input 2x socket, 5-pin, M12x1 • Electrical connection output 2x socket, 5-pin, M12x1	**8086603**	**CPX-AP-I-4DI4DO-M12-5P**

Ordering data – Accessories

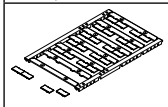
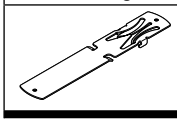
	Description				Part No.	Type
Pre-assembled plugs						
	For inputs	Straight plug, M8x1, 3-pin, A-coded	Screw terminal		**192009**	**SEA-3GS-M8-S**
			Solder connection		**18696**	**SEA-GS-M8**
		Straight plug, M12x1, 5-pin, A-coded	Screw terminal		**175487**	**SEA-M12-5GS-PG7**
Distributor						
	For inputs	Straight plug, M8x1, 4-pin, A-coded	2x straight socket, M8x1, 3-pin, A-coded		**8005312**	**NEDY-L2R1-V1-M8G3-N-M8G4**
Connecting cable						
	For inputs	Straight plug, M8x1, 3-pin, A-coded	Straight socket, M8 x 1, 3-pin, A-coded	0.5 m	**541346**	**NEBU-M8G3-K-0.5-M8G3**
				1.0 m	**541347**	**NEBU-M8G3-K-1-M8G3**
				1.5 m	**8003133**	**NEBU-M8G3-K-1.5-M8G3**
				2.0 m	**8003131**	**NEBU-M8G3-K-2-M8G3**
				2.5 m	**541348**	**NEBU-M8G3-K-2.5-M8G3**
				3.0 m	**8003132**	**NEBU-M8G3-K-3-M8G3**
				3.5 m	**559364**	**NEBU-M8G3-E-3.5-M8G3**
				5.0 m	**541349**	**NEBU-M8G3-K-5-M8G3**
				10.0 m	**569844**	**NEBU-M8G3-K-10-M8G3**
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**

Technical data – Digital input/output modules

Ordering data – Accessories

	Description				Part No.	Type
Connecting cable						
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

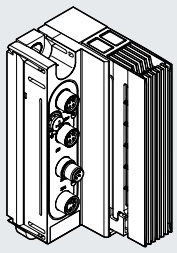
Ordering data – Accessories

	Description		Pack size	Part No.	Type
Inscription label					
	For modules CPX-AP-I Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap					
	For sealing unused connections	For connection M8x1	10	**177672**	**ISK-M8**
		For connection M12x1	10	**165592**	**ISK-M12**
H-rail mounting					
	For mounting a module on H-rails to EN 60715		–	**8095158**	**CAFM-X4-H**

Technical data – Manifold sub-base for valve terminal VTUX

Function
The manifold sub-base for VTUX facilitates a valve terminal VTUX to be operated as a component of the automation system CPX-AP-I.

- Display of power supply and module diagnostics via LED indicators
- Up to 32 valve positions with up to 32 solenoid coils
- Short-circuit shutdown, short-circuit diagnostics and switching cycle counter



General technical data		
Valve terminal design		Valve sizes can be mixed
Max. address volume for outputs	[byte]	4
Maximum number of valve positions		32
Max. no. of solenoid coils		32
Communication interface		
Protocol		AP-COM
Function		System communication XF10 IN / XF20 OUT
Connection type		2 x socket
Connection technology		M8x1, D-coded to EN 61076-2-114
Number of pins/wires		4
Shielding		Yes

General data		
Module parameters		Configuration of voltage monitoring load supply PL
		Response in error state
Diagnostics via LED		Diagnostics per module
		Power supply load
Communication Diagnostics via internal communication		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
		Load switch-off
Undervoltage load/valves (diagnostic message)	[V]	≤21.1
Maximum cable length	[m]	50 system communication

Technical data – Manifold sub-base for valve terminal VTUX

Technical data – Electrical components		
Nominal operating voltage, electronics/sensors	[V DC]	24
Permissible voltage fluctuations, electronics/sensors	[%]	±25
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations, load	[%]	±10
Note on the operating voltage		SELV/PELV power supply units required
		Note voltage drop
Power failure buffering	[ms]	10
Maximum power supply		2 x 4 A (external fuse required)
Fuse protection (short circuit)		Internal electronic fuse per channel
Inductive protective circuit		Integrated
Overvoltage category		II
Protection against direct and indirect contact		PELV
		SELV
Reverse polarity protection		Yes
Intrinsic current consumption at nominal operating voltage, electronics/sensors	[mA]	Typically 27
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 13
Power consumption at 24 V DC	[mW]	650
Pollution degree		2
Electrical isolation of outputs between channel - internal communication		Yes
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Manifold sub-base for valve terminal VTUX

Technical data – Mechanical components		
Type of mounting		Tie rods
Type of mounting sub-base		Via through-hole
Connection position		On the side
Product weight	[g]	144.8
Dimensions W x L x H	[mm]	45 x 104.3 x 55.3
Max. tightening torque for wall mounting	[Nm]	6

Materials	
Connecting plate	Reinforced PA
Cover	Reinforced PA
Film	Polyester
Sleeve	High-alloy stainless steel
Clamp	High-alloy stainless steel
Nut	High-alloy stainless steel
Seals	NBR
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +50
Storage temperature	[°C]	–20 ... +70
Corrosion resistance class CRC[1)]		2
Relative humidity	[%]	5 ... 95
Nominal operating altitude		< 3000 m above sea level
Vibration resistant		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Shock resistance		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
		To EU RoHS Directive
UKCA marking (see declaration of conformity)[3)]		To UK EMC regulations
		To UK RoHS regulations
KC marking		KC EMC
Certification		RCM
Degree of protection		IP65

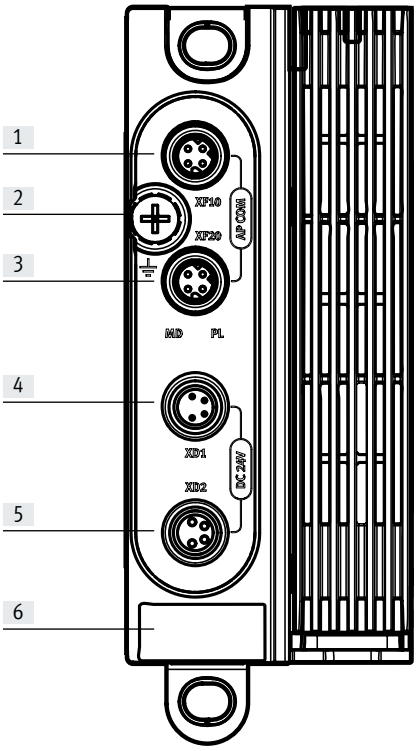
1) More information: www.festo.com/x/topic/crc

2) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

3) More information: www.festo.com/catalogue/... → Support/Downloads.

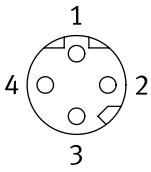
Technical data – Manifold sub-base for valve terminal VTUX

Connection and display components

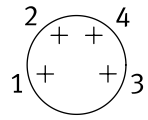


[1] XF10 Communication interface
[2] Earth connection
[3] XF20 Communication interface
[4] XD1 Electrical connection, power supply
[5] XD2 Electrical connection, power transmission
[6] Rating plate

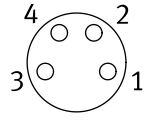
Pin allocation of communication interface 2x socket M8x1, D-coded, 4-pin

Terminal allocation	Pin	Allocation	Description
	1	TX-	Transmitted data-
	2	RX+	Received data+
	3	TX+	Transmitted data+
	4	RX-	Received data-

Pin allocation of power supply M8x1, A-coded, 4-pin

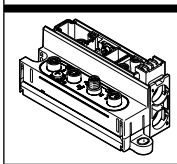
Terminal allocation	Pin	Allocation	Description
	1	24 V	Operating voltage 24 V for electronics and sensors
	2	0 V	Operating voltage 0 V load voltage supply
	3	0 V	Operating voltage 0 V for electronics and sensors
	4	24 V	Operating voltage 24 V load voltage supply

Pin allocation for voltage transmission socket M8x1, A-coded, 4-pin

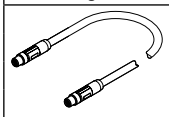
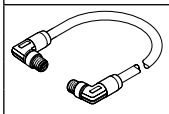
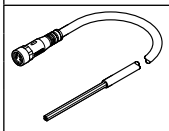
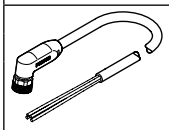
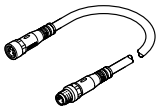
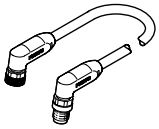
Terminal allocation	Pin	Allocation	Description
	1	24 V	Operating voltage 24 V for electronics and sensors
	2	0 V	Operating voltage 0 V load voltage supply
	3	0 V	Operating voltage 0 V for electronics and sensors
	4	24 V	Operating voltage 24 V load voltage supply

Technical data – Manifold sub-base for valve terminal VTUX

Ordering data

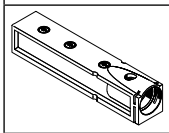
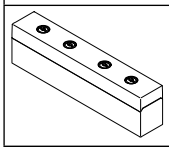
		Part no.	Type
	Manifold sub-base for valve terminal VTUX	**8189592**	**VABX-A-P-EL-E12-API-SHUH**

Ordering data – Accessories

	Description				Part no.	Type
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

Technical data – Manifold sub-base for valve terminal VTUX

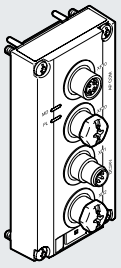
Ordering data – Accessories

	Description		Pack size	Part no.	Type
Cover cap					
	For sealing unused connections	For connection M8x1	10	**177672**	**ISK-M8**
Plate					
	Position function 1-64: UD	Plate for ducted exhaust air, without cartridge, for mounting on manifold sub-base for VTUX		**8191794**	**VABF-XA-12-M2-QX**
	Position function 1-64: US	Exhaust plate for mounting on manifold sub-base for VTUX		**8191741**	**VABF-XA-12-M1-C**

Technical data – Electrical interface for valve terminal VTUG

Function
The electrical interface facilitates a valve terminal VTUG to be operated as a component of the automation system CPX-AP-I.

- Indication of status and error messages via LED indicators
- Up to 24 valve positions with up to 48 solenoid coils
- Separate load voltage supply for the connected valves; can be disconnected separately
- Short-circuit disconnection



General technical data			
Type		VAEM-L1-S-12-AP	VAEM-L1-S-24-AP
Maximum number of valve positions		12	24
Max. no. of solenoid coils		24	48
Communication interface			
Protocol		AP-COM	
Function		System communication XF10 IN / XF20 OUT	
Connection type		2 x socket	
Connection technology		M8x1, D-coded to EN 61076-2-114	
Number of pins/wires		4	
Screening		Yes	

General data		
Module parameters		Configuration of voltage monitoring of load supply PL
		Response in error state
Diagnostics via LED		Diagnostics per module
		Power supply load
Diagnostics via internal communication		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
		Load overvoltage
		Load undervoltage
		Load switch-off
Maximum cable length	[m]	50 system communication

Technical data – Electrical interface for valve terminal VTUG

Technical data – Electrical components			
Type		VAEM-L1-S-12-AP	VAEM-L1-S-24-AP
Nominal operating voltage, electronics/sensors	[V DC]	24	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25	±25
Nominal operating voltage, load	[V DC]	24	24
Permissible voltage fluctuations, load	[%]	±10	±10
Note on operating voltage		SELV/PELV power supply units required	SELV/PELV power supply units required
		Note voltage drop	Note voltage drop
Power failure buffering	[ms]	10	10
Mains buffering of load	[ms]	3	3
Maximum power supply		2 x 4 A (external fuse required)	2 x 4 A (external fuse required)
Fuse protection (short circuit)		Internal electronic fuse per channel	Internal electronic fuse per channel
Protection against direct and indirect contact		PELV	PELV
		SELV	SELV
Reverse polarity protection		Yes	Yes
Intrinsic current consumption at nominal operating voltage for electronics/ sensors	[mA]	Typically 34	Typically 34
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 16	Typically 22
Electrical connection, power supply			
Function		Incoming electronics/sensors and load	Incoming electronics/sensors and load
Connection type		Plug	Plug
Connection technology		M8x1, A-coded to EN 61076-2-104	M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4	4
Electrical connection, power transmission			
Function		Outgoing electronics/sensors and load	Outgoing electronics/sensors and load
Connection type		Socket	Socket
Connection technology		M8x1, A-coded to EN 61076-2-104	M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4	4

Technical data – Electrical interface for valve terminal VTUG

Technical data – Mechanical components		
Type of mounting		Screw-clamped
Connection position		On top
Product weight	[g]	76
Dimensions W x L x H	[mm]	42 x 91 x 30

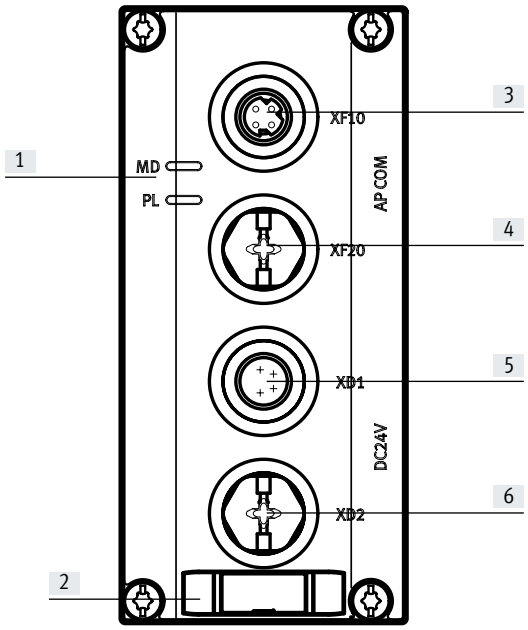
Materials	
Housing	Reinforced PA
Threaded sleeve	Nickel-plated brass
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B1/B2-L

Operating and environmental conditions		
Ambient temperature	[°C]	–5 ... +50
Storage temperature	[°C]	–20 ... +60
Corrosion resistance class CRC[1)]		2
Relative humidity	[%]	5 ... 95
		Non-condensing
Nominal altitude of use		≤ 2000 m above sea level
CE marking (see declaration of conformity)[3)]		To EU EMC Directive[2)]
KC mark		KC EMC
UKCA marking (see declaration of conformity)		To UK instructions for EMC
Certification		RCM
		c UL us - Recognized (OL)
Degree of protection		IP65
		IP67
Note on degree of protection		In assembled state
		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... → Support/Downloads.

Technical data – Electrical interface for valve terminal VTUG

Connection and display components



[1] LED indicators
[2] Space for inscription label
[3] Communication interface
[4] Communication interface 2
[5] Electrical connection, power supply
[6] Electrical connection, power transmission

Dimensions

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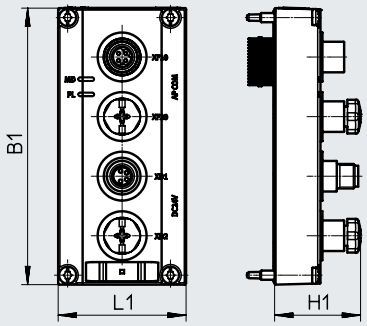
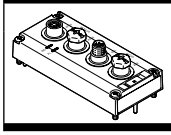


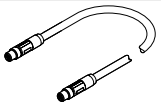
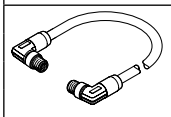
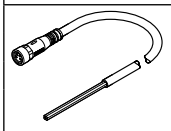
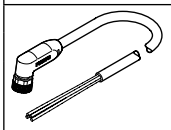
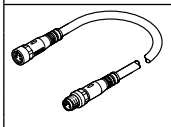
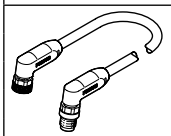
	B1	H1	L1
VAEM-L1-S-12-AP	90.5	28.1	41.8
VAEM-L1-S-24-AP	90.5	28.1	41.8

Technical data – Electrical interface for valve terminal VTUG

Ordering data

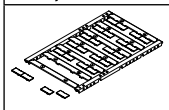
			Part No.	Type
	Electrical interface for valve terminal VTUG	12 valve positions	**8081922**	**VAEM-L1-S-12-AP**
		24 valve positions	**8081923**	**VAEM-L1-S-24-AP**

Ordering data – Accessories

	Description				Part No.	Type
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

Technical data – Electrical interface for valve terminal VTUG

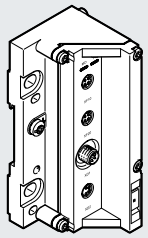
Ordering data – Accessories

	Description			Pack size	Part No.	Type
Inscription label						
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each		240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap						
	For sealing unused connections		For connection M8x1	10	**177672**	**ISK-M8**

Technical data – Electrical interface for valve terminal MPA-L

Function
The electrical interface facilitates a valve terminal MPA-L to be operated as a component of the automation system CPX-AP-I.

- Indication of status and error messages via LED indicators
- Up to 32 valve positions with up to 32 solenoid coils
- Separate load voltage supply for the connected valves; can be disconnected separately
- Short-circuit disconnection, short-circuit diagnostics and switching cycle counter



General technical data	
Maximum number of valve positions	32
Max. no. of solenoid coils	32
Communication interface	
Protocol	AP-COM
Function	System communication XF10 IN / XF20 OUT
Connection type	2 x socket
Connection technology	M8x1, D-coded to EN 61076-2-114
Number of pins/wires	4
Screening	Yes

General data		
Diagnostics via LED		Diagnostics per module
		Power supply load
Diagnostics via internal communication		Electronics/sensors overvoltage
		Electronics/sensors undervoltage
Electrical isolation of outputs between channel and internal communication		Yes
Maximum cable length	[m]	50 system communication

Technical data – Electrical components		
Type		VAEM-L1-S-12-AP
Nominal operating voltage, electronics/sensors	[V DC]	24
Permissible voltage fluctuations for electronics/sensors	[%]	±25
Nominal operating voltage, load	[V DC]	24
Permissible voltage fluctuations, load	[%]	±10
Power failure buffering	[ms]	10
Mains buffering of load	[ms]	3
Maximum power supply		2 x 4 A (external fuse required)
Fuse protection (short circuit)		Internal electronic fuse per channel
Protection against direct and indirect contact		PELV
		SELV
Reverse polarity protection		Yes
Intrinsic current consumption at nominal operating voltage for electronics/sensors	[mA]	Typically 30
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 15
Electrical connection, power supply		
Function		Incoming electronics/sensors and load
Connection type		Plug
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4
Electrical connection, power transmission		
Function		Outgoing electronics/sensors and load
Connection type		Socket
Connection technology		M8x1, A-coded to EN 61076-2-104
Number of pins/wires		4

Technical data – Electrical interface for valve terminal MPA-L

Technical data – Mechanical components		
Valve terminal design		Valve sizes can be mixed
Type of mounting		Tie rod
Connection position		On top
Product weight	[g]	194
Dimensions W x L x H	[mm]	43.1 x 107.5 x 50.2

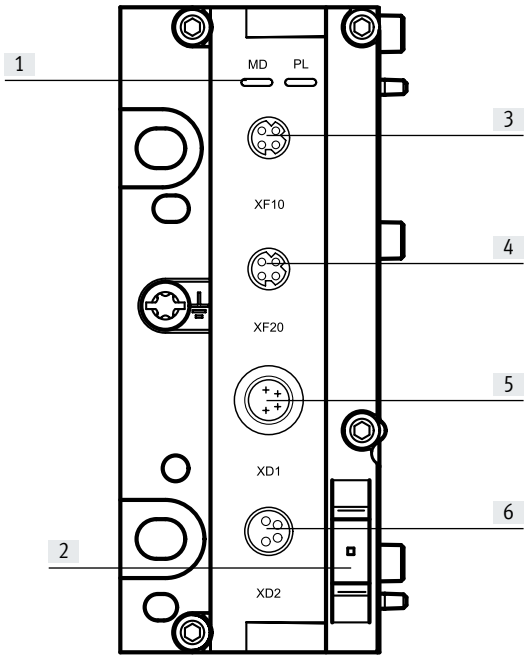
Materials		
Housing		Die-cast aluminium, painted
		Reinforced PA
Threaded sleeve		Nickel-plated brass
Note on materials		RoHS-compliant
PWIS conformity		VDMA24364-B1/B2-L

Operating and environmental conditions		
Ambient temperature	[°C]	–5 ... +50
Storage temperature	[°C]	–40 ... +70
Corrosion resistance class CRC[1]		3
Relative humidity	[%]	5 ... 95
		Non-condensing
Nominal altitude of use		≤ 2000 m above sea level
CE marking (see declaration of conformity)[3]		To EU EMC Directive[2]
		To EU RoHS Directive
KC mark		KC EMC
UKCA marking (see declaration of conformity)[3]		To UK instructions for EMC
		To UK RoHS instructions
Certification		RCM
Degree of protection		IP65
		IP67
Note on degree of protection		In assembled state
		Unused connections sealed

1) Additional information: www.festo.com/x/topic/kbk
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) Additional information: www.festo.com/catalogue/... → Support/Downloads.

Technical data – Electrical interface for valve terminal MPA-L

Connection and display components



[1] LED indicators
[2] Space for inscription label
[3] Communication interface
[4] Communication interface 2
[5] Electrical connection, power supply
[6] Electrical connection, power transmission

Dimensions

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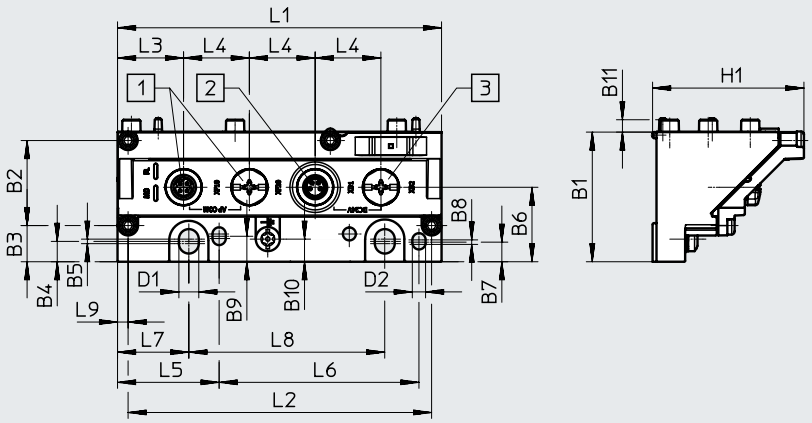


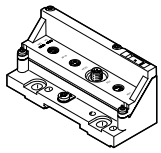
[1] Socket M8x1, D-coded [2] Plug M8x1, A-coded [3] Socket M8x1, A-coded

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	D1	D2	H1
VMPAL-EPL-AP	43	28.2	12	6.8	1.5	24.7	6.5	1.5	8.5	7.5	4.1	6.6	4.4	50.2

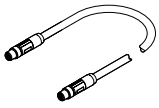
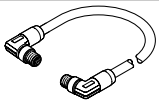
	L1	L2	L3	L4	L5	L6	L7	L8	L9
VMPAL-EPL-AP	107.5	100.7	21.9	21.8	33.7	66.3	23.7	65	3.5

Technical data – Electrical interface for valve terminal MPA-L

Ordering data

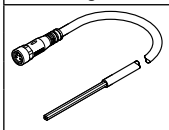
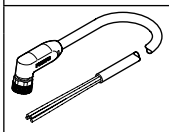
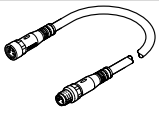
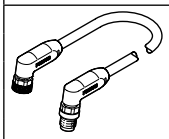
			Part No.	Type
	Electrical interface for valve terminal MPA-L	32 valve positions	**8087171**	**VMPAL-EPL-AP**

Ordering data – Accessories

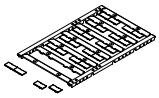
	Description				Part No.	Type
Connecting cable						
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	**8082902**	**NEBC-D8G4-ES-0.3-N-S-D8G4-ET**
				0.5 m	**8065123**	**NEBC-D8G4-ES-0.5-N-S-D8G4-ET**
				1.0 m	**8065125**	**NEBC-D8G4-ES-1-N-S-D8G4-ET**
				2.0 m	**8065127**	**NEBC-D8G4-ES-2-N-S-D8G4-ET**
				5.0 m	**8065129**	**NEBC-D8G4-ES-5-N-S-D8G4-ET**
				7.5 m	**8065131**	**NEBC-D8G4-ES-7.5-N-S-D8G4-ET**
				10.0 m	**8065133**	**NEBC-D8G4-ES-10-N-S-D8G4-ET**
				15.0 m	**8065135**	**NEBC-D8G4-ES-15-N-S-D8G4-ET**
				20.0 m	**8146031**	**NEBC-D8G4-ES-20-N-S-D8G4-ET**
				25.0 m	**8146032**	**NEBC-D8G4-ES-25-N-S-D8G4-ET**
				30.0 m	**8146033**	**NEBC-D8G4-ES-30-N-S-D8G4-ET**
				40.0 m	**8146034**	**NEBC-D8G4-ES-40-N-S-D8G4-ET**
				50.0 m	**8146035**	**NEBC-D8G4-ES-50-N-S-D8G4-ET**
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	**8065124**	**NEBC-D8W4-ES-0.5-N-S-D8W4-ET**
				1.0 m	**8065126**	**NEBC-D8W4-ES-1-N-S-D8W4-ET**
				2.0 m	**8065128**	**NEBC-D8W4-ES-2-N-S-D8W4-ET**
				5.0 m	**8065130**	**NEBC-D8W4-ES-5-N-S-D8W4-ET**
				7.5 m	**8065132**	**NEBC-D8W4-ES-7.5-N-S-D8W4-ET**
				10.0 m	**8065134**	**NEBC-D8W4-ES-10-N-S-D8W4-ET**
				15.0 m	**8065136**	**NEBC-D8W4-ES-15-N-S-D8W4-ET**
				20.0 m	**8146036**	**NEBC-D8W4-ES-20-N-S-D8W4-ET**
				25.0 m	**8146037**	**NEBC-D8W4-ES-25-N-S-D8W4-ET**
				30.0 m	**8146038**	**NEBC-D8W4-ES-30-N-S-D8W4-ET**
				40.0 m	**8146039**	**NEBC-D8W4-ES-40-N-S-D8W4-ET**
				50.0 m	**8146040**	**NEBC-D8W4-ES-50-N-S-D8W4-ET**

Technical data – Electrical interface for valve terminal MPA-L

Ordering data – Accessories

	Description				Part No.	Type
Connecting cable						
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5.0 m	**8065110**	**NEBL-M8G4-E-5-N-LE4**
				7.5 m	**8065113**	**NEBL-M8G4-E-7.5-N-LE4**
				10.0 m	**8065117**	**NEBL-M8G4-E-10-N-LE4**
				15.0 m	**8065121**	**NEBL-M8G4-E-15-N-LE4**
		Angled socket, M8x1, 4-pin, A-coded	Open cable end, 4-wire	7.5 m	**8065114**	**NEBL-M8W4-E-7.5-N-LE4**
				10.0 m	**8065118**	**NEBL-M8W4-E-10-N-LE4**
				15.0 m	**8065122**	**NEBL-M8W4-E-15-N-LE4**
	For power transmission	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	**8082904**	**NEBL-M8G4-E-0.3-N-M8G4**
				0.5 m	**8065102**	**NEBL-M8G4-E-0.5-N-M8G4**
				1.0 m	**8065104**	**NEBL-M8G4-E-1-N-M8G4**
				2.0 m	**8065106**	**NEBL-M8G4-E-2-N-M8G4**
				5.0 m	**8065108**	**NEBL-M8G4-E-5-N-M8G4**
				7.5 m	**8065111**	**NEBL-M8G4-E-7.5-N-M8G4**
				10.0 m	**8065115**	**NEBL-M8G4-E-10-N-M8G4**
				15.0 m	**8065119**	**NEBL-M8G4-E-15-N-M8G4**
		Angled socket, M8x1, 4-pin, A-coded	Angled plug, M8x1, 4-pin, A-coded	0.3 m	**8146577**	**NEBL-M8W4-E-0.3-N-M8W4**
				0.5 m	**8065103**	**NEBL-M8W4-E-0.5-N-M8W4**
				1.0 m	**8065105**	**NEBL-M8W4-E-1-N-M8W4**
				2.0 m	**8065107**	**NEBL-M8W4-E-2-N-M8W4**
				5.0 m	**8065109**	**NEBL-M8W4-E-5-N-M8W4**
				7.5 m	**8065112**	**NEBL-M8W4-E-7.5-N-M8W4**
				10.0 m	**8065116**	**NEBL-M8W4-E-10-N-M8W4**
				15.0 m	**8065120**	**NEBL-M8W4-E-15-N-M8W4**

Ordering data – Accessories

	Description		Pack size	Part No.	Type
Inscription label					
	For modules CPX-AP-I	Size 6x 12.5 mm, 10 frames with 24 pieces each	240	**8087174**	**ASLR-L-X4-612-P240**
Cover cap					
	For sealing unused connections	For connection M8x1	10	**177672**	**ISK-M8**