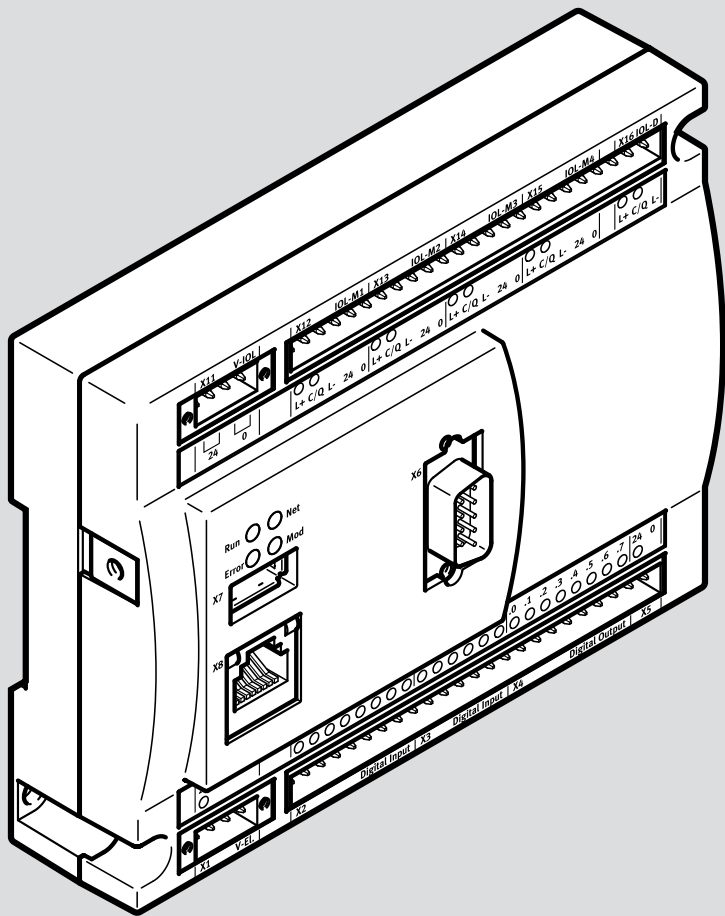


CECC-LK/-S
Controller

FESTO

Operating instruction



8223977

8223977
2025-03
[8223979]

Original instructions

CANopen, CODESYS, IO-Link, MODBUS, OPC UA are registered trademarks of the respective trademark owners in certain countries.

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1 About this document

1.1 Applicable documents



All available documents for the product → www.festo.com/sp.

2 Safety

2.1 Safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Only use the product if it is in perfect technical condition.
- Observe the identifications on the product.
- Before working on the product, switch off the power supply and secure it against being switched on again.
- Comply with the handling specifications for electrostatically sensitive devices.

2.2 Intended use

The controller serves as CODESYS controller for the following applications:

- controlling pneumatic and electric actuator technology
- sensing electrical sensor signals
- Communication via Ethernet

The controller is intended for use in an industrial environment. Measures may be required in residential areas for interference suppression. The controller is classified in zone A in accordance with EN 61131-2:2007. The controller is designed for installation in a control cabinet.

2.3 Training of qualified personnel

Work on the product may only be carried out by qualified personnel who can evaluate the work and detect dangers.

The qualified personnel have skills and experience in dealing with electrical (open-loop) control technology.

2.4 UL certification

The information in this section, in combination with the UL marking on the product, must be observed to ensure compliance with the certification conditions of Underwriters Laboratories Inc. (UL) for USA and Canada.

⚠ WARNING

The unit shall be supplied by a power source which fulfils the requirements on a limited-energy circuit in accordance to IEC/EN/UL/CSA 61010-1 or on a Limited Power Source (LPS) in accordance to IEC/EN/UL/CSA 60950-1 or IEC/EN/UL/CSA 62368-1 or a Class 2 circuit in accordance to NEC or CEC.

UL approval information	
Product category code	NRAQ (USA) NRAQ7 (Canada)
File number	E239998

UL approval information	
Considered standards	UL 61010-1, 3rd Edition, May 11, 2012, Revised April 29, 2016 CAN/CSA-C22.2 No. 61010-1-12, 3rd Edition, Revision dated April 29, 2016 UL 61010-2-201 1st Edition, Revised February 20, 2017 CAN/CSA-C22.2 No. 61010-2-201:14, 1st Edition, Issue date January 01, 2014
UL mark	

Tab. 1: UL certification information

- Technical data and environmental conditions may be subject to change in order to comply with Underwriters Laboratories Inc. (UL) certification requirements for the USA and Canada.
Deviating values → 8.3 Technical data for UL certification.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided may be impaired.

3 Additional information

- Contact the regional Festo contact if you have technical problems
→ www.festo.com.
- Accessories and spare parts → www.festo.com/catalogue.
- Cyber security information → www.festo.com/psirt.



Additional information:

- Cyber security measures, system overview, programming and commissioning, diagnostics: CECC-LK/-S manual → www.festo.com/sp
- Modbus TCP → www.modbus.org

Licence information

This product uses Open-Source software, which is subject to "GNU General Public License, Version 2". The licence conditions of the GPL are available in Engineering Tool or at the following address: → www.gnu.org/copyleft/gpl.html

4 Product overview

4.1 Product design

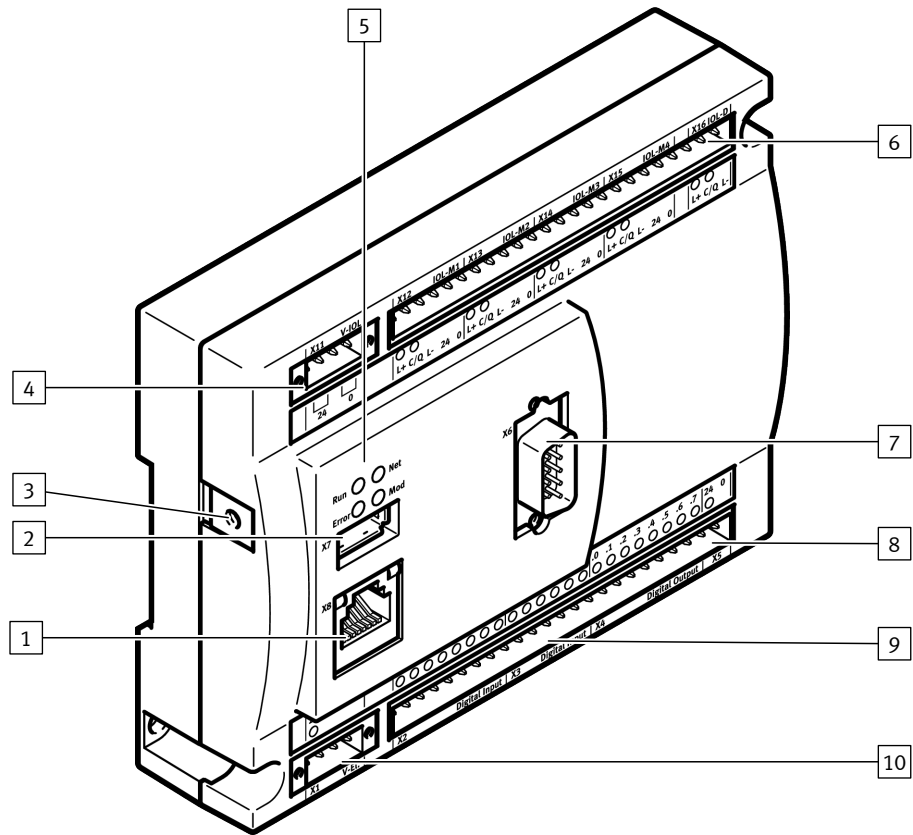


Fig. 1: CECC (example CECC-LK)

- | | |
|--|--|
| <p>[1] Ethernet interface [X8]</p> <p>[2] USB interface [X7]</p> <p>[3] Functional earth</p> <p>[4] Load voltage supply for IO-Link (CECC-LK and CECC-S) and power supply for encoder (CECC-S) [X11]</p> <p>[5] Status LEDs: [Run], [Error], [Net], [Mod]</p> <p>[6] Communication interfaces for IO-Link (CECC-LK and CECC-S), ENC/RS485/RS422/RS232 (CECC-S) [X12] ... [X16]</p> | <p>[7] Fieldbus interface CAN/CANopen [X6]</p> <p>[8] Infeed operating voltage supply for I/O interfaces [X5]</p> <p>[9] I/O interfaces (digital input, digital output) [X2] ... [X4]</p> <p>[10] Operating voltage supply for the controller [X1]</p> |
|--|--|

NOTICE

Type of property damage

Confusing connections [4] and [10] may result in the destruction of the device.

- Connect the operating voltage supply only to connection [10].



NECC-L2G... plug for the [X1] ... [X5] and [X11] ... [X16] interfaces

➔ www.festo.com/catalogue

Use only connecting cables approved for a temperature range up to at least 70 °C.

4.2 Display components

Status LEDs

The status LEDs show the operating status of the controller.

Status LED	Meaning
[Run]	Application status
[Error]	Error
[Net]	Device detected
[Mod]	Reserved

Tab. 2: Status LEDs



Detailed information on the LED display: CECC-LK/-S manual

➔ www.festo.com/sp

5 Assembly

Mounting on DIN rail

The inclined position of the controller when placing it on the DIN rail requires a minimum distance between the DIN rail edge and the mounting surface to allow placement of the controller on the DIN rail without tilting. Use a DIN rail with a depth of at least 9 mm.

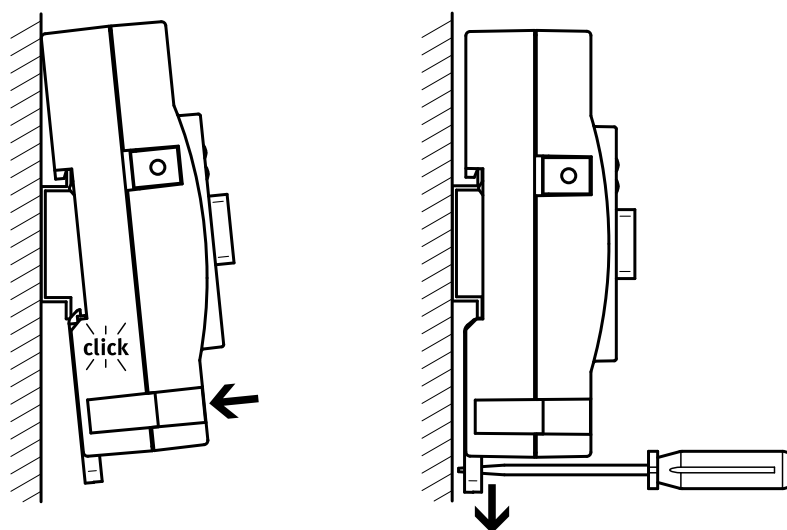


Fig. 2: Mounting/demounting with DIN rail mounting

1. Insert the controller into the DIN rail from above and press in the direction of the arrow until the fastening tab audibly clicks.
2. To demount, unlock the fastening tab on the bottom with a suitable tool and remove the controller.

Mounting on mounting surface

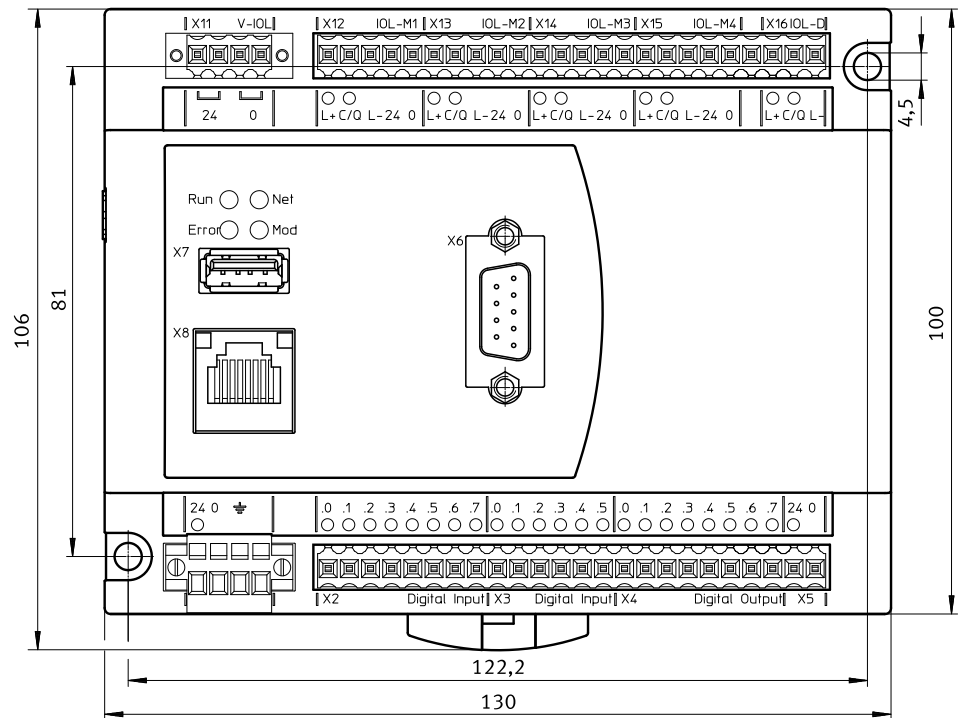


Fig. 3: Mounting holes (example CECC-LK)

1. Drill mounting holes on a level, torsion-resistant surface.
2. Screw down the controller. Screws: M4. Ø screw head: 7 mm. tightening torque: 0.8 Nm ± 20%.

6 Installation

6.1 Safety

⚠ WARNING

Risk of injury due to electric shock.

- For the electric power supply, use only PELV circuits that ensure a reliable electric disconnection from the mains network.
- Observe IEC 60204-1/EN 60204-1.

NOTICE

Unauthorised Access to the Device Can Cause Damage or Malfunction.

- When connecting the device to a network, protect the network from unauthorised access.
Standards for security in information technology can be used for network protection measures, e.g. IEC 62443, ISO/IEC 27001.

NOTICE

Malfunction due to undefined switching status of the electronics.

- Use USB storage medium and encoder (CECC-S) with a total current consumption of 500 mA ➔ 6.4.3 USB interface [X7].

6.2 Equipotential bonding

The controller has an earth terminal for the equipotential bonding ➔ Fig. 1, "functional earth" terminal.



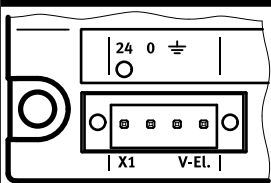
Electromagnetic interference caused by inadequate earthing may interfere with the function of other adjacent devices. Apply the following measures to ensure compatibility in accordance with the EMC guidelines:

- Always connect the "functional earth" terminal to the earth potential.
- Use earth conductors that are as short as possible (≤ 20 cm). The earth conductor should ideally be a braided conductor, otherwise a cable with a cross section of at least 2.5 mm^2 , or preferably 4 mm^2 . A different cable may be required depending on the installation situation.
- Connect the earthing terminal to the earth potential with low resistance and low impedance.
- Proceed in the following sequence to ensure secure contact at the "functional earth" terminal:
 - M4 screw
 - Toothed disc
 - Washer
 - Cable lug
 - Washer
 - Functional earth connection

All contacts of the interfaces labelled "functional earth" are internally connected to the earth terminal.

6.3 Power supply

6.3.1 Operating voltage supply [X1] (V-EL.)

Terminal		Port	Use
	X1.1	24	Operating voltage supply 24 V DC
	X1.2	0	Operating voltage supply 0 V
	X1.3	$\equiv$	Functional earth
	X1.4	—	Not connected

Tab. 3: Operating voltage supply [X1]

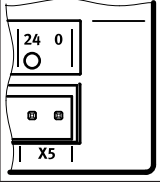
In addition to the operating voltage supply of the device, the power supply of the following interfaces flows through this connection:

- Fieldbus interface CAN/CANopen [X6]
- USB interface [X7]
- Ethernet interface [X8]
- CECC-S: encoder interface ENC [X11]
- CECC-S: RS232 interfaces [X12] and [X13]
- CECC-S: multiple interface ENC/RS422/RS485 [X14]
- Operating voltage supply IO-Link Master (CECC-LK: [12] ... [X15], CECC-S: [X15])
- IO-Link device port [X16]

NOTICE

- Supply IO-Link devices with a current consumption $> 200 \text{ mA}$ with an additional load voltage via the connection [X11] and protect them externally.

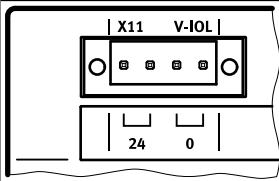
6.3.2 Supply of load voltage supply for digital I/Os [X5]

Terminal	Port	Use
	X5.1	24
	X5.2	0
		Supply of load voltage supply 24 V DC for digital I/Os
		Supply of load voltage supply 0 V for digital I/Os

Tab. 4: Supply of load voltage supply for digital I/Os [X5]

6.3.3 CECC-LK: supply of load voltage supply for IO-Link master ports [X11] (V-IOL)

This connection is used for supply of the load voltage supply for IO-Link devices connected via IO-Link master ports.

Terminal	Identifier/signal	Explanation
	X11.1	24
	X11.2	
	X11.3	0
	X11.4	
		Supply of load voltage supply 24 V DC for IO-Link master ports X12.4 ... X15.4.
		Supply of load voltage supply 0 V for IO-Link master ports X12.5 ... X15.5.

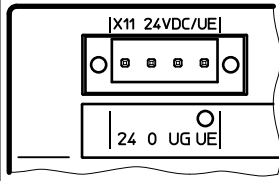
Tab. 5: CECC-LK: supply of load voltage supply [X11]

6.3.4 CECC-S: supply of load voltage supply for IO-Link master ports [X11] (24 VDC/UE)

NOTICE

Damage to the controller due to confusion of the connection terminals.

- Use only terminals X11.1 and X11.2 for supply of the load voltage supply to the IO-Link master port on the CECC-S.

Terminal	Identifier/signal	Explanation
	X11.1	24
	X11.2	0
		Supply of load voltage supply 24 V DC for IO-Link master port X15.4.
		Supply of load voltage supply 0 V for IO-Link master port X15.5.

Tab. 6: CECC-S: supply of load voltage supply for IO-Link master ports [X11]

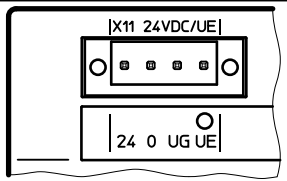
6.3.5 CECC-S: operating voltage supply for encoder [X11]

This connection is used for the power supply to an externally connected encoder (5 V, maximum 100 mA).

NOTICE

Damage to the controller due to confusion of the connection terminal.

- Use only connection terminals X11.3 and X11.4 for the operating voltage supply of the encoder on the CECC-S.

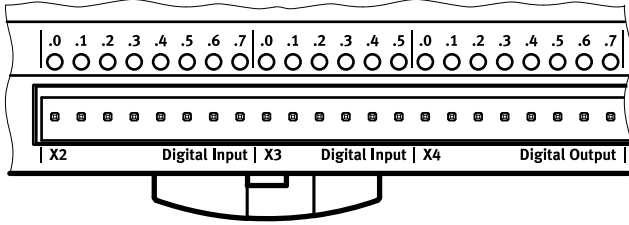
Terminal	Identifier/ signal	Explanation
	X11.3	UG
	X11.4	UE

Tab. 7: CECC-S: operating voltage supply for encoder [X11]

6.4 Interfaces

6.4.1 I/O interfaces [X2], [X3], [X4]

The I/O interface of the controller enables the evaluation of sensors (inductive, capacitive) or signal generators (counters) as well as the control of signal receivers (actuators). All sensors and actuators as well as their power supply are connected to the controller via the contact strip.

Terminal	Use
	
X2.0 ... X2.1	2 high-speed digital inputs, 200 kHz
X2.2 ... X2.7	6 digital inputs, 1 kHz, IEC type 1
X3.0 ... X3.5	6 digital inputs, 1 kHz, IEC type 1
X4.0 ... X4.7	8 digital outputs, 0.5 A per channel, PNP, SSR ¹⁾

1) SSR: solid state relay

Tab. 8: I/O interfaces [X2], [X3], [X4]

CECC-S: when configuring the multiple interface [X14] as encoder and activating the relevant function:

- X2.2: reference input
- X2.3: latch input

NOTICE

Using incorrect connections may damage the device.
Use connector [X5] for the power supply to the I/O interface.

Connect sensors and actuators to the digital inputs and outputs.

Matching plugs: NECC-L2G...-C1-... ➔ www.festo.com/catalogue

For more information on setting up the digital inputs and outputs, see CODESYS

➔ CECC-LK/-S manual/online help.

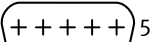
For more information on using the I/O interface ➔ Online help for the Festo CECC_3 library.

6.4.2 CAN/CANopen interface [X6]

The controller has a CAN/CANopen interface with

- CAN functionality ➔ Online help CAN Low Level
- CANopen master functionality for connecting CANopen slaves

The interface is designed as a 9-pin Sub-D plug.

Plug		Port	Use
	1	–	Not connected
	2	CAN_L ¹⁾	CAN bus signal 1 (dominant low)
	3	CAN_GND	CAN Ground
	4	–	Not connected
	5	CAN_SHLD	Connection to functional earth
	6	CAN_GND	CAN Ground (optional)
	7	CAN_H ¹⁾	CAN bus signal 1 (dominant high)
	8	–	Not connected
	9	–	Not connected

1) When connecting the device at the end of the cable: connect terminal 2 and terminal 7 via a resistor.

Matching plug with resistor (120 Ω /0.25 W) → www.festo.com/catalogue.

Tab. 9: CAN/CANopen interface [X6]

CANOpen slaves

NOTICE

Data transmission error, malfunction

If installation has not been carried out correctly and high transmission rates are used, data transmission errors may occur, e.g. as a result of signal reflections and signal attenuations.

- Connect continuous shielding to all fieldbus cables.
- Wherever possible earth shielding only once (star-shaped) to prevent ground loops.
- Insert terminating resistor between pin 2 (CAN_L) and pin 7 (CAN_H).
- Observe installation guidelines.
- Note connection and cable specification
- Observe maximum cable length
- Use a twisted, shielded 2-wire cable for the CAN bus.
- Connect the housing of the CAN bus plug to functional earth by pin 5 (CAN_SHLD).

6.4.3 USB interface [X7]

The USB interface is compatible with the USB 1.1 standard. The USB interface is for USB plug type A.

The following functions are supported (cable length ≤ 3 m):

- General data storage
- Transfer of boot applications

Storage medium requirements

- Formatting: FAT32
- Only one partition with a maximum of 32 GB

NOTICE

Malfunction due to undefined switching status of the electronics.
If a USB hard disk without its own power supply is used, the maximum permitted current consumption can be exceeded, e.g. during start-up of the USB hard disk.

Controller CECC-LK:

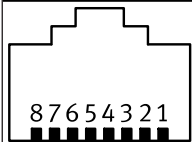
- Use only storage media with a current consumption of $\leq 500\text{ mA}$.

Controller CECC-S:

- USB storage medium and encoder are supplied from a common power source.
- Use USB storage medium and encoder with a total current consumption of $\leq 500\text{ mA}$.

6.4.4 Ethernet interface [X8]

The Ethernet interface is a RJ45 port and can be used to connect a programming unit, a PC or an operator unit CDPX to the controller.

Plug		Port	Use
	1	TD+	Transmitted data+
	2	TD-	Transmitted data-
	3	RD+	Received data+
	4	–	Not connected
	5	–	Not connected
	6	RD-	Received data-
	7	–	Not connected
	8	–	Not connected
	Housing	–	Shield

Tab. 10: Ethernet interfaces [X8]

Network connection

NOTICE

Data transmission error, malfunction
If installation has not been carried out correctly and high transmission rates are used, data transmission errors may occur, e.g. as a result of signal reflections and signal attenuations.

- Connect shielding to all network cables
- Wherever possible earth shielding only once (star-shaped) to prevent ground loops.
- Observe installation guidelines.
- Note connection and cable specifications:
 - Ethernet installation guidelines
 - Documentation on the control system

A patch or crossover cable is required to connect the controller to a network or a PC. The interface automatically detects which cable is connected and switches the signals automatically.

Connecting Ethernet interface

- Connect controller to the network via a hub/switch or directly to the PC.
- Use a shielded Ethernet cable (shielded twisted pair, STP) of category Cat 5/5e/6/7.

Web server

The integrated web server provides read access to the key parameters and diagnostic functions of the controller.

The web server can be accessed by entering the IP address in the address bar of a web browser.

Parameters	Value
IP	192.168.1.20
Subnet mask	255.255.0.0
Gateway	192.168.1.1

Tab. 11: Network settings on delivery

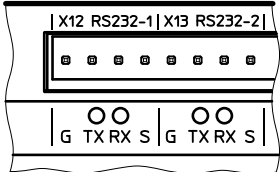


If required, the network settings can be configured with the Festo Field Device Tool (FFT) or a web browser and the integrated web server.

6.4.5 CECC-S: serial interfaces [X12], [X13]

The CECC-S controller has two RS232 interfaces:

- [X12] = RS232-1
- [X13] = RS232-2

Terminal		Port	Use
	X12.1, X13.1	G	Ground
	X12.2, X13.2	Tx	Transmitted data ¹⁾ (output)
	X12.3, X13.3	Rx	Received data ¹⁾ (input)
	X12.4, X13.4	S	Shielding, connection to functional earth

1) Max. level: low -15 V high +15 V; TTL level not permissible

Tab. 12: CECC-S: serial interfaces [X12], [X13]

6.4.6 CECC-S: multiple interface encoder/RS422/RS485 [X14]



Simultaneous use of the interfaces is not possible. The connection option is configured with CODESYS.

Terminal	Port	Encoder ¹⁾	RS422 ¹⁾	RS485 ¹⁾
	X14.1	G	Ground	
	X14.2	A+	Track A +	Transmitted data + ²⁾
	X14.3	A-	Track A -	Transmitted data - ²⁾
	X14.4	B+	Track B +	Received data + ³⁾
	X14.5	B-	Track B -	Received data - ³⁾
	X14.6	N+	Zero track +	-
	X14.7	N-	Zero track -	-
	X14.8	S	Shield, connection to functional earth	

1) Transmission rate see Technical Data

2) If the device is connected to the cable end: connect terminals X14.2 and X14.3 via resistor (120 Ω/0.25 W).

3) If the device is connected at the cable end: connect terminals X14.4 and X14.5 via resistor (120 Ω/0.25 W).

Tab. 13: CECC-S: multiple interface encoder/RS422/RS485 [X14]

6.4.7 IO-Link communication interface

The variants of the CECC control have the following number of IO-Link connections.

Controller	IO-Link master	IO-Link device
CECC-LK	4	1
CECC-S	1	1

Tab. 14: Number of IO-Link connections

One IO-Link device can be connected to one IO-Link master connection.

The controller can be connected to a higher-level IO-Link master at the IO-Link device connection.

NOTICE

When connecting two devices (CECC-LK or CECC-S) with separate power supplies via IO-Link, high compensating currents can occur and damage the devices.

- Connect the earth cables of the devices linked via IO-Link. This balances the earth potential.

NOTICE

Note

The maximum total current for connected IO-Link devices is:

CECC-LK: maximum 10 A for maximum 4 IO-Link devices

CECC-S: maximum 3.5 A for maximum 1 IO-Link device

The maximum load current on a IO-Link master port (e.g. actuators) is 3.5 A.

- Use external fuse protection if necessary.

NOTICE

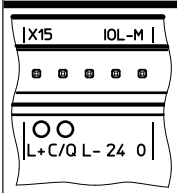
As an alternative to a IO-Link device, a digital standard sensor or standard actuator can be connected to each IO-Link master connection (SIO operating mode).

Make sure that in SIO operating mode the power supply for these sensors/actuators is via L+.

Additional functions such as extended diagnostics, parameters, alarms are handled via function blocks → Online help for the Festo CECC_IOLink_3 library.

For further information on setting up connected IO-Link devices with CODESYS → see the CECC-LK/-S manual/online help.

6.4.7.1 CECC-S: communication interface IO-Link Master [X15] (IOL-M)

Terminal	Port	Use	
	X15.1	L+	Operating voltage supply 24 V DC
	X15.2	C/Q	Communication signal IO-Link
	X15.3	L-	Operating voltage supply 0 V
	X15.4	24	Load voltage supply 24 V DC from [X11]
	X15.5	0	Load voltage supply 0 V from [X11]

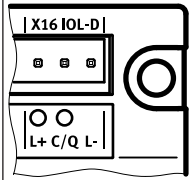
Tab. 15: CECC-S: communication interface IO-Link Master [X15]

6.4.7.2 CECC-LK: communication interfaces IO-Link Master [X12] ... [X15] (IOL-M...)

Terminal	Port	Use
X12 IOL-M1 X13 IOL-M2 X14 IOL-M3 X15 IOL-M4 <		

Tab. 16: CECC-LK: communication interface IO-Link [X12] ... [X15]

6.4.7.3 Communication interface IO-Link device [X16] (IOL-D)

Terminal	Port	Use	
	X16.1	L+	Operating voltage supply 24 V DC
	X16.2	C/Q	Communication signal IO-Link
	X16.3	L-	Operating voltage supply 0 V

Tab. 17: Communication interface IO-Link device [X16]

7 Diagnostics

7.1 Status LEDs

The controller LEDs indicate the operating status of the device and are arranged as follows.

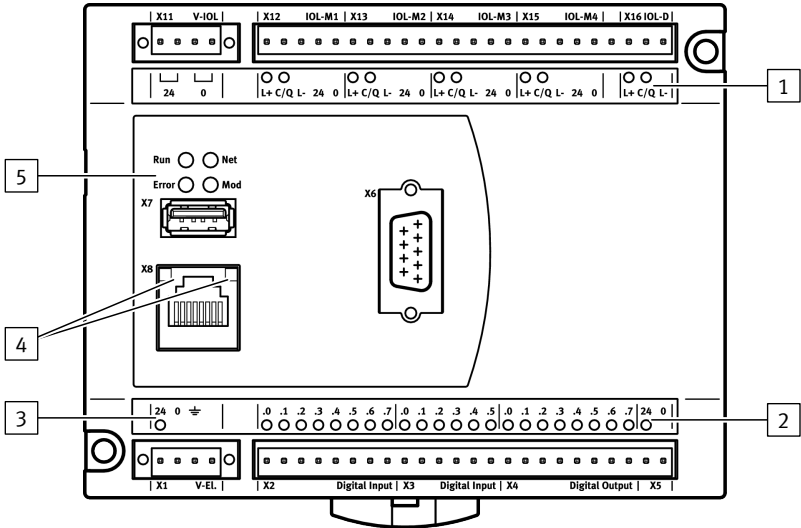


Fig. 4: Status LEDs, example CECC-LK

- 1

CECC-LK: IO-Link, CECC-S: RS232, ENC/RS422/RS485 multiple interface and IO-Link
- 2

Inputs, outputs (I/O) and power supply for I/O
- 3

Operating voltage supply 24 V
- 4

EtherNet
- 5

Operation ([Run], [Net], [Error], [Mod])

The following LED indicators signal the normal operating status of the controller:

LED	Meaning	
Run	 Green light	Program running
Error	 Off	No error
Net	 Flashing red	Controller has been identified in the network

Tab. 18: LED displays in normal operating status

All LED displays:

LED	Meaning		Comment
Run	 Green light	Program running	Application status
	 Yellow light	Program is stopped	
	 Off	Run-time system is not running	
Error	 Red light	Class 4 error	PLC run-time error
	 Flashing red	Class 2 error	

LED		Meaning	Comment
Error	 Off	No error/class 1 error	PLC run-time error
Net	 Flashing red	Controller has been identified in the network	Identification, e.g. by Festo Field Device Tool (FFT)
Mod	 Off	–	Reserved
Operating voltage supply [X1] (V-El.)			
24	 Green light	Controller is ready for operation	Power supply
	 Flashing green	Undervoltage	
	 Light off	Controller is switched off	
I/O interfaces [X2] ... [X4] (digital input, digital output)			
.0 7	 Green light	24 V is applied at the input, e.g. at X2.1 or X3.5	Voltage is applied at the inputs or outputs
	 Yellow light	24 V is applied at the output, e.g. at X4.0	
Infeed of load voltage supply for I/O interfaces [X5]			
24	 Green light	Voltage is present	Power supply for the I/O interfaces
	 Off	No voltage	
Ethernet [X8]			
Left	 Green light	Data transfer at 100 Mbit	Speed LED: speed of data transfer
	 Off	Data transfer at 10 Mbit	
Right	 Green light	Connection is made	Link/activity LED: connection and data transfer
	 Flashing green	Data transfer is active	
	 Off	No connection	
Operating voltage supply for encoder [X11] (24VDC/UE)			
UE	 Green light	Voltage is present	Power supply for encoder
	 Light off	No voltage	
IO-Link interfaces CECC-LK: [X12]...[X16] (IOL-M..., IOL-D), CECC-S: [X15...X16] (IOL-M, IOL-D)			
L+	 Green light	IO-Link master active	Status indicator
	 Flashing green	IO-Link master not ready for operation	
C/Q	 Green light	Connection established	Link/activity LED: connection and data transfer
	 Red light	Data transfer inactive	

LED		Meaning	Comment	
Serial interfaces CECC-S: [X12] and [X13] (RS232-1/-2)				
TX		Green light	Data transfer	
RX		Green light		
Multiple interface CECC-S: [X14] (ENC/RS485/RS422)				
A+		Flashing green	Encoder ticks track A	Encoder turns slowly, LED flashes in the cycle of the rotary frequency and visualises the counting pulses (encoder ticks)
		Flickers green		Encoder is turning fast.
		Flickers green	Transmitted data for RS422 Transmitted/received data with RS485	Display of data transmission
B+		Flashing green	Encoder ticks track B	Encoder turns slowly, LED flashes in the cycle of the rotary frequency and visualises the counting pulses (encoder ticks)
		Flickers green		Encoder is turning fast.
		Flickers green	Received data with RS422	Display of data transmission
N+		Flashing green	Encoder ticks zero track	Encoder turns slowly, LED flashes in the cycle of the rotary frequency and visualises the counting pulses (encoder ticks)
		Flickers green		Encoder is turning fast.

Tab. 19: Display of status LEDs

8 Technical data

8.1 Technical data, general

CECC	
Certificates, declaration of conformity	➔ www.festo.com/sp
Ambient temperature [°C]	0 ... 55
Storage temperature [°C]	–25 ... +70
Relative humidity [%]	95, non-condensing
Degree of protection	IP20
Protection class	III
Vibration resistant	Testing according to FN 942017-4 and DIN EN 60068-2-6 SG1 for DIN rail mounting SG2 for wall mounting
Shock resistance	Testing according to FN 942017-5 and DIN EN 60068-2-27 SG1 for DIN rail mounting SG2 for wall mounting
Continuous shock	Testing according to FN 942017-5 and DIN EN 60068-2-27 SG1 for DIN rail mounting SG1 for wall mounting

CECC		
Product weight	[g]	270
Dimensions (length x width x height)	[mm]	130 x 106 x 48.15

Tab. 20: Technical data, general

Type of severity level (SL)					
Vibration load					
Frequency range [Hz]		Acceleration [m/s ²]		Deflection [mm]	
SL1	SL2	SL1	SG2	SL1	SL2
2 ... 8	2 ... 8	–	–	±3.5	±3.5
8 ... 27	8 ... 27	10	10	–	–
27 ... 58	27 ... 60	–	–	±0.15	±0.35
58 ... 160	60 ... 160	20	50	–	–
160 ... 200	160 ... 200	10	10	–	–
Shock load					
Acceleration [m/s ²]		Duration [ms]		Shocks per direction	
SL1	SL2	SL1	SL2	SL1	SL2
±150	±300	11	11	5	5
Continuous shock load					
Acceleration [m/s ²]		Duration [ms]		Shocks per direction	
±150		6		1000	

Tab. 21: Type of severity level (SL)

8.2 Technical data, electrical

CECC	-LK	-S
Electrical connection technology	Socket strip, grid 3.5 mm	
Operating voltage [X1]		
Nominal voltage [V DC]	24	
Operating voltage supply [V DC]	19.2 ... 30	20.4 ... 30.0
Intrinsic current consumption at 24 V DC [mA]	120	
Reverse polarity protection	yes	
Load voltage supply for digital I/Os [X5]		
Nominal voltage [V DC]	24	
Resultant current for all supply connections at [X2] ... [X4] [A]	5	
Permissible load of a digital output [A]	0.5	
All digital inputs at [X2] and [X3]		
Switching logic	positive logic (PNP)	
Input voltage	24 V DC	
Nominal value for TRUE	≥ 15 V DC	
Nominal value for FALSE	≤ 5 V DC	
Separation of digital inputs from the internal switching logic of the CECC	Galvanically separated	
Separation of external power supply of the interface from the operating voltage supply of the CECC	Galvanically separated	

CECC	-LK	-S
Status indicator	LED	
Permissible connecting cable length	30 m	
Fast digital counter inputs X2.0 and X2.1		
Number	2	
Switching frequency	≤ 200 kHz	
Signal delay (debounce time)	1 μs, factory setting, configurable with CODESYS	
Digital inputs X2.2 ... X2.7 and X3.0 ... X3.5		
Number	12	
Switching frequency	≤ 1 kHz	
Signal delay (debounce time)	3 ms, factory setting, configurable with CODESYS	
Digital outputs [X4]		
Number	8	
Switching logic	positive logic (PNP)	
Contact	Transistor	
Output voltage	24 V DC	
Output current	500 mA	
Separation of digital outputs from the internal switching logic of the CECC	Galvanically separated	
Separation of external power supply of the interface from the operating voltage supply of the CECC	Galvanically separated	
Switching frequency	≤ 1 kHz	
Short-circuit proof	yes	
Fieldbus interface CAN/CANopen [X6]		
Type	CAN bus	
Connection technology	Plug, Sub-D, 9-pin	
Transmission rate	10, 20, 50, 100, 125, 250, 500, 800, 1000 kb/s configurable with CODESYS	
Separation of signal lines of the interface from the internal switching logic of the CECC	Galvanically separated	
Separation of internal power supply of the interface from the operating voltage supply of the CECC	Galvanically separated	
USB interface [X7]		
Design	USB 1.1	
Ethernet interface [X8]		
Connector plug	RJ45	
Number	1	
Transmission speed	10/100 Mbit/s	
Supported protocols	UDP, TCP/IP, EasyIP, Modbus TCP, OPC UA	
CECC-S: Requirements for conducted emissions is only observed with a cable length of at least 10 m.		
IO-Link interfaces	[X12] ... [X16]	[X15] ... [X16]
Protocol	IO-Link device port: V 1.0 IO-Link master port: V 1.1	
Connection technology, plug	IO-Link device port: 3-pin IO-Link master port: 5-pin	

CECC	-LK	-S
Communication mode	configurable with software IO-Link device port: COM1, COM2, COM3 IO-Link master port: SIO, COM1, COM2, COM3	
Permitted cable length	20 m	
Port type	IO-Link device port: A IO-Link master port: B	
Number of ports	4 IO-Link master ports 1 IO-Link device port	1 IO-Link master port 1 IO-Link device port
Operating voltage output current (L+, L-)	≤ 200 mA/IO-Link port	
Load voltage output current (24, 0)	≤ 3.5 A/IO-Link master port	
Communication	C/Q LED green C/Q LED red	
Ready status display	L+ LED green on L+ LED green off	
Process data width OUT	IO-Link master: 2 ... 32 bytes, parameterisable	
Process data width IN	IO-Link master: 2 ... 32 bytes, parameterisable	
memory	2 kByte/IO-Link Master Port	
Minimum cycle time	IO-Link device port: 3.2 ms IO-Link master port: 5 ms	
Device ID	0x550000, 0x550001, 0x550002, 0x550003, 0x550004	
Serial interfaces	–	[X12] ... [X14]
Type	–	2 x RS232 1 x RS485-A/422-A
Connection technology	–	Plug
Transmission rate	–	300 ... 375000 bit/s
Encoder interface	–	[X14]
Resolution	–	32 bit
Signal range	–	5 V, differential (RS422)
Maximum input frequency	–	1000 kHz
Operating voltage supply for encoders	–	5 V DC
Programming		
Programming languages	in accordance with IEC 61131-3 AS, AWL, FUP, KOP, ST	
Programming software	CODESYS V3	

Tab. 22: Technical data, electrical

Hardware and memory

CECC		
Processor (CPU)		Dual Core 500 MHz
Total main memory	[MB]	128
RAM storage for project data (temporary)	[MB]	60
Flash memory for project data (permanent)	[MB]	13
Flag (flag memory)	[kB]	8
Inputs	[kB]	8
Outputs	[kB]	8
Remanent variables	[Byte]	6080

Tab. 23: Hardware and memory

Remanent variables

The controller makes available a maximum of 6080 bytes for storing remanent variables (retain and persistent-retain variables). They are automatically distributed based on the variable declaration within the application. The following sample combinations for assigning the memory are possible.

Retain variable	Persistent-retain variable
6080 bytes	0 bytes (only if there is no persistent variable list)
0 bytes	6036 bytes (44 bytes for identification)
300 bytes	6036 - 300 bytes = 5736 bytes (44 bytes for identification)
x bytes	6036 - x bytes (44 bytes for identification)

Tab. 24: Memory assignment of the remanent variables (examples)



Memory overflow error.

- Observe the maximum memory capacity for remanent variables: 6080 bytes.

8.3 Technical data for UL certification

Technical data UL		
CECC	-LK	-S
Pollution degree	2	
Total power rating of the operating and load voltage supplies at [X1], [X5] and [X11]	6 A ¹⁾	
Load rating of the operating voltage supply [X1]	125 mA	
Load rating of the operating voltage supply of the I/O interfaces [X5]	4.1 A	
Load rating of the load voltage supply [X11]	5.875 A	3.5 A

1) The CECC outputs must only be loaded to ensure that the maximum sum of the input currents at [X1] (V-EL), [X5] und [X11] (CECC-LK: V-IOL, CECC-S: 24VDC) is limited to 6 A.

Tab. 25: Technical data UL

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