USB IO-Link Master, CDSU-1

FESTO
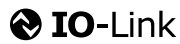
Key features

General information

The USB IO-Link Master CDSU-1 allows Festo IO-Link products to be commissioned quickly and intuitively.

IO-Link

It is connected to a PC via a mini USB port. The M12 IO-Link connection and the USB interface are galvanically isolated to ensure safe and reliable operation.

IO-Link devices with a low current demand can be operated directly from the USB port of a PC via an integrated DC/DC converter (up to 80 mA).

For commissioning IO-Link devices with a higher output, a standardised 24 V industrial input port is available on the master (up to 2.5 A).

Port Class B IO-Link devices up to 3.5 A (e.g. valve terminals) can be operated using the new NEDU distributor.

The USB IO-Link Master Tool software acts as the user interface for visualising and editing the parameters of IO-Link devices.

This software can be downloaded for free from the Support Portal.

Key features / highlights

- Universal solution for the parameterisation and visualisation of IO-Link devices
- For all Festo IO-Link devices (sensors and actuators)
- Universal connections
- Galvanic isolation
- For port class A and port class B (with accessories)
- Connecting cables available as accessories for nearly all Festo IO-Link devices
- For IO-Link devices with protocol version 1.1 and 1.0
- Supports data storage
- IODD Finder Interface
- Future-proof: new functions, e.g. firmware updates via IO-Link, will be available regularly
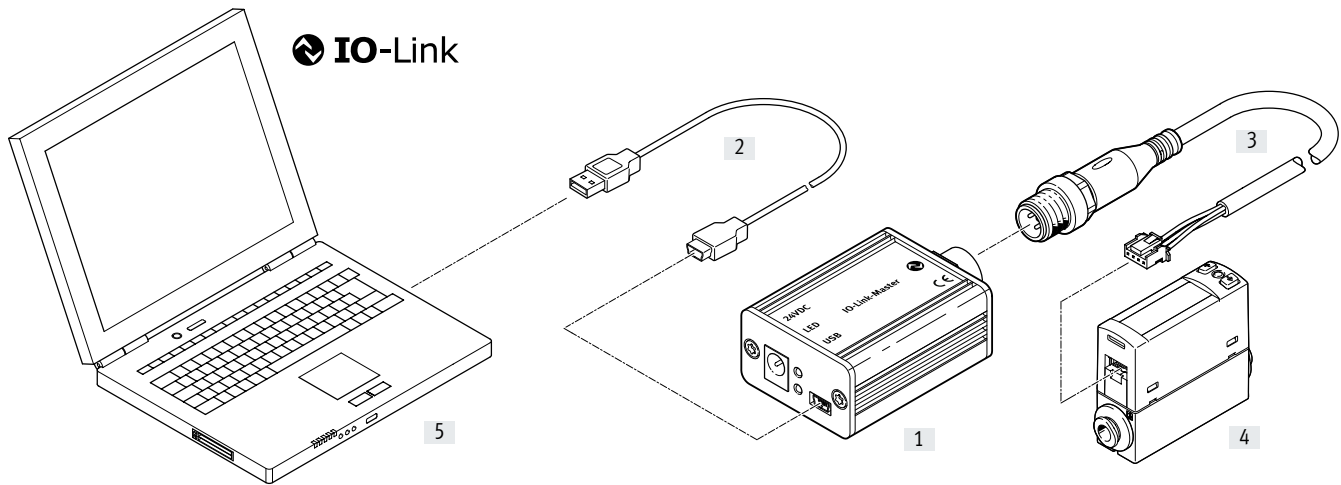- Compact, cost-effective and powerful

CDSU-1

→ Internet: www.festo.com/catalogue/...

Peripherals overview

Connection example up to 80 mA:

Devices with a low current demand can be operated directly from the USB port of a PC via an integrated DC/DC converter.
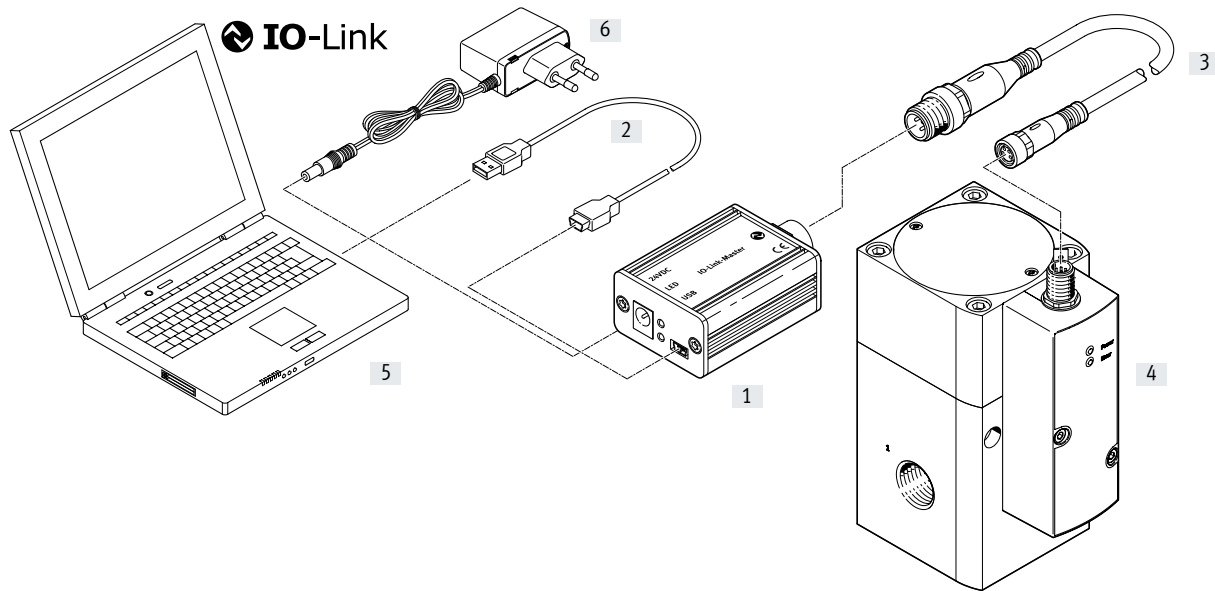

Product overview

		Brief description	→ Page/Internet
[1]	Controller CDSU-1	For quick and intuitive commissioning of products with IO-Link	6
[2]	Connecting cable[1]	Mini USB cable type A	–
[3]	Connecting cable NEBS-L1G4-K-1-N-M12G4	4 x 0.25 mm², M12x1, A-coded, to EN 61076-2-101	11
[4]	Flow sensors SFAH-…	For monitoring compressed air and non-corrosive gases.	sfah
[5]	Laptop	–	–

1) Mini USB cable is included in the scope of delivery of the CDSU-1

Peripherals overview

Connection example up to 2.5 A:

For commissioning IO-Link devices with a higher output, a standardised 24 V industrial input port is available on the master for connecting an external power supply unit.

Product overview

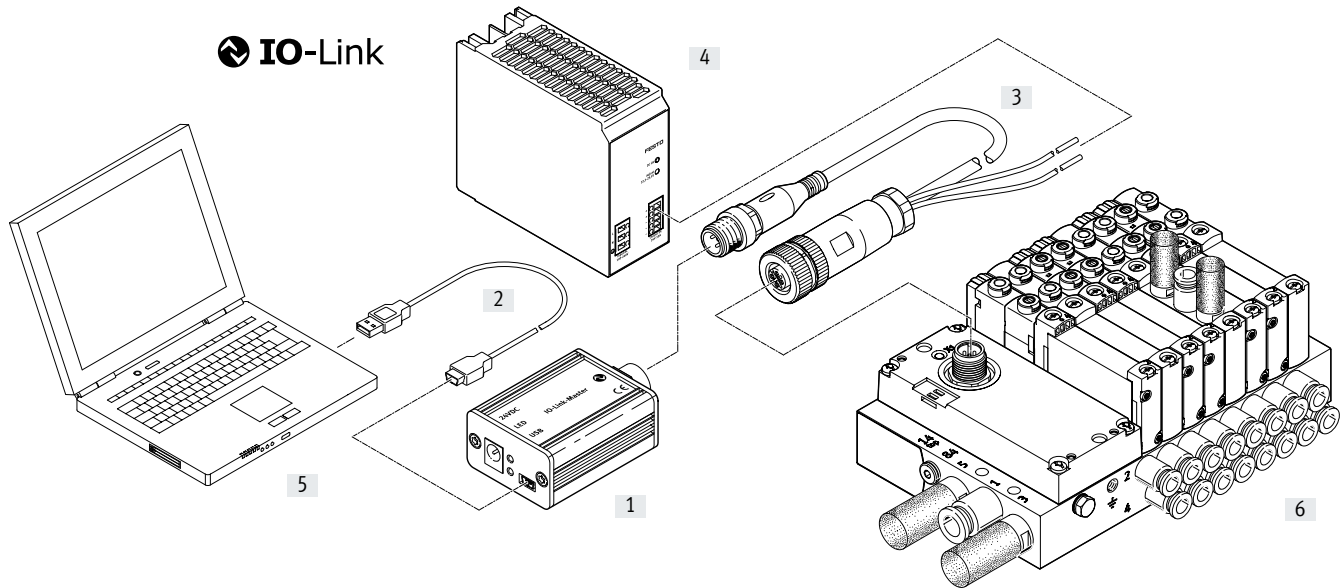|		Brief description	→ Page/Internet
[1]	Controller CDSU-1	For quick and intuitive commissioning of products with IO-Link	6
[2]	Connecting cable[1]	Mini USB cable type A	–
[3]	Connecting cable NEBU-M8G4-K-1-N-M12G4	4 x 0.25 mm², M8x1, A-coded, to EN 61076-2-104	12
[4]	Proportional valves VPPM	Proportional-pressure regulators	vppm
[5]	Laptop	–	–
[6]	Power supply unit[2]	For supplying power	–

[1] Mini USB cable is included in the scope of delivery of the CDSU-1

[2] Power supply plug is not included in the scope of delivery of the CDSU-1

Peripherals overview

Connection example up to 3.5 A:

Port Class B IO-Link devices can be operated using the new distributor.

Product overview

		Brief description	→ Page/Internet
[1]	Controller CDSU-1	For quick and intuitive commissioning of products with IO-Link	6
[2]	Connecting cable[1]	Mini USB cable type A	–
[3]	Distributor NEDU-L1R2-M12G5-M12LE-1R	3 x 0.25 mm², 2 x 0.5 mm²	9
[4]	Power supply unit[2] CACN	For supplying power	–
[5]	Laptop	–	–
[6]	Valve terminal VTUG-...	Valve terminal with IO-Link interface	vtug

1) Mini USB cable is included in the scope of delivery of the CDSU-1
2) Power supply unit is not included in the scope of delivery of the CDSU-1

Data sheet

IO-Link

General technical data

Type	CDSU-1
Conforms to standard	EN 61131-9
Certification	RCM compliance mark
CE marking (see	To EU EMC Directive
declaration of conformity)	To EU RoHS Directive
Note regarding use	For use with the USB IO-Link Master Tool software (available from the Support Portal) for Windows version 7 or higher (32/64-bit)

Electronics

Input voltage	5 V DC at the USB connection
	24 V DC ± 6 V via external supply
Input current	Max. 600 mA at the USB connection
	Max. 2.5 A via external supply
Output voltage	24 V DC ± 10% with USB operation
	24 V DC ± 6 V with external supply (max. input voltage)
IO-Link, output current	80 mA with USB operation
	Max. input current with external supply
Reverse polarity protection	For operating voltage connections
Short circuit protection	Yes
Overload protection	Not present

Ambient conditions

Ambient temperature	[°C]	0 … 55
Storage temperature	[°C]	-10 … 75
Degree of protection		IP20
Note on materials		RoHS-compliant

Mechanical components
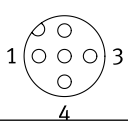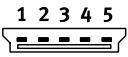
Product weight	[g]	106
Housing material		Anodised wrought aluminium alloy

Data sheet

Communication interface for IO-Link

Protocol	IO-Link
Protocol version	Master V 1.0
	Master V 1.1
Communication mode	COM1 (4.8 kBd)
	COM2 (38.4 kBd)
	COM3 (230.4 kBd)
Port class	A
	B with accessories
Number of ports	1
Process data width OUT	Can be parameterised 0 - 32 bytes
Process data width IN	Can be parameterised 0 - 32 bytes
Minimum cycle time [ms]	1.5
Data memory available	2 kB/port

Power supply

Function	Additional power supply
Connection technology	Coaxial
Number of pins/wires	2
Note on connection technology	For plugs with an O.D. of 5.5 mm
	For plugs with an I.D. of 2.1 mm
USB interface	
Connection type	Socket
Connection technology	USB 2.0 type B mini
Galvanic isolation	Yes

Electrical connection of IO-Link

Number of pins/wires	5
Assigned pins/wires	3
Connection technology	M12x1, A-coded, to EN 61076-2-101

Pin allocation

	Pin	Meaning
	1	+ 24 V
	2	Not assigned
	3	GND
	4	IO-Link (C/Q)
	5	Not assigned
	1	+ 5 V
	2	D-
	3	D+
	4	Not assigned
	5	GND

Data sheet
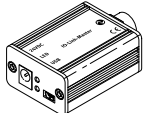
Dimensions   Download CAD data ➔ www.festo.com
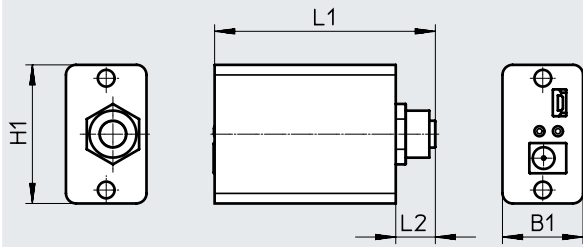
Type	B1	H1	L1	L2
CDSU-1	24	41.3	65.8	11.8

Ordering data

Controllers	Brief description	Part no.	Type
	The USB IO-Link Master CDSU-1 allows products with IO-Link to be commissioned quickly and intuitively[1]	**8091509**	**CDSU-1**

1) Power supply plug is not included in the scope of delivery of the CDSU-1

Accessories

Distributor NEDU
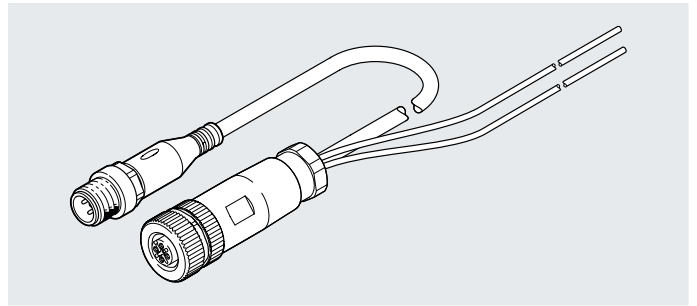
General technical data			
Connecting cable 4x 0.25 mm²	Electrical connection 1	Electrical connection 2	Electrical connection 3
Design	Y distributor with cable on controller side		
Distributor type	1 to 2		
Based on standard	EN 61076-2-101		
Function	Field device side	Communication, IO-Link	Additional supply
Design type	Round	Round	–
Connection type	Socket	Plug	2x single wires
Cable outlet	Straight	Straight	–
Connection technology	M12x1, A-coded, to EN 61076-2-101	M12x1, A-coded, to EN 61076-2-101	Open end
Number of pins/wires	5	3	2
Assigned pins/wires	5	3	2
Cable characteristic	For static applications		
Cable length [m]	1		
Cable composition [mm²]	3 x 0.25	3 x 0.25	2 x 0.5
Conductor nominal cross section [mm²]	0.25	0.25	0.5
Bending radius, fixed cable installation	≥ 13.5 mm		
Bending radius, flexible cable installation	≥ 6 mm		
Cable diameter [mm]	4.5 and 1.75	4.5	1.75
Type of mounting	Screw-type lock with 18 mm hexagon and longitudinal knurl	Screw-type lock with hexagon A/F 13 mm and longitudinal knurl	–
Plug pattern			–

Accessories

Operating and environmental conditions

Ambient temperature	[°C]	-30 … 80
Nominal operating voltage DC	[V]	24
Operating voltage range DC	[V]	0 … 30
Current rating at 40°C	[A]	4
Surge resistance	[kV]	0.8
Degree of protection		IP65, IP68, IP69K
Note on degree of protection		When mounted
		IP40 for M12 socket
Pollution degree		3
Corrosion resistance class CRC[1]		1

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 coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Materials

Housing material	TPE-U(PUR), PA
Housing colour	Black
Cable sheath material	TPE-U(PUR)
Cable sheath colour	Grey
Material of screw-type lock	Nickel-plated brass, nickel-plated die-cast zinc
Material of pin contacts	Nickel-plated and gold-plated bronze
Insulating sheath material	PVC
Note on materials	RoHS-compliant

Dimensions   Download CAD data ➔ www.festo.com

Distributor
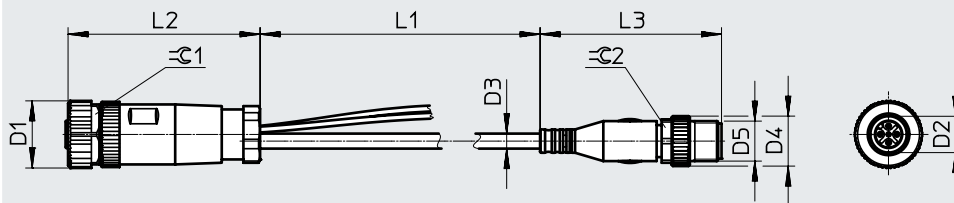
Type	D1 ⌀	D2	D3 ⌀	D4 ⌀	D5
NEDU-L1R2-M12G5-M12LE-1R	20.2	M12x1	4.5	15	M12x1

Type	L1	L2	L3	⊏1	⊏2
NEDU-L1R2-M12G5-M12LE-1R	1000	54	54.5	18	13

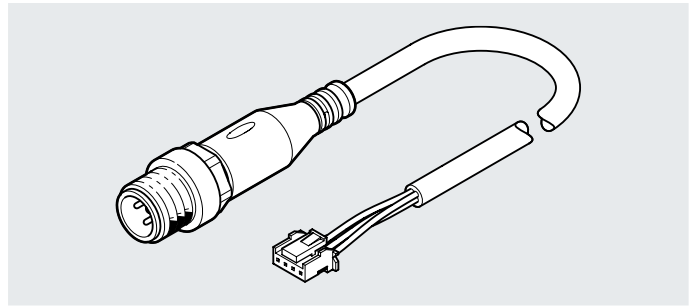**Ordering data – Connecting cables**   Data sheets ➔ Internet: nebs

	Electrical connection 1 [mm²]	Electrical connection 2 [mm²]	Electrical connection 3 [mm²]	Length [m]	Weight [g]	Part no.	Type
	3 x 0.25	3 x 0.25	3 x 0.5	1	78	**8091516**	**NEDU-L1R2-M12G5-M12LE-1R**

Accessories

Connecting cables NEBS

e.g. for SPAN, SCDN and SFAH

General technical data			
Connecting cable 4x 0.25 mm²		Electrical connection 1	Electrical connection 2
Function		Field device side	Controller side
Design type		Rectangular	Round
Connection type		Socket	Plug
Cable outlet		Straight	Straight
Connection technology		Plug pattern L1J	M12x1, A-coded, to EN 61076-2-101
Number of pins/wires		4	4
Assigned pins/wires		4	4
Cable characteristic		Standard	
Bending radius, fixed cable installation		≥ 14 mm	
Bending radius, flexible cable installation		≥ 46 mm	
Cable diameter	[mm]	4.5	
Conductor nominal cross section	[mm²]	0.25	
Type of mounting		Snap-locking	Screw-type lock with hexagon A/F 13 mm and longitudinal knurl
Plug pattern		4 3 2 1	2 3 1 4

Operating and environmental conditions		
Ambient temperature	[°C]	-20 … 60
Ambient temperature with flexible cable installation	[°C]	-5 … 60
Storage temperature	[°C]	-20 … 60
Operating voltage range DC	[V]	0 … 30
Current rating at 40°C	[A]	1
Surge resistance	[kV]	0.8
Degree of protection		IP65, IP67, IP69K
Note on degree of protection		When mounted
		IP40 for plug pattern L1J
Pollution degree		2
Corrosion resistance class CRC[1]		2

1)   Corrosion resistance class CRC 2 to Festo standard FN 940070
     Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Accessories

Materials

Housing material	PA, TPE-U(PUR)
Housing colour	Black, white
Cable sheath material	TPE-U(PUR)
Material of screw-type lock	Nickel-plated brass
Material of pin contacts	Tin-plated bronze, gold-plated brass
Insulating sheath material	PP
Cable sheath colour	Grey
Note on materials	RoHS-compliant, halogen-free

Dimensions   Download CAD data ➔ www.festo.com

Plug
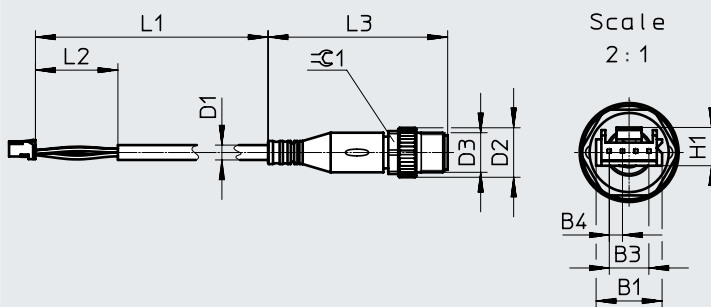
Type	B1	B3	B4	D1 ⌀	D2 ⌀
NEBS-L1G4-K-1-N-M12G4	10	6	2	4.5	15

Type	D3	H1	L1	L2	L3	⊐⊂1
NEBS-L1G4-K-1-N-M12G4	M12x1	5.8	1000	25	54.5	13

Ordering data – Connecting cable   Data sheets ➔ Internet: nebs

	Electrical connection 1	Electrical connection 2	Length [m]	Cable composition [mm²]	Weight [g]	Part no.	Type
Connecting cables NEBS							
	Plug pattern L1J	M12x1, A-coded, to EN 61076-2-101	1	4 x 0.25	40	**8091514**	**NEBS-L1G4-K-1-N-M12G4**

Ordering data

	Cable composition	Electrical connection	Part no.	Type
Connecting cables NEBU				
	3 x 0.25 mm²	M12x1, A-coded, to EN 61076-2-101	**8091511**	**NEBU-M12G5-K-1-N-M12G3**
		M8x1, A-coded, to EN 61076-2-104	**8091512**	**NEBU-M8G3-K-1-N-M12G3**
		Open end	**8091515**	**NEBU-LE3-K-1-N-M12G3**
	4 x 0.25 mm²	M8x1, A-coded, to EN 61076-2-104	**8091513**	**NEBU-M8G4-K-1-N-M12G4**