

## Connecting cables, universal

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for the  
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## Key features

### Cable characteristic

The connecting cables NEBU can be configured and ordered using a modular system. A range of characteristics can therefore be defined.

These include, for example:

- Electrical connection
- Cable characteristic
- Length
- Number of pins/wires

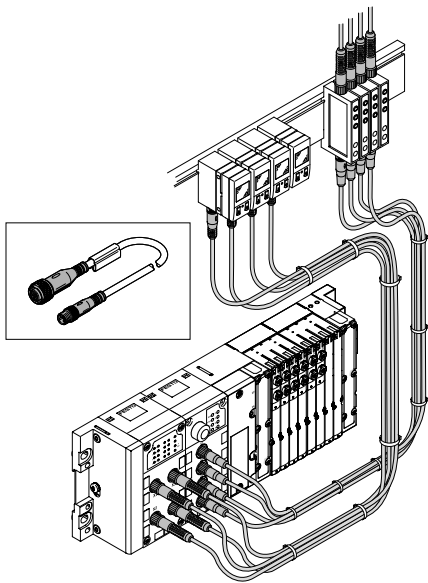
The cable characteristic indicates the resistance of the connecting cable to the mechanical load.

There are three qualities:

- Standard
- Suitable for energy chains
- Suitable for robot applications

### Cable characteristic: standard

### Code K

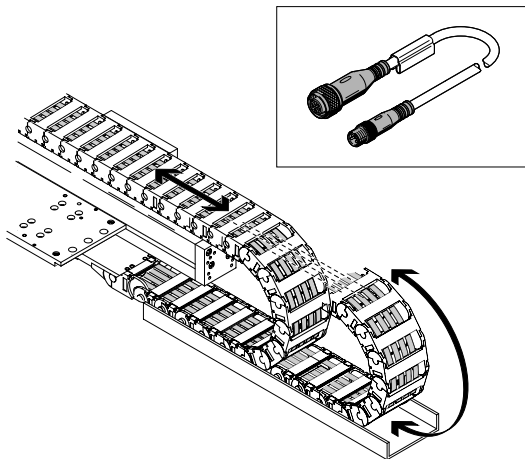


Standard applications are characterised by fixed cable installation or small to medium mechanical loads. The connecting cable can even be used for simple applications with energy chains with larger radii. The cable sheath of the connecting cables is made of polyurethane, is free of halogen, oil resistant and optimised for installation in contact with pneumatic tubing; free of phosphoric acid ester.

- The connecting cable is tested for resistance to bending according to the Festo standard; test conditions are available on request.
- The connecting cable has been tested on an energy chain over 5 million cycles and at a bending radius of 75 mm.

### Cable characteristic: suitable for energy chains

### Code E



Energy chain applications involve high mechanical loads, particularly if very small radii are required. The connecting cable can be used in an environment where it is constantly subjected to bending. The cable sheath of the connecting cables is made of polyurethane, is free of halogen, oil resistant and optimised for installation in contact with pneumatic tubing; free of phosphoric acid ester.

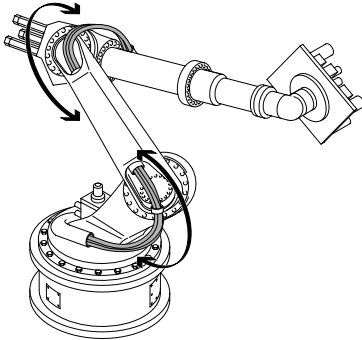
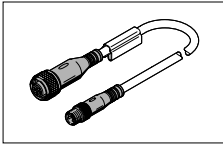
- The connecting cable is tested for resistance to bending according to the Festo standard; test conditions are available on request.
- The connecting cable has been tested on an energy chain over 5 million cycles and at a bending radius of 75 mm.
- The connecting cable has been tested on an energy chain over 5 million cycles and at a bending radius of 28 mm.

## Key features

### Cable characteristic

Cable characteristic: suitable for robot applications

Code R



Robot applications involve high mechanical loads that are primarily caused by torsion (twisting). The cable sheath of the connecting cables is made of polyurethane, is free of halogen, oil resistant and optimised for installation in contact with pneumatic tubing; free of phosphoric acid ester.

- The connecting cable is tested for resistance to bending according to the Festo standard; test conditions are available on request.
- The connecting cable has been tested on an energy chain over 5 million cycles and at a bending radius of 75 mm.
- The connecting cable has been tested on an energy chain over 5 million cycles and at a bending radius of 28 mm.
- The connecting cable has been tested for torsional resistance over more than 0.3 million cycles at  $\pm 270^\circ/0.1$  m.

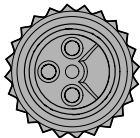
### Version Connection technology

The type of plug for the connecting cable can be selected (e.g. angled or straight).

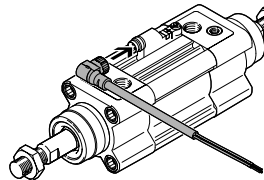
The rotatable version is a special type: with an angled socket, the cable outlet can be rotated 360° in increments of 15°.

**Benefit:**  
The cable outlet can be rotated to the optimum position in tight installation conditions.  
The position of the rotatable plug should not be constantly adjusted.

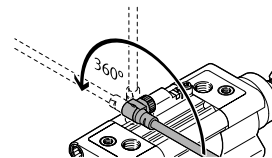
### Mounting



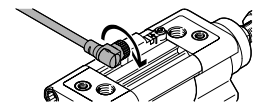
Observe the orientation of the pins.



Connect the plug to the socket.



Adjust the cable outlet



Tighten the union nut

Product range overview

Function	Version	Type	Connection technology (right)	Cable characteristic	Length	→ Page/ Internet
Electrical connecting cable	<b>Electrical connection (left), open cable end</b>					
	5-pin	NEBU-LE	Plug	Standard, suitable for energy chains, suitable for robot applications	0.1 ... 30 m	6
	<b>Electrical connection (left), socket M8</b>					
	3-pin	NEBU-M8 SIM-M8	Plug, open cable end	Standard, suitable for energy chains, suitable for robot applications	0.1 ... 30 m	11
	4-pin	NEBU-M8 SIM-M8	Plug, open cable end	Standard, suitable for energy chains, suitable for robot applications	0.1 ... 30 m	18
	<b>Electrical connection (left), socket M12</b>					
	4-pin	SIM-M12-RS-3	Open cable end	Resistant to welding spatter	3 m	24
	5-pin	NEBU-M12G5 NEBU-M12W5 SIM-M12	Plug, open cable end	Standard, suitable for energy chains, suitable for robot applications	0.1 ... 30 m	27
	8-pin	NEBU-M12-W8 SIM-M12-8 KM12-8	Plug, open cable end	Standard	2 m, 5 m, 10 m, 15 m, 20 m, 25 m	35
	<b>Electrical connection (left), socket G7/8</b>					
	5-pin	NEBU-G78	Open cable end	Standard	2 m	40
	<b>Electrical connection (left), snap-locking</b>					
	3-pin	SIM-K	Open cable end	Standard	2.5 m, 5 m, 10 m	42
	4-pin	SIM-K-4	Open cable end	Standard	2.5 m, 5 m	45

## Type codes

001	Series
NEBU	Connecting cable, universal

002	Connection technology left, field device side
LE	Open end
M8	Socket M8x1 A-coded, EN 61076-2-104
M12	Socket M12x1 A-coded, EN 61076-2-101
G78	7/8"

003	Cable outlet left
	None
G	Straight
R	Rotating
W	Angled

004	Number of pins/wires on the left
3	3
4	4
5	5
8	8

005	Display
	None
L	LED signal status, DC
N	LED switching state, NPN
P	LED switching state, PNP
P2	2x LED, PNP

006	Cable characteristic
K	Standard
E	Suitable for energy chains
R	Suitable for robot applications

007	Cable length [m]
0.1	0.1
0.5	0.5
1	1
1.5	1.5
2	2
2.5	2.5
3	3
3.5	3.5
5	5
7	7
7.5	7.5
9	9
10	10
15	15
30	30

008	Cable identification
	With label holder
N	Without label holder

009	Wire cross section [mm <sup>2</sup> ]
	Standard
Q8	1

010	Connection technology right, controller side
LE	Open end
M8	Plug M8x1 A-coded, EN 61076-2-104
M12	Plug M12x1 A-coded, EN 61076-2-101

011	Plug
	None
G	Straight
W	Angled

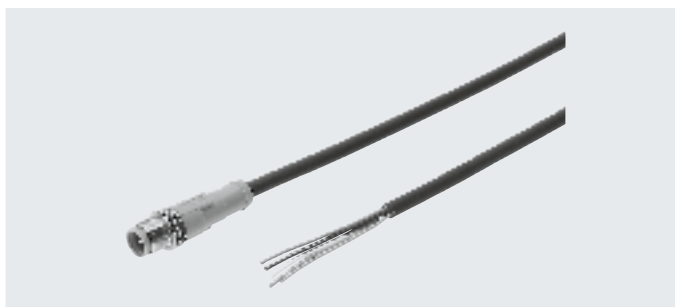
  

012	Number of pins/wires on the right
2	2
3	3
4	4
5	5
8	8

## Datasheet

### Connecting cable NEBU-LE

- Connecting cable for connecting inputs/outputs
- Pre-assembled at one end
- Cable lengths 0.1 ... 30 m
- 3, 4, 5 wires
- Plug M8 or M12



#### General technical data

Conforms to standard	EN 61076-2-104 EN 61076-2-101 Wire colours and connection numbers to EN 60947-5-2
Cable designation	With 2x inscription label holders
Degree of protection to EN 60529	IP65, IP68, IP69K
Note on degree of protection	In assembled state

#### Technical data – Electrical connection 1

Function	Field device side		
Connection type	Cable		
Connection technology	Open end		
Number of pins/wires	3	4	5
Assigned pins/wires	3	4	5

#### Technical data – Electrics

Electrical connection 2		Plug M8x1		Plug M12x1		
		3-pin	4-pin	3-pin	4-pin	5-pin
Operating voltage range	[V DC]	0 ... 60	0 ... 30	0 ... 250	0 ... 250	0 ... 60
	[V AC]	0 ... 60	0 ... 30	0 ... 250	0 ... 250	0 ... 60
Surge resistance	[kV]	1.5	0.8	2.5	2.5	1.5
Current rating	[A]	3	3	4	4	4

#### Technical data – Cable

Electrical connection 2		Plug M8x1		Plug M12x1			
		3-pin	4-pin	3-pin	4-pin	5-pin	
Cable characteristic	Code -K-	Standard					
	Code -E-	Suitable for energy chains					
	Code -R-	Suitable for robot applications					
Cable test conditions		Bending strength: to Festo standard					
		Test conditions on request					
	Cable characteristic	Standard	Energy chain: 5 million cycles, bending radius 75 mm				
		Suitable for energy chains	Energy chain: 5 million cycles, bending radius 28 mm				
Suitable for robot applications		Energy chain: 5 million cycles, bending radius 28 mm Torsional resistance more than 300000 cycles, ±270°/0.1 m					
Cable diameter	[mm]	3.8	4.5	3.8	4.5	4.5	
Cable diameter tolerance	[mm]	±0.1		±0.1			
Cable composition	[mm <sup>2</sup> ]	3x 0.25	4x 0.25	3x 0.25	4x 0.25	5x 0.25	
Nominal conductor cross section	[mm <sup>2</sup> ]	0.25					
Bending radius, fixed cable installation	[mm]	12	14	12	14	14	
Bending radius, flexible cable installation	[mm]	39	46	39	46	46	

## Datasheet

Technical data – Electrical connection 2					
Function	Controller side				
Design	Round				
Connection type	Plug				
Cable outlet	Straight				
Connection technology	M8x1, A-coded to EN 61076-2-104		M12x1, A-coded to EN 61076-2-101		
Number of pins/wires	3	4	3	4	5
Assigned pins/wires	3	4	3	4	5
Type of mounting	Screw lock				

Materials	
Housing	TPE-U(PUR)
Housing colour	Black
Cable sheath	TPE-U(PUR)
Cable sheath colour	Grey
Insulating sheath	PP
Screw lock	Nickel-plated brass
Note on materials	RoHS-compliant
	Halogen-free
	Free of phosphoric acid ester
Special characteristics	Oil-resistant
PWIS conformity	VDMA24364-B2-L

Operating and environmental conditions			
Ambient temperature	Cable characteristic: standard	[°C]	-25 ... +70
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	-25 ... +80
Ambient temperature with flexible cable installation	Cable characteristic: standard	[°C]	-5 ... +70
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	-5 ... +80
Corrosion resistance class CRC <sup>1)</sup>			2
CE marking (see declaration of conformity) <sup>2)</sup>	All types	To EU Low Voltage Directive	
	Electrical connection 2 M8x1, 4-pin	To EU RoHS Directive	
UKCA marking (see declaration of conformity) <sup>2)</sup>			To EU RoHS Directive
			To UK regulations for electrical equipment
Pollution degree			To UK RoHS instructions
			3

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.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Datasheet

Circuitry (socket view)				Electrical connection 2			
Electrical connection 1	Pin	Wire colour <sup>1)</sup>	Pin	Electrical connection 2			
<b>Electrical connection, open cable end, 3-wire – plug, 3-pin</b>				<b>Plug M8</b>		<b>Plug M12</b>	
-	1	BN	1				
	2	WH	-				
	3	BU	3				
	4	BK	4				
<b>Electrical connection, open cable end, 4-wire – plug, 4-pin</b>				<b>Plug M8</b>		<b>Plug M12</b>	
-	1	BN	1				
	2	WH	2				
	3	BU	3				
	4	BK	4				
<b>Electrical connection, open cable end, 5-wire – plug, 5-pin, M12</b>						<b>Plug M12</b>	
-	-	BN	1				
	-	WH	2				
	-	BU	3				
	-	BK	4				
	-	GY	5				

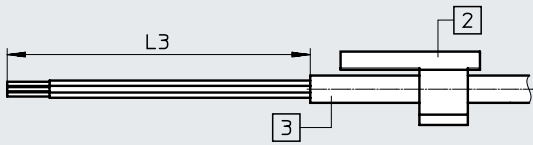
1) To IEC 757



# Datasheet

## Dimensions

Connection technology, left

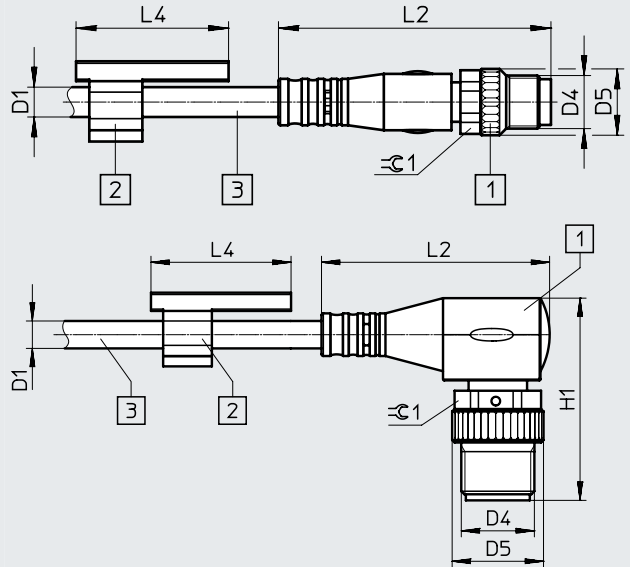


- [1] Plug
- [2] Inscription label holder

Connection technology, left	L3
-	
Open end	50

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

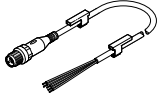
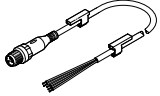
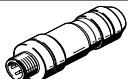
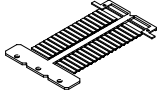


Connection technology, right



- [3] Cable, length 0.1 ... 30 m depending on the order

Connection technology, right	D1 ø	D4	D5 ø	L2	L4	H1	≅1
<b>3-pin</b>							
Straight plug	3.8	M8x1	10	41.1	23	-	9
	3.8	M12x1	15	54.5	23	-	13
Angled plug	3.8	M8x1	10	26.9	23	24	9
	3.8	M12x1	15	37.5	23	33.2	13
<b>4-pin, 5-pin</b>							
Straight plug	4.5	M12x1	15	54.5	23	-	13
Angled plug	4.5	M12x1	15	37.5	23	33.2	13

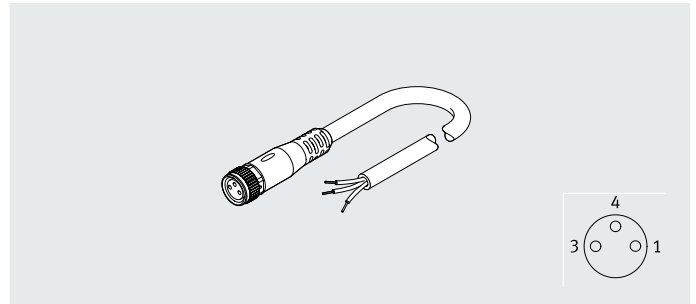
Datasheet

Ordering data							
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type
<b>Open cable end, 3-wire – plug, 3-pin, M12</b>							
	Standard	1	Straight	Without inscription label holder	35	8091515	NEBU-LE3-K-1-N-M12G3
<b>Open cable end, 5-wire – plug, 5-pin, M12</b>							
	Standard	1	Straight	–	41	569840	NEBU-LE5-K-1-M12G5
<b>Ordering data – Accessories</b>							
Designation						Part no.	Type
<b>Plug</b>							
	Plugs for self-assembly					–	→ Internet: necu
						–	→ Internet: sea
<b>Inscription labels</b>							
	Inscription label holder 23 mm for inscription labels, pack of 34, in frame					541598	ASLR-L-423
<b>Safety clip</b>							
	Prevents the screw lock from being released easily (without a tool), to be fastened securely to the cable			For M12		548068	NEAU-M12-GD
<b>Inscription label holders</b>							
	For identifying connecting cables			For cable diameter 3.3 ... 4.8 mm		8078307	NEAU-LH-3

## Datasheet

### Connecting cable NEBU-M8 SIM-M8

- Connecting cable for connecting inputs/outputs
- Pre-assembled at one end, pre-assembled at both ends
- Cable lengths 0.1 ... 30 m
- 3 wires
- Socket M8x1, 3-pin



General technical data			NEBU	SIM
Type				
Conforms to standard	Cable characteristic: standard, suitable for use with energy chains		EN 61076-2-104	–
			EN 61076-2-101	–
			Wire colours and connection numbers to EN 60947-5-2	–
	Cable characteristics: Suitable for robot applications		Wire colours and connection numbers to EN 60947-5-2	–
			–	EN 61076-2-104
		–	EN 61984	
Based on standard	Cable outlet on the left, rotatable		EN 61076-2-104	–
Cable designation			With 2x inscription label holders	–
Degree of protection			IP65, IP68, IP69K	IP65, IP68
Note on degree of protection			In assembled state	–

Technical data – Electrical connection 1			NEBU	SIM
Type				
Function			Field device side	Field device side
Design			Round	Round
Connection type			Socket	Socket
Cable outlet			Straight, angled	Straight, angled
Connection technology			M8x1, A-coded to EN 61076-2-104	M8x1, A-coded to EN 61076-2-104
Number of pins/wires			3	3
Assigned pins/wires			3	3
Type of mounting			Screw lock	–

Technical data – Electrics			NEBU	SIM
Type				
Operating voltage range	Without switching status indication	[V DC]	0 ... 60	0 ... 60
		[V AC]	0 ... 60	0 ... 60
	With switching status indication	[V DC]	10 ... 30	10 ... 30
		Electrical connection 2 M8x1, 4-pin	[V DC]	0 ... 30
		[V AC]	0 ... 30	–
Surge resistance	Connection technology not rotatable, without switching status indication	[kV]	1.5	1.5
	Connection technology rotatable	[kV]	0.8	–
	With switching status indication	[kV]	0.8	0.8
Acceptable current load at 40°C	Connection technology not rotatable	[A]	3	4
	Connection technology rotatable	[A]	0.5	–

## Datasheet

Technical data – Cable		NEBU	SIM	
Type				
Cable characteristic	Code -K-	Standard	–	
	Code -E-	Suitable for energy chains	–	
	Code -R-	Suitable for robot applications	–	
		–	Standard	
Cable test conditions		Bending strength: to Festo standard	Bending strength: to Festo standard	
		Test conditions on request	Test conditions on request	
	Cable characteristic	Standard	Energy chain: 5 million cycles, bending radius 75 mm	Energy chain: 5 million cycles, bending radius 75 mm
		Suitable for energy chains	Energy chain: 5 million cycles, bending radius 28 mm	–
		Suitable for robot applications	Energy chain: 5 million cycles, bending radius 28 mm	–
	Torsional resistance more than 300000 cycles, $\pm 270^\circ/0.1$ m	–		
Cable diameter	[mm]	3.8	3.8	
Cable diameter tolerance	[mm]	$\pm 0.1$	–	
Cable composition	[mm <sup>2</sup> ]	3x 0.25	3x 0.25	
Nominal conductor cross section	[mm <sup>2</sup> ]	0.25	0.25	
Bending radius, fixed cable installation	[mm]	12	–	
Bending radius, flexible cable installation	[mm]	39	–	

Technical data – Electrical connection 2				
Type	NEBU			SIM
Function	Controller side			
Connection type	Cable	Plug	Plug	Cable
Design	–	Round	Round	–
Cable outlet	–	Straight, angled	Straight, angled	–
Connection technology	Open end	M8x1, A-coded to EN 61076-2-104	M12x1, A-coded to EN 61076-2-101	Open end
Number of pins/wires	3	3	4	3
Assigned pins/wires	3	3	3	3
Type of mounting	–	Screw lock	Screw lock	–

## Datasheet

Materials		NEBU	SIM
Type			
Housing		TPE-U(PUR)	TPE-U(PU)
Housing colour		Black	Black
Cable sheath		TPE-U(PUR)	TPE-U(PU)
Cable sheath colour		Grey	Grey
Insulating sheath		PP	PP
Wire insulation colour code		–	Blue, brown, black
Screw lock		Nickel-plated brass	Nickel-plated brass
Seals		–	NBR
Pin contacts		–	Gold-plated brass
Note on materials		RoHS-compliant	RoHS-compliant
		Halogen-free	Halogen-free
		Free of phosphoric acid ester	Free of phosphoric acid ester
Special characteristics	Cable characteristic: standard, suitable for energy chains, suitable for robot applications	Oil-resistant	–
PWIS conformity		VDMA24364-B2-L	–

Operating and environmental conditions			
Type		NEBU	SIM
Ambient temperature	Cable characteristic: standard	[°C]	–25 ... +70
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	–25 ... +80
Ambient temperature with flexible cable installation	Cable characteristic: standard	[°C]	–5 ... +70
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	–5 ... +80
Corrosion resistance class CRC <sup>1)</sup>		2	2
CE marking (see declaration of conformity) <sup>2)</sup>	All types	To EU RoHS Directive	To EU RoHS Directive
	Without switching status indication	To EU Low Voltage Directive	To EU Low Voltage Directive
	With switching status indication	–	–
UKCA marking (see declaration of conformity) <sup>2)</sup>	Electrical connection 2 M8x1, 4-pin	–	–
		To UK regulations for electrical equipment	–
		To UK RoHS instructions	–
Pollution degree		3	3

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.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Datasheet

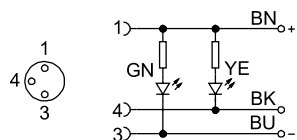
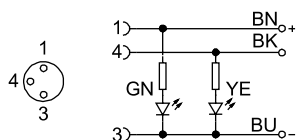
Circuitry (socket view)		Pin	Wire colour <sup>1)</sup>	Pin	Electrical connection 2	
Electrical connection 1						
<b>Electrical connection, socket, 3-pin, M8 – open cable end</b>						
	1		BN	-		
	3		BU	-		
	4		BK	-		
<b>Electrical connection, socket, 3-pin, M8 – plug, 3-pin</b>				<b>Plug M8</b>	<b>Plug M12</b>	
	1		BN	1		
	3		BU	3		
	4		BK	4		
<b>Electrical connection, socket, 3-pin, M8 – plug, 4-pin, M8</b>				<b>Plug M8</b>		
	1		BN	1		
	-		-	2		
	3		BU	3		
	4		BK	4		

1) To IEC 757

Circuitry, switching status indication

Display of code P,  
for PNP N/O contact

Display of code N,  
for NPN N/O contact



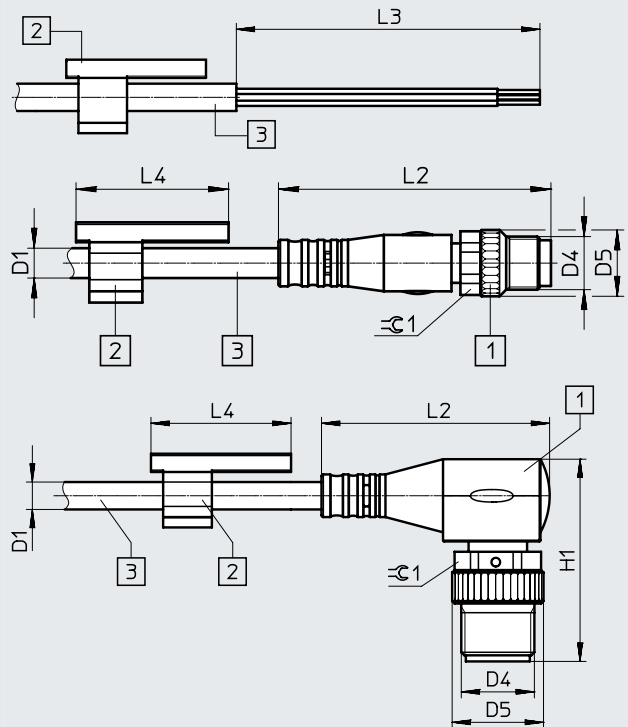
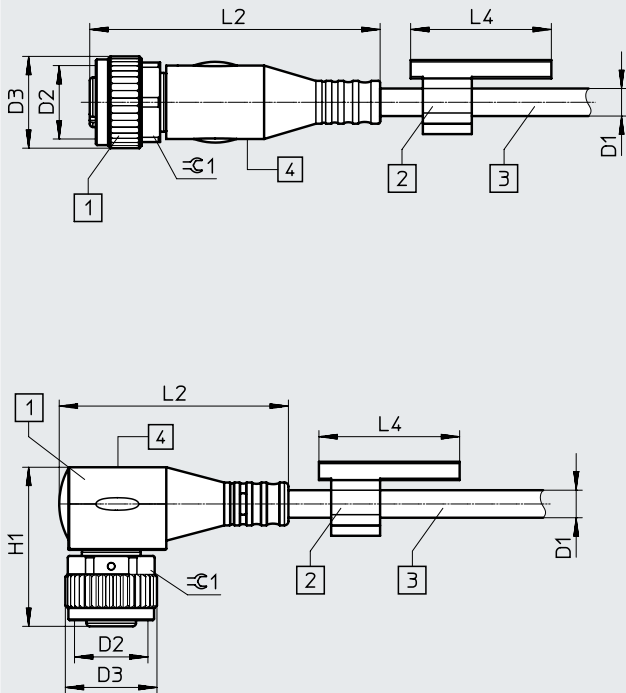
Datasheet

Dimensions

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

Connection technology, left

Connection technology, right



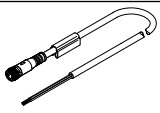
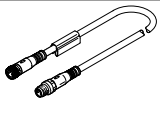
- [1] Socket M8x1
- [2] Inscription label holder

- [3] Cable, length 0.1 ... 30 m depending on the order
- [4] Display field with version P, N

Connection technology, left	D1 ø	D2	D3 ø	L2	L4	H1	⊕1
<b>NEBU</b>							
Straight socket	3.8	M8x1	10	34.6	23	-	9
Angled socket	3.8	M8x1	10	26.9	23	17	9
Rotatable socket	3.8	M8x1	10	20.9	23	16.3	9
<b>SIM</b>							
Straight socket	3.8	M8x1	10	34.6	-	-	9
Angled socket	3.8	M8x1	10	26.9	-	17	9

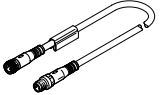
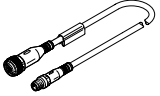
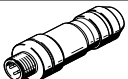
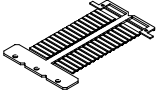


Connection technology, right	D1 ø	D4	D5 ø	L2	L3	L4	H1	⊕1
<b>NEBU</b>								
Open end	3.8	-	-	-	50	23	-	-
Straight plug	3.8	M8x1	10	41.1	-	23	-	9
	3.8	M12x1	15	54.5	-	23	-	13
Angled plug	3.8	M8x1	10	26.9	-	23	24	9
	3.8	M12x1	15	37.5	-	23	33.2	13
<b>SIM</b>								
Open end	3.8	-	-	-	50	-	-	-

Datasheet

Ordering data										
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type			
<b>Socket, 3-pin, M8 – open cable end</b>										
	Standard	2.5	Straight	–	64	★ 541333	NEBU-M8G3-K-2.5-LE3			
				–	–	159420	SIM-M8-3GD-2.5-PU			
				–	64	★ 541338	NEBU-M8W3-K-2.5-LE3			
			Angled	–	–	159422	SIM-M8-3WD-2.5-PU			
				Rotatable socket	64	8001660	NEBU-M8R3-K-2.5-LE3			
				For NPN N/O contact, switching status indication yellow, ready status indication green	64	541336	NEBU-M8W3N-K-2.5-LE3			
		–	–	159426	SIM-M8-3WD-2.5-NSL-PU					
		For PNP N/O contact, switching status indication yellow, ready status indication green	64	541337	NEBU-M8W3P-K-2.5-LE3					
		–	–	159424	SIM-M8-3WD-2.5-PSL-PU					
		5	Straight	–	123	★ 541334	NEBU-M8G3-K-5-LE3			
				–	–	159421	SIM-M8-3GD-5-PU			
				–	123	★ 541341	NEBU-M8W3-K-5-LE3			
			Angled	–	–	159423	SIM-M8-3WD-5-PU			
				Rotatable socket	123	8001661	NEBU-M8R3-K-5-LE3			
				For NPN N/O contact, switching status indication yellow LED, ready status indication green LED	123	541339	NEBU-M8W3N-K-5-LE3			
		–	–	159427	SIM-M8-3WD-5-NSL-PU					
		For PNP N/O contact, switching status indication yellow LED, ready status indication green LED	123	541340	NEBU-M8W3P-K-5-LE3					
		–	–	159425	SIM-M8-3WD-5-PSL-PU					
	10	Straight	–	242	★ 541332	NEBU-M8G3-K-10-LE3				
			–	–	192964	SIM-M8-3GD-10-PU				
		Angled	–	242	★ 541335	NEBU-M8W3-K-10-LE3				
			–	–	192965	SIM-M8-3WD-10-PU				
	Suitable for energy chains	5	Straight	–	123	569843	NEBU-M8G3-K-5-LE3			
		10	Straight	–	242	569842	NEBU-M8G3-K-10-LE3			
Suitable for robot applications	2.5	Straight	–	64	569845	NEBU-M8G3-R-2.5-LE3				
		Angled	–	64	569847	NEBU-M8W3-R-2.5-LE3				
	5	Straight	–	123	569846	NEBU-M8G3-R-5-LE3				
	10	Straight	–	242	8003129	NEBU-M8G3-R-10-LE3				
<b>Socket, 3-pin, M8 – plug, 3-pin, M8</b>										
	Standard	0.5	Straight – straight	–	22	★ 541346	NEBU-M8G3-K-0.5-M8G3			
				–	33	★ 541347	NEBU-M8G3-K-1-M8G3			
				–	45	8003133	NEBU-M8G3-K-1.5-M8G3			
				–	57	8003131	NEBU-M8G3-K-2-M8G3			
				–	69	★ 541348	NEBU-M8G3-K-2.5-M8G3			
				–	80	8003132	NEBU-M8G3-K-3-M8G3			
				–	128	★ 541349	NEBU-M8G3-K-5-M8G3			
				–	246	569844	NEBU-M8G3-K-10-M8G3			
				Suitable for energy chains	3.5	Straight – straight	–	92	559364	NEBU-M8G3-E-3.5-M8G3



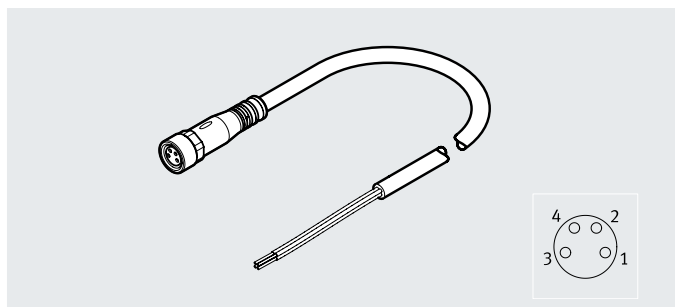
## Datasheet

Ordering data							
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type
<b>Socket, 3-pin, M8 – plug, 4-pin, M8</b>							
	Standard	2.5	Straight – straight	–	69	<b>554037</b>	<b>NEBU-M8G3-K-2.5-M8G4</b>
<b>Socket, 3-pin, M8 – plug, 3-pin, M12</b>							
	Standard	0.5	Straight – straight	–	29	<b>8000209</b>	<b>NEBU-M8G3-K-0.5-M12G3</b>
		1	Straight – straight	Without inscription label holder	39	<b>8091512</b>	<b>NEBU-M8G3-K-1-N-M12G3</b>
<b>Ordering data – Accessories</b>							
Designation						Part no.	Type
<b>Plug</b>							
	Plugs for self-assembly					–	→ Internet: necu
						–	→ Internet: sea
<b>Inscription labels</b>							
	Inscription labels 23 mm for holder, pack of 34, in frame					<b>541598</b>	<b>ASLR-L-423</b>
<b>Inscription label holders</b>							
	For identifying connecting cables			For cable diameter 3.3 ... 4.8 mm		<b>8078307</b>	<b>NEAU-LH-3</b>
<b>Safety clip</b>							
	Prevents the screw lock from being released easily (without a tool), to be fastened securely to the cable			For M8		<b>548067</b>	<b>NEAU-M8-GD</b>
				For M12		<b>548068</b>	<b>NEAU-M12-GD</b>

## Datasheet

**Connecting cable**  
**NEBU-M8**  
**SIM-M8**

- Connecting cable for connecting inputs/outputs
- Pre-assembled at one end, pre-assembled at both ends
- Cable lengths 0.1 ... 30 m
- 2, 3 or 4 wires
- Socket M8x1, 4-pin



General technical data			NEBU	SIM
Type			EN 61076-2-104	–
Conforms to standard	Cable characteristic: standard, suitable for use with energy chains		EN 61076-2-101	–
			Wire colours and connection numbers to EN 60947-5-2	–
	Cable characteristics: Suitable for robot applications		Wire colours and connection numbers to EN 60947-5-2	–
			–	EN 61076-2-104
		–	EN 61984	
Based on standard	Cable outlet on the left, rotatable		EN 61076-2-104	–
Cable designation			With 2x inscription label holders	–
Degree of protection			IP65, IP68, IP69K	IP65, IP68
Note on degree of protection			In assembled state	–

Technical data – Electrical connection 1				
Type	NEBU			SIM
Function	Field device side			Field device side
Design	Round			Round
Connection type	Socket			Socket
Cable outlet	Straight, angled			Straight, angled
Connection technology	M8x1, A-coded to EN 61076-2-104			M8x1, A-coded to EN 61076-2-104
Number of pins/wires	4			4
Assigned pins/wires	2	3	4	4
Type of mounting	Screw lock			–

Technical data – Electrics				
Type	NEBU			SIM
Operating voltage range	Without switching status indication	[V DC]	0 ... 30	0 ... 30
		[V AC]	0 ... 30	0 ... 30
	With switching status indication	[V DC]	21.6 ... 30	–
		[V AC]	21.6 ... 30	–
Surge resistance		[kV]	0.8	0.8
Acceptable current load at 40°C		[A]	3	4

## Datasheet

Technical data – Cable			NEBU			SIM	
Type			Electrical connection 2				
			2-pin	3-pin	4-pin		
Cable characteristic	Code -K-		Standard			–	
	Code -E-		Suitable for energy chains			–	
	Code -R-		Suitable for robot applications			–	
			–			Standard	
Cable test conditions			Bending strength: to Festo standard			Bending strength: to Festo standard	
			Test conditions on request			Test conditions on request	
	Cable characteristic	Standard		Energy chain: 5 million cycles, bending radius 75 mm			Energy chain: 5 million cycles, bending radius 75 mm
		Suitable for energy chains		Energy chain: 5 million cycles, bending radius 28 mm			–
		Suitable for robot applications		Energy chain: 5 million cycles, bending radius 28 mm			–
		Torsional resistance more than 300000 cycles, $\pm 270^\circ/0.1$ m			–		
Cable diameter	Without switching status indication	[mm]	–	3.8	4.5	4.5	
	With switching status indication	[mm]	3.4	3.4	3.4	–	
Cable diameter tolerance		[mm]	$\pm 0.1$			–	
Cable composition	Without switching status indication	[mm <sup>2</sup> ]	–	3x 0.25	4x 0.25	4x 0.25	
	With switching status indication	[mm <sup>2</sup> ]	2x 0.25	2x 0.25	2x 0.25	–	
Nominal conductor cross section		[mm <sup>2</sup> ]	0.25			0.25	
Bending radius, fixed cable installation	Without switching status indication	[mm]	–	12	14	–	
	With switching status indication	[mm]	11	11	11	–	
Bending radius, flexible cable installation	Without switching status indication	[mm]	–	39	46	–	
	With switching status indication	[mm]	35	35	35	–	

Technical data – Electrical connection 2			NEBU			SIM
Type			Controller side			
			Cable	Plug	Plug	Cable
Function			Controller side			
Connection type			Cable	Plug	Plug	Cable
Design			–	Round	Round	–
Cable outlet			–	Straight, angled	Straight, angled	–
Connection technology			Open end	M8x1, A-coded to EN 61076-2-104	M12x1, A-coded to EN 61076-2-101	Open end
Number of pins/wires			4	3	4	4
Assigned pins/wires	Without switching status indication		4	3	4	4
	With switching status indication		2	3	4	–
Type of mounting			–	Screw lock	Screw lock	–

## Datasheet

Materials			NEBU	SIM
Type				
Housing			TPE-U(PUR)	TPE-U(PU)
Housing colour			Black	Black
Cable sheath	Cable characteristic: standard, suitable for energy chains, suitable for robot applications		TPE-U(PUR)	TPE-U(PU)
Cable sheath colour			Grey	Grey
Insulating sheath	Cable characteristic: suitable for energy chains, suitable for robot applications, standard		PP	PP
Wire insulation colour code			–	Blue, brown, black, white
Screw lock			Nickel-plated brass	Nickel-plated brass
Seals			–	NBR
Pin contacts			–	Gold-plated brass
Note on materials	All types		RoHS-compliant	RoHS-compliant
	Cable characteristic: standard, suitable for energy chains, suitable for robot applications		Halogen-free	Halogen-free
			Free of phosphoric acid ester	Free of phosphoric acid ester
Special characteristics	Cable characteristic: standard, suitable for energy chains, suitable for robot applications		Oil-resistant	–
PWIS conformity			VDMA24364-B2-L	–

Operating and environmental conditions				
Type			NEBU	SIM
Ambient temperature	Cable characteristic: standard	[°C]	–25 ... +70	–25 ... +80
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	–25 ... +80	–
Ambient temperature with flexible cable installation	Cable characteristic: standard	[°C]	–5 ... +70	–5 ... +80
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	–5 ... +80	–
Corrosion resistance class CRC <sup>1)</sup>			2	2
CE marking (see declaration of conformity) <sup>2)</sup>			To EU RoHS Directive	To EU RoHS Directive
	Electrical connection 2:		To EU Low Voltage Directive	–
	• Plug M8, 3-pin, without switching status indication			
	• Plug M12, 4-pin			
UKCA marking (see declaration of conformity) <sup>2)</sup>			To UK RoHS instructions	–
Pollution degree			3	3

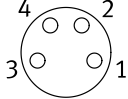
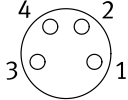
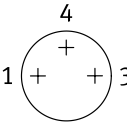
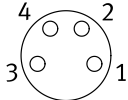
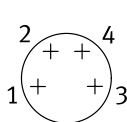
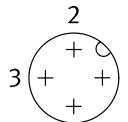
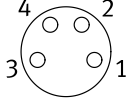
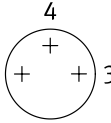
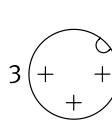
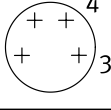
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

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.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

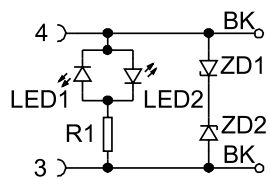
Datasheet

Circuitry (socket view)		Pin	Wire colour <sup>1)</sup>	Pin	Plug		
<b>Electrical connection, socket, 4-pin, M8 – open cable end</b>							
	1		BN	-	-		
	2		WH	-	-		
	3		BU	-	-		
	4		BK	-	-		
<b>Electrical connection, socket, 4-pin, M8 – plug, 3-pin</b>							
	1		BN	1			
	2		WH	-			
	3		BU	3			
	4		BK	4			
<b>Electrical connection, socket, 4-pin, M8 – plug, 4-pin</b>							
	1		BN	1			
	2		WH	2			
	3		BU	3			
	4		BK	4			
<b>Electrical connection, socket, 4-pin, M8, with display of code L</b>							
	1		-	1			
	2		-	2			
	3		BK	3			
	4		BK	4			
<b>Electrical connection, socket, 4-pin, M8, with display of code L (continued)</b>							
				<b>Plug M8, 4 pin</b>		<b>Open cable end</b>	
						-	

1) To IEC 757

Circuitry, switching status indication

Display of code L

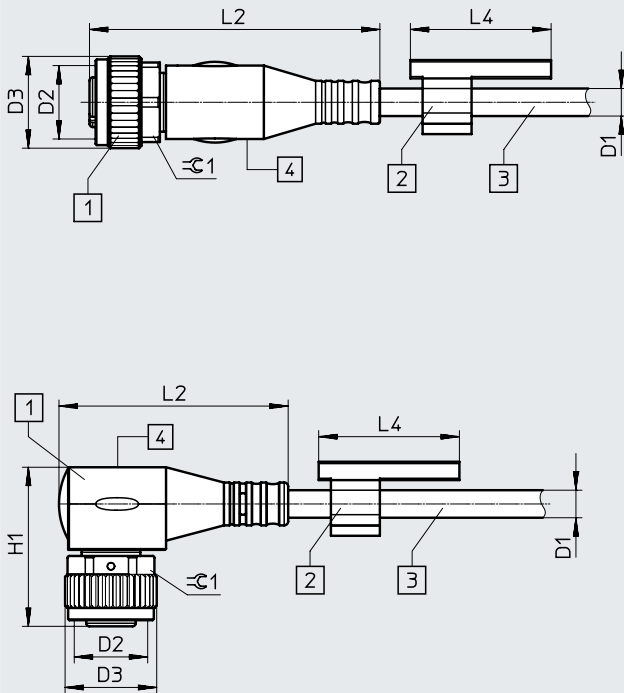


Datasheet

Dimensions

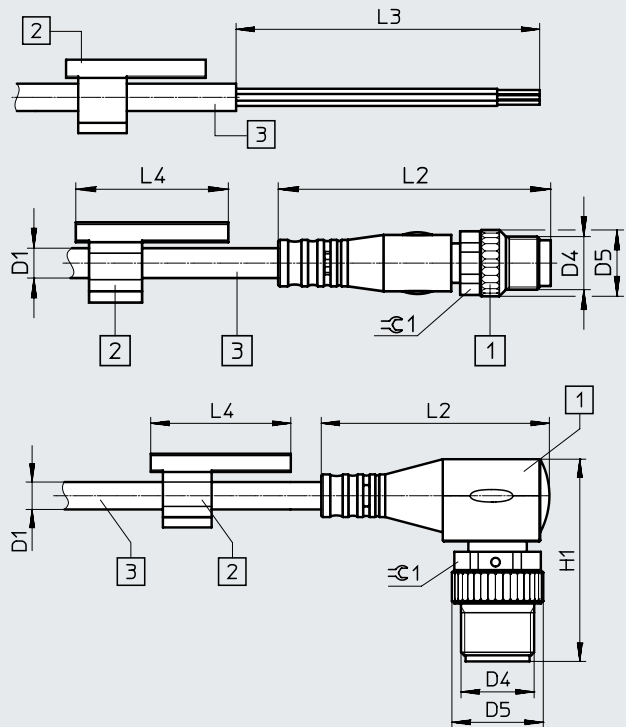
Download CAD data → [www.festo.com](http://www.festo.com)

Connection technology, left



- [1] Socket M8x1
- [2] Inscription label holder

Connection technology, right

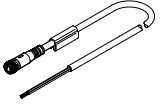
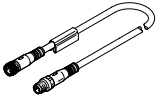
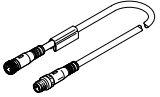
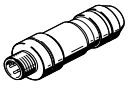
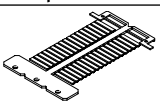




- [3] Cable, length 0.1 ... 30 m depending on the order
- [4] Display field with version L

Connection technology, left	D1 ø	D2	D3 ø	L2	L4	H1	≈±1
<b>NEBU, electrical connection 2, 3-pin</b>							
Straight socket	3.8	M8x1	10	34.6	23	-	9
Angled socket	3.8	M8x1	10	26.9	23	17	9
Rotatable socket	3.8	M8x1	10	20.9	23	16.3	9
<b>NEBU, electrical connection 2, 4-pin</b>							
Straight socket	4.5	M8x1	10	34.6	23	-	9
Angled socket	4.5	M8x1	10	26.9	23	17	9
Rotatable socket	4.5	M8x1	10	20.9	23	16.3	9
<b>NEBU with LED signal status indication, DC</b>							
Straight socket	3.4	M8x1	10	34.6	23	-	9
Angled socket	3.4	M8x1	10	26.9	23	17	9
<b>SIM</b>							
Straight socket	4.5	M8x1	10	34.6	-	-	9
Angled socket	4.5	M8x1	10	26.9	-	17	9

Connection technology, right	D1 ø	D4	D5 ø	L2	L3	L4	H1	≈±1
<b>NEBU, electrical connection 2, 3-pin</b>								
Straight plug	3.8	M8x1	10	41.1	-	23	-	9
Angled plug	3.8	M8x1	10	26.9	-	23	24	9
<b>NEBU, electrical connection 2, 4-pin</b>								
Open end	4.5	-	-	-	50	23	-	-
Straight plug	4.5	M8x1	10	41.1	-	23	-	9
	4.5	M12x1	15	54.5	-	23	-	13
Angled plug	4.5	M8x1	10	26.9	-	23	24	9
	4.5	M12x1	15	37.5	-	23	33.2	13
<b>NEBU with LED signal status indication, DC</b>								
Straight plug	3.4	M8x1	10	41.1	-	23	-	9
	3.4	M12x1	15	54.5	-	23	-	13
Angled plug	3.4	M8x1	10	26.9	-	23	24	9
	3.4	M12x1	15	37.5	-	23	33.2	13
<b>SIM</b>								
Open end	4.5	-	-	-	50	-	-	-

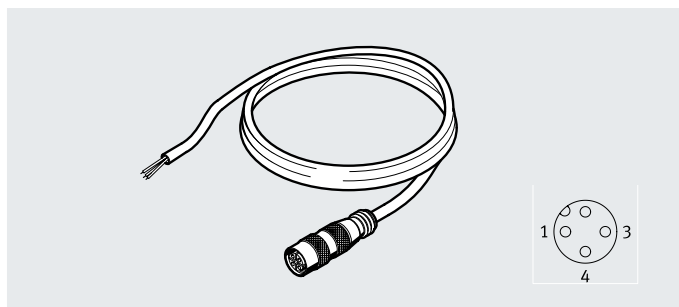
## Datasheet

Ordering data								
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type	
<b>Socket, 4-pin, M8 – open cable end</b>								
	Standard	2.5	Straight	–	72	<b>541342</b>	<b>NEBU-M8G4-K-2.5-LE4</b>	
			Angled	–	72	<b>158960</b>	<b>SIM-M8-4GD-2.5-PU</b>	
		5	Straight	–	138	<b>541343</b>	<b>NEBU-M8G4-K-5-LE4</b>	
			Angled	–	138	<b>158961</b>	<b>SIM-M8-4GD-5-PU</b>	
			9	Straight	–	245	<b>541345</b>	<b>NEBU-M8W4-K-5-LE4</b>
			10	Angled	–	272	<b>158963</b>	<b>SIM-M8-4WD-5-PU</b>
							<b>8003130</b>	<b>NEBU-M8G4-K-9-LE4</b>
							<b>575833</b>	<b>NEBU-M8W4-K-10-LE4</b>
<b>Socket, 4-pin, M8 – plug, 4-pin, M8</b>								
	Standard	2.5	Straight – straight	–	76	<b>554035</b>	<b>NEBU-M8G4-K-2.5-M8G4</b>	
	Suitable for robot applications	2	Straight – straight	–	63	<b>556946</b>	<b>NEBU-M8G4-R-2-M8G4</b>	
<b>Socket, 4-pin, M8 – plug, 4-pin, M12</b>								
	Standard	1	Straight – straight	Without inscription label holder	42.5	<b>8091513</b>	<b>NEBU-M8G4-K-1-N-M12G4</b>	
<b>Ordering data – Accessories</b>								
Designation						Part no.	Type	
<b>Plug</b>								
	Plugs for self-assembly				–	–	→ Internet: necu	
					–	–	→ Internet: sea	
<b>Inscription labels</b>								
	Inscription labels 23 mm for holder, pack of 34, in frame					<b>541598</b>	<b>ASLR-L-423</b>	
<b>Inscription label holders</b>								
	For identifying connecting cables			For cable diameter 3.3 ... 4.8 mm		<b>8078307</b>	<b>NEAU-LH-3</b>	
<b>Safety clip</b>								
	Prevents the screw lock from being released easily (without a tool), to be fastened securely to the cable			For M8		<b>548067</b>	<b>NEAU-M8-GD</b>	
				For M12		<b>548068</b>	<b>NEAU-M12-GD</b>	

## Datasheet

### Connecting cable SIM-M12

- Connecting cable for connecting inputs/outputs
- Resistant to welding spatter
- Pre-assembled at one end
- Cable length 3 m
- 3 wires
- Socket M12x1, 4-pin



#### General technical data

Conforms to standard	EN 61076-2-101
	EN 61984
	Wire colours and connection numbers to EN 60947-5-2
Cable designation	Without inscription label holder
Degree of protection	IP65, IP67
Note on degree of protection	In assembled state

#### Technical data – Electrical connection 1

Function	Field device side
Design	Round
Connection type	Socket
Cable outlet	Straight, angled
Connection technology	M12x1, A-coded to EN 61076-2-101
Number of pins/wires	4
Assigned pins/wires	3
Type of mounting	Screw lock

#### Technical data – Electrics

Operating voltage range	[V DC]	0 ... 70
	[V AC]	0 ... 45
Surge resistance	[kV]	2.5
Acceptable current load at 40°C	[A]	4



## Datasheet

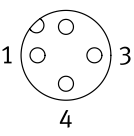
Technical data – Cable			
Cable characteristic	Resistant to welding spatter		
Cable test conditions	Bending strength: to Festo standard		
	Test conditions on request		
	Energy chain: 5 million cycles, bending radius 75 mm		
Bending radius	Fixed cable installation	[mm]	≥28
	Flexible cable installation	[mm]	≥55
Cable diameter		[mm]	5.2
Cable diameter tolerance		[mm]	±0.3
Cable composition		[mm <sup>2</sup> ]	3x 0.5
Nominal conductor cross section		[mm <sup>2</sup> ]	0.5

Technical data – Electrical connection 2	
Function	Controller side
Connection type	Cable
Connection technology	Open end
Number of pins/wires	3
Assigned pins/wires	3
Wire ends	Wire end sleeve

Materials	
Housing	TPE-U(PUR)
Housing colour	Black
Screw lock	Chrome-plated brass
Cable sheath	PVC, irradiated
Cable sheath colour	Orange
Insulating sheath	PVC, irradiated
Pin contacts	Gold-plated brass

Operating and environmental conditions		
Ambient temperature	[°C]	-25 ... +80
Ambient temperature with flexible cable installation	[°C]	0 ... +80
CE marking (see declaration of conformity) <sup>1)</sup>		To EU RoHS Directive
Pollution degree		3

- 1) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/sim](http://www.festo.com/catalogue/sim) → Support/Downloads.  
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Circuitry (socket view)				
Socket	Pin	Wire colour <sup>1)</sup>	Pin	Plug
<b>Electrical connection, socket, 4-pin, M12 – open cable end</b>				
	1	BN	-	-
	2	-	-	-
	3	BU	-	-
	4	BK	-	-

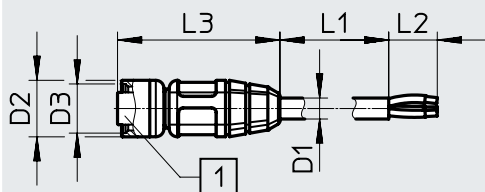
- 1) To IEC 757

Datasheet

Dimensions

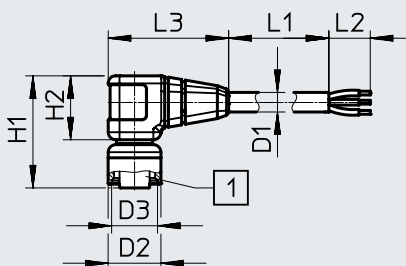
Download CAD data → [www.festo.com](http://www.festo.com)

SIM-M12-RS-3GD-3



[1] Socket M12x1

SIM-M12-RS-3WD-3



[1] Socket M12x1

Type	D1 ∅	D2	D3 ∅	L1	L2	L3	H1	H2	D1 ∅
SIM-M12-RS-3GD-3	5.2	M12x1	14	3000	50	40	–	–	5.2
SIM-M12-RS-3WD-3	5.2	M12x1	14	3000	50	32	30	17	5.2

Ordering data

	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type
	Resistant to welding spatter	3	Straight	Resistant to welding spatter	–	<b>30450</b>	<b>SIM-M12-RS-3GD-3</b>
			Angled	Resistant to welding spatter	–	<b>30451</b>	<b>SIM-M12-RS-3WD-3</b>

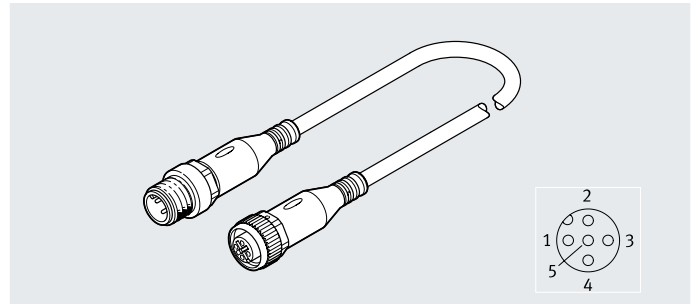
Ordering data – Accessories

Designation	Part no.	Type
<b>Inscription labels</b>		
Inscription labels 23 mm for holder, pack of 34, in frame	<b>541598</b>	<b>ASLR-L-423</b>
<b>Inscription label holders</b>		
For identifying connecting cables	For cable diameter 4.2 ... 5.6 mm	<b>8143238</b> <b>NEAU-LH-4</b>

## Datasheet

### Connecting cable NEBU-M12 SIM-M12

- Connecting cable for connecting inputs/outputs
- Pre-assembled at one end, pre-assembled at both ends
- Cable lengths 0.1 ... 30 m
- 2, 3, 4 or 5 wires
- M12x1, 5-pin



General technical data		
Type	NEBU	SIM
Conforms to standard	EN 61076-2-101	EN 61076-2-101
	EN 61076-2-104	–
	Wire colours and connection numbers to EN 60947-5-2	–
	–	EN 61984
Cable designation	With 2x inscription label holders	–
	NEBU-M12G5-...-Q8N-M12G5 Without inscription label holder	–
	NEBU-M12G5-K-1-N-M12G3 Without inscription label holder	–
Degree of protection	IP65, IP68, IP69K	IP65, IP68
Note on degree of protection	In assembled state	–

Technical data – Electrical connection 1		
Type	NEBU	SIM
Function	Field device side	Field device side
Design	Round	Round
Connection type	Socket	Socket
Cable outlet	Straight, angled	Straight, angled
Connection technology	M12x1, A-coded to EN 61076-2-101	M12x1, A-coded
Number of pins/wires	5	5
Assigned pins/wires	2   3   4   5	–
Type of mounting	Screw lock	–

Datasheet

Technical data – Electrics			Without switching status indication	With switching status indication
Operating voltage range	Electrical connection 2	[V DC]	0 ... 60	10 ... 30
	Plug M8, 3-pin	[V AC]	0 ... 60	–
	Electrical connection 2	[V DC]	0 ... 30	10 ... 30
	Plug M8, 4-pin	[V AC]	0 ... 30	–
	Electrical connection 2	[V DC]	0 ... 250	10 ... 30
	Plug M12, 3-pin	[V AC]	0 ... 250	–
	Electrical connection 2	[V DC]	0 ... 250	10 ... 30
	Plug M12, 4-pin	[V AC]	0 ... 250	–
	Electrical connection 2	[V DC]	0 ... 60	–
	Plug M12, 5-pin	[V AC]	0 ... 60	–
	Electrical connection 2	[V DC]	0 ... 250	10 ... 30
	Open end, 3-wire	[V AC]	0 ... 250	–
	Electrical connection 2	[V DC]	0 ... 250	10 ... 30
	Open end, 4-wire	[V AC]	0 ... 250	–
Electrical connection 2	[V DC]	0 ... 60	–	
Open end, 5-wire	[V AC]	0 ... 60	–	
Surge resistance	Electrical connection 2	[kV]	1.5	0.8
	Plug M8, 3-pin			
	Electrical connection 2	[kV]	0.8	0.8
	Plug M8, 4-pin			
	Electrical connection 2	[kV]	2.5	0.8
	Plug M12, 3-pin			
	Electrical connection 2	[kV]	2.5	0.8
	Plug M12, 4-pin			
	Electrical connection 2	[kV]	1.5	–
	Plug M12, 5-pin			
Electrical connection 2	[kV]	2.5	0.8	
Open end, 3-wire				
Electrical connection 2	[kV]	2.5	0.8	
Open end, 4-wire				
Electrical connection 2	[kV]	1.5	–	
Open end, 5-wire				
Acceptable current load at 40°C		[A]	4	4
	Electrical connection 2	[A]	3	–
	Plug M8			

## Datasheet

Technical data – Cable		NEBU					SIM		
		Electrical connection 2					Electrical connection 2		
		3-pin	4-pin	5-pin	3-wire	4-wire	5-wire		
Cable characteristic	Code -K-	Standard					–		
	Code -E-	Suitable for energy chains					–		
	Code -R-	Suitable for robot applications					–		
		–					Standard		
Cable test conditions		Bending strength: to Festo standard					Bending strength: to Festo standard		
		Test conditions on request					Test conditions on request		
		Cable characteristic	Standard	Energy chain: 5 million cycles, bending radius 75 mm			Energy chain: 5 million cycles, bending radius 75 mm		
			Suitable for energy chains	Energy chain: 5 million cycles, bending radius 28 mm			–		
			Code -Q8N-	Energy chain: 5 million cycles, bending radius 75 mm			–		
Suitable for robot applications	Energy chain: 5 million cycles, bending radius 28 mm			–					
		Torsional resistance more than 300000 cycles, $\pm 270^\circ/0.1$ m					–		
Cable diameter	[mm]	3.8	4.5	4.5	3.8	4.5	4.5		
	Code -Q8N- [mm]	–	–	7	–				
Cable diameter tolerance	[mm]	±0.1					–		
Cable composition	[mm <sup>2</sup> ]	3x 0.25	4x 0.25	5x 0.25	3x 0.25	4x 0.25	5x 0.25		
	Code -Q8N- [mm <sup>2</sup> ]	–	–	5 x 1	–				
Nominal conductor cross section	[mm <sup>2</sup> ]	0.25	0.25	0.25	0.25				
	Code -Q8N- [mm <sup>2</sup> ]	–	–	1	–				
Bending radius, fixed cable installation	[mm]	12	14	14	–				
	Code -Q8N- [mm]	–	–	21	–				
Bending radius, flexible cable installation	[mm]	39	46	46	–				
	Code -Q8N- [mm]	–	–	71	–				

Technical data – Electrical connection 2		NEBU						SIM				
		Controller side										
Type		Cable			Plug			Cable				
Function		–			Round			–				
Connection type		–			Straight, angled			–				
Design		Open end			M8x1, A-coded to EN 61076-2-104			M12x1, A-coded to EN 61076-2-101				
Cable outlet		3	4	5	3	4	3	4	5	3	4	5
Connection technology		3	4	5	3	4	3	4	5	–	–	–
Number of pins/wires	Without switching status indication	3	4	–	3	4	3	4	–	–	–	–
Assigned pins/wires	With switching status indication	3	4	–	3	4	3	4	–	–	–	–
Type of mounting		–	–	–	Screw lock			–			–	–

## Datasheet

Materials		
Type	NEBU	SIM
Housing	TPE-U(PUR)	TPE-U(PU)
Housing colour	Black	Black
Cable sheath	TPE-U(PUR)	TPE-U(PU)
Cable sheath colour	Grey	Grey
Insulating sheath	PP	PP
Wire insulation colour code	–	Blue, brown, black
	–	Blue, brown, black, white
	–	Blue, brown, grey, black, white
Seals	–	NBR
Pin contacts	–	Gold-plated brass
Screw lock	Nickel-plated brass	Nickel-plated brass
Note on materials	RoHS-compliant	RoHS-compliant
	Halogen-free	Halogen-free
	Free of phosphoric acid ester	Free of phosphoric acid ester
Special characteristics	Oil-resistant	–
PWIS conformity	VDMA24364-B2-L	–

Operating and environmental conditions			NEBU	SIM
Ambient temperature	Cable characteristic: standard	[°C]	–25 ... +70	–25 ... +80
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	–25 ... +80	–
Ambient temperature with flexible cable installation	Cable characteristic: standard	[°C]	–5 ... +70	–5 ... +80
	Cable characteristic: suitable for energy chains, suitable for robot applications	[°C]	–5 ... +80	–
Corrosion resistance class CRC <sup>1)</sup>			2	2
CE marking (see declaration of conformity) <sup>2)</sup>	Without switching status indication		To EU Low Voltage Directive	To EU Low Voltage Directive
	With switching status indication		–	–
	With plug M8, 4-pin		–	–
UKCA marking (see declaration of conformity) <sup>2)</sup>			To EU RoHS Directive	To EU RoHS Directive
			To UK regulations for electrical equipment	–
Pollution degree			To UK RoHS instructions	–
			3	3

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.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

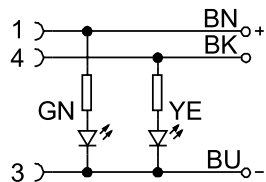
Datasheet

Circuitry (socket view)		Pin	Wire colour <sup>1)</sup>	Pin	Plug	
<b>Electrical connection, socket, 5-pin, M12 – open cable end</b>						
		3-wire	4-wire	5-wire	Open cable end	
	1	BN	BN	BN	-	
	2	-	WH	WH	-	
	3	BU	BU	BU	-	
	4	BK	BK	BK	-	
	5	-	-	GY	-	
<b>Electrical connection, socket, 5-pin, M12 – cable, 2-wire – plug, 4-pin</b>						
	1		BN	1		
	2		-	-		
	3		BU	2		
	4		-	-		
	5		-	-		
<b>Electrical connection, socket, 5-pin, M12 – cable, 3-wire – plug, 3-pin/4-pin</b>						
	1		BN	1		
	2		-	-		
	3		BU	3		
	4		BK	4		
	5		-	-		
<b>Electrical connection, socket, 5-pin, M12 – plug, 4-pin</b>						
	1		BN	1		
	2		WH	2		
	3		BU	3		
	4		BK	4		
	5		-	-		
<b>Electrical connection, socket, 5-pin, M12 – plug, 5-pin</b>						
	1		BN	1		
	2		WH	2		
	3		BU	3		
	4		BK	4		
	5		GY	5		

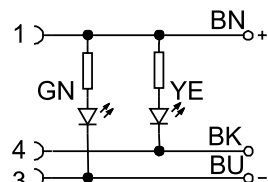
1) To IEC 757

Circuitry, switching status indication

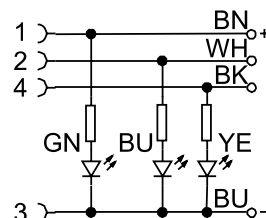
Display of code -P-



Display of code N



Display of code -P2

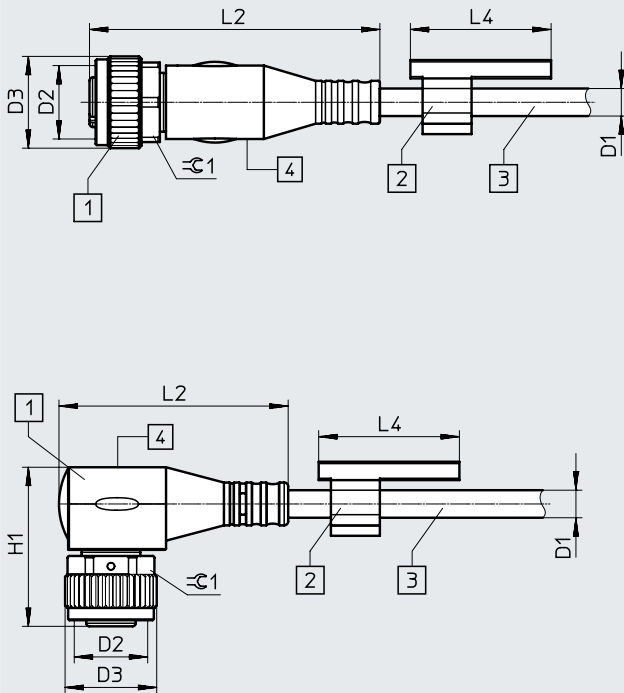


Datasheet

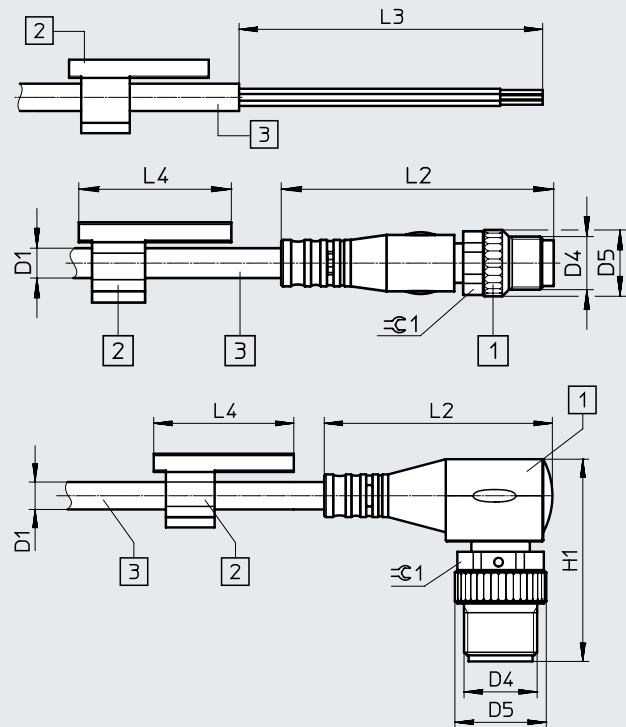
Dimensions

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

Connection technology, left



Connection technology, right



- [1] Socket M12x1
- [2] Inscription label holder

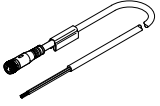
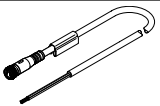
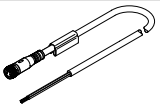
- [3] Cable, length 0.1 ... 30 m depending on the order
- [4] Display field with version P, N or P2

Connection technology, left	D1 ø	D2	D3 ø	L2	L4	H1	≈G1
<b>NEBU, electrical connection 2, 3-pin</b>							
Straight socket	3.8	M12x1	15	47.5	23	-	13
Angled socket	3.8	M12x1	15	37.5	23	26	13
<b>NEBU, electrical connection 2, 4-pin and 5-pin</b>							
Straight socket	4.5	M12x1	15	47.5	23	-	13
Angled socket	4.5	M12x1	15	37.5	23	26	13
<b>NEBU-M12G5-...-Q8N-M12G5</b>							
Straight socket	7	M12x1	15	47.5	-	-	13
<b>SIM</b>							
Straight socket	4.5	M12x1	15	47.5	-	-	13
Angled socket	4.5	M12x1	15	37.5	-	26	13

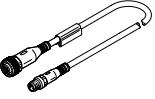
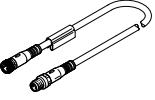
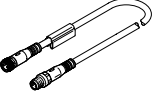
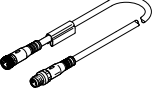
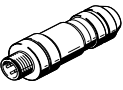
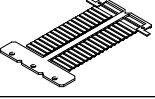


Connection technology, right	D1 ø	D4	D5 ø	L2	L3	L4	H1	≈G1
<b>NEBU, electrical connection 2, 3-pin</b>								
Open end	3.8	-	-	-	50	23	-	-
Straight plug	3.8	M8x1	10	41.1	-	23	-	9
	3.8	M12x1	15	54.5	-	23	-	13
Angled plug	3.8	M8x1	10	26.9	-	23	24	9
	3.8	M12x1	15	37.5	-	23	33.2	13
<b>NEBU, electrical connection 2, 4-pin and 5-pin</b>								
Open end	4.5	-	-	-	50	23	-	-
Straight plug	4.5	M8x1	10	41.1	-	23	-	9
	4.5	M12x1	15	54.5	-	23	-	13
Angled plug	4.5	M8x1	10	26.9	-	23	24	9
	4.5	M12x1	15	37.5	-	23	33.2	13
<b>NEBU-M12G5-...-Q8N-M12G5</b>								
Straight plug	7	M12x1	15	54.5	-	-	-	13
<b>SIM</b>								
Open end	4.5	-	-	-	50	-	-	-
<b>SIM, 3-wire</b>								
Open end	3.8	-	-	-	50	-	-	-



## Datasheet

Ordering data							
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type
<b>Socket, 5-pin, M12 – open cable end, 3-wire</b>							
	Standard	2.5	Straight	–	69	★ 541363	NEBU-M12G5-K-2.5-LE3
				Switching status indication, for PNP N/O contact	–	159428	SIM-M12-3GD-2.5-PU
				70	541366	NEBU-M12W5P-K-2.5-LE3	
			Angled	–	70	541367	NEBU-M12W5-K-2.5-LE3
				–	–	159430	SIM-M12-3WD-2.5-PU
				Switching status indication, for NPN N/O contact	70	541365	NEBU-M12W5N-K-2.5-LE3
		5	Straight	–	128	★ 541364	NEBU-M12G5-K-5-LE3
				–	–	159429	SIM-M12-3GD-5-PU
			Angled	–	129	541370	NEBU-M12W5-K-5-LE3
				–	–	159431	SIM-M12-3WD-5-PU
				Switching status indication, for NPN N/O contact	130	541368	NEBU-M12W5N-K-5-LE3
				Switching status indication, for PNP N/O contact	130	541369	NEBU-M12W5P-K-5-LE3
			For PNP N/O contact, switching status indication yellow, ready status indication green	–	159433	SIM-M12-3WD-5-PSL-PU	
			<b>Socket, 5-pin, M12 – open cable end, 4-wire</b>				
	Standard	2.5	Straight	–	77	★ 550326	NEBU-M12G5-K-2.5-LE4
			Angled	–	78	550325	NEBU-M12W5-K-2.5-LE4
		5	Straight	–	143	★ 541328	NEBU-M12G5-K-5-LE4
				–	–	164259	SIM-M12-4GD-5-PU
			Angled	–	144	541329	NEBU-M12W5-K-5-LE4
				–	–	164258	SIM-M12-4WD-5-PU
		7	Straight	–	197	8003134	NEBU-M12G5-K-7-LE4
		10	Angled	–	278	569841	NEBU-M12W5-K-10-LE4
<b>Socket, 5-pin, M12 – open cable end, 5-wire</b>							
	Standard	2.5	Straight	–	78	541330	NEBU-M12G5-K-2.5-LE5
				–	–	175715	SIM-M12-5GD-2.5-PU
		5	Angled	–	79	567843	NEBU-M12W5-K-2.5-LE5
				–	–	175716	SIM-M12-5GD-5-PU
			Straight	–	146	541331	NEBU-M12G5-K-5-LE5
				–	147	567844	NEBU-M12W5-K-5-LE5
10	Straight	–	283	554038	NEBU-M12G5-K-10-LE5		

Datasheet

Ordering data							
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type
<b>Socket, 5-pin, M12 – plug, 4-pin, M8</b>							
	Standard	2.5	Straight – straight	–	81	<b>554036</b>	<b>NEBU-M12G5-K-2.5-M8G4</b>
	Suitable for energy chains		Straight – straight	Cable, 2-wire	74	<b>554034</b>	<b>NEBU-M12G5-E-2.5-W2-M8G4-V1</b>
				Cable, 3-wire	74	<b>554033</b>	<b>NEBU-M12G5-E-2.5-W3-M8G4-V2</b>
<b>Socket, 5-pin, M12 – plug, 3-pin, M12</b>							
	Standard	1	Straight – straight	Without inscription label holder	44	<b>8091511</b>	<b>NEBU-M12G5-K-1-N-M12G3</b>
<b>Socket, 5-pin, M12 – plug, 4-pin, M12</b>							
	Standard	0.5	Straight – straight	–	36	<b>8000208</b>	<b>NEBU-M12G5-K-0.5-M12G4</b>
<b>Socket, 5-pin, M12 – plug, 5-pin, M12</b>							
	Standard	0.5	Straight – angled	–	37	<b>8003617</b>	<b>NEBU-M12G5-K-0.5-M12W5</b>
			Angled – angled	–	38	<b>570733</b>	<b>NEBU-M12W5-K-0.5-M12W5</b>
		2	Straight – angled	–	77	<b>8003618</b>	<b>NEBU-M12G5-K-2-M12W5</b>
			Angled – angled	–	78	<b>570734</b>	<b>NEBU-M12W5-K-2-M12W5</b>
	Suitable for energy chains	5	Straight – straight	Nominal conductor cross section 1 mm <sup>2</sup>	434	<b>574321</b>	<b>NEBU-M12G5-E-5-Q8N-M12G5</b>
		7.5	Straight – straight	Nominal conductor cross section 1 mm <sup>2</sup>	635	<b>574322</b>	<b>NEBU-M12G5-E-7.5-Q8N-M12G5</b>
		10	Straight – straight	Nominal conductor cross section 1 mm <sup>2</sup>	835	<b>574323</b>	<b>NEBU-M12G5-E-10-Q8N-M12G5</b>
<b>Ordering data – Accessories</b>							
Designation						Part no.	Type
<b>Plug</b>							
	Plugs for self-assembly					–	→ Internet: necu
						–	→ Internet: sea
<b>Inscription labels</b>							
	Inscription labels 23 mm for holder, pack of 34, in frame					<b>541598</b>	<b>ASLR-L-423</b>
<b>Inscription label holders</b>							
	For identifying connecting cables			For cable diameter 3.3 ... 4.8 mm		<b>8078307</b>	<b>NEAU-LH-3</b>
<b>Safety clip</b>							
	Prevents the screw lock from being released easily (without a tool), to be fastened securely to the cable			For M8		<b>548067</b>	<b>NEAU-M8-GD</b>
				For M12		<b>548068</b>	<b>NEAU-M12-GD</b>

## Datasheet

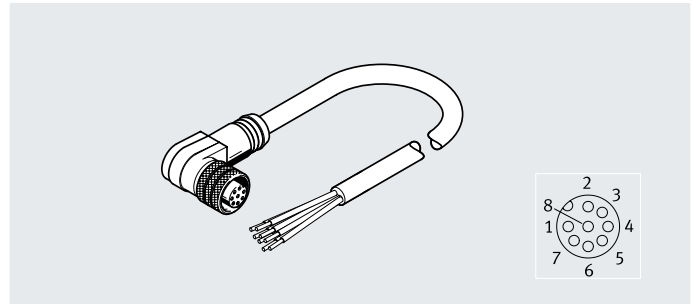
### Plug socket with cable

**NEBU-M12**

**SIM-M12-8**

**KM12-8**

- Pre-assembled at one end, pre-assembled at both ends
- Cable lengths 2 m, 5 m, 10 m, 15 m, 20 m and 25 m
- 8 wires
- Socket M12x1, 8-pin



General technical data			
Type	NEBU	SIM	KM12
Conforms to standard	EN 61076-2-101	EN 61076-2-101	–
	–	DIN 47100	–
Cable designation	Without inscription label holder	Without inscription label holder	Without inscription label holder
Degree of protection	IP67	IP67	IP67
Note on degree of protection	In assembled state	In assembled state	In assembled state

Technical data – Electrical connection 1			
Type	NEBU	SIM	KM12
Function	Field device side		
Design	Round		
Connection type	Socket		
Cable outlet	Angled	Straight	Straight
Connection technology	M12x1, A-coded to EN 61076-2-101		
Number of pins/wires	8		
Assigned pins/wires	8		
Type of mounting	Screw lock		
Contact durability	–	–	50

Technical data – Electrics				
Type	NEBU	SIM	KM12	
Nominal operating voltage	[V DC]	–	–	30
Operating voltage range	[V DC]	0 ... 30	0 ... 30	0 ... 30
	[V AC]	0 ... 30	0 ... 30	0 ... 30
Surge resistance	[kV]	0.8	0.8	0.8
Acceptable current load at 40°C	[A]	2	2	2

Technical data – Cable				
Type	NEBU	SIM	KM12	
Cable characteristic	Standard	Standard	Standard	
	–	–	Test conditions on request	
Bending radius	Fixed cable installation [mm]	≥32	≥32	
	Flexible cable installation [mm]	≥66	≥66	≥64
Cable diameter	[mm]	6.3	6.3	6.2
Cable diameter tolerance	[mm]	±0.2	±0.2	±0.2
Cable composition	[mm <sup>2</sup> ]	8x 0.25		
		Shielded		
Nominal conductor cross section	[mm <sup>2</sup> ]	0.25		

## Datasheet

Technical data – Electrical connection 2			
Type	NEBU	SIM	KM12
Function	Controller side		
Connection type	Cable	Cable	Plug
Design	–	–	Round
Cable outlet	–	–	Straight
Connection technology	Open end	Open end	M12x1, A-coded, to EN 61076-2-101
Number of pins/wires	8	8	8
Assigned pins/wires	8	8	8
Wire ends	Tin-plated	Tin-plated	
Type of mounting	–	–	Screw lock

Materials			
Type	NEBU	SIM	KM12
Housing	TPE-U(PUR)	TPE-U(PUR)	–
Housing colour	–	–	–
Cable sheath	TPE-U(PUR)	TPE-U(PUR)	TPE-U(PUR)
Cable sheath colour	Grey	Grey	Grey
Insulating sheath	PP	PP	PP
	–	–	TPE-U(PUR)
Screw lock	–	Nickel-plated brass	Nickel-plated brass
	–	–	Chrome-plated brass
Union nut	Nickel-plated brass	–	–
Seals	NBR	–	NBR
Pin contacts	Gold-plated brass	Bronze, gold-plated	Nickel-plated and gold-plated brass
Note on materials	RoHS-compliant	RoHS-compliant	RoHS-compliant

Operating and environmental conditions			
Type	NEBU	SIM	KM12
Ambient temperature	–25 ... +80	–25 ... +80	–25 ... +80
With flexible cable installation	–5 ... +80	–5 ... +80	0 ... +80
Corrosion resistance class CRC <sup>1)</sup>	2	2	2
CE marking (see declaration of conformity) <sup>2)</sup>	To EU RoHS Directive	To EU EMC Directive	To EU RoHS Directive
UKCA marking (see declaration of conformity) <sup>2)</sup>	To UK RoHS instructions	–	To UK RoHS instructions
Pollution degree	3	3	3

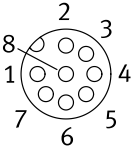
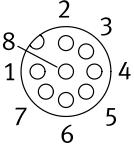
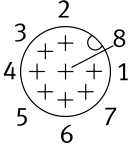
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

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.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

# Datasheet

Circuitry (socket view)				
Socket	Pin	Wire colour <sup>1)</sup>	Pin	Plug
<b>Electrical connection, socket, 8-pin, M12 – open cable end</b>				
	1	WH	–	–
	2	BN	–	
	3	GN	–	
	4	YE	–	
	5	GY	–	
	6	RS	–	
	7	BU	–	
	8	RD	–	
<b>Electrical connection, socket, 8-pin, M12 – plug, 8-pin</b>				
	1	WH	1	
	2	BN	2	
	3	GN	3	
	4	YE	4	
	5	GY	5	
	6	RS	6	
	7	BU	7	
	8	RD	8	
	Housing	Shielding	Housing	

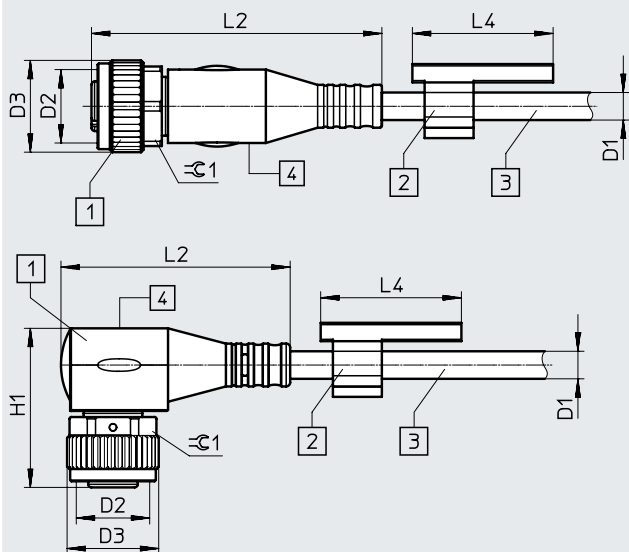
1) To IEC 757

## Datasheet

### Dimensions

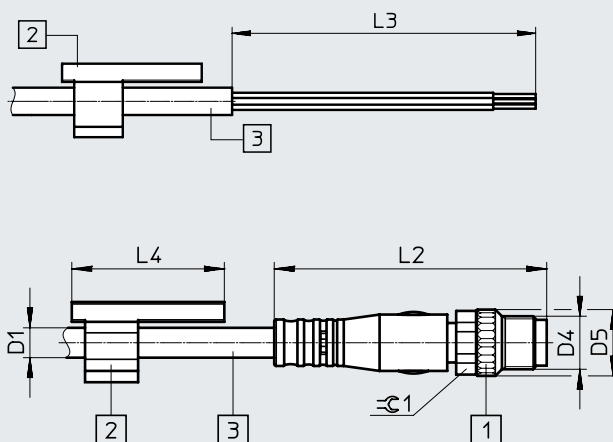
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Connection technology, left



- [1] Socket M12x1
- [2] Inscription label holder, must be ordered separately as an accessory

Connection technology, right

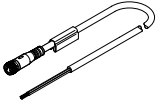
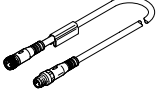


- [3] Cable, length 2 m, 5 m, 10 m, 15 m, 20 m, 25 m depending on the order

Connection technology, left	D1 ∅	D2	D3 ∅	L2	L4	H1	≈∅1
<b>NEBU</b>							
Angled socket	6.3	M12x1	14.5	33.5	-	26.2	-
<b>SIM</b>							
Straight socket	6.2	M12x1	14.5	-	-	-	-
<b>KM12</b>							
Straight socket	6.2	M12x1	-	-	-	-	-

Connection technology, right	D1 ∅	D4	D5 ∅	L2	L3	L4	≈∅1
<b>NEBU</b>							
Open end	6.3	-	-	-	70	-	-
<b>SIM</b>							
Open end	6.2	-	-	-	70	-	-
<b>KM12</b>							
Straight plug	6.2	M12x1	14.6	-	-	-	-

## Datasheet

Ordering data									
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type		
<b>Socket, 8-pin, M12 – open cable end, 8-wire</b>									
	Standard	2	Angled	–	125	542256	NEBU-M12W8-K-2-N-LE8		
			Straight	–	–	525616	SIM-M12-8GD-2-PU		
		5	Angled	–	292	542257	NEBU-M12W8-K-5-N-LE8		
			Straight	–	343	525618	SIM-M12-8GD-5-PU		
		10	Angled	–	570	570007	NEBU-M12W8-K-10-N-LE8		
			Straight	–	–	570008	SIM-M12-8GD-10-PU		
		15	Angled	–	848	8048086	NEBU-M12W8-K-15-N-LE8		
			Straight	–	–	5105631	SIM-M12-8GD-15-PU		
		20	Straight	–	–	5105632	SIM-M12-8GD-20-PU		
		25	Straight	–	–	5105633	SIM-M12-8GD-25-PU		
		<b>Socket, 8-pin, M12 – plug, 8-pin, M12</b>							
			–	2	Straight – straight	–	140	525617	KM12-8GD8GS-2-PU

## Datasheet

### Power supply socket NEBU-G78W5

- Connecting cable for power supply
- Pre-assembled at one end
- Cable lengths 2 m
- 5 wires
- Socket G7/8, 5-pin



#### General technical data

Based on standard	NFPA/T3.5.29 R1-2007
Cable designation	Without inscription label holder
Degree of protection	IP65, IP67
Note on degree of protection	In assembled state

#### Technical data – Electrical connection 1

Function	Field device side
Design	Round
Connection type	Socket
Cable outlet	Angled
Note on cable outlet	Not according to industry standard, matched to CPX protective hood
Connection technology	G7/8 coded to NFPA/T3.5.29 R1-2007
Number of pins/wires	5
Assigned pins/wires	5
Type of mounting	Screw lock
Contact durability	100

#### Technical data – Electrics

Operating voltage range	[V DC]	0 ... 300
	[V AC]	0 ... 300
Surge resistance	[kV]	4
Acceptable current load at 40°C	[A]	9

#### Technical data – Cable

Cable characteristic	Standard
Cable test conditions	Test conditions on request
Bending radius, fixed cable installation	[mm] ≥65
Cable diameter	[mm] 8.7
Cable diameter tolerance	[mm] ±0.2
Cable composition	[mm <sup>2</sup> ] 5x 1.5
Nominal conductor cross section	[mm <sup>2</sup> ] 1.5

#### Technical data – Electrical connection 2

Function	Controller side
Connection type	Cable
Connection technology	Open end
Number of pins/wires	5
Assigned pins/wires	5



## Datasheet

Materials	
Housing	TPE-U(PUR)
Housing colour	Black
Cable sheath	TPE-U(PUR)
Cable sheath colour	Black
Screw lock	Nickel-plated brass
Pin contacts	Gold-plated brass
Note on materials	RoHS-compliant

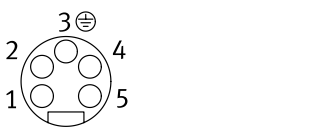
Operating and environmental conditions		
Ambient temperature	[°C]	-20 ... +80
Corrosion resistance class CRC <sup>1)</sup>		1
CE marking (see declaration of conformity) <sup>2)</sup>		To EU Low Voltage Directive
UKCA marking (see declaration of conformity) <sup>2)</sup>		To UK regulations for electrical equipment
Pollution degree		3

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts which are covered in the application (e.g. drive trunnions).

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu) → Support/Downloads.

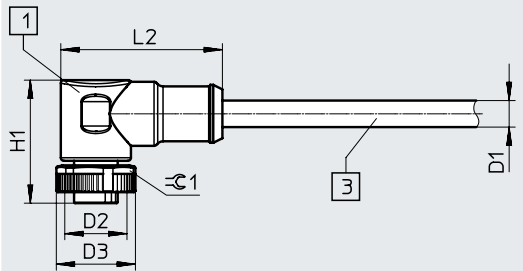
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Circuitry (socket view)				
Socket	Pin	Wire colour <sup>1)</sup>	Pin	Plug
<b>Electrical connection, socket, 5-pin, G7/8 – open cable end</b>				
	1	BK	-	-
	2	BU	-	-
	3	GN YE	-	-
	4	BN	-	-
	5	WH	-	-

1) To IEC 757

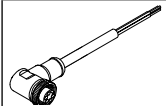
**Dimensions**

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



[1] Socket G7/8  
[3] Cable, length 2 m

	D1	D2	D3	L2	H1	⌀
NEBU-G78W5	8.7	7/8"	26	53	40.4	24

Ordering data							
	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type
<b>Socket, 5-pin, G7/8 – open cable end</b>							
	Standard	2	Angled	-	300	573855	NEBU-G78W5-K-2-N-LE5

## Datasheet

### Connecting cable SIM-K

- Connecting cable for low-voltage applications
- Easy-to-clean design
- Pre-assembled at one end
- Cable lengths 2.5 m, 5 m and 10 m
- 3 wires
- Mounting via snap-locking



#### General technical data

Conforms to standard	EN 61076-2-104 EN 61984 Wire colours and connection numbers to EN 60947-5-2
Cable designation	Without inscription label holder
Degree of protection	IP65, IP67
Note on degree of protection	In assembled state

#### Technical data – Electrical connection 1

Function	Field device side
Design	Round
Connection type	Socket
Cable outlet	Straight, angled
Connection technology	M8 snap-locking A-coded to EN 61076-2-104
Number of pins/wires	3
Assigned pins/wires	3
Type of mounting	Snap-locking
Contact durability	100

#### Technical data – Electrics

Operating voltage range	[V DC]	0 ... 60
	[V AC]	0 ... 60
Surge resistance	[kV]	1.5
Acceptable current load at 40°C	[A]	3

#### Technical data – Cable

Cable characteristic	Standard	
Cable test conditions	Bending strength: to Festo standard	
	Test conditions on request	
	Energy chain: 5 million cycles, bending radius 28 mm	
Bending radius	Fixed cable installation [mm]	≥23
	Flexible cable installation [mm]	≥46
Cable diameter	[mm]	4.5
Cable diameter tolerance	[mm]	±0.1
Cable composition	[mm <sup>2</sup> ]	3x 0.25
Nominal conductor cross section	[mm <sup>2</sup> ]	0.25

#### Technical data – Electrical connection 2

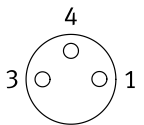
Function	Controller side
Connection type	Cable
Connection technology	Open end
Number of pins/wires	3
Assigned pins/wires	3
Wire ends	Wire end sleeve

## Datasheet

Materials	
Housing	TPE-U(PUR)
Housing colour	Black
Cable sheath	TPE-U(PUR)
Cable sheath colour	Grey
Insulating sheath	PP
Seals	NBR
Pin contacts	Gold-plated brass
Note on materials	RoHS-compliant
	Free of copper and PTFE
	Halogen-free

Operating and environmental conditions			
Ambient temperature		[°C]	-25 ... +70
	With flexible cable installation	[°C]	-5 ... +70
Storage temperature		[°C]	-25 ... +70
Corrosion resistance class CRC <sup>1)</sup>			4
CE marking (see declaration of conformity) <sup>2)</sup>			To EU Low Voltage Directive
Pollution degree			3

- 1) Corrosion resistance class CRC 4 to Festo standard FN 940070  
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded by means of special testing (→ also FN 940082), using appropriate media.
- 2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/sim](http://www.festo.com/catalogue/sim) → Support/Downloads.  
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Circuitry (socket view)				
Socket	Pin	Wire colour <sup>1)</sup>	Pin	Plug
<b>Electrical connection, socket, 3-pin, snap-locking – open cable end</b>				
	1	BN	–	–
	3	BU	–	–
	4	BK	–	–

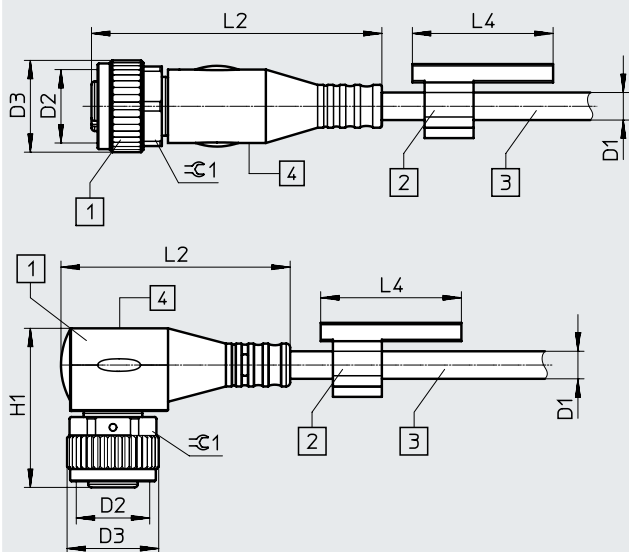
1) To IEC 757

Datasheet

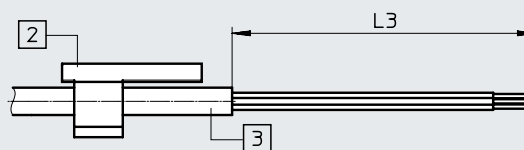
Dimensions

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

Connection technology, left



Connection technology, right



- [1] Socket
- [2] Inscription label holder, must be ordered separately as an accessory

- [3] Cable, length 2.5 m, 5 m, 10 m depending on the order

Connection technology, left	D1 ø	D2	D3 ø	L2	L4	H1	≈ε1
Straight socket	4.5	-	8.5	33.6	-	-	-
Angled socket	4.5	8.3	8.5	26.1	-	18.4	-

Connection technology, right	D1 ø	L3
Open end	4.5	50

Ordering data

	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [m]	Part no.	Type
	Standard	2.5	Straight	-	-	164257	SIM-K-GD-2.5-PU
			Angled	-	-	164255	SIM-K-WD-2.5-PU
	5	Straight	-	-	164256	SIM-K-GD-5-PU	
		Angled	-	-	164254	SIM-K-WD-5-PU	
	10	Straight	-	-	192962	SIM-K-GD-10-PU	
		Angled	-	-	192963	SIM-K-WD-10-PU	

Ordering data – Accessories

Designation	Part no.	Type
<b>Inscription labels</b>		
Inscription labels 23 mm for holder, pack of 34, in frame	541598	ASLR-L-423
<b>Inscription label holders</b>		
For identifying connecting cables	8143238	NEAU-LH-4

## Datasheet

### Connecting cable SIM-K

- Connecting cable for low-voltage applications
- Easy-to-clean design
- Pre-assembled at one end
- Cable lengths 2.5 m and 5 m
- 4 wires
- Mounting via snap-locking



#### General technical data

Conforms to standard	EN 61076-2-104 EN 61984 Wire colours and connection numbers to EN 60947-5-2
Cable designation	Without inscription label holder
Degree of protection	IP65, IP67
Note on degree of protection	In assembled state

#### Technical data – Electrical connection 1

Function	Field device side
Design	Round
Connection type	Socket
Cable outlet	Straight, angled
Connection technology	M8 snap-locking A-coded to EN 61076-2-104
Number of pins/wires	4
Assigned pins/wires	4
Type of mounting	Snap-locking
Contact durability	100

#### Technical data – Electrics

Operating voltage range	[V DC]	0 ... 30
	[V AC]	0 ... 30
Surge resistance	[kV]	0.8
Acceptable current load at 40°C	[A]	3

#### Technical data – Cable

Cable characteristic	Standard	
Cable test conditions	Bending strength: to Festo standard	
	Test conditions on request	
	Energy chain: 5 million cycles, bending radius 28 mm	
Bending radius	Fixed cable installation [mm]	≥23
	Flexible cable installation [mm]	≥46
Cable diameter	[mm]	4.5
Cable diameter tolerance	[mm]	±0.1
Cable composition	[mm <sup>2</sup> ]	4x 0.25
Nominal conductor cross section	[mm <sup>2</sup> ]	0.25

#### Technical data – Electrical connection 2

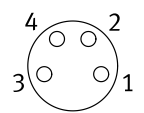
Function	Controller side
Connection type	Cable
Connection technology	Open end
Number of pins/wires	4
Assigned pins/wires	4
Wire ends	Wire end sleeve

## Datasheet

Materials	
Housing	TPE-U(PUR)
Housing colour	Black
Cable sheath	TPE-U(PUR)
Cable sheath colour	Grey
Insulating sheath	PP
Seals	NBR
Pin contacts	Gold-plated brass
Note on materials	RoHS-compliant
	Free of copper and PTFE
	Halogen-free

Operating and environmental conditions			
Ambient temperature		[°C]	-25 ... +70
	With flexible cable installation	[°C]	-5 ... +70
Storage temperature		[°C]	-25 ... +70
Corrosion resistance class CRC <sup>1)</sup>			4
Pollution degree			3

1) Corrosion resistance class CRC 4 to Festo standard FN 940070  
 Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded by means of special testing (→ also FN 940082), using appropriate media.

Circuitry (socket view)				
Socket	Pin	Wire colour <sup>1)</sup>	Pin	Plug
<b>Electrical connection, socket, 4-pin, snap-locking – open cable end</b>				
	1	BN	-	-
	2	WH	-	-
	3	BU	-	-
	4	BK	-	-

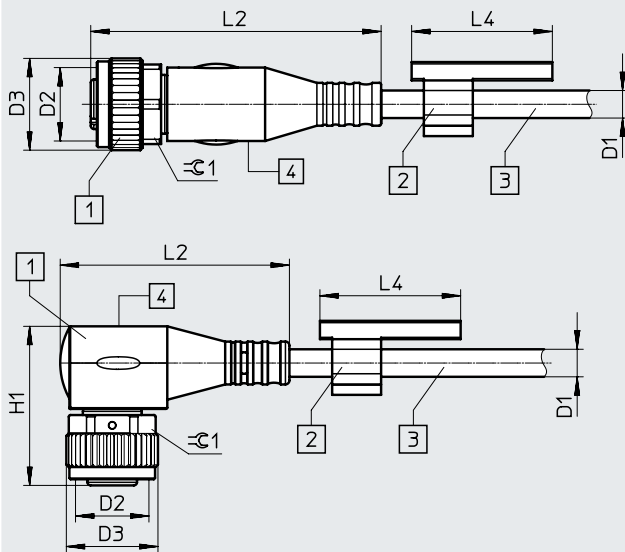
1) To IEC 757

Datasheet

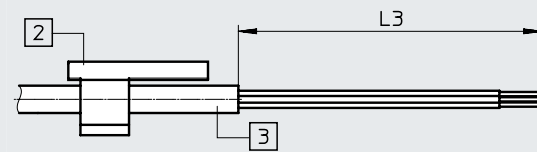
Download CAD data → [www.festo.com](http://www.festo.com)

Dimensions

Connection technology, left



Connection technology, right



- [1] Socket
- [2] Inscription label holder, must be ordered separately as an accessory

- [3] Cable, length 2.5 m, 5 m depending on the order

Connection technology, left	D1 ø	D2	D3 ø	L2	L4	H1	±0.1
Straight socket	4.5	-	8.5	33.6	-	-	-
Angled socket	4.5	-	8.3	26.1	-	18.4	-

Connection technology, right	D1 ø	L3
Open end	4.5	50

Ordering data

	Cable characteristic	Cable length [m]	Outlet orientation	Special features	Product weight [g]	Part no.	Type
<b>Socket, 4-pin, snap-locking – open cable end</b>							
	Standard	2.5	Straight	-	-	164250	SIM-K-4-GD-2.5-PU
			Angled	-	-	164252	SIM-K-4-WD-2.5-PU
		5	Straight	-	-	164251	SIM-K-4-GD-5-PU
			Angled	-	-	164253	SIM-K-4-WD-5-PU

Ordering data – Accessories

Designation	Part no.	Type
<b>Inscription labels</b>		
 Inscription labels 23 mm for holder, pack of 34, in frame	541598	ASLR-L-423
<b>Inscription label holders</b>		
 For identifying connecting cables	8143238	NEAU-LH-4

## Ordering data – Modular product system

Ordering table		Conditions	Code	Enter code
Module no.	<b>539052</b>			
Function	Connecting cable		<b>NEBU</b>	NEBU
Connection technology, left	Open end	[1]	<b>-LE</b>	
	Socket with connecting thread M8		<b>-M8</b>	
	Socket with connecting thread M12, A-coded		<b>-M12</b>	
Socket design	Without (only in the case of open end as connection technology on the left)			
	Straight		<b>G</b>	
	Angled		<b>W</b>	
	Rotatable	[2]	<b>R</b>	
Number of pins/wires (left)	3-pin (suitable for open end, plug M8)		<b>3</b>	
	4-pin (suitable for open end, plug M8)		<b>4</b>	
	5-pin (suitable for 3, 4 and 5-pin plug M12)		<b>5</b>	
Display	Without LED, DC (standard)			
	LED, NPN	[3]	<b>N</b>	
	LED, DC	[4]	<b>L</b>	
	2x LED, PNP	[5]	<b>P2</b>	
Cable characteristic	Standard		<b>-K</b>	
	Suitable for energy chains		<b>-E</b>	
	Suitable for robot applications		<b>-R</b>	
Cable length	0.1 ... 30 m (0.1 ... 2.5 m in 0.1 m increments, 2.5 ... 30 m in 0.5 m increments)			<b>-...</b>
Wire cross section	0.25 mm <sup>2</sup> (standard)			
	1.00 mm <sup>2</sup>	[6]	<b>Q8</b>	
Cable colour	Grey (standard)			
Cable designation	With inscription label holder (standard)			
	Without inscription label holder			<b>-N</b>
Connection technology, right	Open end (not possible in the case of open end as connection technology on the left)	[1]	<b>-LE</b>	
	Plug with connecting thread M8		<b>-M8</b>	
	Plug with connecting thread M12, A-coded		<b>-M12</b>	
Plug design	Without (only in the case of open end as connection technology on the right)			
	Straight		<b>G</b>	
	Angled		<b>W</b>	
Number of pins/wires (right)	2-pin	[7]	<b>2</b>	
	3-pin (suitable for M8/M12 socket)	[8]	<b>3</b>	
	4-pin (suitable for M8/M12 socket)	[8]	<b>4</b>	
	5-pin (suitable for M12 socket)	[8] [9]	<b>5</b>	

- 1) LE With open end LE the number of pins/wires of the open end must be less than or equal to the number of pins of the opposite side.
- 2) R Can only be combined with M8 (connection technology, left), 3-pin (pins/wires on the left), without display, standard wire cross section.
- 3) N Can only be combined with M8 connection technology on the left and socket design W with 3 PINS/wires (on the left), or with M12 connection technology on the left and socket design W with 5 PINS/wires (on the left) and 3 PINS/wires (on the right).
- 4) L Can only be combined with M8 connection technology on the left and 4 PINS/wires (on the left) and M8 connection technology on the right with 3 or 4 PINS/wires (on the left) or M12 connection technology on the right with 2 PINS/wires (on the left) or LE connection technology on the right with 2 PINS/wires (on the left).  
Can only be combined with cable characteristic K.
- 5) P2 Can only be combined with M12 connection technology on the left and socket design W with 4 PINS/wires (on the right).
- 6) Q8 Can only be combined with M12 connection technology on the left and socket design G with 5 PINS/wires (on the left), and with M12 connection technology on the right and plug design G with 5 PINS/wires (on the left).  
Can only be combined with cable characteristic E.
- 7) 2 Can only be combined with M12 or LE connection technology on the right and L display.  
Can only be combined with cable characteristic E.
- 8) 3, 4, 5  
With LE connection technology on the left, the number of wires (on the left) is copied over.
- 9) 5 Can only be combined with M12 or LE connection technology on the left.



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