USB IO-Link Master, CDSU-1

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USB IO-Link Master, CDSU-1

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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 A Class and port B Class (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
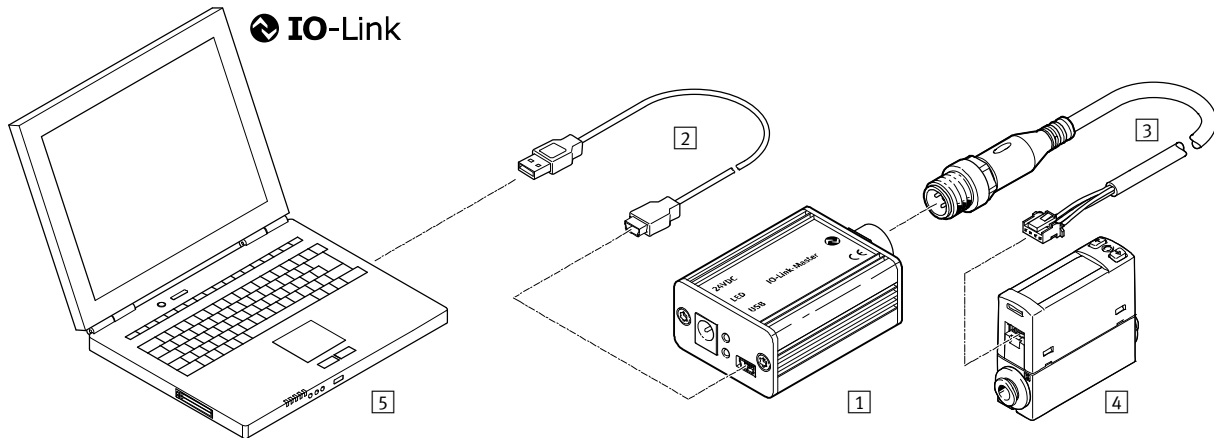- Compact, cost-effective and powerful

CDSU-1

USB IO-Link Master, CDSU-1

Peripherals overview

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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.
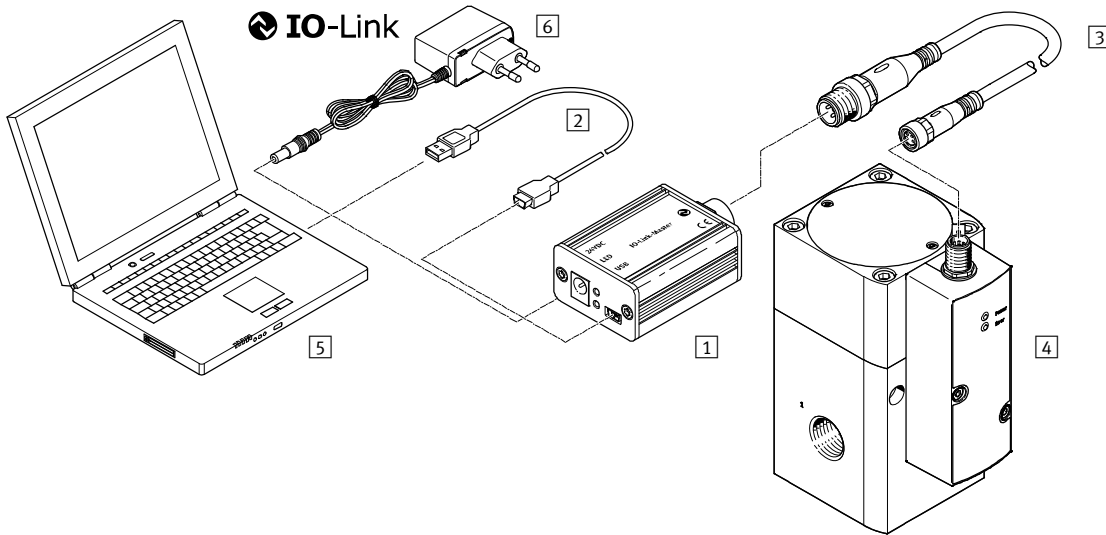

Product overview		
	Brief description	**→ Page/Internet**
[1] Controller CDSU-1	For quick and intuitive commissioning of products with IO-Link	6
[2] Connecting cable	Mini USB cable type A	–
[3] Connecting cable NEBS-L1G4-K-1-N-M12G4	4 x 0.25 mm², M12x1, A-coded, to EN 61076-2-101	11
[4] Flow sensors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

USB IO-Link Master, CDSU-1

Peripherals overview

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Connection example up to 2.5 A:

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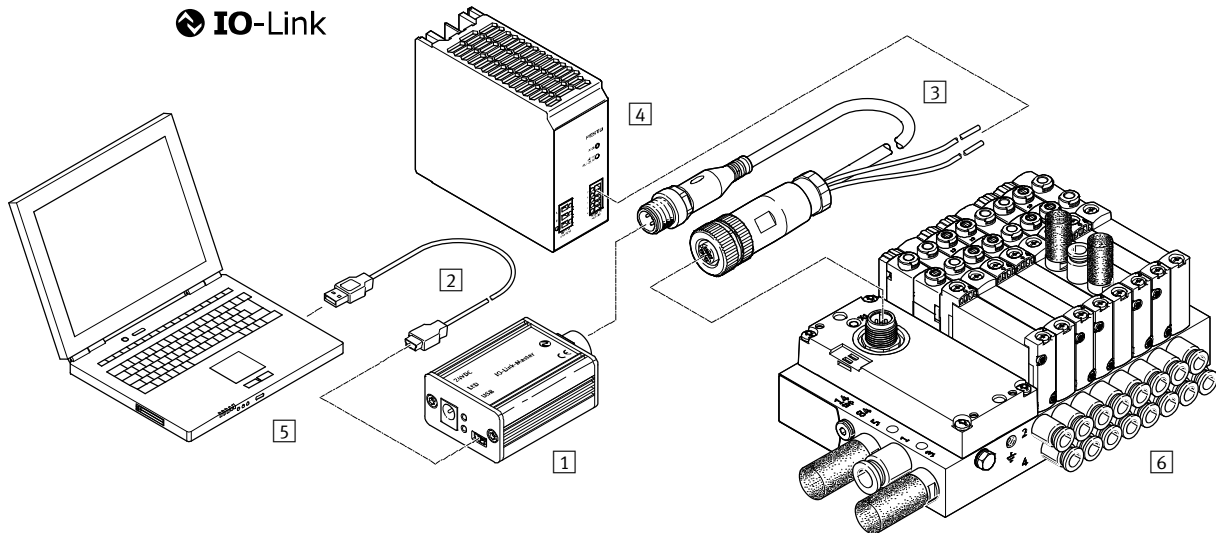

Product overview			
		Brief description	→ Page/Internet
1	Controller CDSU-1	For quick and intuitive commissioning of products with IO-Link	6
2	Connecting cable	Mini USB cable type A	–
3	Connecting cable NEBU-M8G4-K-1-N-M12G4	4 x 0.25 mm², M8x1, A-coded, to EN 61076-2-104	12
4	Proportional valves VPPM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

USB IO-Link Master, CDSU-1

Peripherals overview

Connection example up to 3.5 A:
Port Class B IO-Link devices can be operated using the new distributor.

◈ **IO**-Link

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

USB IO-Link Master, CDSU-1
Technical data

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🔵 **IO**-Link

General technical data	
Type	CDSU-1
Conforms to standard	EN 61131-9
Certification	RCM compliance mark
CE marking (see declaration of conformity)	To EU EMC Directive
	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).

Electronic system	
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 rating	Yes
Overload protection	Not available

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

Mechanical system		
Product weight	[g]	106
Housing material		Anodised wrought aluminium alloy
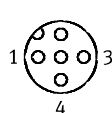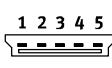
USB IO-Link Master, CDSU-1

Technical data

Communication interface for IO-Link	
Protocol	IO-Link
Protocol version	Master V 1.0
	Master V 1.1
Communication mode	COM1 (4.8 kBaud)
	COM2 (38.4 kBaud)
	COM3 (230.4 kBaud)
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, 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
1 ○○○○ 3 4	3	GND
	4	IO-Link (C/Q)
	5	Not assigned
	1	+ 5 V
1 2 3 4 5	2	D-
	3	D+
	4	Not assigned
	5	GND

USB IO-Link Master, CDSU-1
Technical data

Dimensions   Download CAD data ➜ **www.festo.com**
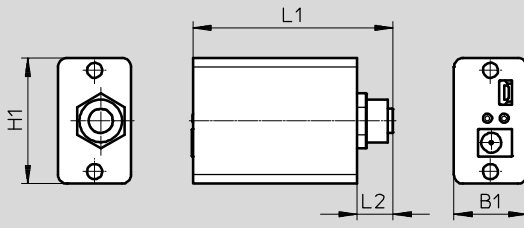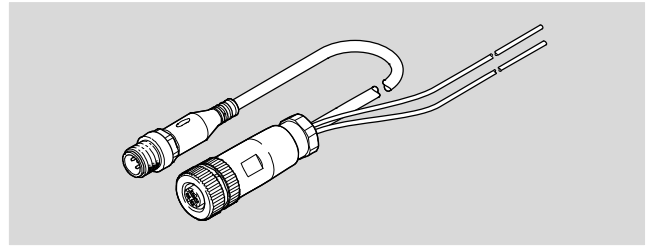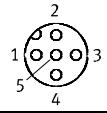

Type	B1	H1	L1	L2
CDSU-1	24	41.3	65.8	11.8

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	**8091509**	**CDSU-1**

USB IO-Link Master, CDSU-1
Accessories

Distributor NEDU

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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	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 A/F hexagon and longitudinal knurl	Screw-type lock with 13 mm A/F hexagon and longitudinal knurl	–
Connection pattern			–

## USB IO-Link Master, CDSU-1
Accessories

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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		In assembled state
		IP40 for socket M12
Contamination level		3
Corrosion resistance class CRC[1]		1

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications 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).

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
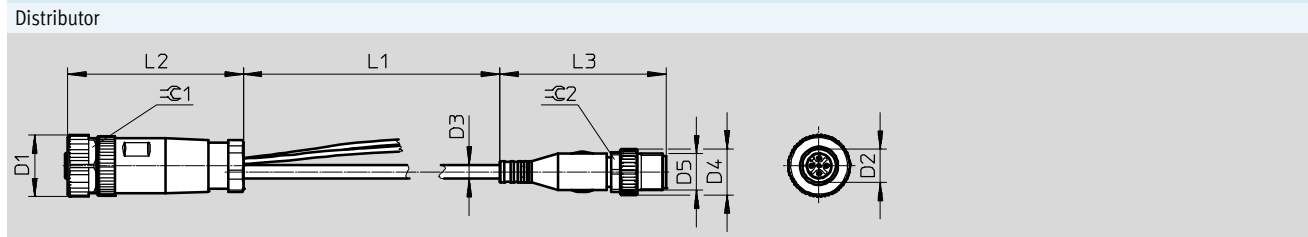
Type	D1 $\varnothing$	D2	D3 $\varnothing$	D4 $\varnothing$	D5
NEDU-L1R2-M12G5-M12LE-1R	20.2	M12x1	4.5	15	M12x1

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

Ordering data – Connecting cables Technical data ➔ Internet: nebs

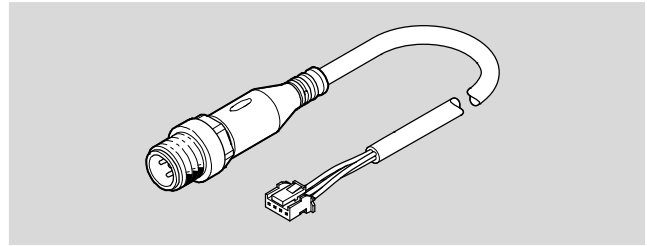|	Electrical connection 1 [mm²]	Electrical connection 2 [mm²]	Electrical connection 3 [mm²]	Length [m]	Weight [g]	Part no.	Type
	3 x 0.25	3 x 0.25	3 x 0.5	1	78	**8091516**	**NEDU-L1R2-M12G5-M12LE-1R**

USB IO-Link Master, CDSU-1

Accessories

FESTO
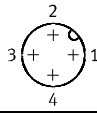
Connecting cables NEBS

For example 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	Angular	Round
Connection type	Socket	Plug
Cable outlet	Straight	Straight
Connection technology	Connection 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 13 mm A/F hexagon and longitudinal knurl
Connection 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	In assembled state	
	IP40 for plug connection pattern L1J	
Contamination level	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 may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

USB IO-Link Master, CDSU-1

Accessories

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Materials

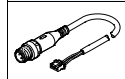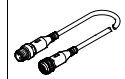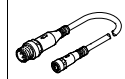|	
Housing material	PA, TPE-U(PUR)
Housing colour	Black, white
Cable sheath material	TPE-U(PUR)
Material of screw-type lock	Nickel-plated brass
Material of pin contacts	Tin-plated bronze, gold-plated brass
Insulating sheath material	PP
Cable sheath colour	Grey
Note on materials	RoHS-compliant, halogen-free

Dimensions

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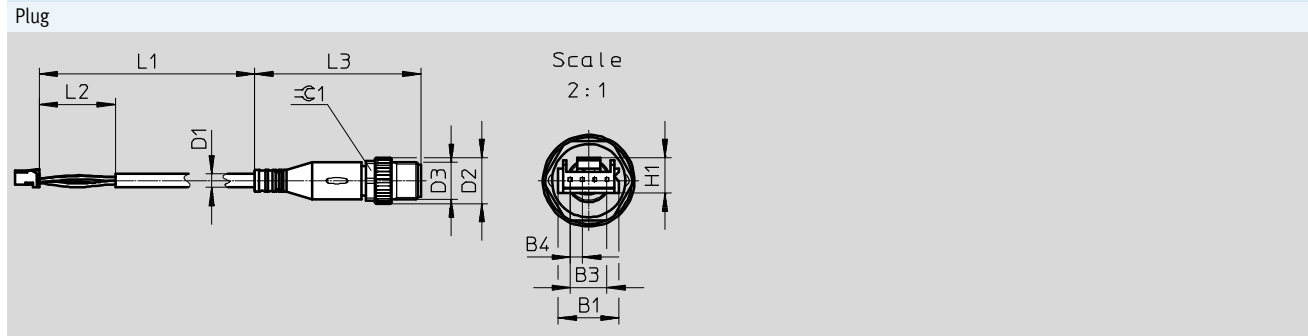
Type	B1	B3	B4	D1 ∅	D2 ∅
NEBS-L1G4-K-1-N-M12G4	10	6	2	4.5	15

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

Technical data ➔ Internet: nebs

	Electrical connection 1	Electrical connection 2	Length [m]	Cable composition [mm²]	Weight [g]	Part no.	Type
Connecting cables NEBS							
	Connection 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**