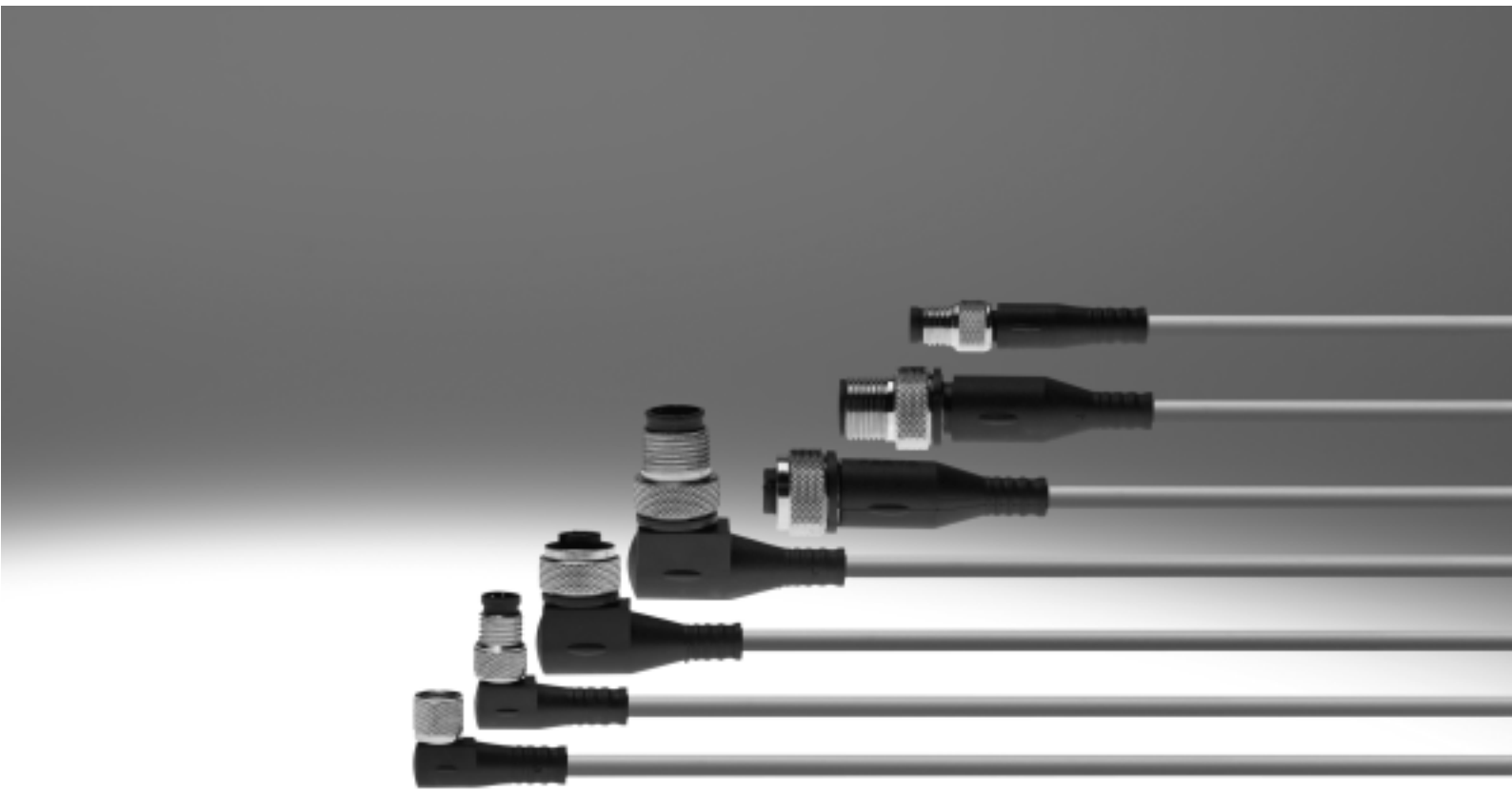
Connecting cables, universal



Connecting cables, universal

Key features

Cable characteristics

The connecting cables NEBU can be configured and ordered using the modular system. This is done by defining a series of characteristics. These include:

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

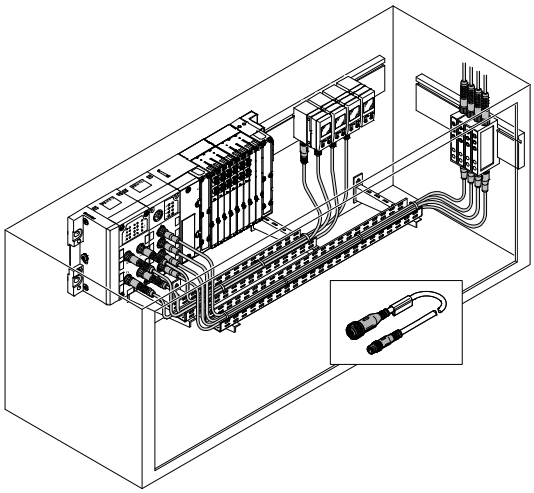
The cable characteristics specify the resistance of the connecting cable to mechanical loads.

There are four quality classes:

- Basic
- Standard
- Suitable for use with energy chains
- Suitable for robot applications

Cable characteristics: Basic

Code P

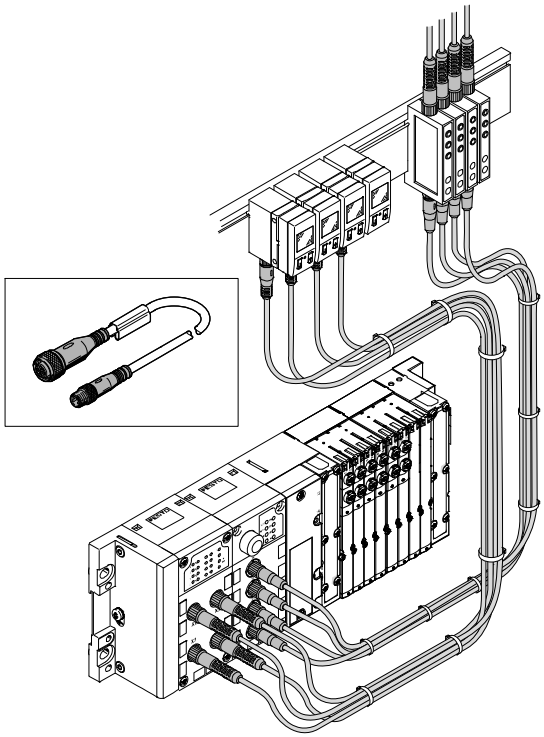


Basic applications are characterised by fixed cable installation with no mechanical loads.
The connecting cable is not continuously moving (kinked or twisted).
The cable sheath of the connecting cables is usually made from PVC.

- The resistance to bending of the connecting cable is tested in accordance with the Festo standard; the test conditions are available on request.

Cable characteristics: 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 energy chain applications with large radii.
The cable sheath of the connecting cables is made from polyurethane.

- The resistance to bending of the connecting cable is tested in accordance with the Festo standard; the test conditions are available on request.
- The connecting cable is tested for energy chains with 5 million cycles, bending radius 75 mm.

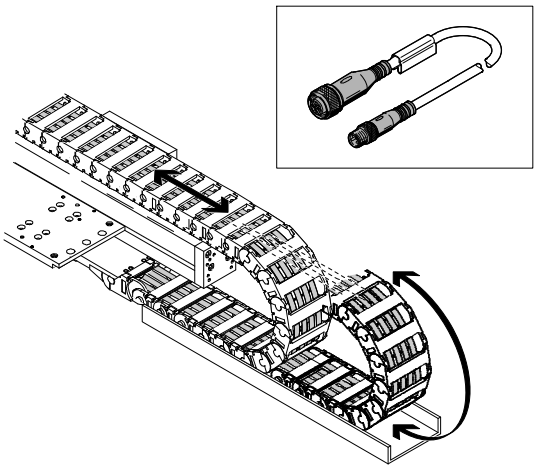
Connecting cables, universal

Key features

Cable characteristics

Cable characteristics: Suitable for use with energy chains

Code E

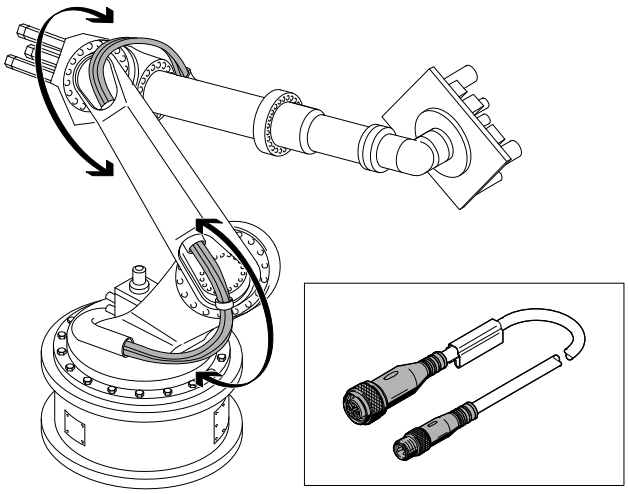


Energy chain applications involve high mechanical loads, particularly if the energy chains have small radii.
It is possible that the connecting cable may be used in an environment where it is subject to continuous bending.
The cable sheath of the connecting cables is made from polyurethane.

- The resistance to bending of the connecting cable is tested in accordance with the Festo standard; the test conditions are available on request.
- The connecting cable is tested for energy chains with 5 million cycles, bending radius 75 mm.
- The connecting cable is tested for energy chains with 5 million cycles, bending radius 28 mm.

Cable characteristics: Suitable for robot applications

Code R



Robot applications involve high mechanical loads, mainly caused by torsion.
The cable sheath of the connecting cables is made from polyurethane and is halogen-free and oil-resistant.

- The resistance to bending of the connecting cable is tested in accordance with the Festo standard; the test conditions are available on request.
- The connecting cable is tested for energy chains with 5 million cycles, bending radius 75 mm.
- The connecting cable is tested for energy chains with 5 million cycles, bending radius 28 mm.
- The connecting cable is tested for torsional strength with more than 0.3 million cycles, ±270°/0.1 m.

Connecting cables, universal

Key features

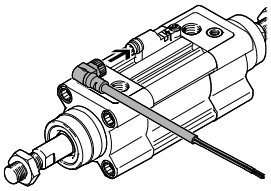
Connection technology types

Different types of plug connectors (e.g. angled or straight) can be chosen for the connecting cables.
A special type of connector is the rotatable type:
this enables the cable outlet of an angled socket to be rotated by 360° in 15° increments.

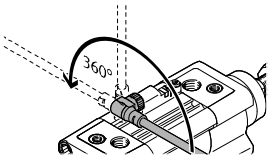
Advantage:
This enables optimum positioning of the cable outlet in tight installation spaces.
The connectors are not designed for repeatedly changing the outlet direction.

Mounting

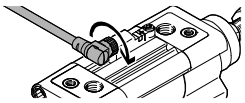
Note the orientation of the pins.



Place the socket on the plug.



Adjust the cable outlet.



Tighten the union nut.

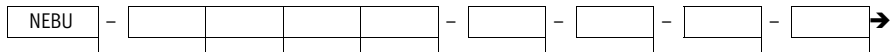
Connecting cables, universal

Product range overview

Function	Version	Type	Connection technology (right-hand end)	Cable characteristics	Length	➔ Page/ Internet
Electrical connecting cable	**Electrical connection (left-hand end), open cable end**					
	5-pin	NEBU-LE	Socket, plug	Standard	0.1 ... 30 m	8
	Electrical connection (left-hand end), socket M8					
	3-pin	NEBU-M8 SIM-M8	Plug, open cable end	Basic, standard, suitable for use with energy chains, suitable for robot applications	0.1 ... 30 m	10
	4-pin	NEBU-M8 SIM-M8	Plug, open cable end	Basic, standard, suitable for use with energy chains, suitable for robot applications	0.1 ... 30 m	16
	Electrical connection (left-hand end), socket M12					
	3-pin	SIM-M12-3 SIM-M12-RS-3	Plug, open cable end	Standard	0.6 m, 2.5 m, 3 m, 5 m	21
	5-pin	NEBU-LE5 NEBU-M12G5 NEBU-M12W5 SIM-M12-5	Plug, open cable end	Basic, standard, suitable for use with energy chains, suitable for robot applications	0.1 ... 30 m	24
	8-pin	NEBU-M12-W8 SIM-M12-8 KM12-8	Plug, open cable end	Standard	2 m, 5 m, 10 m	30
	Electrical connection (left-hand end), socket 7/8"					
	5-pin	NEBU-G78	Open cable end	Standard	2 m	33
	Electrical connection (left-hand end), clip					
	3-pin	SIM-K	Open cable end	Standard	2.5 m, 5 m, 10 m	35
	4-pin	SIM-K-4	Open cable end	Standard	2.5 m, 5 m	38

Connecting cables NEBU, universal

Type codes



Function	
NEBU	Connecting cable

Connection technology, left-hand end	
LE	Open cable end
M8	Socket with connecting thread M8
M12	Socket with connecting thread M12

Connection technology type at left-hand end	
	Open cable end
G	Straight
W	Angled
R	Rotatable

Number of pins/wires (left-hand end)	
3	3-pin
4	4-pin
5	5-pin
8	8-pin

Display	
	Without LED (standard)
P	LED, PNP
N	LED, NPN
L	LED, DC
P2	2x LED, PNP

Cable characteristics	
P	Basic
K	Standard
E	Suitable for use with energy chains
R	Suitable for robot applications

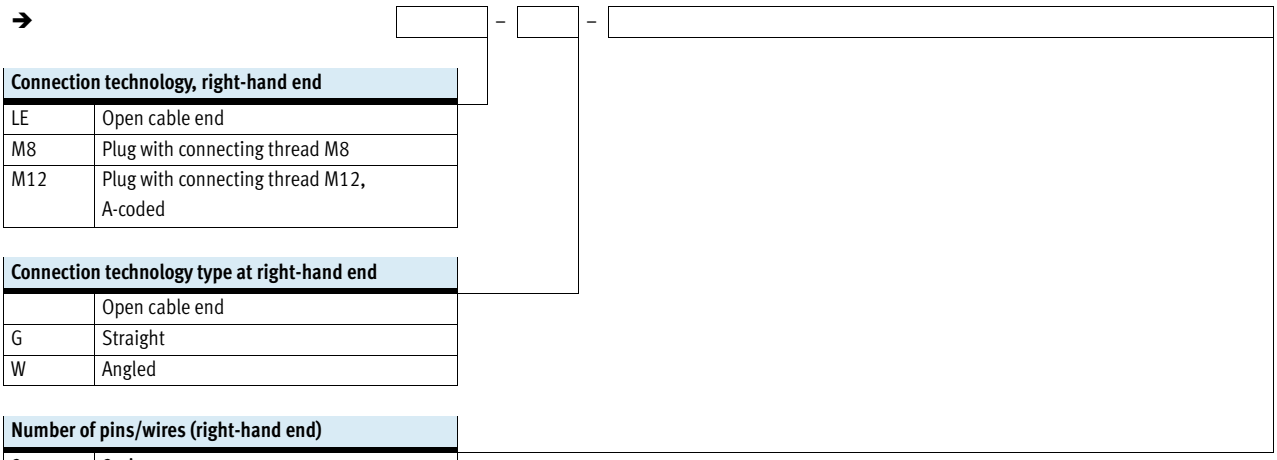
Cable length	
0.1 ... 30	0.1 ... 30 m

Cable designation	
	With inscription label holder (standard)
N	Without inscription label holder

Wire cross section	
	Standard
Q8N	1 mm^2

Connecting cables NEBU, universal

Type codes



Connection technology, right-hand end	
LE	Open cable end
M8	Plug with connecting thread M8
M12	Plug with connecting thread M12, A-coded

Connection technology type at right-hand end	
	Open cable end
G	Straight
W	Angled

Number of pins/wires (right-hand end)	
2	2-pin
3	3-pin
4	4-pin
5	5-pin
8	8-pin

Connecting cables, open cable end, 5-pin

Technical data

Connecting cable
NEBU-LE5

- Plug socket with cable for connecting inputs/outputs
- Pre-assembled
- Cable length 1 m
- 5 wires
- Plug M12

General technical data		
Conforms to standard		EN 61984
		EN 61076-2-101
Plug coding		A
Cable composition	[mm²]	5x 0.25
Cable diameter	[mm]	4.5
Nominal conductor cross section	[mm²]	0.25
Cable characteristics		Standard
Cable test conditions		Resistance to bending: to Festo standard
		Test conditions on request
		Energy chain: 5 million cycles, bending radius 75 mm

Technical data			
Operating voltage range	[V]	0 ... 60 DC	0 ... 60 AC
Acceptable current load	[A]	4	
Surge resistance	[kV]	1.5	
Protection class to EN 60529		IP65, IP68, IP69K	

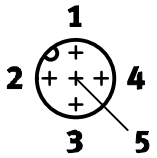
Materials	
Wire colour	Blue, brown, grey, black, white
Housing colour	Black
Cable sheath colour	Grey
Housing	TPE-U(PU)
Insulating sheath	PP
Union nut	Nickel-plated brass
Cable sheath	TPE-U(PU)
Note on materials	RoHS-compliant

Operating and environmental conditions		
Ambient temperature	[°C]	–25 ... +70
Ambient temperature with flexible cable installation	[°C]	–5 ... +70
CE marking (see declaration of conformity)		In accordance with EU Low Voltage Directive
Degree of contamination		3

Connecting cables, open cable end, 5-pin

Technical data

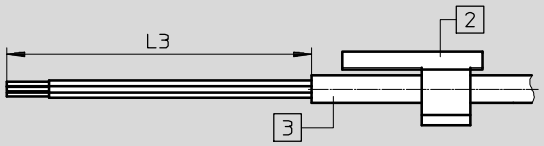
Circuitry (socket view)

Socket	Pin	Wire colour[1)]	Pin	Plug
Electrical connection: open cable end, 5-wire – plug, 5-pin, M12				
–	–	BN	1	
	–	WH	2	
	–	BU	3	
	–	BK	4	
	–	GY	5	

1) To IEC 757

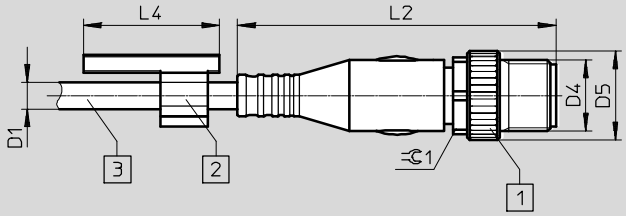
Dimensions Download CAD data ➔ **www.festo.com**

Connection technology, left-hand end



2 Inscription label holder
3 Cable, length 1 m

Connection technology, right-hand end

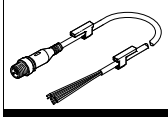


1 Plug
2 Inscription label holder
3 Cable, length 1 m

Connection technology, left-hand end	L3
NEBU	
Open end	50

Connection technology, right-hand end	D1 ∅	D4	D5 ∅	L2	L4	⊂1
NEBU						
Straight plug	4.5	M12x1	15	54.5	23	13

Ordering data

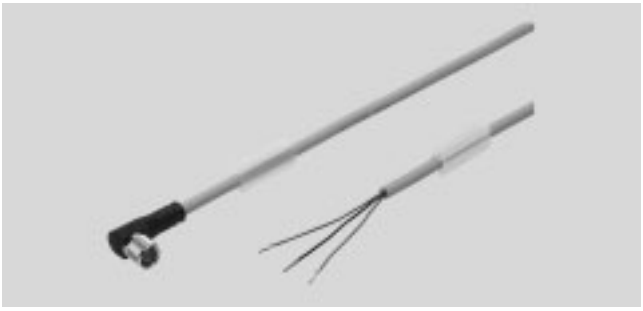
	Cable length [m]	Cable characteristics	Outlet direction	Special features	Part No.	Type
Open cable end, 5-wire – plug, 5-pin, M12						
	1	Standard	Straight	–	**569840**	**NEBU-LE5-K-1-M12G5**

Connecting cables, M8, 3-pin

Technical data

Connecting cable
NEBU-M8
SIM-M8

- Plug socket with cable for connecting inputs/outputs
- Pre-assembled at both ends
- Cable lengths 0.1 ... 30 m
- 3 wires
- M8



General technical data				
Conforms to standard				EN 61076-2-104
				EN 61984
				EN 61076-2-101
Cable composition			[mm^2]	3x 0.25
Cable diameter			[mm]	4.5
Nominal conductor cross section			[mm^2]	0.25
Cable characteristics	NEBU	Code -P-		Basic
		Code -K-		Standard
		Code -E-		Suitable for use with energy chains
		Code -R-		Suitable for robot applications
	SIM			Standard
Cable test conditions				Resistance to bending: to Festo standard
				Test conditions on request
	Cable characteristics	Basic		–
		Standard		Energy chain: 5 million cycles, bending radius 75 mm
		Suitable for use with energy chains		Energy chain: 5 million cycles, bending radius 28 mm
		Suitable for robot applications		Torsional strength greater than 300,000 cycles, ±270°/0.1 m

Technical data					
Operating voltage range	Without display		[V]	0 ... 60 DC	0 ... 60 AC
	With display		[V]	10 ... 30 DC	–
Acceptable current load	Non-rotatable connection technology		[A]	3	
	Rotatable connection technology		[A]	0.5	
Surge resistance	Non-rotatable connection technology, without switching status display		[kV]	1.5	
	Rotatable connection technology		[kV]	0.8	
	With switching status display		[kV]	0.8	
Protection class to EN 60529	SIM			IP65, IP68	
	NEBU			IP65, IP68, IP69K	

Connecting cables, M8, 3-pin

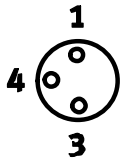
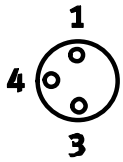
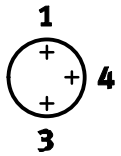
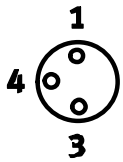
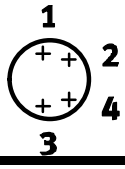
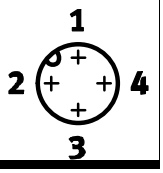
Technical data

Materials			
Wire colour			Blue, brown, black
Housing colour			Black
Cable sheath colour			Grey
Housing			TPE-U(PU)
Insulating sheath	Cable characteristics: standard, suitable for energy chains and robot applications		PP
	Cable characteristics: basic, standard		PVC-P
Union nut			Nickel-plated brass
Cable sheath	Cable characteristics: standard, suitable for energy chains and robot applications		TPE-U(PU)
	Cable characteristics: basic		PVC-P
Note on materials	All types		RoHS-compliant
	Cable characteristics: suitable for energy chains and robot applications		Halogen-free
Special features	NEBU	Cable characteristics: suitable for energy chains and robot applications	Oil-resistant

Operating and environmental conditions			
Ambient temperature	Cable characteristics: basic, standard	[°C]	–25 ... +70
	Cable characteristics: suitable for energy chains and robot applications	[°C]	–25 ... +80
Ambient temperature with flexible cable installation	Cable characteristics: standard	[°C]	–5 ... +70
	Cable characteristics: basic, suitable for energy chains and robot applications	[°C]	–5 ... +80
CE marking (see declaration of conformity)	With switching status display		–
	Without switching status display		In accordance with EU Low Voltage Directive
Degree of contamination			3

Connecting cables, M8, 3-pin

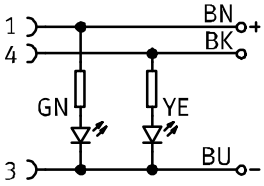
Technical data

Circuitry (socket view)				
Socket	Pin	Wire colour[1)]	Pin	Plug
Electrical connection: socket, 3-pin, M8 – open cable end				
	1	BN	–	–
	3	BU	–	
	4	BK	–	
Electrical connection: socket, 3-pin, M8 – plug, 3-pin				
	1	BN	1	
	3	BU	3	
	4	BK	4	
Electrical connection: socket, 3-pin, M8 – plug, 4-pin				
	1	BN	1	Plug M8  Plug M12 
	–	–	2	
	3	BU	3	
	4	BK	4	

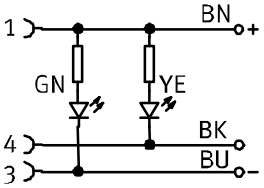
1) To IEC 757

Circuitry – Switching status display

Display code P
For NPN N/O contact



Display code N
For PNP N/O contact



Connecting cables, M8, 3-pin

Technical data

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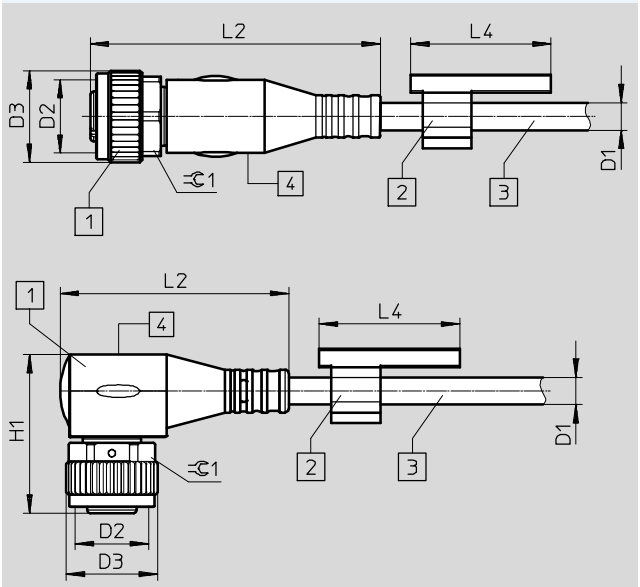
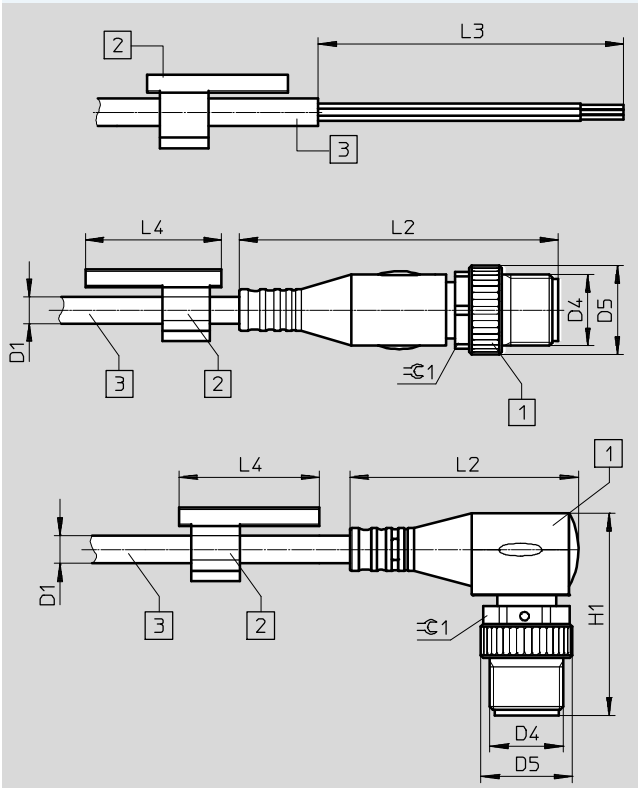
Connection technology, left-hand end



1 Socket M8x1
2 Inscription label holder
3 Cable, length 0.1 ... 30 m depending on order
4 Display field with version P, N

Connection technology, right-hand end



1 Plug
2 Inscription label holder
3 Cable, length 0.1 ... 30 m depending on order

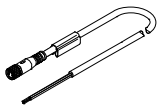
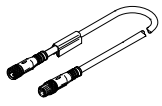
Connection technology, left-hand end	D1 ∅	D2	D3 ∅	L2	L4	H1	⊂1
NEBU							
Straight socket	4.5	M8x1	9	34.6	23	–	9
Angled socket	4.5	M8x1	9	26.9	23	17	9
Rotatable socket	4.5	M8x1	10	20.9	23	16.3	9
NEBU with display							
Straight socket	3.4	M8x1	9	34.6	23	–	9
Angled socket	3.4	M8x1	9	26.9	23	17	9
SIM							
Straight socket	4.5	M8x1	9	34.4	–	–	9
Angled socket	4.5	M8x1	9	26.8	–	16.8	9

Connection technology, right-hand end	D1 ∅	D4	D5 ∅	L2	L3	L4	H1	⊂1
NEBU								
Open end	4.5	–	–	–	50	23	–	–
Straight plug	4.5	M8x1	9.6	41.1	–	23	–	9
	4.5	M12x1	15	54.5	–	23	–	13
Angled plug	4.5	M8x1	9.6	26.9	–	23	24	9
	4.5	M12x1	15	37.5	–	23	33.2	13
NEBU with display								
Straight plug	3.4	M8x1	9	41.1	–	23	–	9
	3.4	M12x1	15	54.5	–	23	–	13
Angled plug	3.4	M8x1	9	26.9	–	23	24	9
	3.4	M12x1	15	37.5	–	23	33.2	13
SIM								
Open end	4.5	–	–	–	50	–	–	–

Connecting cables, M8, 3-pin

Technical data

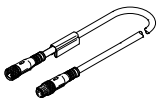
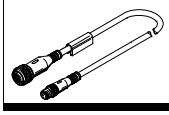
FESTO

Ordering data						
	Cable length [m]	Cable characteristics	Outlet direction	Special features	Part No.	Type
Socket, 3-pin, M8 – open cable end						
	2.5	Standard	Straight	–	**541333**	**NEBU-M8G3-K-2.5-LE3**
					159420	**SIM-M8-3GD-2,5-PU**
			Angled	–	**541338**	**NEBU-M8W3-K-2.5-LE3**
				–	**159422**	**SIM-M8-3WD-2,5-PU**
				Rotatable socket	**8001660**	**NEBU-M8R3-K-2.5-LE3**
				For NPN N/O contact, yellow switching status display, green ready status display	**541336**	**NEBU-M8W3N-K-2.5-LE3**
					159426	**SIM-M8-3WD-2,5-NSL-PU**
				For PNP N/O contact, yellow switching status display, green ready status display	**541337**	**NEBU-M8W3P-K-2.5-LE3**
					159424	**SIM-M8-3WD-2,5-PSL-PU**
		Suitable for robot applications	Straight	Oil-resistant	**569845**	**NEBU-M8G3-R-2.5-LE3**
			Angled	Oil-resistant	**569847**	**NEBU-M8W3-R-2.5-LE3**
	5	Standard	Straight	–	**541334**	**NEBU-M8G3-K-5-LE3**
				–	**159421**	**SIM-M8-3GD-5-PU**
			Angled	–	**541341**	**NEBU-M8W3-K-5-LE3**
				–	**159423**	**SIM-M8-3WD-5-PU**
				Rotatable socket	**8001661**	**NEBU-M8R3-K-5-LE3**
				For NPN N/O contact, yellow switching status display, green ready status display	**541339**	**NEBU-M8W3N-K-5-LE3**
					159427	**SIM-M8-3WD-5-NSL-PU**
				For PNP N/O contact, yellow switching status display, green ready status display	**541340**	**NEBU-M8W3P-K-5-LE3**
					159425	**SIM-M8-3WD-5-PSL-PU**
		Suitable for use with energy chains	Straight	Oil-resistant	**569843**	**NEBU-M8G3-E-5-LE3**
		Suitable for robot applications	Straight	Oil-resistant	**569846**	**NEBU-M8G3-R-5-LE3**
	10	Standard	Straight	–	**541332**	**NEBU-M8G3-K-10-LE3**
				–	**192964**	**SIM-M8-3GD-10-PU**
			Angled	–	**541335**	**NEBU-M8W3-K-10-LE3**
				–	**192965**	**SIM-M8-3WD-10-PU**
		Suitable for use with energy chains	Straight	Oil-resistant	**569842**	**NEBU-M8G3-E-10-LE3**
		Suitable for robot applications	Straight	Oil-resistant	**8003129**	**NEBU-M8G3-R-10-LE3**
Socket, 3-pin, M8 – plug, 3-pin, M8						
	0.5	Standard	Straight – straight	–	**541346**	**NEBU-M8G3-K-0.5-M8G3**
	1	Standard	Straight – straight	–	**541347**	**NEBU-M8G3-K-1-M8G3**
	1.5	Standard	Straight – straight	–	**8003133**	**NEBU-M8G3-K-1.5-M8G3**
	2	Standard	Straight – straight	–	**8003131**	**NEBU-M8G3-K-2-M8G3**
	2.5	Standard	Straight – straight	–	**541348**	**NEBU-M8G3-K-2.5-M8G3**
	3	Standard	Straight – straight	–	**8003132**	**NEBU-M8G3-K-3-M8G3**
	3.5	Suitable for use with energy chains	Straight – straight	Oil-resistant	**559364**	**NEBU-M8G3-E-3.5-M8G3**
	5	Standard	Straight – straight	–	**541349**	**NEBU-M8G3-K-5-M8G3**
	10	Standard	Straight – straight	–	**569844**	**NEBU-M8G3-K-10-M8G3**

Connecting cables, M8, 3-pin

Technical data

FESTO

Ordering data						
	Cable length [m]	Cable characteristics	Outlet direction	Special features	Part No.	Type
Socket, 3-pin, M8 – plug, 4-pin, M8						
	2.5	Standard	Straight – straight	–	**554037**	**NEBU-M8G3-K-2.5-M8G4**
Socket, 3-pin, M8 – plug, 3-pin, M12						
	0.5	Standard	Straight – straight	–	**8000209**	**NEBU-M8G3-K-0.5-M12G3**

Connecting cables, M8, 4-pin

Technical data

Connecting cable
NEBU-M8
SIM-M8

- Plug socket with cable for connecting inputs/outputs
- Pre-assembled at both ends
- Cable lengths 0.1 ... 30 m
- 4 wires
- M8

General technical data				
Conforms to standard				EN 61076-2-104
				EN 61984
				EN 61076-2-101
Cable composition			[mm²]	4x 0.25
Cable diameter	NEBU	With display	[mm]	3.4
		Without display	[mm]	4.5
	SIM		[mm]	4.5
Nominal conductor cross section			[mm²]	0.25
Cable characteristics	NEBU	Code -P-		Basic
		Code -K-		Standard
		Code -E-		Suitable for use with energy chains
		Code -R-		Suitable for robot applications
	SIM			Standard
Cable test conditions				Resistance to bending: to Festo standard
				Test conditions on request
	Cable characteristics	Basic		–
		Standard		Energy chain: 5 million cycles, bending radius 75 mm
		Suitable for use with energy chains		Energy chain: 5 million cycles, bending radius 28 mm
		Suitable for robot applications		Torsional strength greater than 300,000 cycles, ±270°/0.1 m

Technical data					
Operating voltage range	NEBU	Without display	[V]	0 ... 30 DC	0 ... 30 AC
		With display	[V]	21.6 ... 30 DC	21.6 ... 30 AC
	SIM		[V]	0 ... 30 DC	0 ... 30 AC
Acceptable current load			[A]	3	
Surge resistance	NEBU		[kV]	0.8	
	SIM		[kV]	0.8	
Protection class to EN 60529	NEBU			IP65, IP68, IP69K	
	SIM			IP65, IP68	

Connecting cables, M8, 4-pin

Technical data

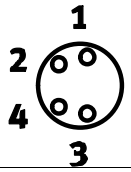
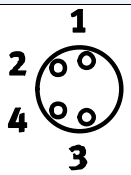
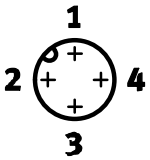
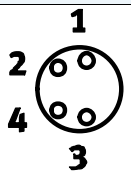
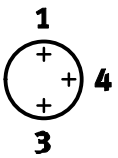
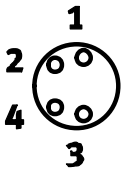
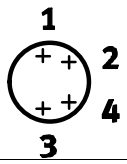
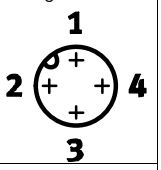
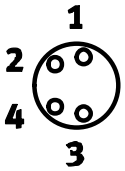
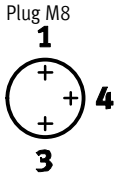
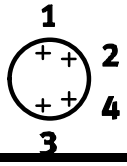
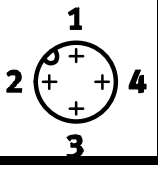
Materials			
Wire colour			Blue, brown, black, white
Housing colour			Black
Cable sheath colour			Grey
Housing			TPE-U(PU)
Insulating sheath	Cable characteristics: standard, suitable for energy chains and robot applications		PP
	Cable characteristics: basic, standard		PVC-P
Union nut			Nickel-plated brass
Cable sheath	Cable characteristics: standard, suitable for energy chains and robot applications		TPE-U(PU)
	Cable characteristics: basic		PVC-P
Note on materials			RoHS-compliant
	Cable characteristics: suitable for energy chains and robot applications		Halogen-free
Special features	Cable characteristics: suitable for energy chains and robot applications		Oil-resistant

Operating and environmental conditions			
Ambient temperature	Cable characteristics: basic, standard	[°C]	–25 … +70
	Cable characteristics: suitable for energy chains and robot applications	[°C]	–25 … +80
Ambient temperature with flexible cable installation	Cable characteristics: standard	[°C]	–5 … +70
	Cable characteristics: basic, suitable for energy chains and robot applications	[°C]	–5 … +80
Degree of contamination			3

Connecting cables, M8, 4-pin

Technical data

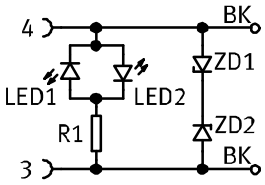
Circuitry (socket view)

Socket	Pin	Wire colour[1)]	Pin	Plug
Electrical connection: socket, 4-pin, M8 – open cable end				
	1	BN	–	–
	2	WH	–	
	3	BU	–	
	4	BK	–	
Electrical connection: socket, 4-pin, M8 – plug, 2-pin				
	1	BN	–	
	2	WH	–	
	3	BU	3	
	4	BK	4	
Electrical connection: socket, 4-pin, M8 – plug, 3-pin				
	1	BN	1	
	2	WH	–	
	3	BU	3	
	4	BK	4	
Electrical connection: socket, 4-pin, M8 – plug, 4-pin				
	1	BN	1	Plug M8  Plug M12 
	2	WH	2	
	3	BU	3	
	4	BK	4	
Electrical connection: socket, 4-pin, M8, with display code L				
	1	–	1	Open cable end Plug M8 
	2	–	2	
	3	BK	3	Plug M8  Plug M12 
	4	BK	4	

1) To IEC 757

Circuitry – Switching status display

Display code L

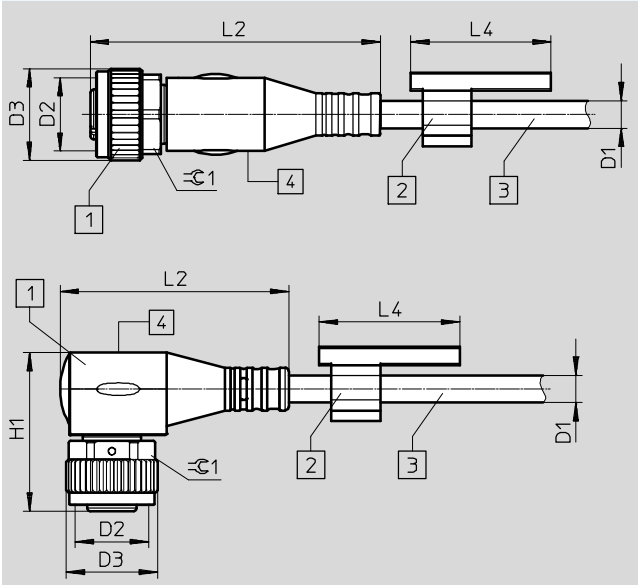


Connecting cables, M8, 4-pin

Technical data

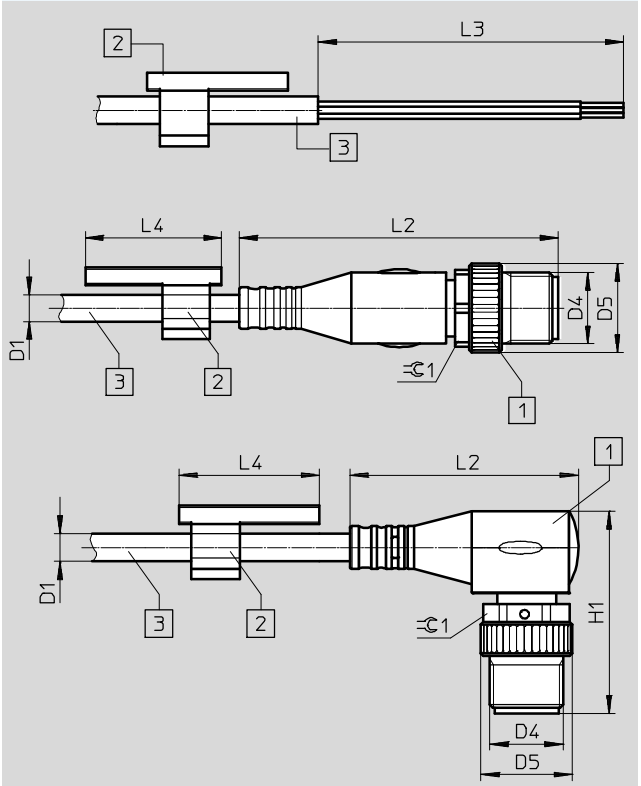
Dimensions Download CAD data ➔ **www.festo.com**

Connection technology, left-hand end



1 Socket M8x1
2 Inscription label holder
3 Cable, length 0.1 ... 30 m depending on order
4 Display field with version L

Connection technology, right-hand end



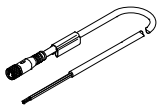
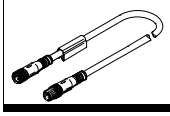
1 Plug
2 Inscription label holder
3 Cable, length 0.1 ... 30 m depending on order

Connection technology, left-hand end	D1 ∅	D2	D3 ∅	L2	L4	H1	⊂1
NEBU							
Straight socket	4.5	M8x1	9	34.6	23	–	9
Angled socket	4.5	M8x1	9	26.9	23	17	9
Rotatable socket	4.5	M8x1	10	20.9	23	16.3	9
NEBU with display							
Straight socket	3.4	M8x1	9	34.6	23	–	9
Angled socket	3.4	M8x1	9	26.9	23	17	9
SIM							
Straight socket	4.5	M8x1	9	34.4	–	16.8	9
Angled socket	4.5	M8x1	9	26.8	–	16.8	9

Connection technology, right-hand end	D1 ∅	D4	D5 ∅	L2	L3	L4	H1	⊂1
NEBU								
Open end	4.5	–	–	–	50	23	–	–
Straight plug	4.5	M8x1	9.6	41.1	–	23	–	9
	4.5	M12x1	15	54.5	–	23	–	13
Angled plug	4.5	M8x1	9.6	26.9	–	23	24	9
	4.5	M12x1	15	37.5	–	23	33.2	13
NEBU with display								
Straight plug	3.4	M8x1	9	41.1	–	23	–	9
	3.4	M12x1	15	54.5	–	23	–	13
Angled plug	3.4	M8x1	9	26.9	–	23	24	9
	3.4	M12x1	15	37.5	–	23	33.2	13
SIM								
Open end	4.5	–	–	–	50	–	–	–

Connecting cables, M8, 4-pin

Technical data

Ordering data						
	Cable length [m]	Cable characteristics	Outlet direction	Special features	Part No.	Type
Socket, 4-pin, M8 – open cable end						
	2.5	Standard	Straight	–	**541342**	**NEBU-M8G4-K-2.5-LE4**
					158960	**SIM-M8-4GD-2,5-PU**
			Angled	–	**541344**	**NEBU-M8W4-K-2.5-LE4**
				–	**158962**	**SIM-M8-4WD-2,5-PU**
	5	Standard	Straight	–	**541343**	**NEBU-M8G4-K-5-LE4**
				–	**158961**	**SIM-M8-4GD-5-PU**
			Angled	–	**541345**	**NEBU-M8W4-K-5-LE4**
					158963	**SIM-M8-4WD-5-PU**
	9	Standard	Straight	–	**8003130**	**NEBU-M8G4-K-9-LE4**
	10	Standard	Angled	–	**575833**	**NEBU-M8W4-K-10-LE4**
Socket, 4-pin, M8 – plug, 4-pin, M8						
	2	Suitable for robot applications	Straight – straight	Oil-resistant	**556946**	**NEBU-M8G4-R-2-M8G4**
	2.5	Standard	Straight – straight	–	**554035**	**NEBU-M8G4-K-2.5-M8G4**

Connecting cables, M12, 3-pin

Technical data

Connecting cable
SIM-M12

- Plug socket with cable for connecting inputs/outputs
- Pre-assembled
- Cable lengths 2.5 m, 3 m, 5 m
- 3 wires
- M12

General technical data				
Conforms to standard			EN 61984	
			EN 61076-2-101	
Plug coding			A	
Cable design		[mm²]	3 x 0.25	
	SIM-...-RS	[mm²]	3 x 0.5	
Cable diameter		[mm]	4.5	
	SIM-...-RS	[mm]	5.2	
Cable diameter tolerance	SIM-...-RS	[mm]	±0.3	
Wire ends	SIM-...-RS		Tin-plated	
Nominal conductor cross section		[mm²]	0.25	
	SIM-...-RS	[mm²]	0.5	
Cable characteristic			Standard	
Cable test conditions			Bending strength: to Festo standard	
			Test conditions on request	
			Energy chain: 5 million cycles, bending radius 75 mm	
Cable identification	SIM-...-RS		Without inscription label holder	
Bending radius, fixed cable installation	SIM-...-RS	[mm]	≥17	
Bending radius, flexible cable installation	SIM-...-RS	[mm]	≥55	

Technical data				
Operating voltage range	Without switching status indication	[V]	0 ... 250 DC	0 ... 250 AC
	With switching status indication	[V]	10 ... 30 DC	–
	SIM-...-RS	[V]	0 ... 70 DC	0 ... 45 AC
Current rating		[A]	4	
Surge resistance	Without switching status indication	[kV]	2.5	
	With switching status indication	[kV]	0.8	
	SIM-...-RS	[kV]	2.5	
Degree of protection to EN 60529			IP65, IP68	
	SIM-...-RS		IP65, IP67	

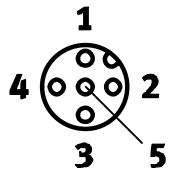
Connecting cables, M12, 3-pin

Technical data

Materials		
Wire colours		Blue, brown, black
Housing colour		Black
Cable sheath colour		Grey
	SIM-...-RS	Orange
Housing		TPE-U(PU)
Insulating sheath		PVC
	SIM-...-RS	–
Union nut		Nickel-plated brass
Cable sheath		TPE-U(PU)
	SIM-...-RS	PVC, irradiated
Pin contacts	SIM-...-RS	Gold-plated brass
Note on materials		RoHS-compliant, free of copper and PTFE
	SIM-...-RS	–

Operating and environmental conditions			
Ambient temperature		[°C]	–25 ... +70
	SIM-...-RS	[°C]	–25 ... +80
Ambient temperature with flexible cable installation		[°C]	–5 ... +70
	SIM-...-RS	[°C]	0 ... +80
CE marking (see declaration of conformity)	Without switching status indication		To EU Low Voltage Directive
	SIM-...-RS		–
Contamination level			3

Circuitry (socket view)

Socket	Pin	Wire colour[1)]	Pin	Plug connector
Electrical connection, socket, 3-pin, M12 – open cable end				
	1	BN	–	–
	2	–	–	
	3	BU	–	
	4	BK	–	
	5	–	–	

1) To IEC 757

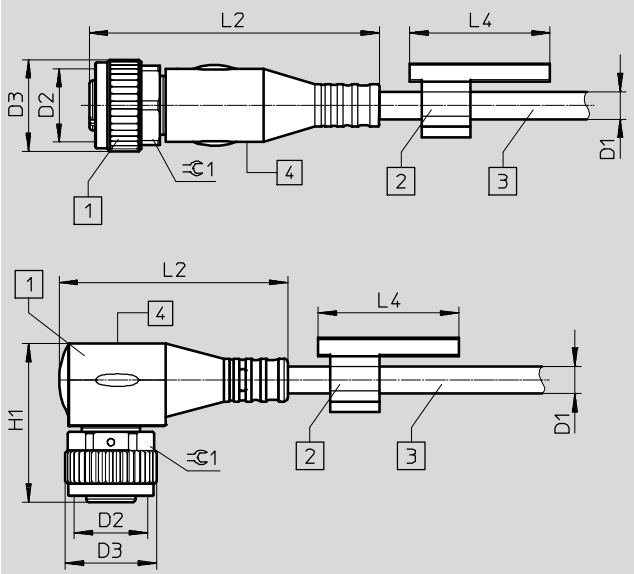
Connecting cables, M12, 3-pin

Technical data

FESTO

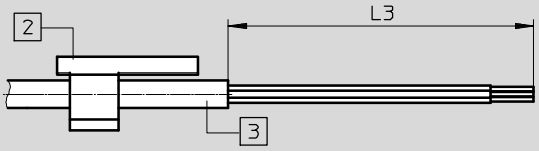
Dimensions Download CAD data ➔ **www.festo.com**

Connection technology, left



1 Socket M12x1
2 Inscription label holder, must be ordered separately as an accessory
3 Cable, length 2.5 m, 3 m or 5 m depending on order
4 Display field with version PSL

Connection technology, right



2 Inscription label holder, must be ordered separately as an accessory
3 Cable, length 2.5 m, 3 m or 5 m depending on order

Connection technology, left	D1 ∅	D2	D3 ∅	L2	L4	H1	SW1
SIM							
Straight socket	4.5	M12x1	15	48.5	–	–	13
Angled socket	4.5	M12x1	–	37.5	–	26	13
SIM-...-RS							
Straight socket	5.2	M12x1	15	38	–	–	13
Angled socket	5.2	M12x1	13.5	31	–	25	13

Connection technology, right	D1 ∅	L3
SIM		
Open end	4.5	50
SIM-...-RS		
Open end	5.2	50

Ordering data

	Cable length [m]	Cable characteristic	Outlet direction	Special features	Part No.	Type
Socket, 3-pin, M12 – open cable end						
	2.5	Standard	Straight	–	**159428**	**SIM-M12-3GD-2,5-PU**
			Angled	–	**159430**	**SIM-M12-3WD-2,5-PU**
				For PNP N/O contact, switching status indication yellow, ready status indication green	**159432**	**SIM-M12-3WD-2,5-PSL-PU**
	3	Standard	Straight	Resistant to welding spatter	**30450**	**SIM-M12-RS-3GD-3**
			Angled	Resistant to welding spatter	**30451**	**SIM-M12-RS-3WD-3**
	5	Standard	Straight	–	**159429**	**SIM-M12-3GD-5-PU**
			Angled	–	**159431**	**SIM-M12-3WD-5-PU**
				For PNP N/O contact, switching status indication yellow, ready status indication green	**159433**	**SIM-M12-3WD-5-PSL-PU**

Connecting cables, M12, 5-pin

Technical data

Connecting cable
NEBU-M12
SIM-M12

- Plug socket with cable for connecting inputs/outputs
- Pre-assembled at both ends
- Cable lengths 0.1 ... 30 m
- 5 wires
- M12

General technical data				
Conforms to standard				EN 61076-2-101
				EN 61984
				EN 61076-2-104
Cable composition	2-wire		[mm2]	2 x 0.25
	3-wire		[mm²]	3 x 0.25
	4-wire		[mm²]	4x 0.25
	5-wire		[mm²]	5 x 0.25
	NEBU-M12G5-...-Q8N-M12G5		[mm²]	5 x 1
Cable diameter	NEBU/SIM	With display code L	[mm]	3.4
		Without display	[mm]	4.5
	NEBU-M12G5-...-Q8N-M12G5		[mm]	7
Nominal conductor cross section	NEBU/SIM		[mm²]	0.25
	NEBU-M12G5-...-Q8N-M12G5		[mm²]	1
Cable properties	NEBU	Code -P-		Basic
		Code -K-		Standard
		Code -E-		Suitable for energy chains
		Code -R-		Suitable for robot applications
	SIM			Standard
Cable test conditions				Bending strength: according to Festo standard
				Test conditions on request
	Cable properties	Basic		–
		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		Torsional strength: › 300,000 cycles, ±270°/0.1 m
	NEBU-M12G5-...-Q8N-M12G5			Energy chain: 5 million cycles, bending radius 75 mm

Technical data					
Operating voltage range	NEBU/SIM	With plug M8	[V]	0 ... 30 DC	0 ... 30 AC
		3-wire, 4-wire	[V]	0 ... 250 DC	0 ... 250 AC
		5-wire	[V]	0 ... 60 DC	0 ... 60 AC
		With display code -P-, N or P2	[V]	10 ... 30 DC	–
Current-carrying capacity	NEBU/SIM	Other types	[A]	4	
		With plug M8	[A]	3	
Surge resistance			[kV]	1.5	
	With plug M8 4-pin or with switching status display		[kV]	0.8	
	With open cable end 3-pin or 4-pin		[kV]	2.5	
Degree of protection to EN 60529	SIM			IP65, IP68	
	NEBU			IP65, IP68, IP69K	

Connecting cables, M12, 5-pin

Technical data

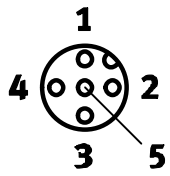
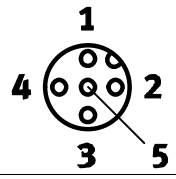
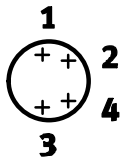
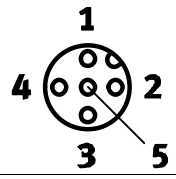
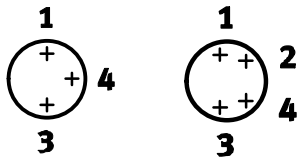
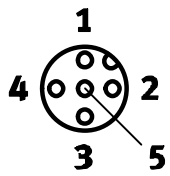
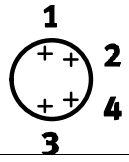
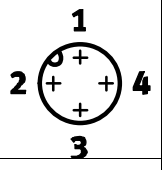
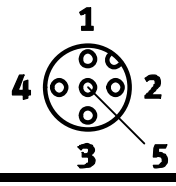
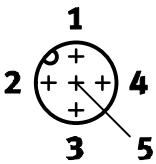
Materials			
Wire colours			Blue, brown, black, white, grey
Housing colour			Black
Cable sheath colour			Grey
Housing			TPE-U(PU)
Insulating sheath	Cable properties: suitable for use with energy chains, suitable for robot applications, standard		PP
	Cable property: basic		PVC-P
Union nut			Nickel-plated brass
Cable sheath	Cable properties: standard, suitable for use with energy chains, suitable for robot applications		TPE-U(PU)
	Cable property: basic		PVC
Note on materials			RoHS compliant
	Cable properties: suitable for use with energy chains, suitable for robot applications		Halogen-free
Special features	Cable properties: suitable for use with energy chains, suitable for robot applications		Oil-resistant

Operating and environmental conditions				
Ambient temperature	Cable properties: basic, standard		[°C]	–25 … +70
	Cable properties: suitable for use with energy chains, suitable for robot applications		[°C]	–25 … +80
Ambient temperature with flexible cable installation	Cable property: standard		[°C]	–5 … +70
	Cable properties: basic, suitable for use with energy chains, suitable for robot applications		[°C]	–5 … +80
CE marking (see declaration of conformity)	NEBU	With switching status display		To EU Low Voltage Directive
		Without switching status display		–
		With plug M8 4-pin		–
	NEBU-M12G5-...-Q8N-M12G5			To EU Low Voltage Directive
	SIM			To EU Low Voltage Directive
Degree of contamination				3

Connecting cables, M12, 5-pin

Technical data

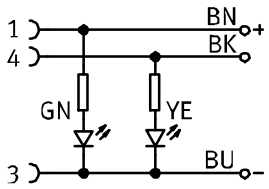
Wiring allocation (socket view)

Socket	Pin	Wire colour[1]			Pin	Plug
Electrical connection, socket, 5-pin, M12 – open cable end						
		3-wire	4-wire	5-wire		–
	1	BN	BN	BN	–	
	2	–	WH	WH	–	
	3	BU	BU	BU	–	
	4	BK	BK	BK	–	
	5	–	–	GY	–	
Electrical connection, socket, 5-pin, M12 – cable 2-wire – plug, 4-pin						
	1	BN			1	
	2	–			–	
	3	BU			2	
	4	–			–	
	5	–			–	
Electrical connection, socket, 5-pin, M12 – cable 3-wire – plug, 3-pin/4-pin						
	1	BN			1	
	2	–			–	
	3	BU			3	
	4	BK			4	
	5	–			–	
Electrical connection, socket, 5-pin, M12 – plug, 4-pin						
	1	BN			1	Plug M8  Plug M12 
	2	WH			2	
	3	BU			3	
	4	BK			4	
	5	–			–	
Electrical connection, socket, 5-pin, M12 – plug, 5-pin						
	1	BN			1	
	2	WH			2	
	3	BU			3	
	4	BK			4	
	5	GY			5	

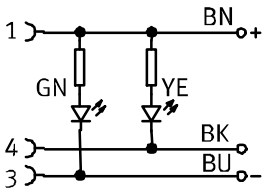
1) To IEC 757

Circuitry, switching status display

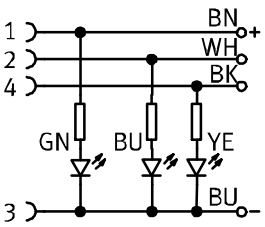
Display code -P-



Display code N



Display code -P-2

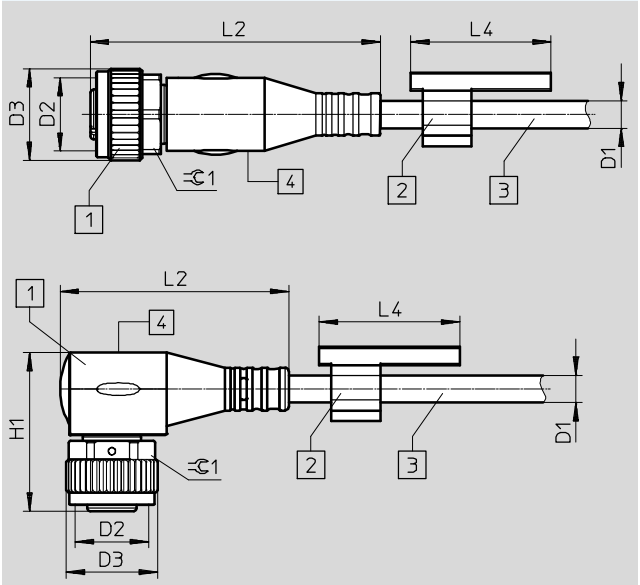


Connecting cables, M12, 5-pin

Technical data

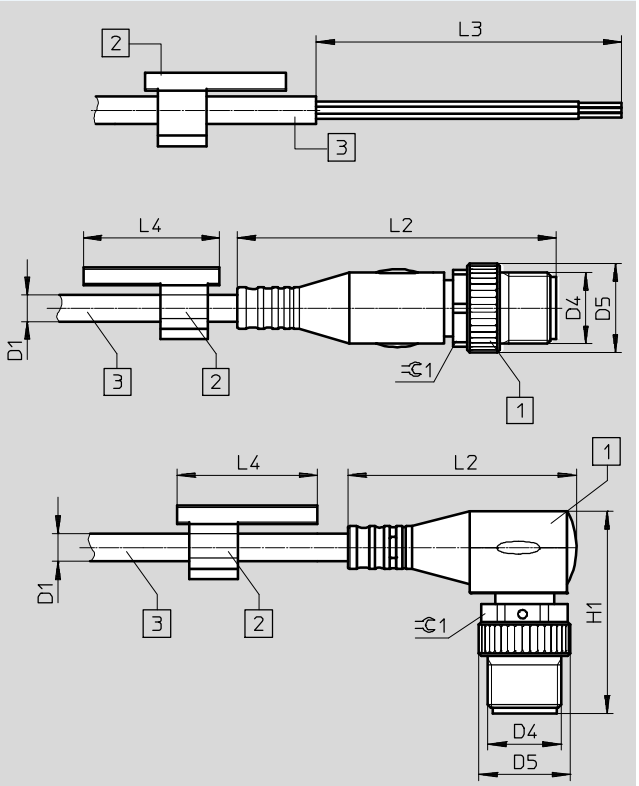
Dimensions Download CAD data ➔ **www.festo.com**

Connection technology, left



1 Socket M12x1
2 Inscription label holder
3 Cable, length 0.1 ... 30 m depending on order
4 Display field with version P, N or P2

Connection technology, right



1 Plug
2 Inscription label holder
3 Cable, length 0.1 ... 30 m depending on order

Connection technology, left	D1 ∅	D2	D3 ∅	L2	L4	H1	⊂1
NEBU							
Straight socket	4.5	M12x1	15	47.5	23	–	13
Angled socket	4.5	M12x1	15	37.5	23	26	13
NEBU with display							
Angled socket	4.5	M12x1	15	37.5	23	26	13
NEBU-M12G5-...-Q8N-M12G5							
Straight socket	7	M12x1	15	47.5	–	–	13
SIM							
Straight socket	4.5	M12x1	15	48.5	–	–	13
Angled socket	4.5	M12x1	–	37.5	–	26	13

Connection technology, right	D1 ∅	D4	D5 ∅	L2	L3	L4	H1	⊂1
NEBU								
Open end	4.5	–	–	–	50	23	–	–
Straight plug	4.5	M8x1	9.6	41.1	–	23	–	9
	4.5	M12x1	15	54.5	–	23	–	13
Angled plug	4.5	M8x1	9.6	26.9	–	23	24	9
	4.5	M12x1	15	37.5	–	23	33.2	13
NEBU with display								
Open end	4.5	–	–	–	50	23	–	–
Straight plug	4.5	M8x1	9	41.1	–	23	–	9
	4.5	M12x1	15	54.5	–	23	–	13
Angled plug	4.5	M8x1	9	26.9	–	23	24	9
	4.5	M12x1	15	37.5	–	23	33.2	13
NEBU-M12G5-...-Q8N-M12G5								
Straight plug	7	M12x1	15	54.5	–	–	–	13
SIM								
Open end	4.5	–	–	–	50	–	–	–

Connecting cables, M12, 5-pin

Technical data

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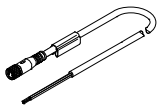
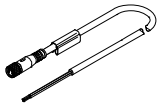
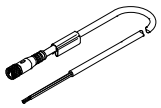
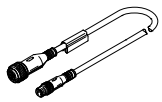
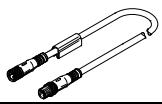
Ordering data						
	Cable length [m]	Cable properties	Outlet orientation	Special features	Part No.	Type
Socket, 5-pin, M12 – open cable end, 3-wire						
	2.5	Standard	Straight	–	**541363**	**NEBU-M12G5-K-2.5-LE3**
				Switching status display for PNP N/O contact	**541366**	**NEBU-M12W5P-K-2.5-LE3**
			Angled	–	**541367**	**NEBU-M12W5-K-2.5-LE3**
				Switching status display for NPN N/O contact	**541365**	**NEBU-M12W5N-K-2.5-LE3**
	5	Standard	Straight	–	**541364**	**NEBU-M12G5-K-5-LE3**
			Angled	–	**541370**	**NEBU-M12W5-K-5-LE3**
				Switching status display for NPN N/O contact	**541368**	**NEBU-M12W5N-K-5-LE3**
				Switching status display for PNP N/O contact	**541369**	**NEBU-M12W5P-K-5-LE3**
Socket, 5-pin, M12 – open cable end, 4-wire						
	2.5	Standard	Straight	–	**550326**	**NEBU-M12G5-K-2.5-LE4**
			Angled	–	**550325**	**NEBU-M12W5-K-2.5-LE4**
	5	Standard	Straight	–	**541328**	**NEBU-M12G5-K-5-LE4**
				–	**164259**	**SIM-M12-4GD-5-PU**
			Angled	–	**541329**	**NEBU-M12W5-K-5-LE4**
				–	**164258**	**SIM-M12-4WD-5-PU**
	7	Standard	Straight	–	**8003134**	**NEBU-M12G5-K-7-LE4**
	10	Standard	Angled	–	**569841**	**NEBU-M12W5-K-10-LE4**
Socket, 5-pin, M12 – open cable end, 5-wire						
	2.5	Standard	Straight	–	**541330**	**NEBU-M12G5-K-2.5-LE5**
				–	**175715**	**SIM-M12-5GD-2,5-PU**
			Angled	–	**567843**	**NEBU-M12W5-K-2.5-LE5**
	5	Standard	Straight	–	**541331**	**NEBU-M12G5-K-5-LE5**
				–	**175716**	**SIM-M12-5GD-5-PU**
			Angled	–	**567844**	**NEBU-M12W5-K-5-LE5**
	10	Standard	Straight	–	**554038**	**NEBU-M12G5-K-10-LE5**
Socket, 5-pin, M12 – plug, 4-pin, M8						
	2.5	Standard	Straight - straight	–	**554036**	**NEBU-M12G5-K-2.5-M8G4**
		Suitable for use with energy chains	Straight - straight	Cable, 2-wire, halogen-free and oil-resistant	**554034**	**NEBU-M12G5-E-2.5-W2-M8G4-V1**
			Straight - straight	Cable, 3-wire, halogen-free and oil-resistant	**554033**	**NEBU-M12G5-E-2.5-W3-M8G4-V2**
Socket, 5-pin, M12 – plug, 4-pin, M12						
	0.5	Standard	Straight - straight	–	**8000208**	**NEBU-M12G5-K-0.5-M12G4**

Connecting cables, M12, 5-pin

Technical data

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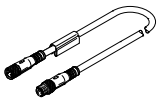
Ordering data						
	Cable length [m]	Cable characteristics	Outlet direction	Special features	Part No.	Type
Socket, 5-pin, M12 – plug, 5-pin, M12						
	0.5	Standard	Straight - angled	–	**8003617**	**NEBU-M12G5-K-0.5-M12W5**
			Angled - angled	–	**570733**	**NEBU-M12W5-K-0.5-M12W5**
	2	Standard	Straight - angled	–	**8003618**	**NEBU-M12G5-K-2-M12W5**
			Angled - angled	–	**570734**	**NEBU-M12W5-K-2-M12W5**
	5	Suitable for use with energy chains	Straight - straight	Nominal conductor cross section 1 mm^2, oil-resistant	**574321**	**NEBU-M12G5-E-5-Q8N-M12G5**
	7.5	Suitable for use with energy chains	Straight - straight	Nominal conductor cross section 1 mm^2, oil-resistant	**574322**	**NEBU-M12G5-E-7.5-Q8N-M12G5**
	10	Suitable for use with energy chains	Straight - straight	Nominal conductor cross section 1 mm^2, oil-resistant	**574323**	**NEBU-M12G5-E-10-Q8N-M12G5**

Connecting cables, M12, 8-pin

Technical data

Plug socket with cable
NEBU-M12
SIM-M12-8
KM12-8

- Pre-assembled at both ends
- Cable lengths: 2 m, 5 m, 10 m and 15 m
- 8 wires
- M12

General technical data				
Conforms to standard	NEBU/SIM/KM12			EN 61076-2-101
	SIM/KM12			DIN 47100
Cable design			[mm²]	8 x 0.25, screened
Nominal conductor cross section			[mm²]	0.25
Cable diameter	NEBU/SIM		[mm]	6.3
	KM12		[mm]	6.2
Cable diameter tolerance	SIM		[mm]	±0.2
Wire ends	NEBU/SIM			Tin-plated
Type of mounting				Screw lock
Cable characteristic	NEBU/SIM			Standard
Cable identification				Without inscription label holder
Cable bending radius	NEBU/SIM/KM12	Fixed cable installation	[mm]	≥32
	NEBU/SIM	Flexible cable installation	[mm]	≥66
	KM12	Flexible cable installation	[mm]	≥64

Technical data				
Operating voltage range			[V DC]	0 ... 30
			[V AC]	0 ... 30
Current rating		At 40 °C	[A]	2
Surge resistance	NEBU/SIM		[kV]	0.8
	KM12		[kV]	1.5
Degree of protection	NEBU/SIM			IP67, to IEC 60529, in assembled state
	KM12			IP68, to IEC 60529, in assembled state

Materials		
Cable sheath colour		Grey
Housing	NEBU/SIM	TPE-U (PUR)
Insulating sheath	NEBU/SIM	PP
	KM12	PVC
Screw lock		Nickel-plated brass
Seals	KM12	FPM
Cable sheath		TPE-U (PUR)
Pin contacts	NEBU	Gold-plated brass
	SIM	Gold-plated bronze
	KM12	Nickel-plated and gold-plated bronze
Note on materials	NEBU/SIM	RoHS compliant
	KM12	–

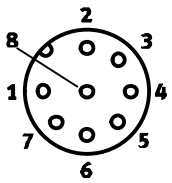
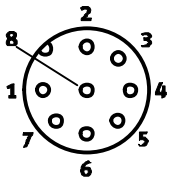
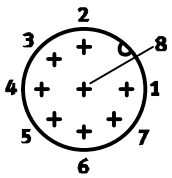
Connecting cables, M12, 8-pin

Technical data

Operating and environmental conditions				
Ambient temperature	NEBU		[°C]	–35 … +85
		With flexible cable installation	[°C]	–25 … +85
	SIM		[°C]	–25 … +80
		With flexible cable installation	[°C]	–5 … +80
	KM12		[°C]	–25 … +80
		With flexible cable installation	[°C]	0 … +80
Corrosion resistance class CRC[1]				2
Contamination level	NEBU/SIM			3

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.

Circuitry (socket view)

Socket	Pin	Wire colour[1]	Pin	Plug connector
Electrical connection, socket, 8-pin, M12 – open cable end				
	1	WH	–	–
	2	BN	–	
	3	GN	–	
	4	YE	–	
	5	GY	–	
	6	PK	–	
	7	BU	–	
	8	RD	–	
Electrical connection, socket, 8-pin, M12 – plug connector, 8-pin				
	1	WH	1	
	2	BN	2	
	3	GN	3	
	4	YE	4	
	5	GY	5	
	6	PK	6	
	7	BU	7	
	8	RD	8	

1) To IEC 757

Connecting cables, M12, 8-pin

Technical data

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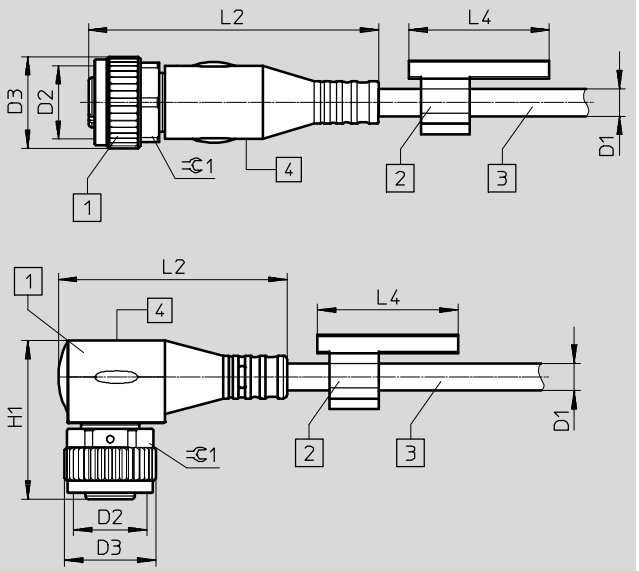
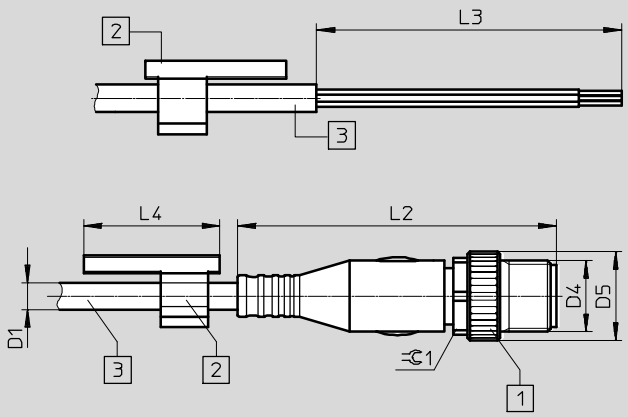
Dimensions Download CAD data ➔ **www.festo.com**

Connection technology, left



1 Socket M12x1
2 Inscription label holder, must be ordered separately as an accessory
3 Cable, length 2 m, 5 m, 10 m, 15 m depending on order

Connection technology, right

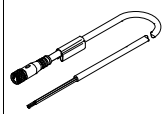
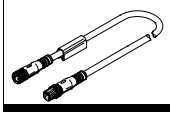


1 Plug connector
2 Inscription label holder, must be ordered separately as an accessory
3 Cable, length 2 m, 5 m, 10 m, 15 m depending on order

Connection technology, left	D1 ∅	D2	D3 ∅	L2	L4	H1	⊂1
NEBU							
Angled socket	6.3	M12x1	14.5	38	–	28	13
SIM							
Straight socket	6.3	M12x1	14.6	–	–	–	–
KM12							
Straight socket	6.2	M12x1	–	–	–	–	–

Connection technology, right	D1 ∅	D4	D5 ∅	L2	L3	L4	⊂1
NEBU							
Open end	6.3	–	–	–	50	–	–
SIM							
Open end	6.3	–	–	–	50	–	–
KM12							
Straight plug connector	6.2	M12x1	14.6	–	–	–	–

Ordering data

	Cable length [m]	Cable characteristic	Outlet direction	Special features	Product weight [g]	Part No.	Type
Socket, 8-pin, M12 – open cable end, 8-wire							
	2	Standard	Angled	–	–	**542256**	**NEBU-M12W8-K-2-N-LE8**
			Straight	–	–	**525616**	**SIM-M12-8GD-2-PU**
	5	Standard	Angled	–	–	**542257**	**NEBU-M12W8-K-5-N-LE8**
			Straight	–	343	**525618**	**SIM-M12-8GD-5-PU**
	10	Standard	Angled	–	–	**570007**	**NEBU-M12W8-K-10-N-LE8**
			Straight	–	–	**570008**	**SIM-M12-8GD-10-PU**
	15	Standard	Angled	–	–	**8048086**	**NEBU-M12W8-K-15-N-LE8**
Socket, 8-pin, M12 plug connector, 8-pin, M12							
	2	Standard	Straight - straight	–	156	**525617**	**KM12-8GD8GS-2-PU**

Connecting cables, 7/8", 5-pin

Technical data

Connecting cable
NEBU-G78W5

- Connecting cable for power supply
- Pre-assembled
- Cable length 2 m
- 5 wires
- 7/8"

General technical data			
Electrical connection		Angled socket/open end	
		7/8'' round plug connector	
		5-pin	
Plug coding		NFPA/T3.5.29 R1-2003	
Based on standard		EN 61984	
Cable composition	[mm^{2}]	5x 1.5	
Cable diameter	[mm]	8.7	
Cable diameter tolerance	[mm]	±2	
Cable characteristics		Standard	
Min. cable bending radius	[mm]	65	
Operating voltage range	[V]	0 ... 300 DC	0 ... 300 AC
Surge resistance	[kV]	4	
Acceptable current load at 40 °C	[A]	9	
Protection class to EN 60529		IP65, IP67	
Product weight	[g]	300	

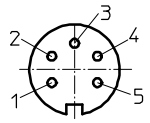
Materials	
Housing	TPE-U(PU)
Union nut	Nickel-plated brass
Pin contact	Gold-plated brass
Cable sheath	PUR
Cable characteristics	For static applications
Note on materials	RoHS-compliant

Operating and environmental conditions		
Ambient temperature	[°C]	–20 ... +80
CE marking (see declaration of conformity)		In accordance with EU Low Voltage Directive
Degree of contamination		3

Connecting cables, 7/8", 5-pin

Technical data

FESTO

Circuitry (socket view)				
Socket	Pin	Wire colour[1)]	Pin	Plug
Electrical connection: socket, 5-pin, 7/8" – open cable end				
	1	SW	–	–
	2	BU	–	
	3	GN/YE	–	
	4	BN	–	
	5	WH	–	

1) To IEC 757

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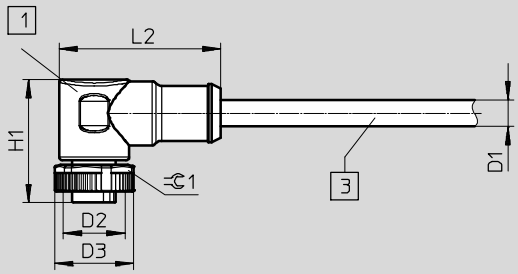
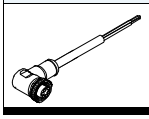


1 Socket 7/8"
3 Cable, length 2 m

	D1 ∅	D2	D3 ∅	L2	H1	⊂1
NEBU-G78W5	8.7	7/8"	26	53	40.4	24

Ordering data						
	Cable length [m]	Cable characteristics	Outlet direction	Special features	Part No.	Type
Socket, 5-pin, 7/8" – open cable end						
	2	Standard	Angled	–	**573855**	**NEBU-G78W5-K-2-N-LE5**

Connecting cables, clip, 3-pin

Technical data

Connecting cable
SIM-K

- Plug socket with cable for connecting inputs/outputs
- Pre-assembled
- Cable lengths: 2.5 m, 5 m and 10 m
- 3 wires
- Mounting via clip (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 diameter	[mm]	4.5
Cable diameter tolerance	[mm]	±0.1
Cable design	[mm^2]	3x0.25
Nominal conductor cross section	[mm^2]	0.25
Wire ends		Wire end sleeve
Cable characteristic		Default
Cable identification		Without inscription label holder
Contact durability		100
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
Bending radius, flexible cable installation	[mm]	≥ 46

Technical data – Electrical connection 1	
Function	Field device side
Design	Round
Connection type	Socket
Cable outlet	Straight or 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

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

Technical data			
Operating voltage range	[V]	0 … 60 DC	0 … 60 AC
Current rating at 40 °C	[A]	3	
Surge resistance	[kV]	1.5	
Degree of protection to EN 60529		IP65, IP67, in assembled state	

Connecting cables, clip, 3-pin

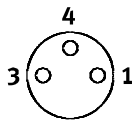
Technical data

Materials	
Wire colours	Blue, brown, black
Housing colour	Black
Cable sheath colour	Grey
Housing	TPE-U(PU)
Seals	NBR
Pin contacts	Brass, gold-plated
Insulating sheath	PP
Cable sheath	TPE-U(PU)
Note on materials	RoHS-compliant
	Free of copper and PTFE
	Free of halogen

Operating and environmental conditions		
Ambient temperature	[°C]	–25 ... +70
Ambient temperature with flexible cable installation	[°C]	–5 ... +70
Storage temperature	[°C]	–25 ... +70
CE marking (see declaration of conformity)		To EU Low Voltage Directive
Contamination level		3
Corrosion resistance class CRC[1)]		4

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, for instance in the chemical or food industries. These applications may need to be supported by special tests (➔ also FN 940082) using appropriate media.

Circuitry (socket view)

Socket	Pin	Wire colour[1)]	Pin	Plug
Electrical connection, socket, 3-pin, clip – open cable end				
	1	BN	–	–
	3	BU	–	
	4	BK	–	

1) To IEC 757

Connecting cables, clip, 3-pin

Technical data

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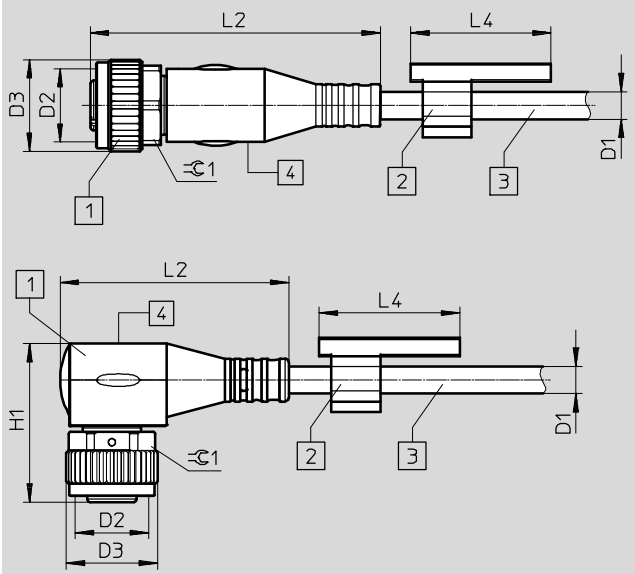
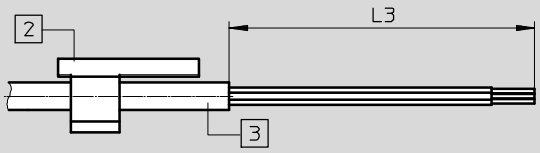
Connection technology, left



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 order

Connection technology, right



2 Inscription label holder, must be ordered separately as an accessory
3 Cable, length 2.5 m, 5 m, 10 m depending on order

Connection technology, left	D1 ∅	D2	D3 ∅	L2	L4	H1	⫧1
Straight socket	4.5	–	8.5	33.6	–	–	–
Angled socket	4.5	8.3	8.5	26.1	–	18.4	–

Connection technology, right	D1 ∅	L3
Open end	4.5	50

Ordering data

	Cable length [m]	Cable characteristic	Outlet orientation	Special features	Part No.	Type
Socket, 3-pin, clip – open cable end						
	2.5	Standard	Straight	–	**164257**	**SIM-K-GD-2,5-PU**
			Angled	–	**164255**	**SIM-K-WD-2,5-PU**
	5	Standard	Straight	–	**164256**	**SIM-K-GD-5-PU**
			Angled	–	**164254**	**SIM-K-WD-5-PU**
	10	Standard	Straight	–	**192962**	**SIM-K-GD-10-PU**
			Angled	–	**192963**	**SIM-K-WD-10-PU**

Connecting cables, clip, 4-pin

Technical data

Connecting cable SIM-K

- Plug socket with cable for connecting inputs/outputs
- Pre-assembled
- Cable lengths: 2.5 m and 5 m
- 4 wires
- Mounting via clip (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 diameter	[mm]	4.5
Cable diameter tolerance	[mm]	±0.1
Cable design	[mm^2]	4x0.25
Nominal conductor cross section	[mm^2]	0.25
Wire ends		Wire end sleeve
Cable characteristic		Default
Cable identification		Without inscription label holder
Contact durability		100
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
Bending radius, flexible cable installation	[mm]	≥ 46

Technical data – Electrical connection 1	
Function	Field device side
Design	Round
Connection type	Socket
Cable outlet	Straight or 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

Technical data – Electrical connection 2	
Function	Controller side
Connection type	Cable
Connection technology	Open end
Number of pins/wires	4
Assigned pins/wires	4

Technical data			
Operating voltage range	[V]	0 ... 30 DC	0 ... 30 AC
Current rating at 40 °C	[A]	3	
Surge resistance	[kV]	0.8	
Degree of protection to EN 60529		IP65, IP67, in assembled state	

Connecting cables, clip, 4-pin

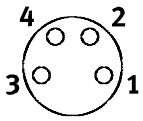
Technical data

Materials	
Wire colours	Blue, brown, black, white
Housing colour	Black
Cable sheath colour	Grey
Housing	TPE-U(PU)
Seals	NBR
Pin contacts	Brass, gold-plated
Insulating sheath	PP
Insulating sheath	PVC
Cable sheath	TPE-U(PU)
Note on materials	RoHS-compliant
	Free of copper and PTFE
	Free of halogen

Operating and environmental conditions		
Ambient temperature	[°C]	–25 ... +70
Ambient temperature with flexible cable installation	[°C]	–5 ... +70
Storage temperature	[°C]	–25 ... +70
Contamination level		3
Corrosion resistance class CRC[1)]		4

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, for instance in the chemical or food industries. These applications may need to be supported by special tests (➔ also FN 940082) using appropriate media.

Circuitry (socket view)

Socket	Pin	Wire colour[1)]	Pin	Plug
Electrical connection, socket, 4-pin, clip – open cable end				
	1	BN	–	–
	2	WH	–	
	3	BU	–	
	4	BK	–	

1) To IEC 757

Connecting cables, clip, 4-pin

Technical data

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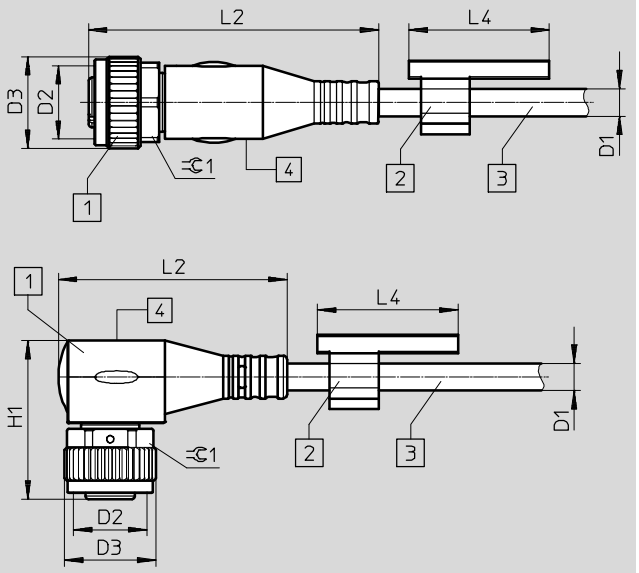
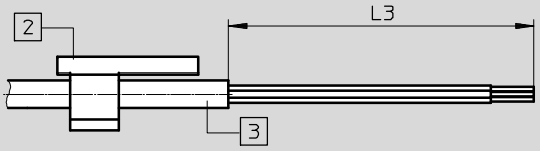
Connection technology, left



1 Socket
2 Inscription label holder, must be ordered separately as an accessory
3 Cable, length 2.5 m, 5 m depending on order

Connection technology, right

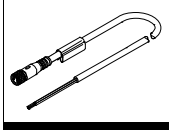


2 Inscription label holder, must be ordered separately as an accessory
3 Cable, length 2.5 m, 5 m depending on order

Connection technology, left	D1 ∅	D2	D3 ∅	L2	L4	H1	⫧1
Straight socket	4.5	–	8.5	33.6	–	–	–
Angled socket	4.5	–	8.3	26.1	–	18.4	–

Connection technology, right	D1 ∅	L3
Open end	4.5	50

Ordering data

	Cable length [m]	Cable characteristic	Outlet orientation	Special features	Part No.	Type
Socket, 4-pin, clip – open cable end						
	2.5	Standard	Straight	–	**164250**	**SIM-K-4-GD-2,5-PU**
			Angled	–	**164252**	**SIM-K-4-WD-2,5-PU**
	5	Standard	Straight	–	**164251**	**SIM-K-4-GD-5-PU**
			Angled	–	**164253**	**SIM-K-4-WD-5-PU**

Connecting cables NEBU, universal

Ordering data – Modular products

FESTO

Ordering table

			Conditions	Code		Enter code
M	Module No.	**539052**				
	Function	Connecting cable		**NEBU**		NEBU
	Connection technology, left-hand end	Open end	1	**-LE**		
		Socket with connecting thread M8		**-M8**		
		Socket with connecting thread M12, A-coded		**-M12**		
M	Socket design	None (only with open end connection technology at left-hand end)				
		Straight		**G**		
		Angled		**W**		
		Rotatable	2	**R**		
M	Number of pins/wires (left-hand end)	3-pin (suitable for open end, plug M8)		**3**		
		4-pin (suitable for open end, plug M8)		**4**		
		5-pin (suitable for 3, 4 and 5-pin plug M12)		**5**		
O	Display	Without LED, DC (standard)				
		LED, PNP	3	**P**		
		LED, NPN	3	**N**		
		LED, DC	4	**L**		
		2x LED, PNP	5	**P2**		
M	Cable characteristics	Basic		**-P**		
		Standard		**-K**		
		Suitable for use with energy chains		**-E**		
		Suitable for robot applications		**-R**		
	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)		**-...**		
O	Wire cross section	0.25 mm^2 (standard)				
		1.00 mm^2	6	**Q8**		
	Cable colour	Grey (standard)				
	Cable designation	With inscription label holder (standard)				
		Without inscription label holder		**-N**		
M	Connection technology, right-hand end	Open end (not possible with open end connection technology at left-hand end)	1	**-LE**		
		Plug with connecting thread M8		**-M8**		
		Plug with connecting thread M12, A-coded		**-M12**		
M	Plug design	None (only with open end connection technology at right-hand end)				
		Straight		**G**		
		Angled		**W**		
M	Number of pins/wires (right-hand end)	2-pin	7	**2**		
		3-pin (suitable for socket M8/M12)	8	**3**		
		4-pin (suitable for socket M8/M12)	8	**4**		
		5-pin (suitable for socket M12)	8 9	**5**		

1 **LE** With open end LE, the number of pins/wires at the open end must be equal or less than the number of pins on the opposite side.

2 **R** Can only be combined with M8 (connection technology at left-hand end), 3-pin (pins/wires at left-hand end), without display, standard wire cross section.

3 **P, N** Can only be combined with M8 connection technology at left-hand end in combination with socket design W and 3 pins/wires (left-hand end) or M12 connection technology at left-hand end in combination with socket design W and 5 pins/wires (left-hand end) and 3 pins/wires (right-hand end).

4 **L** Can only be combined with M8 connection technology at left-hand end with 4 pins/wires (left-hand end) and M8 connection technology at right-hand end with 3 or 4 pins/wires (left-hand end) or M12 connection technology at right-hand end with 2 pins/wires (left-hand end) or LE connection technology at right-hand end with 2 pins/wires (left-hand end).
Can only be combined with cable characteristics K.

5 **P2** Can only be combined with M12 connection technology at left-hand end in combination with socket design W and 4 pins/wires (right-hand end).

6 **Q8** Can only be combined with M12 connection technology at left-hand end in combination with socket design G and 5 pins/wires (left-hand end) and M12 connection technology at right-hand end in combination with plug design G and 5 pins/wires (left-hand end).
Can only be combined with cable characteristics E.

7 **2** Can only be combined with M12 connection technology at right-hand end or LE in combination with display L.
Can only be combined with cable characteristics K.

8 **3, 4, 5** With LE connection technology at left-hand end, the number of wires (left-hand end) is copied over.

9 **5** Can only be combined with M12 or LE connection technology at left-hand end.

Transfer order code

539052	**NEBU**	–			–		–		–		–			