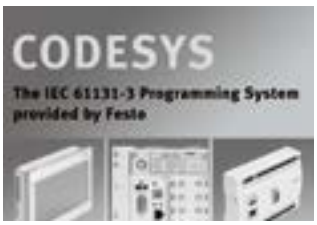
Controllers CECC



Key features

Application

Controllers



The controllers CECC are modern, compact and versatile controllers that enable programming with CODESYS to IEC 61131-3.

State-of-the-art programming

CODESYS V3 pbF offers a user-friendly interface with the following new functions:

- Object-oriented programming
- Modern editors for simplified input
- Straightforward configuration for fieldbus
- New configurator for IO-Link master
- Multiple controllers in one project
- Improved troubleshooting function
- Simplified project navigation

Basic functions of the CECC-D

The controllers CECC (CECC-D) offer the following basic functions:

- 12 digital inputs, 8 digital outputs, additionally 2 high-speed counters up to 180 kHz
- Ethernet 10/100 Mbps, Modbus TCP client/server, EasyIP, TCP/IP, OPC server available
- CANopen master: for connecting the electric drives
- USB interface for data transfer
- Can be connected directly to modern HMI devices: CDPX

Additional functions of the CECC-LK

- This variant of the CECC offers 4 IO-Link masters and one IO-Link device interface
- The integrated IO-Link interface of the CECC-LK enables quick and easy connection of Festo valve terminals and sensors to a controller
- All modern, compact valve terminals from the CTEU series can be connected to IO-Link masters: VTUB, VTUG, MPA, CPV, VTOC and upcoming devices, as well as the input box CTSL

Additional functions of the CECC-S

- 2 RS232 interfaces
- 1 RS422/RS485 interface, allows freely configurable communication with different devices
- The RS422 interface can optionally be used as an encoder interface. For this operating mode, there are numerous setting options on the encoder type, comparison functions and referencing
- In addition, the CECC offers an IO-Link master and an IO-Link device interface

Fieldbus interfaces

The CECC-LK and CECC-S can be connected to a combination of CTEU nodes and CAPC on various fieldbuses via the IO-Link device interface:

- PROFIBUS
- EtherCAT
- DeviceNet
- CANopen
- AS-Interface

System configuration (example)

CECC with CANopen

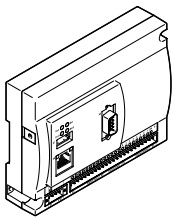
The CECC can communicate with all electric drive controllers from Festo and actuate all valve terminals via CANopen.

The CECC communicates via Ethernet with other controllers and operator units from Festo,

such as the modern, new HMI device series CDPX and the camera SBOx-Q for image evaluation.

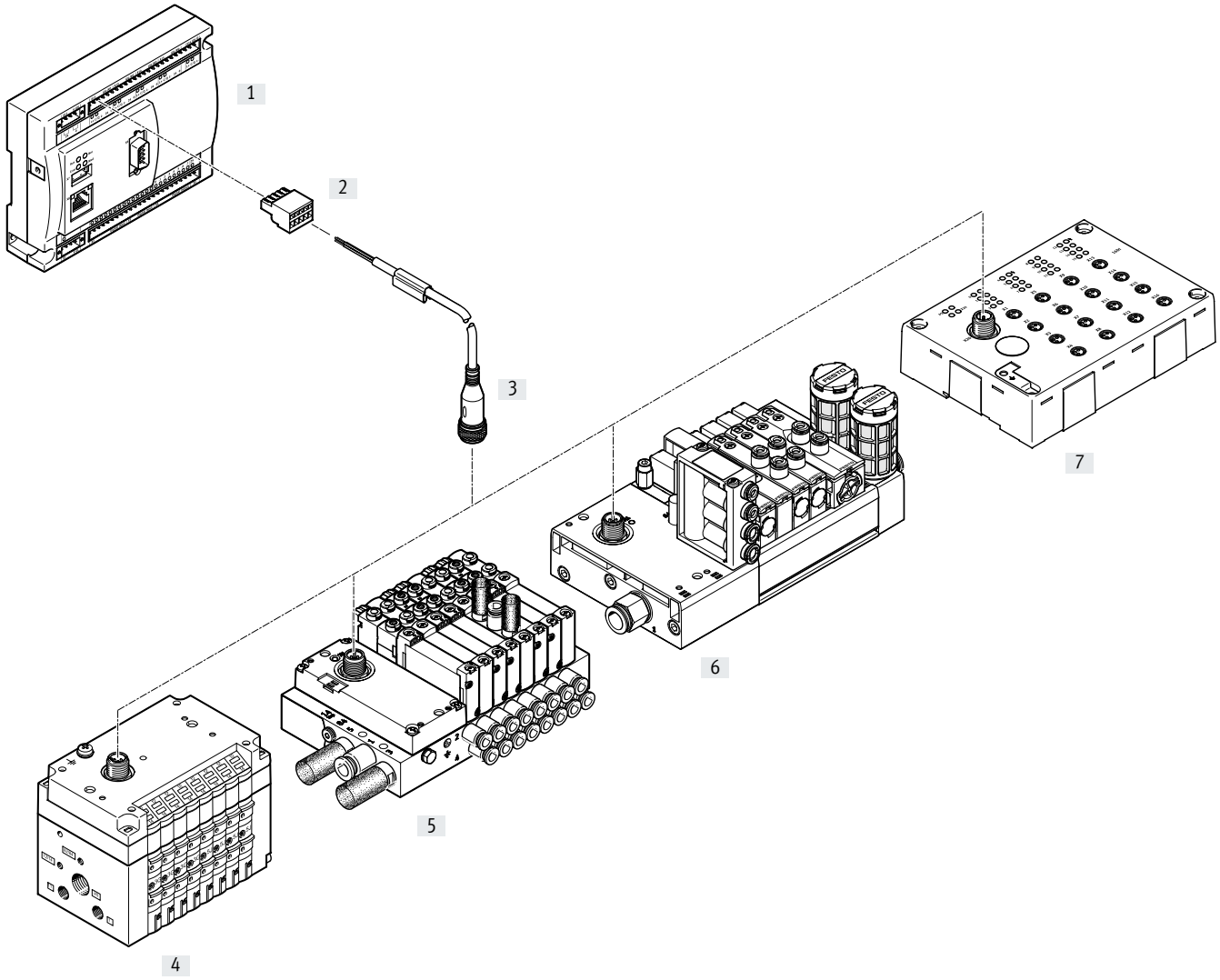
Key features

Pin allocation – Balancer controller CECC-D-BA



Pin	Connection	Function
X2.0	Inputs	Operation enable
X2.1		Handle active
X2.2		Speed monitor error input
X2.3		Reference sensor
X2.4		Reset error
X2.5		Change operating mode
X2.6		Speed monitor signal input
X2.7		Not allocated
X3.0		System enable (emergency off)
X3.1 ... X3.5		User-configured inputs
X4.0	Outputs	Operation enabled
X4.1		Activate speed monitor
X4.2		Shut-off valve 1
X4.3		Shut-off valve 2
X4.4		Error
X4.5		Load-controlled mode active
X4.6		Balancer mode active
X4.7		System active and ready

Peripherals overview



Mounting components and accessories

		Description	→ Page/Internet
[1]	Controllers CECC	The integrated IO-Link interface of the CECC enables quick and easy connection of Festo valve terminals and sensors to a controller	5
[2]	Plugs NECC	Plug connectors for self-assembly with 2, 5, 6, 8 or 24 pins	10
[3]	Connecting cables NEBU	Universal connecting cables for 3, 4, 5 or 8 pins	11
[4]	Valve terminal CPV	Compact universal valve terminal, suitable for decentralised applications, integrated diagnostic function, optional vacuum generation, up to 8 valve positions possible	cpv
[5]	Valve terminal VTUG	Universal valve terminal, for fieldbus node CTEU or IO-Link interface, up to 24 valve positions possible	vtug
[6]	Valve terminal VTUB	Lightweight, corrosion-resistant valve terminal, suitable for low nominal flow rates, up to 35 valve positions possible	vtub
[7]	Input module CTSL	Digital input modules facilitate the connection of proximity switches or other 24 V DC sensors (inductive, capacitive, etc.)	ctsl

Data sheet

- Voltage
  19.2 ... 30 V DC
- Temperature range
  0 ... +55°C



General technical data					
		CECC-LK	CECC-D	CECC-D-BA	CECC-S
CPU data		400 MHz processor			
Status indicators		LED			
Electrical connection technology for I/O		Socket strip, grid 3.5 mm			
Resistance to vibration		To EN 61131-2			
Resistance to shock		To EN 61131-2			
Relative humidity	[%]	95, non-condensing			
Degree of protection		IP20			
Protection class		III			
Product weight	[g]	200			
Note on materials		RoHS-compliant			

Operating and environmental conditions		CECC-LK	CECC-D	CECC-D-BA	CECC-S
Operating voltage	[V DC]	19.2 ... 30			20.4 ... 30
Nominal operating voltage DC	[V]	24			
Current consumption at 24 V DC	[mA]	100			
Max. power supply	[A]	6	4.3	4.3	6
Ambient temperature	[°C]	0 ... 55			
Storage temperature	[°C]	–25 ... +70			
CE marking		To EU EMC Directive			
Certification		RCM			
		c UL us listed (OL)			
Certificate issuing authority		UL E239998-D1001			

Encoder inputs					
		CECC-LK	CECC-D	CECC-D-BA	CECC-S
Quantity		–	–	–	1
Resolution	[bit]	–	–	–	32
Signal range	[V]	–	–	–	5, differential (RS422)
Max. input frequency	[kHz]	–	–	–	1000
Encoder supply voltage		–	–	–	5 V DC (100 mA)

Data sheet

Digital inputs					
		CECC-LK	CECC-D	CECC-D-BA	CECC-S
Quantity		12			
Switching logic		Positive logic (PNP)			
High-speed clock pulse inputs		2, each with max. 180 kHz			
Input signal delay		Typically 3 ms			
Input voltage	[V DC]	24			
Nominal value for TRUE	[V DC]	≥ 15			
Nominal value for FALSE	[V DC]	≤ 5			
Electrical isolation		Yes, via optocoupler			
Status indication		LED			
Permissible connecting cable length	[m]	30			

Digital outputs					
		CECC-LK	CECC-D	CECC-D-BA	CECC-S
Quantity		8			
Switching logic		Positive logic (PNP)			
Contact		Transistor			
Output voltage	[V DC]	24			
Output current	[mA]	500			
Electrical isolation		Yes, via optocoupler			
Status indication		LED			
Switching frequency	[kHz]	Max. 1			
Short circuit current rating		Yes			

Serial interfaces					
		CECC-LK	CECC-D	CECC-D-BA	CECC-S
USB interface		USB 1.1			
Fieldbus interface type		CAN bus			
Quantity		–	–	–	3
Type		–	–	–	2 x RS232/1 x RS485-A/422-A
Connection technology		–	–	–	Plug
Transmission rate	[bit/s]	–	–	–	300 ... 375 000
Fieldbus interface					
Connection technology		Sub-D plug, 9-pin			
Transmission rate	[kbps]	125, 250, 500, 800, 1000			
		Can be set using software			
Galvanic isolation		Yes			

Ethernet					
		CECC-LK	CECC-D	CECC-D-BA	CECC-S
Quantity		1			
Connector plug		RJ45			
Supported protocols		TCP/IP, EasyIP, Modbus TCP			
Data transmission speed	[Mbps]	10/100			
Protocol		CANopen	CANopen	–	CANopen
		IO-Link	–	–	IO-Link
		I-Port	–	–	I-Port
		Modbus TCP	Modbus TCP	–	Modbus TCP

Data sheet

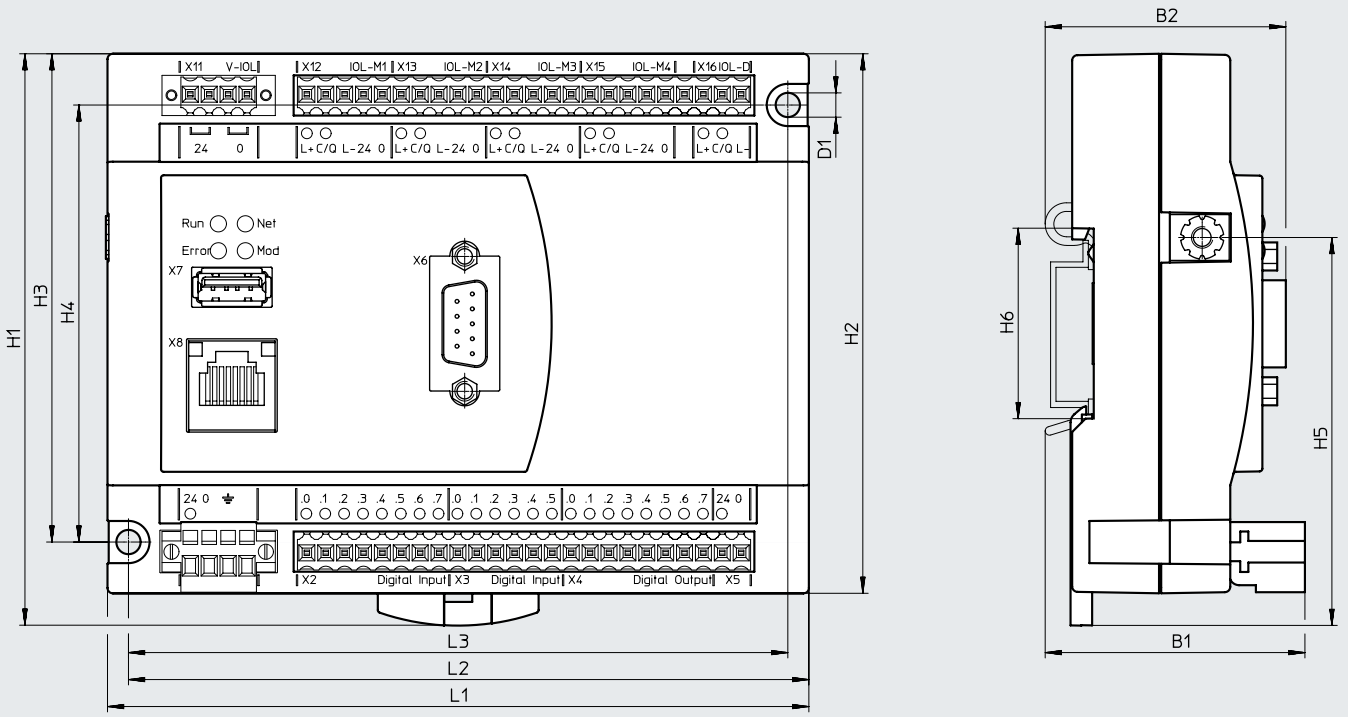
Programming				
	CECC-LK	CECC-D	CECC-D-BA	CECC-S
Programming software	CODESYS V3			
Programming language according to IEC 61131-3	SFC			
	IL			
	FCH			
	COUP			
	ST			

IO-Link				
	CECC-LK	CECC-D	CECC-D-BA	CECC-S
No. of ports	Master 4	–	–	Master 1
	Device 1			Device 1
Port class	Device A			Device A
	Master B			Master B
Protocol version	Device V 1.0			Device V 1.0
	Master V 1.1			Master V 1.1
Connection technology	Plug			Plug
	Cage Clamp			Cage Clamp
	Device, 3-pin			Device, 3-pin
	Master, 5-pin			Master, 5-pin
Communication mode	Configurable via software			Configurable via software
	Device COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd)			Device COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd)
	Master SIO, COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd)			Master SIO, COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd)
Master, output current [A]	3.5 / port			3.5 / port
Communication	C/Q green LED			C/Q green LED
	C/Q red LED			C/Q red LED
Ready status indication	L+ green LED on			L+ green LED on
	L+ green LED off			L+ green LED off
Process data width OUT	Master parameterisable 2 - 32 bytes			Master parameterisable 2 - 32 bytes
Process data width IN	Master parameterisable 2 - 32 bytes			Master parameterisable 2 - 32 bytes
Data memory available	2 kB per port			2 kB per port
Minimum cycle time	Device 3.2 ms			Device 3.2 ms
	Master 5 ms			Master 5 ms

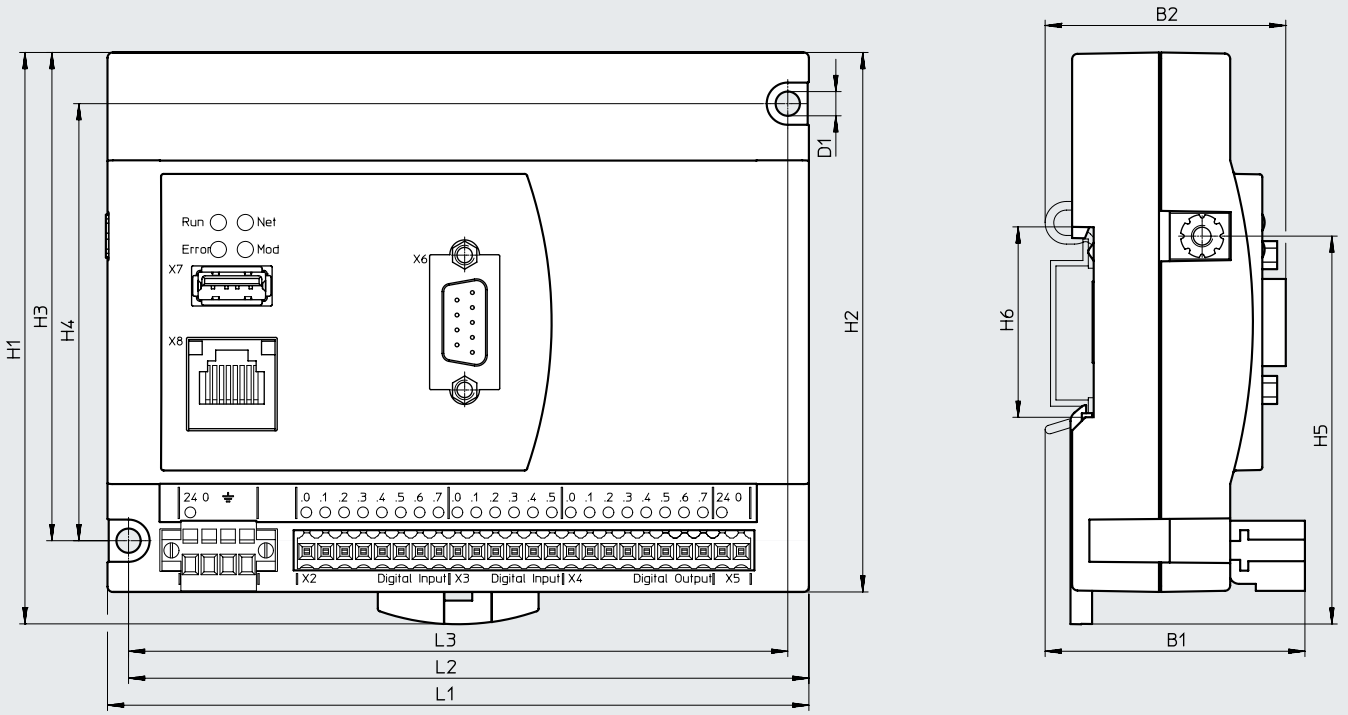
Data sheet

Dimensions Download CAD data ➔ www.festo.com

CECC-LK



CECC-D, CECC-D-BA

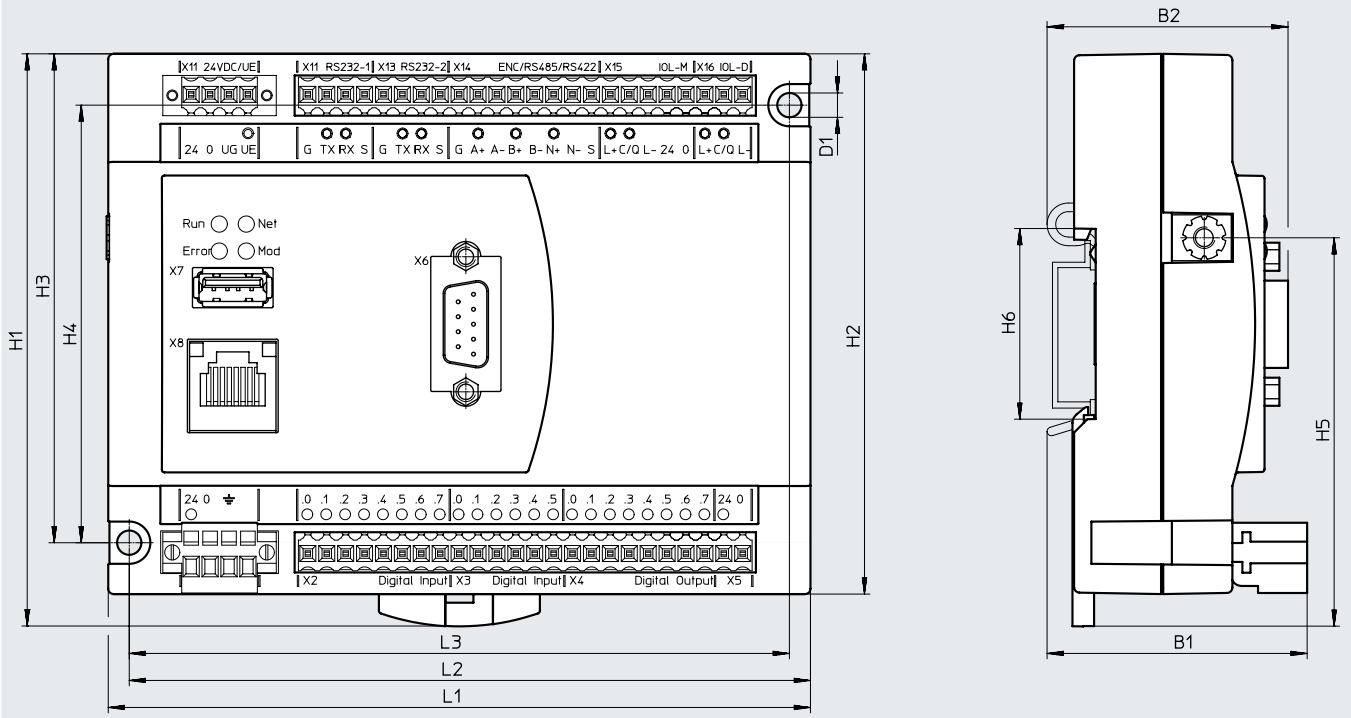


Type	B1	B2	D1 ø	H1	H2	H3	H4	H5	H6	L1	L2	L3
CECC-LK	48.2	44.6	4.5	106	100	90.5	81	72	35.2	130	126.1	122.2
CECC-D												
CECC-D-BA												

Data sheet

Dimensions Download CAD data ➔ www.festo.com

CECC-S



Type	B1	B2	D1 Ø	H1	H2	H3	H4	H5	H6	L1	L2	L3
CECC-S	47.2	43.6	4.5	106	100	90.5	81	72	35.2	130	126.1	122.2

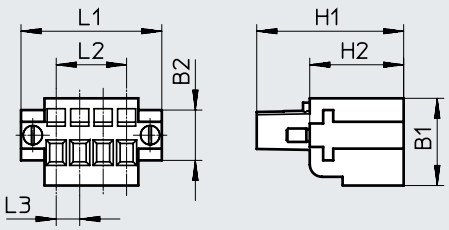
Ordering data

Controllers	Brief description	Part no.	Type
CECC-LK	With 12 digital inputs and 8 digital outputs, Ethernet, USB, CANopen, 4 IO-Link masters, 1 IO-Link device	**574418**	**CECC-LK**
CECC-D	With 12 digital inputs and 8 digital outputs, Ethernet, USB, CANopen	**574415**	**CECC-D**
CECC-D-BA	With 12 digital inputs and 8 digital outputs. Includes application software for balancer kit YHBP (browser-based web visualisation for commissioning and diagnostics)	**8072995**	**CECC-D-BA**
CECC-S	With 12 digital inputs and 8 digital outputs, Ethernet, USB, CANopen, 2 RS232, 1 RS485/RS422/encoder, 1 IO-Link master, 1 IO-Link device	**574416**	**CECC-S**

Accessories

Dimensions Download CAD data ➔ www.festo.com

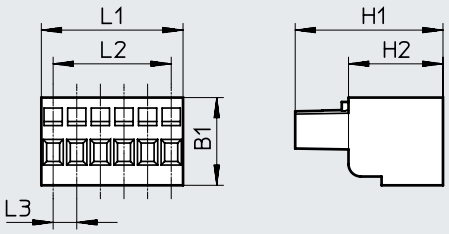
Plug



Type	B1	B2	H1	H2	L1	L2	L3
NECC-L2G4-C1-M	13	7.5	21.9	14	21	10.5	3.5

Dimensions Download CAD data ➔ www.festo.com

Plug



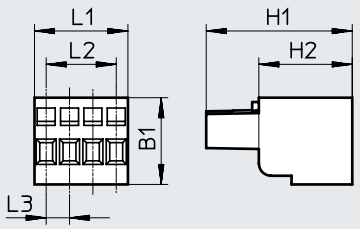
Type	B1	H1	H2	L1	L2	L3
NECC-L2G2-C1	13	21.9	14	7	3.5	3.5
NECC-L2G5-C1				17.5	14	
NECC-L2G6-C1				21	17.5	
NECC-L2G8-C1				28	24.5	
NECC-L2G24-C1				84	80.5	

Materials	
Corrosion resistance class CRC[1)]	1
Note on materials	RoHS-compliant

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Dimensions Download CAD data ➔ www.festo.com

Plug



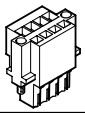
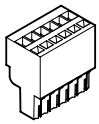
Type	B1	H1	H2	L1	L2	L3
NECC-L2G4-C1	13	21.9	14	14	10.5	3.5

Accessories

Number of plugs to be additionally ordered for fully connecting the controller

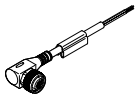
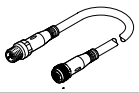
CECC-LK			CECC-D		CECC-S		Part no.	Type
Variant A	Variant B	Variant C	Variant A	Variant B	Variant A	Variant B		
–	–	1	–	1	–	3	**575302**	**NECC-L2G2-C1**
–	1	1	–	–	–	2	**8024782**	**NECC-L2G4-C1**
1	1	1	–	–	1	–	**575303**	**NECC-L2G4-C1-M**
–	4	4	–	–	–	–	**575304**	**NECC-L2G5-C1**
–	–	1	–	1	–	1	**575305**	**NECC-L2G6-C1**
–	–	2	–	2	–	4	**575306**	**NECC-L2G8-C1**
2	1	–	1	–	2	–	**575307**	**NECC-L2G24-C1**

Ordering data

	Description	PU[1]	Part no.	Type
Plugs				
	Plug connectors for self-assembly	1	**575303**	**NECC-L2G4-C1-M**
	Plug connectors for self-assembly, 2-pin	1	**575302**	**NECC-L2G2-C1**
	Plug connectors for self-assembly, 4-pin	1	**8024782**	**NECC-L2G4-C1**
	Plug connectors for self-assembly, 5-pin	1	**575304**	**NECC-L2G5-C1**
	Plug connectors for self-assembly, 6-pin	1	**575305**	**NECC-L2G6-C1**
	Plug connectors for self-assembly, 8-pin	1	**575306**	**NECC-L2G8-C1**
	Plug connectors for self-assembly, 24-pin	1	**575307**	**NECC-L2G24-C1**
	Sub-D plug, 9-pin, with screw terminal, degree of protection IP40	1	**576031**	**NECC-S1G9-C2-M**

1) Packaging unit

Ordering data

	Description	Part no.	Type
Connecting cables			
	Straight socket, 5-pin, M12 – open cable end Cable length 2.5 m	**541330**	**NEBU-M12G5-K-2.5-LE5**
	Angled socket, 5-pin, M12 – open cable end Cable length 2.5 m	**567843**	**NEBU-M12W5-K-2.5-LE5**
	Length of up to 20 m can be used[2]	**574321**	**NEBU-M12G5-E-5-Q8-M12G5**
		574322	**NEBU-M12G5-E-7.5-Q8-M12G5**
		574323	**NEBU-M12G5-E-10-Q8-M12G5**

2) Modular product, more information → Internet: nebu