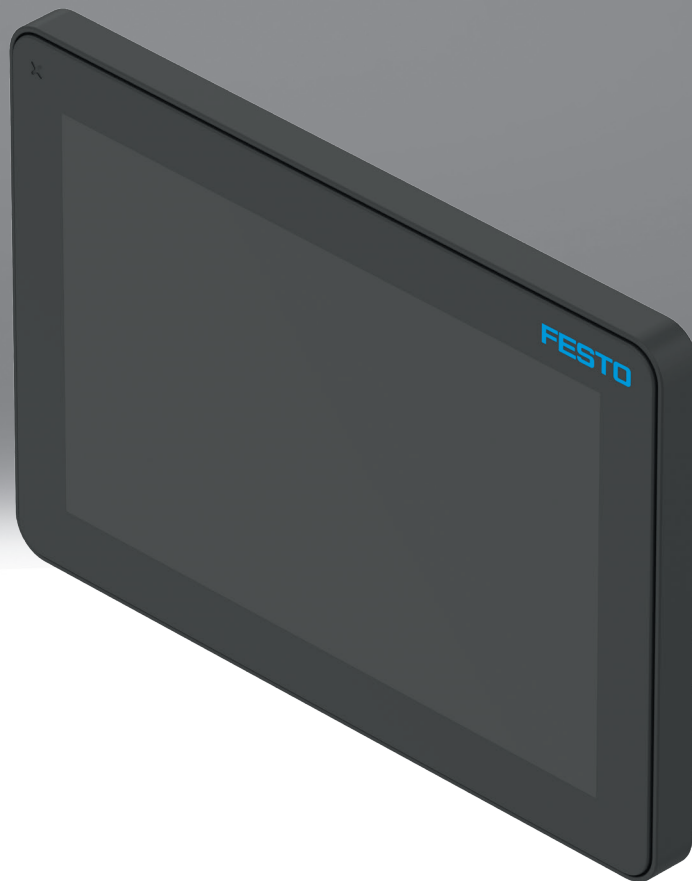


# Operator unit CDPX

**FESTO**



## Characteristics

### At a glance

Operator units CDPX from Festo are a combination of high-performance processors and wide-screen technology. They offer more functions and higher resolution for human-machine interfaces.

PoE (Power-over-Ethernet) for maximum connection simplicity with standard CAT 5 shielded cabling. Full IP protection with dedicated connectors for maximum installation flexibility, from mounting arm to a simple M22 drilled hole. The product includes environmental and motion sensors that make this a true IoT edge device for Industry 4.0 applications.

The CDPX product family has been optimised for use as an embedded browser or Designer Studio HMI device

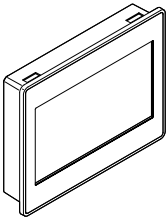
- Open platform for Linux applications
- Powerful HTML5-compatible browser with graphics accelerator
- Designer Studio runtime environment with OPC UA (Open Platform Communications Unified Architecture) server and client

### Display format

The operator units CDPX visualise data and operate simultaneously as an on-site server and with external clients worldwide; it is simply networked using the Ethernet interface with integrated switch. They benefit from high-resolution graphic displays, as well as simple intuitive project planning and programming in the Designer Studio. They are perfect in combination with CODESYS controllers from Festo or ModbusTCP networks and flexibly display a wide range of data and parameters in an easy, graphical format. Thanks to the modern touch technology, the communication with machines and systems couldn't be easier. With the optionally integrable CODESYS controller, the operator units CDPX can be expanded into a space-saving control concept.

### Device version

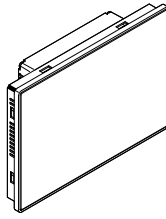
#### [B] Browser version



The products are designed to offer an excellent price/performance ratio for demanding applications. They are the ideal choice for HMI applications in factory and building automation.

- Full support of vector graphics, native support of SVG graphic objects, transparency and alpha blending
- Dynamics of screen objects: control visibility and transparency, move, resize, rotate any object on the screen
- Makes it easy to create, install, and manage applications in multiple languages to meet global requirements
- Extensive state-of-the-art HMI functions: data acquisition and logging, trending, alarm handling, scheduler and scheduled actions, security and user management, email and RSS feeds
- Selection of communication drivers with the option to communicate with multiple drivers
- Remote monitoring and controller with client-server functionality

#### [E1] Performance version

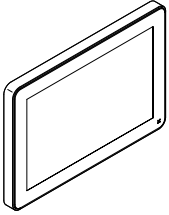


The products are designed as IoT edge devices combining a powerful controller with networking capability (up to 3 Ethernet networks) and excellent communication options including client/server OPC UA. They are the ideal choice for all demanding IoT edge applications in factory and process automation.

- Designer Studio runtime environment with OPC UA server and client
- Optional CODESYS V3 PLC for integrated HMI and control applications including PROFINET I/O and EtherCAT® master
- Optional plug-in modules for CAN field bus system as well as digital and analogue I/Os

## Characteristics

[E2] Field version



The products are ideal for on-site installation in critical areas. High-resolution displays and multi-touch PCAP touchscreen with sturdy glass front. Power-over-Ethernet (PoE) for maximum connection simplicity with standard CAT 5 shielded cabling. Full IP protection with dedicated connections for maximum installation flexibility.

- Optional CODESYS V3 PLC for integrated HMI and control applications
- Built-in sensors (temperature and acceleration)

### Function module

The expansion of the CDPX series with the PLC operating system CODESYS, a CANopen master module, as well as 2 I/O modules with digital and analogue I/O channels. The integration of CODESYS in the operator unit CDPX creates a so-called PAC (Programmable Automation Controller), the combination of a PLC and an operator unit. The PLC functions are programmed in the programming languages LDR, IL, ST, FBD, SFC or CFC. External components can be controlled via the integrated Ethernet interfaces using the ModbusTCP, EtherCAT® or PROFINET protocol. If the application requires local digital and/or analogue inputs and outputs, one or two of the I/O modules – which are also optional – are plugged onto the back of the CDPX operator unit.

## Type code

001	Series
CDPX	Operator unit

002	Function module
F	Fieldbus connection
X	CPU
EA	Inputs/outputs
SL	Software licence

003	Device version
	None
B	Browser version
E1	Performance version
E2	Field version

004	Display format
	None
W	Widescreen 16:9

005	Display size ["]
	None
4	4.3"
5	5"
7	7"
10	10.4"
15	15"
21	21"

006	EU certification
	None
EX2	II 3GD

## Datasheet

**General technical data, browser version [B]**

Display size	4.3"	7"	10.1"
Display type	TFT colour		
Display characteristics	Touchscreen		
Display	With backlighting		
Type of mounting	Front panel mounting		
Display resolution	480x272 pixels	800x480 pixels	1024x600 pixels
CPU data	256 MB RAM		512 MB RAM
Number of colours	64 k		
Length	34 mm		
Width	147 mm	187 mm	282 mm
Height	107 mm	147 mm	197 mm
Mounting depth	29 mm		
Max. front panel thickness	5 mm		
Product weight	400	600	1,000

**Electrical characteristics, browser version [B]**

Display size	4.3"	7"	10.1"
Nominal operating voltage DC	24		
Operational voltage range DC	10 ... 32 V		
Current consumption at nominal operating voltage	0.25 A	0.3 A	0.38 A
Programming software	Designer Studio		
PLC interface	–		
Supported PLC protocol	–		
USB interface	–		
Additional functions	RS232 communication function		
Ethernet interface	–		
Ethernet interface, function	Programming		
Ethernet interface, connection type	Socket		
Ethernet interface, connection system	RJ45		
Ethernet interface, number of pins/wires	8		
Ethernet interface, transmission rate	10/100 Mbit/s		
USB interface, function	File transfer		
USB interface, type of connection	Socket		
USB interface, connection technology	USB 2.0 type A		
Backup battery	Super capacitor		
Real-time clock	Yes		
Deviation, real-time clock	<100 ppm at 25°C		

## Datasheet

## Operating and environmental conditions, browser version [B]

Ambient temperature	0 ... 50°C
Note on ambient temperature	for vertical mounting
Storage temperature	-20 ... 70°C
Relative air humidity	5 - 85% Non-condensing
Degree of protection	IP20 IP66
Note on degree of protection	IP20 rear IP66 front
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive
CE marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III
Approval	c UL us listed (OL)

## General technical data, performance version [E1]

Display size	7"	10.1"	15.6"
Display type	TFT colour		
Display characteristics	Touchscreen		
Display	With backlighting		
Type of mounting	Front panel mounting		
Display resolution	800x480 pixels	1280x800 pixels	1366x768 pixels
CPU data	1 GB RAM	2 GB RAM	
Number of colours	16 M		
Length	55 mm	64 mm	
Width	187 mm	282 mm	422 mm
Height	147 mm	197 mm	267 mm
Mounting depth	47 mm	56 mm	
Max. front panel thickness	8 mm		
Product weight	1,300	1,700	4,100

## Datasheet

Electrical characteristics, performance version [E1]			
Display size	7"	10.1"	15.6"
Nominal operating voltage DC	24		
Operational voltage range DC	10 ... 32 V		
Current consumption at nominal operating voltage	0.7 A	1 A	1.2 A
Programming software	Designer Studio		
PLC interface	–		
Supported PLC protocol	CoDeSys 3.X Modbus RTU client Modbus RTU server Modbus TCP client ModbusTCP server		
USB interface	–		
Additional functions	RS232 communication function		
Ethernet interface	–		
Ethernet interface, function	Programming		
Ethernet interface, connection type	Socket		
Ethernet interface, connection system	RJ45		
Ethernet interface, number of pins/wires	8		
Ethernet interface, transmission rate	10/100 Mbit/s, 1,000 Mbps		
Ethernet interface 2, type of connection	2x socket		
Ethernet interface 2, connection technology	RJ45		
Ethernet interface 2, number of pins/wires	8		
Ethernet interface 2, transmission rate	10/100 Mbps		
Ethernet interface 2, function	Programming		
USB interface, function	File transfer		
USB interface, type of connection	2 x socket		
USB interface, connection technology	USB 2.0 type A		
Backup battery	Rechargeable lithium battery		
Real-time clock	Yes		
Deviation, real-time clock	<100 ppm at 25°C		
SD card slot	1		

Operating and environmental conditions, performance version [E1]	
Ambient temperature	-20 ... 60°C
Note on ambient temperature	for vertical mounting
Storage temperature	-20 ... 70°C
Relative air humidity	5 - 85% Non-condensing
Degree of protection	IP20 IP66
Note on degree of protection	IP20 rear IP66 front
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive
CE marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III
Approval	c UL us listed (OL)

## Datasheet

**General technical data, field version [E2]**

Display size	5"	7"	10.1"	15.6"	21.5"
Display type	TFT colour				
Display characteristics	Touchscreen				
Display	With backlighting				
Type of mounting	VESA interface				
Display resolution	800x480 pixels	1025x600 pixels	1280x800 pixels	1366x768 pixels	1920x1080 pixels
CPU data	1 GB RAM			2 GB RAM	
Number of colours	16 M				
Length	34 mm			43 mm	
Width	148 mm	195 mm	265 mm	399 mm	534 mm
Height	105 mm	132 mm	138 mm	248 mm	326 mm
Mounting depth	17 mm				
Max. front panel thickness	17 mm			26 mm	
Product weight	500	700	1,200	4,000	6,000

**Electrical characteristics field version [E2]**

Display size	5"	7"	10.1"	15.6"	21.5"
Nominal operating voltage DC	–				
Operational voltage range DC	–				
Current consumption at nominal operating voltage	–				
Programming software	Designer Studio				
PLC interface	–				
Supported PLC protocol	CoDeSys 3.X Modbus RTU client Modbus RTU server Modbus TCP client ModbusTCP server				
USB interface	–				
Ethernet interface	–				
Ethernet interface, function	Programming, Power supply PoE				
Ethernet interface, specification	IEEE 802.3 af/at				
Ethernet interface, connection type	Socket				
Ethernet interface, connection system	RJ45				
Ethernet interface, number of pins/wires	8				
Ethernet interface, transmission rate	10/100 Mbit/s				
USB interface, function	File transfer				
USB interface, type of connection	Socket				
USB interface, connection technology	USB 2.0 type A				
Backup battery	Rechargeable lithium battery				
Real-time clock	Yes				
Deviation, real-time clock	<100 ppm at 25°C				



## Datasheet

## Operating and environmental conditions, field version [E2]

Ambient temperature	-20 ... 55°C
Note on ambient temperature	for vertical mounting
Storage temperature	-30 ... 80°C
Relative air humidity	5 - 85% Non-condensing
Degree of protection	IP67
Note on degree of protection	In assembled state
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive
CE marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III
Approval	c UL us listed (OL)

## Digital inputs I/O module

I/O variant	1 digital input, 2 digital outputs and 1 analogue output	20 digital inputs, 12 digital outputs, 4 analogue inputs and 2 analogue outputs
Digital input, number	8	20
Digital inputs, high-speed counter inputs	–	2
Digital inputs, incremental encoder connection	–	2
Digital inputs, input signal delay	0.1 ms 3 ms 10 ms 20 ms	
Digital inputs, input voltage/current	24 V DC	
Digital inputs, nominal value for TRUE	12 - 30 V DC	
Digital inputs, nominal value for FALSE	0 V	
Digital inputs, electrical isolation	yes	

## Analogue inputs I/O module

I/O variant	1 digital input, 2 digital outputs and 1 analogue output	20 digital inputs, 12 digital outputs, 4 analogue inputs and 2 analogue outputs
Analogue inputs, number	–	4
Analogue inputs, resolution	–	12 bit
digital input, signal range	–	0 - 10 V 0 - 20 mA 8 single-ended/4 differential PT 100 ± 10 V
Analogue inputs, absolute accuracy at 25°C	–	0.1%
Analogue inputs, linearity error at 25 °C	–	0.1% FS
Analogue inputs, input resistance	–	47 Ohm

## Datasheet

**Digital outputs I/O module**

I/O variant	1 digital input, 2 digital outputs and 1 analogue output	20 digital inputs, 12 digital outputs, 4 analogue inputs and 2 analogue outputs
Digital outputs, number	7	12
Digital outputs, contact	1 relay	–
Digital outputs, output voltage	12 - 30 V DC	
Digital outputs, output current	0.5 A	
Digital outputs, electrical isolation	yes	
Digital outputs, short circuit current rating	yes	
Digital outputs, overload protection	yes	

**Analogue outputs I/O module**

I/O variant	1 digital input, 2 digital outputs and 1 analogue output	20 digital inputs, 12 digital outputs, 4 analogue inputs and 2 analogue outputs
Analogue outputs, number	–	4
Analogue outputs, resolution	–	12 bit
Analogue outputs, max. load impedance	–	470 Ohm
digital output, signal range	–	± 10 V
Analogue outputs, linearity error at 25°C	–	± 0.2%

**General technical data, I/O module**

I/O variant	1 digital input, 2 digital outputs and 1 analogue output	20 digital inputs, 12 digital outputs, 4 analogue inputs and 2 analogue outputs
Length	41	125
Height	89	
Mounting depth	34	
Product weight	80	230

**Operating and environmental conditions I/O module**

Ambient temperature	0 ... 50	
Storage temperature	-20 ... 70	
Relative air humidity	5 - 85% Non-condensing	
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive	
CE marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions	
Approval	C-Tick, c UL us listed (OL)	
Degree of protection	IP20	
Note on materials	RoHS-compliant	
LABS (PWIS) conformity	VDMA24364 zone III	

**General technical data, bus interface**

Fieldbus interface	CANopen	
Field bus interface, connection system	Plugs Sub-D 9-pin	
Field bus interface, transmission rate	9.6 kbit/s to 1 Mbit/s	
Length	41	
Height	91	
Mounting depth	24	
Product weight	150	

## Datasheet

### Operating and environmental conditions, bus interface

Ambient temperature	0 ... 50
Storage temperature	-20 ... 70
Relative air humidity	5 - 85% Non-condensing
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
CE marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Approval	C-Tick, c UL us listed (OL)
Degree of protection	IP20
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III

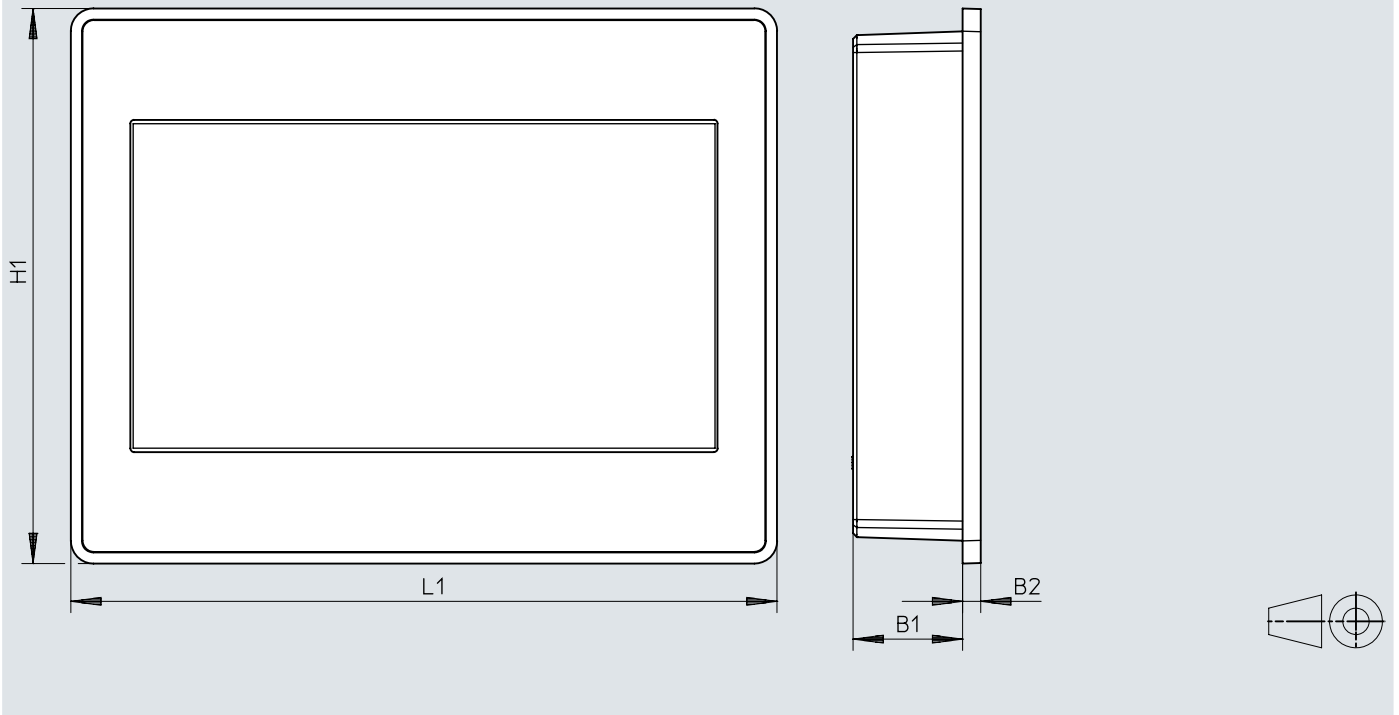
### General technical data, software licence

Programming software	CODESYS provided by Festo V3.5
Programming language	KOP AWL ST FUP AS CFC
Ethernet, supported protocols	TCP/IP, EasyIP, Modbus TCP

## Dimensions

Dimensions – Browser version [B]

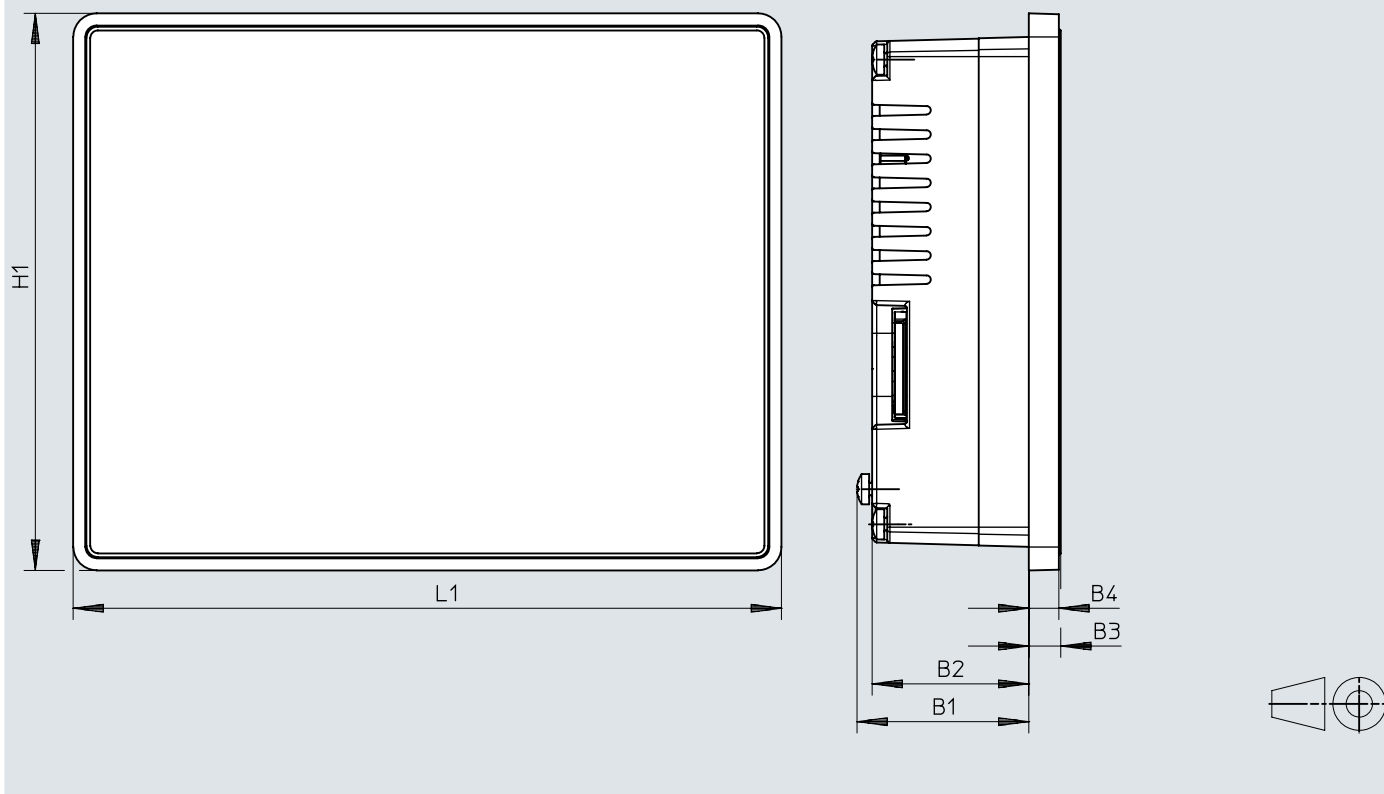
Download CAD data → [www.festo.com](http://www.festo.com)



	B1	B2	H1	L1
CDPX-X-B-W-4	29	5	107	147
CDPX-X-B-W-7	29	5	147	187
CDPX-X-B-W-10	29	6	197	282

## Dimensions

Dimensions – Performance version [E1]

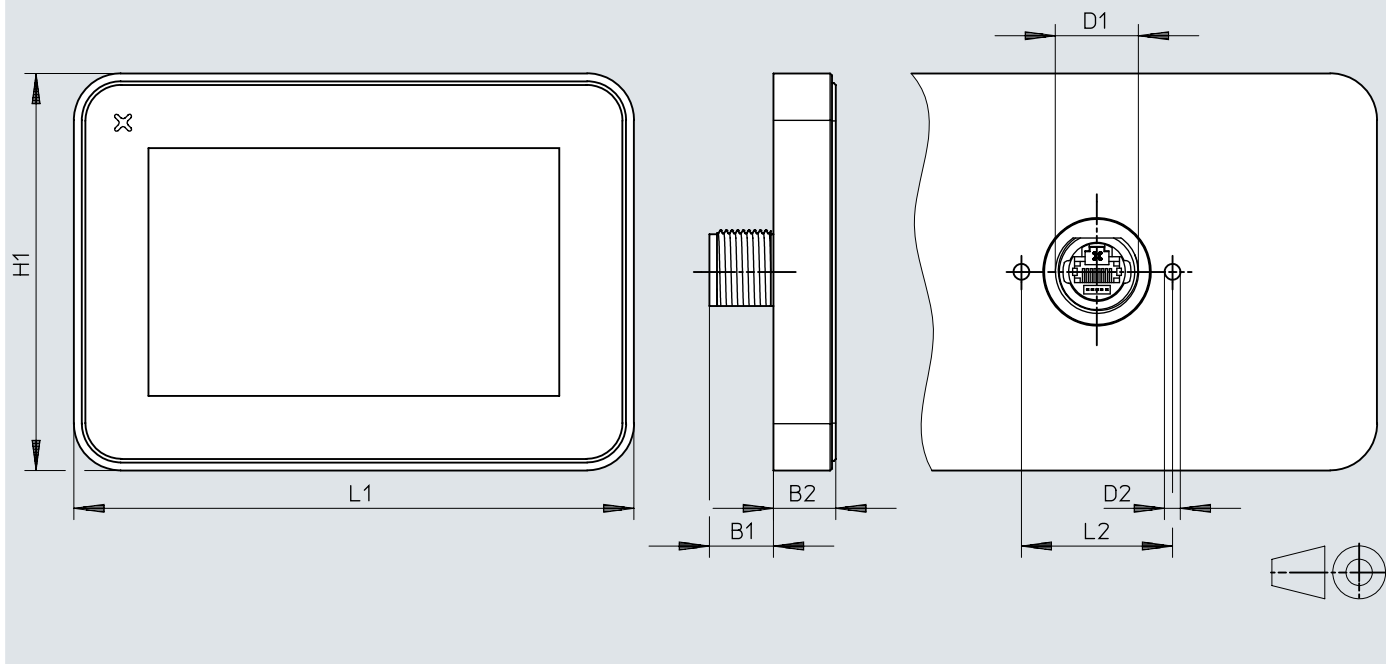
Download CAD data → [www.festo.com](http://www.festo.com)

	B1	B2	B3	B4	H1	L1
CDPX-X-E1-W-7	47	42	8,5	8	147	187
CDPX-X-E1-W-10	52	48	8,5	8	197	282
CDPX-X-E1-W-15	56	52	8,5	8	267	422

## Dimensions

Dimensions – Field version [E2]

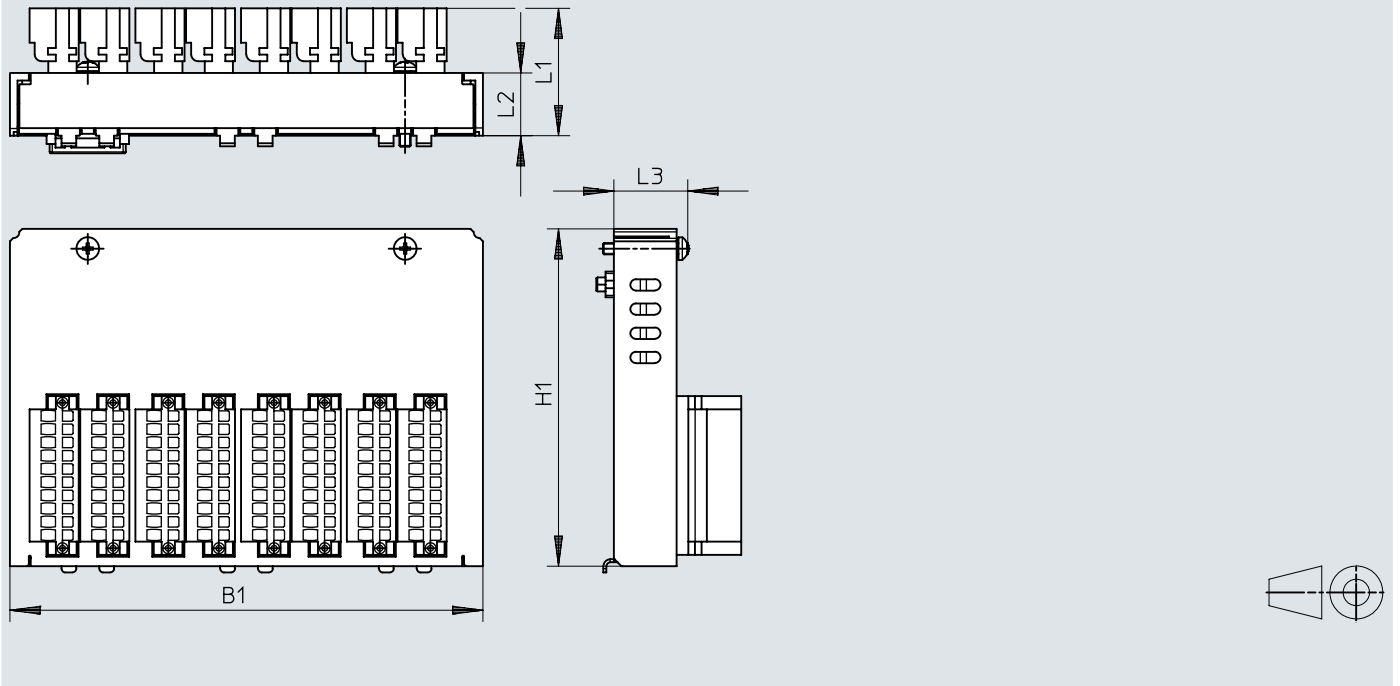
Download CAD data → [www.festo.com](http://www.festo.com)



	B1	B2	D1	D2 ∅	H1	L1	L2
CDPX-X-E2-W-5-EX2	17	16,5	M22	M5x5 (2x)	105	148	40
CDPX-X-E2-W-7-EX2	17	16,5	M22	M5x5 (2x)	132	195	40
CDPX-X-E2-W-10-EX2	17	16,5	M22	M5x5 (2x)	183	265	40
CDPX-X-E2-W-15-EX2	17	26,5	M22	M5x5 (4x)	248	399	40
CDPX-X-E2-W-21-EX2	17	26,5	M22	M5x5 (4x)	326	534	40

## Dimensions

Dimensions – I/O module CDPX-EA-V1

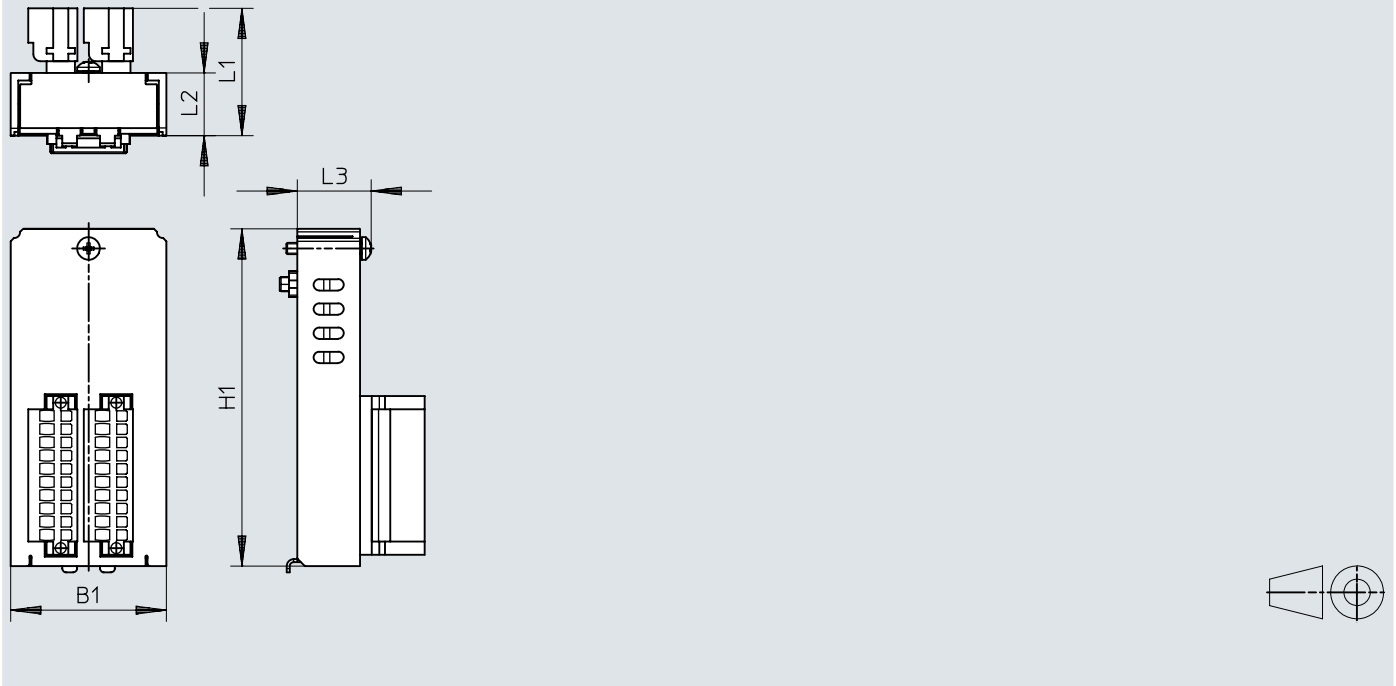
Download CAD data → [www.festo.com](http://www.festo.com)

	B1	H1	L1	L2	L3
CDPX-EA-V1	125,2	89,3	33,7	16,6	20

## Dimensions

Dimensions – I/O module CDPX-EA-V2

Download CAD data → [www.festo.com](http://www.festo.com)



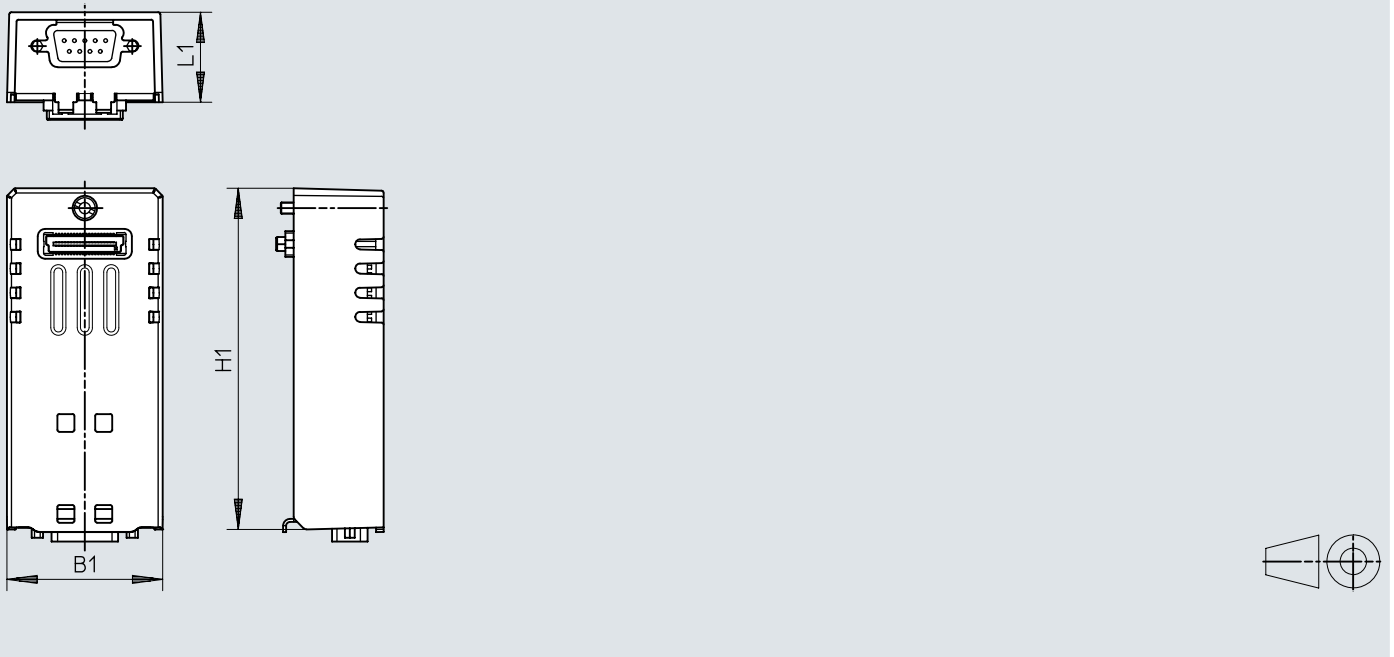
	B1	H1	L1	L2	L3
CDPX-EA-V2	41,2	89,3	33,7	16,6	20



## Dimensions

### Dimensions – Bus interface CDPX-F-CO

Download CAD data → [www.festo.com](http://www.festo.com)

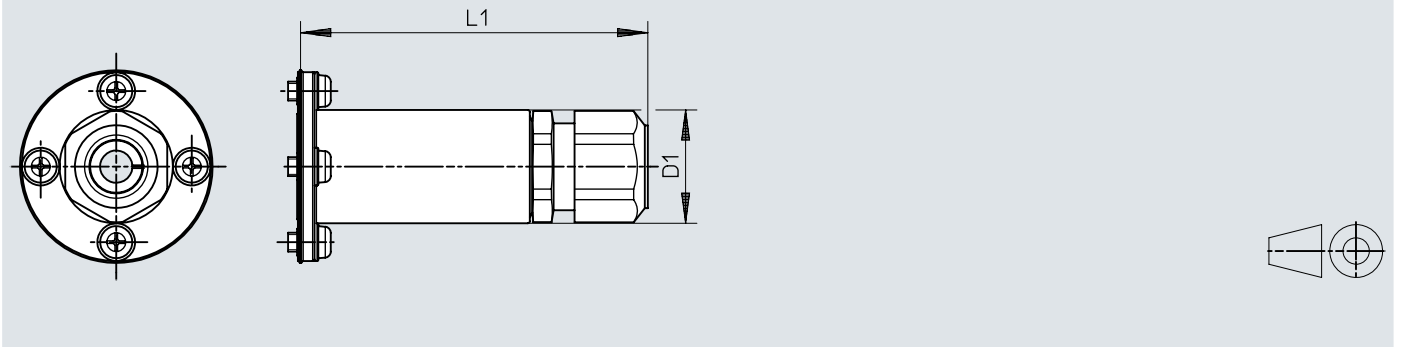


	B1	H1	L1
CDPX-F-CO	41,2	90,3	23,8

## Dimensions

### Dimensions – Retaining bracket CAFM

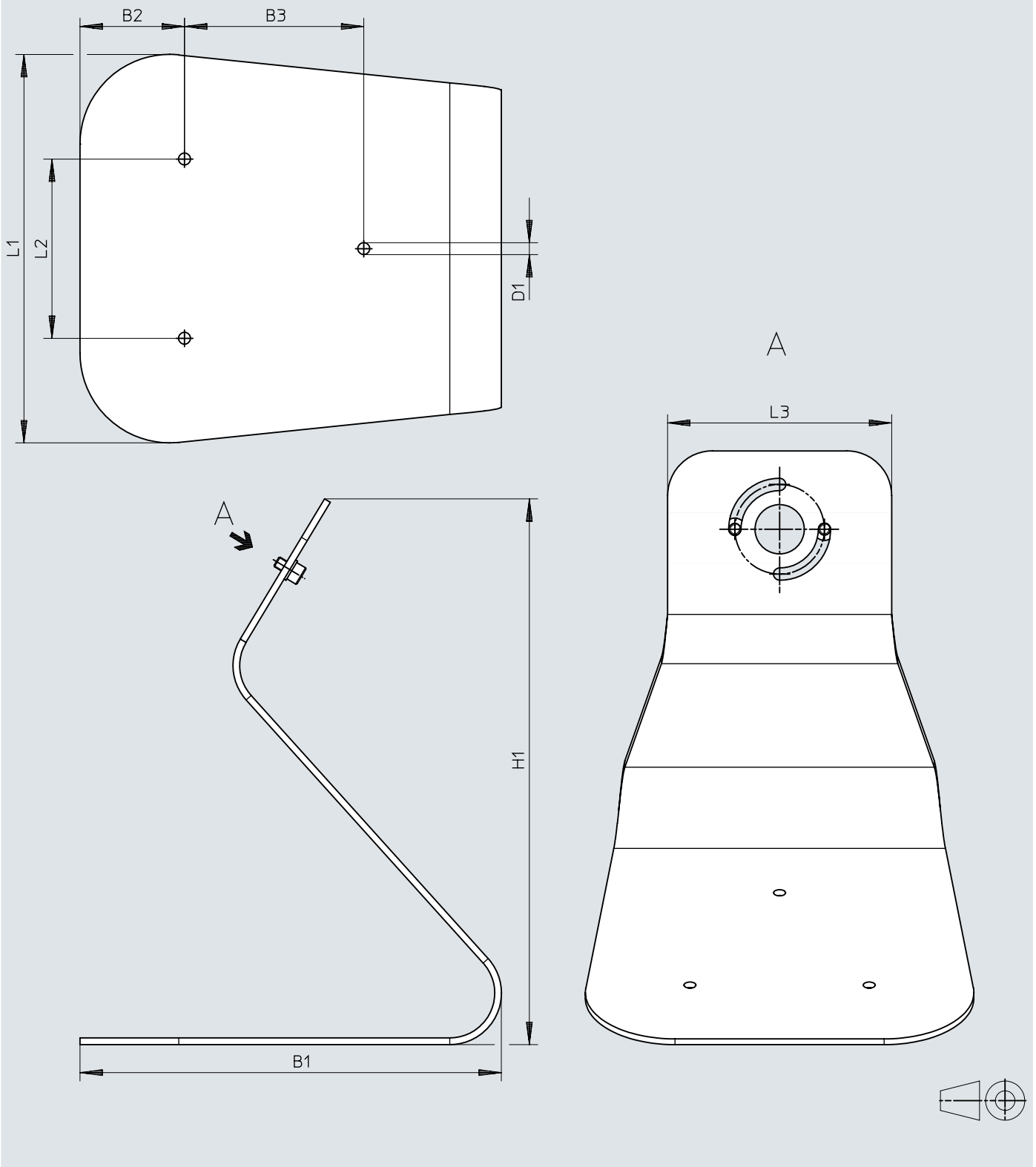
Download CAD data → [www.festo.com](http://www.festo.com)



	D1 Ø	L1
CAFM-D4-Q	30	88

## Dimensions

Dimensions – Table stand CAFM

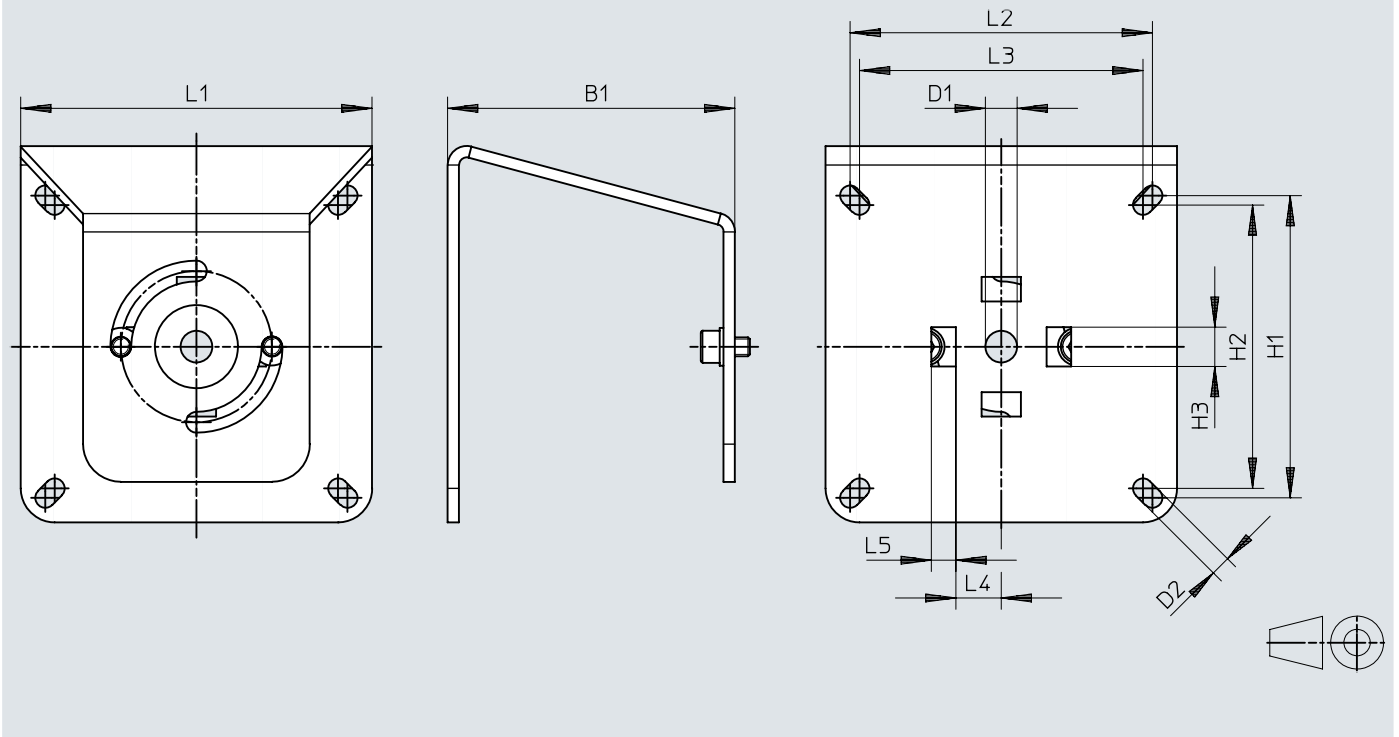
Download CAD data → [www.festo.com](http://www.festo.com)

	B1	B2	B3	D1	H1	L1	L2	L3
CAFM-D4-DE	188	47	80	∅ 5,3	244	173	80	100

## Dimensions

Dimensions – VESA adapter CAFM

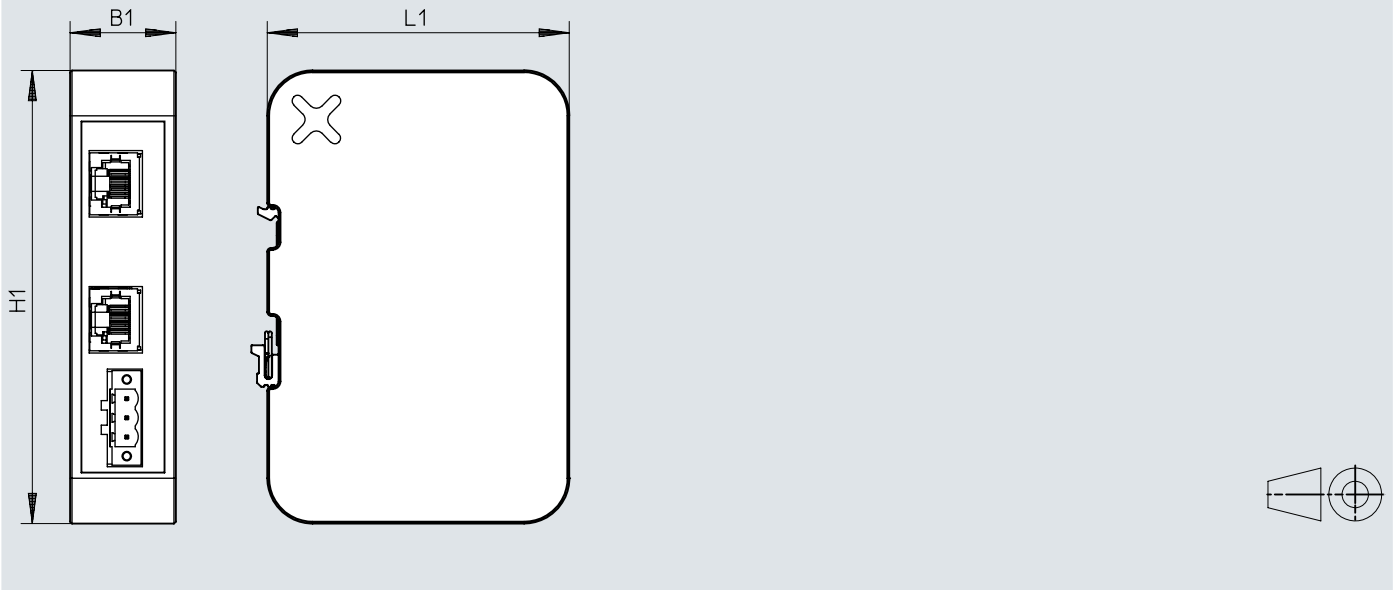
Download CAD data → [www.festo.com](http://www.festo.com)



	B1	H1	H2	H3	D1 ∅	D2	L1	L2	L3	L4	L5
CAFM-D4-VE	76	80	75	10,4	8,4	5,3	93	80	75	12	6,5

## Dimensions

Dimensions – Power supply unit CACN

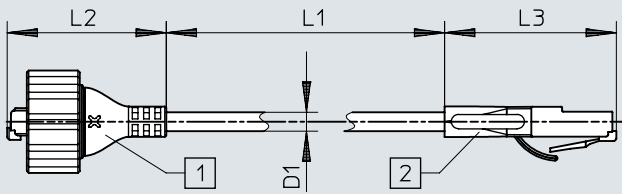
Download CAD data → [www.festo.com](http://www.festo.com)

	B1	H1	L1
CACN-H-1-PE-EX2	28	120	80

## Dimensions

### Dimensions – Connecting cable NEBC

Download CAD data → [www.festo.com](http://www.festo.com)

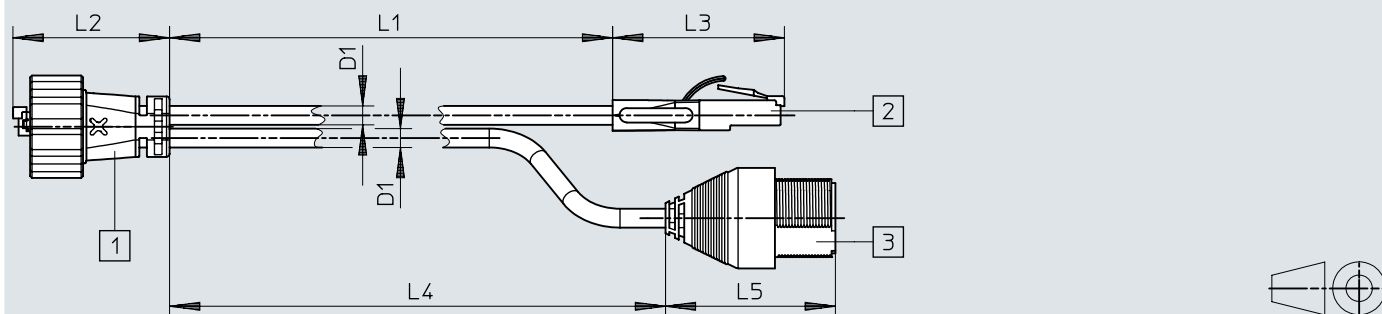


- [1] Field device side, electrical connection 1: RJ45
- [2] Control side, electrical connection 2: RJ45

	D1 Ø	L1	L2	L3
NEBC-R3G8M22-P-5-N-S-R3G8	25	5000	~42,1	~45,5

## Dimensions


## Dimensions – Distributor NEDU


Download CAD data → [www.festo.com](http://www.festo.com)


- [1] Field device side, electrical connection 1: RJ45, USB 2.0 type B  
 [2] Control side, electrical connection 2: RJ45  
 [3] Control side, electrical connection 3: USB


	D1 Ø	L1	L2	L3	L4	L5
NEDU-L1R2-R3L1G12M22-5L1-1L2-P-N-R3U1G12	5	5000	~41,5	~45,5	1000	45


## Ordering data

Browser version [B]				
	Display size	Display resolution	Part no.	Type
	4.3"	480x272 pixels	8155213	CDPX-X-B-W-4
	7"	800x480 pixels	8155214	CDPX-X-B-W-7
	10.1"	1024x600 pixels	8155215	CDPX-X-B-W-10

Performance version [E1]				
	Display size	Display resolution	Part no.	Type
	7"	800x480 pixels	8155216	CDPX-X-E1-W-7
	10.1"	1280x800 pixels	8155217	CDPX-X-E1-W-10
	15.6"	1366x768 pixels	8155218	CDPX-X-E1-W-15


Field version [E2]				
	Display size	Display resolution	Part no.	Type
	5"	800x480 pixels	8155219	CDPX-X-E2-W-5-EX2
	7"	1025x600 pixels	8155220	CDPX-X-E2-W-7-EX2
	10.1"	1280x800 pixels	8155221	CDPX-X-E2-W-10-EX2
	15.6"	1366x768 pixels	8155222	CDPX-X-E2-W-15-EX2
	21.5"	1920x1080 pixels	8155223	CDPX-X-E2-W-21-EX2

I/O module				
	Digital input, number	Digital outputs, number	Part no.	Type
	20	12	575300	CDPX-EA-V1
	8	7	8023321	CDPX-EA-V2

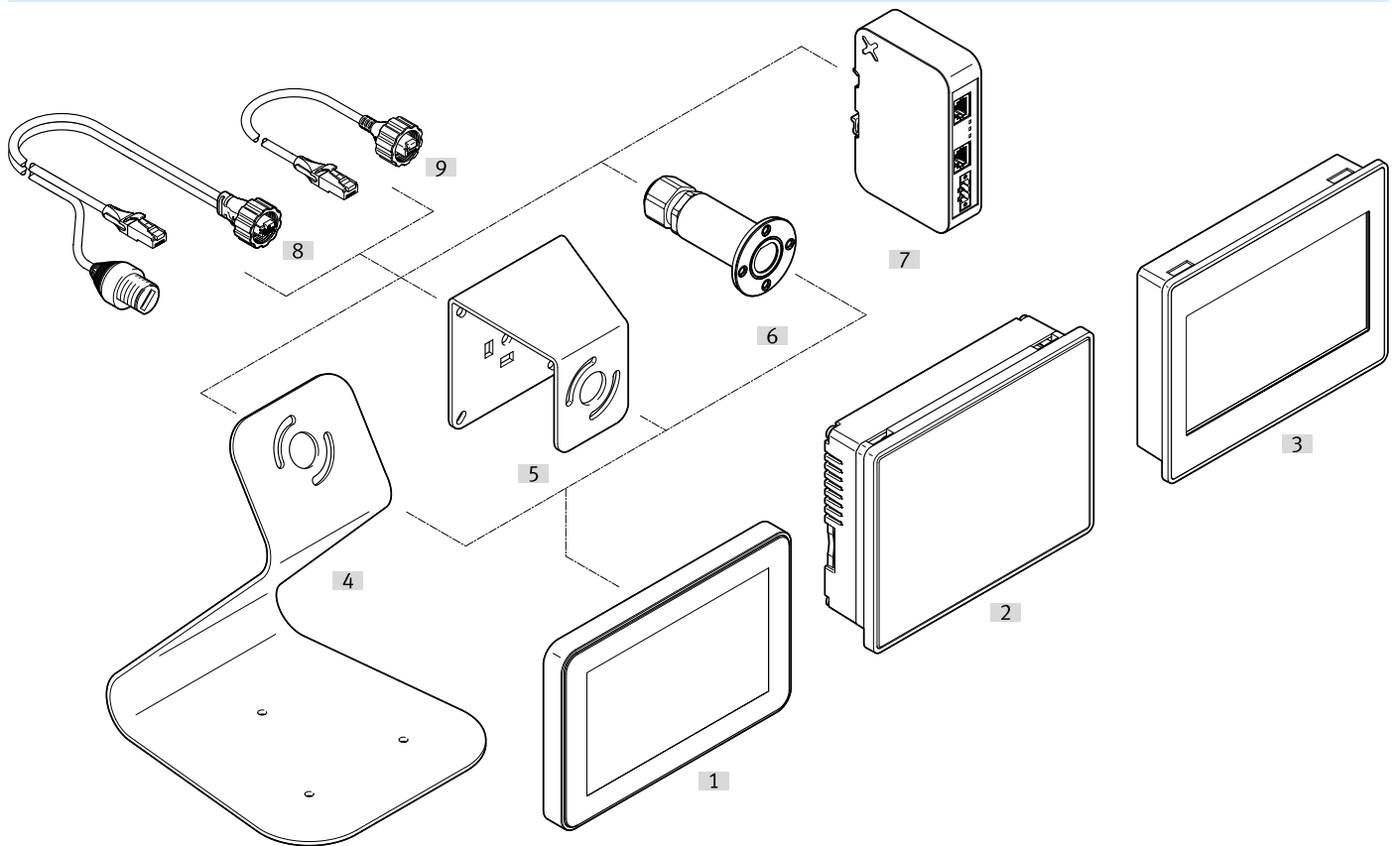
Bus interface				
	Fieldbus interface	Part no.	Type	
	CANopen	575301	CDPX-F-CO	



## Ordering data

Software licence			
	Programming software	Part no.	Type
	CODESYS provided by Festo V3.5	576045	CDPX-SL-C3

## Peripherals



Accessories			→ Page/Internet
Type/order code	Description		
[1] Operator unit CDPX-X-E2-W-...	Field version [E2]		cdpx
[2] Operator unit CDPX-X-E1-W-...	Performance version [E1]		cdpx
[3] Operator unit CDPX-X-B-W-...	Browser version [B]		cdpx
[4] Table stand CAFM-D4-DE	Adapter for placing the plate on the table		27
[5] VESA adapter CAFM-D4-VE	Adapter for direct mounting on the control cabinet		27
[6] Retainer CAFM-D4-Q	Adapter for mounting a swivel arm		27
[7] Fixed power supply CACN-H-1-PE-EX2	Power over Ethernet (PoE) injector		27
[8] Distributor NEDU-L1R2-R3L1G12M22-5L1-1L2-P-N-R3U1G12	Connecting cable for the power supply with additional USB port		27
[9] Connecting cable NEBC-R3G8M22-P-5-N-S-R3G8	Connecting cable for the power supply		27

## Accessories

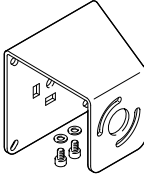
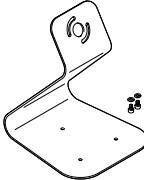
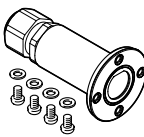

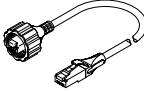
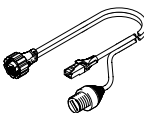
VESA adapter CAFM					
	LABS (PWIS) conformity		Product weight	Part no.	Type
	VDMA24364 zone III		445 g	8155224	CAFM-D4-VE

Table stand CAFM					
	LABS (PWIS) conformity		Product weight	Part no.	Type
	VDMA24364 zone III		1,495 g	8155225	CAFM-D4-DE

Retaining bracket CAFM					
	LABS (PWIS) conformity		Product weight	Part no.	Type
	VDMA24364 zone III		105 g	8155226	CAFM-D4-Q

Power supply unit CACN					
	power supply, connection system	Operational voltage range DC	Type of mounting	Part no.	Type
	Socket strip, 3-pin	18 ... 32 V	With H-rail	8155227	CACN-H-1-PE-EX2

Connecting cable NEBC					
	Conforms to standard	Electrical connection 1, connector system	Electrical connection 2, connector system	Part no.	Type
	IEC 60603-7-3	RJ45	RJ45	8155228	NEBC-R3G8M22-P-5-N-S-R3G8

Distributor NEDU							
	Conforms to standard	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 3, connector system	Electrical connection 3, connection type	Part no.	Type
	IEC 60603-7-3	Circuit board plug connector, RJ45	RJ45	USB 2.0 type B	Socket	8155230	NEDU-L1R2-R3L1G12M22-5L1-1L2-P-N-R3U1G12