

Connecting cables NEBU, plug sockets with cable SIM

Product overview

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- Connecting cables for standard, drag chain and robot applications
- Versions with switching status display
- Welding field immune designs
- Easy-to-clean designs approved for use in the food and packaging sector
- Cable length 0.1 ... 30 m freely selectable

Detailed product information

➔ www.festo.com/catalogue/nebu

Product overview						
Design	Type	Electrical connection		Number of wires	Cable length [m]	➔ Page/ Internet
		Left	Right			
Basic version	NEBU-M5	Socket M5x0.5	Open end	3	5	4
			Plug M8x1	3	1	
			Plug M12x1	4	1	
	NEBU-M8	Socket M8x1	Open end	3, 4	0.1 ... 30	4
			Plug M8x1			
			Plug M12x1			
	NEBU-M12	Socket M12x1	Open end	3, 4, 5	0.1 ... 30	4
			Plug M8x1			
			Plug M12x1			
	SIM-M12-8	Socket M12x1	Open end	8	2; 5	4
	KSMH-1-M8-2-M8	Socket M8x1	Plug M8x1	8	2; 5	11
	KM12-8	Socket M12x1	Plug M12x1	4	2	
				8	2	
With switching status display	NEBU-M8	Socket M8x1	Open end	3	0.1 ... 30	4
			Plug M8x1			
			Plug M12x1			
	NEBU-M12	Socket M12x1	Open end	3	0.1 ... 30	4
			Plug M8x1			
			Plug M12x1			
Welding field immune	SIM-M12-RS	Socket M12x1	Open end	3	3	11
With clip-on socket	SIM-K	Socket, clip-on	Open end	3	2.5; 5; 10	11
				4	2.5; 5	
For food industry, easy to clean	SIM-K-CDN	Socket, clip-on	Open end	3	2.5; 5	11

Connecting cables NEBU, plug sockets with cable SIM

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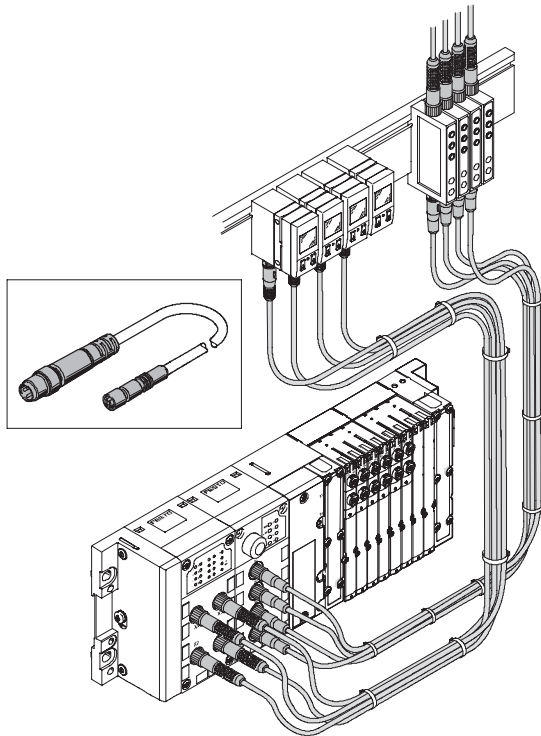
Key features

Cable quality

The sensor cables can be configured using the modular system. You can choose from qualities that are suited to

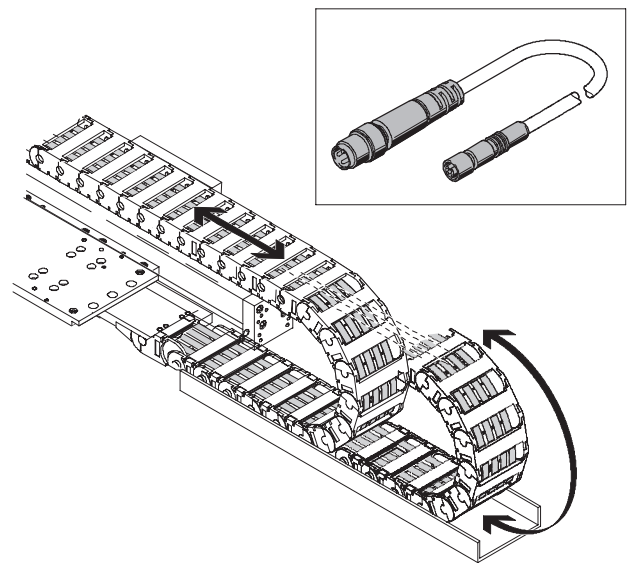
standard, drag chain or robot applications.

Standard application



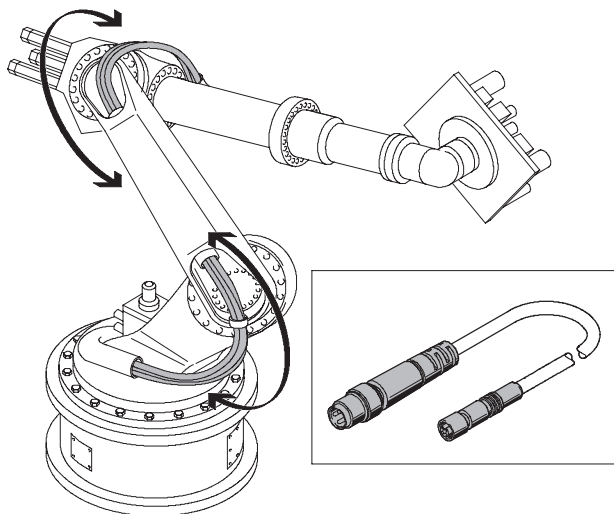
- Standard applications are characterised by fixed cable installation or low to average mechanical loads.

Drag chain application



- High mechanical loads occur in drag chain applications, particularly when very small radii are required.

Robot application



- High mechanical loads, which are primarily caused by torsion, occur in robot applications.

Connecting cables NEBU

Type codes

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		NEBU	–	M8	G	3		–	K	–	2.5	–				–	LE		3	–	
Function																					
NEBU	Connecting cable																				
Connection, left																					
LE	Open end																				
M5	Socket with connecting thread																				
M8	Socket with connecting thread																				
M12	Socket with connecting thread, A-coded																				
Socket design																					
–	Open end																				
G	Straight																				
W	Angled																				
Number of pins/wires (left)																					
3, 4, 5, 8	3-, 4-, 5- or 8-pin																				
Display																					
–	Without LED (standard)																				
P	LED, PNP																				
N	LED, NPN																				
Cable quality																					
K	Standard																				
E	Suitable for drag chain																				
R	Suitable for robots																				
Cable length																					
0.1 ... 30	0.1 ... 30 m																				
Alternative wire cross section																					
–	0.25 mm ² (standard)																				
Q3	0.14 mm ²																				
Alternative number of cores																					
–	Standard																				
W2	2 wires																				
W3	3 wires																				
Cable designation																					
–	With inscription label holder (standard)																				
N	Without inscription label holder																				
Connection, right																					
LE	Open end																				
M8	Socket with connecting thread																				
M12	Socket with connecting thread, A-coded																				
Plug design																					
–	Open end																				
G	Straight																				
W	Angled																				
Number of pins/wires (right)																					
3, 4, 5, 8	3-, 4-, 5- or 8-pin																				
Alternative pin assignment																					
–	Standard																				
V1	Pin 1 – Pin 1, Pin 3 – Pin 2																				
V2	Pin 1 – Pin 1, Pin 3 – Pin 3, Pin 4 – Pin 4																				

Connecting cables NEBU

Technical data

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General technical data			
Electrical connection	Socket M5x0.5, 4-pin Cable, open at one end, 3-wire	Plug M5x0.5, 4-pin Socket M8x1, 3-pin	Plug M5x0.5, 4-pin Socket M12x1, 5-pin
Cable design	3 x 0.14 mm ²		4 x 0.14 mm ²
Conductor nominal cross section [mm ²]	0,14		0,14
Cable Ø [mm]	2,9		3,4
Cable length [m]	5	1	1
Min. cable bending radius [mm]	30		35
Wire ends	Wire end sleeve	–	–
Cable type	LiFY11Y		
Cable quality	Suitable for energy chains		–
Test condition for cable for suitability for energy chains	Energy chain: 5 million cycles, bending radius 28 mm		
	Resistance to bending: to Festo standard; test conditions on request		
Type of mounting	Via knurled nut		
	Via union nut		
Max. tightening torque, socket [Nm]	0,3	0,3	0,3
Max. tightening torque, plug [Nm]	–	0,3	0,5
Protection class	IP65		
	IP67		

Electrical connection		Socket/plug M8x1	Socket/plug M12x1
Conforms to		EN 61076-2-101	
		EN 61984	
Cable design		–	2 x 0.25 mm²
		3 x 0.25 mm²	3 x 0.25 mm²
		4 x 0.25 mm²	4 x 0.25 mm²
		–	5 x 0.25 mm²
Conductor nominal cross section	[mm²]	0,25	
Cable Ø	[mm]	4,5	
Cable length	[m]	0,1 ... 30	
Ready status display		Green LED	
Switching status display		Yellow LED	
Cable quality		Standard	
		suitable for energy chains	
		Suitable for robot applications	
Test conditions for cable	Standard	Energy chain: 5 million cycles, bending radius 75 mm	
		Resistance to bending: to Festo standard; test conditions on request	
	Suitable for energy chains	Energy chain: 5 million cycles, bending radius 28 mm	
		Resistance to bending: to Festo standard; test conditions on request	
	Suitable for robot applications	Energy chain: 5 million cycles, bending radius 28 mm	
		Torsional strength: > 300,000 cycles, ±270°/0.1 m	
Resistance to bending: to Festo standard; test conditions on request			
Plug coding		–	A
Protection class		IP65	
		IP67	
Protective earth connection		Not available	

Colour code			
Connection technology	Open end		
Number of wires	3	4	5
Wire insulation colour code	Brown	Brown	Brown
	blue	blue	blue
	black	black	black
	–	white	white
	–	–	grey

Connecting cables NEBU

Technical data

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Electrical data			
Electrical connection		Socket/plug M5x0.5, 4-pin	
Cable design		3 x 0.14 mm ²	4 x 0.14 mm ²
Operating voltage range AC	[V]	0 ... 30	
Operating voltage range DC	[V]	0 ... 30	
Surge capacity ¹⁾	[kV]	0,8	
Current-carrying capacity ¹⁾	[A]	1,7	
Degree of contamination		3	

Electrical connection		Socket/plug M8x1, 3-pin		Socket/plug M8x1, 4-pin
Cable design		3 x 0.25 mm ²		4 x 0.25 mm ²
Display		–	LED	–
Operating voltage range AC ¹⁾	[V]	60	–	0 ... 30
Operating voltage range DC ¹⁾	[V]	0 ... 60	10 ... 30	0 ... 30
Surge capacity ¹⁾	[kV]	1,5	0,8	0,8
Current-carrying capacity at 40 °C ¹⁾	[A]	3		
Degree of contamination		3		

Electrical connection		Socket/plug M12x1, 5-pin			
Cable design		2 x 0.25 mm ²	3 x 0.25 mm ²	4 x 0.25 mm ²	5 x 0.25 mm ²
Display		–	–	LED	–
Operating voltage range AC ¹⁾	[V]	0 ... 30	0 ... 250	–	0 ... 250
Operating voltage range DC ¹⁾	[V]	0 ... 30	0 ... 250	10 ... 30	0 ... 250
Surge capacity ¹⁾	[kV]	0,8	2,5 ²⁾	0,8	2,5
Current-carrying capacity at 40 °C ¹⁾	[A]	3	4		
Degree of contamination		3			

1) When using different connections the lower value applies.

2) For alternative number of wires = 3 applies 0.8 kV.

Operating and environmental conditions			
Cable quality		Standard	suitable for energy chains
Ambient temperature		–25 ... +70	–25 ... +80
Ambient temperature with flexible cable installation		–5 ... +70	–5 ... +80

Materials			
Electrical connection		Socket/plug M5x0.5	Socket/plug M8x1
Housing		Polyurethane	Polyurethane
Cable sheath		Polyurethane	Polyurethane
Insulation sheath	Standard	–	Polyvinyl chloride
	Suitable for energy chains	–	Polyurethane
	Suitable for robot applications	–	Polyurethane
Union nut		Nickel-plated brass	Nickel-plated brass
Pin contacts		Gold-plated brass	Gold-plated brass
Colour	Cable sheath	grey	grey
	Housing	black	black
Material note		–	Free of copper and PTFE
		–	RoHS-compliant

Connecting cables NEBU

Technical data

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Ordering data – Basic version				
Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
Cable quality – standard				
Straight socket, M5x0.5, 4-pin	Cable, open end, 3-wire	5	539 508	NEBU-M5G4-K-5-Q3-LE3
	Straight plug, M8x1, 3-pin	1	539 510	NEBU-M5G4-K-1-Q3-M8G3
	Straight plug, M12x1, 4-pin	1	539 512	NEBU-M5G4-K-1-Q3-M12G4
Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 333	NEBU-M8G3-K-2.5-LE3
		5	541 334	NEBU-M8G3-K-5-LE3
		10	541 332	NEBU-M8G3-K-10-LE3
	Straight plug, M8x1, 3-pin	0.5	541 346	NEBU-M8G3-K-0.5-M8G3
		1	541 347	NEBU-M8G3-K-1-M8G3
		2.5	541 348	NEBU-M8G3-K-2.5-M8G3
		5	541 349	NEBU-M8G3-K-5-M8G3
		2.5	554 037	NEBU-M8G3-K-2.5-M8G4
	Straight plug, M8x1, 4-pin	2.5	554 037	NEBU-M8G3-K-2.5-M8G4
Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 338	NEBU-M8W3-K-2.5-LE3
		5	541 341	NEBU-M8W3-K-5-LE3
		10	541 335	NEBU-M8W3-K-10-LE3
Straight socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	541 342	NEBU-M8G4-K-2.5-LE4
		5	541 343	NEBU-M8G4-K-5-LE4
	Straight plug, M8x1, 4-pin	2.5	554 035	NEBU-M8G4-K-2.5-M8G4
Angled socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	541 344	NEBU-M8W4-K-2.5-LE4
		5	541 345	NEBU-M8W4-K-5-LE4
Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 363	NEBU-M12G5-K-2.5-LE3
		5	541 364	NEBU-M12G5-K-5-LE3
	Cable, open end, 4-wire	2.5	530 326	NEBU-M12G5-K-2.5-LE4
		5	541 328	NEBU-M12G5-K-5-LE4
	Cable, open end, 5-wire	2.5	541 330	NEBU-M12G5-K-2.5-LE5
		5	541 331	NEBU-M12G5-K-5-LE5
		10	554 038	NEBU-M12G5-K-10-LE5
	Straight plug, M8x1, 4-pin	2.5	554 036	NEBU-M12G5-K-2.5-M8G4
Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 367	NEBU-M12W5-K-2.5-LE3
		5	541 370	NEBU-M12W5-K-5-LE3
	Cable, open end, 4-wire	2.5	530 325	NEBU-M12W5-K-2.5-LE4
		5	541 329	NEBU-M12W5-K-5-LE4
Straight socket, M12x1, 8-pin	Cable, open end, 8-wire	2	542 256	NEBU-M12W8-2-N-LE8
		5	542 257	NEBU-M12W8-5-N-LE8
Cable quality – suitable for drag chain				
Straight socket, M12x1, 5-pin	Straight plug, M8x1, 4-pin	2.5	554 034	NEBU-M12G5-E-2.5-W2-M8G4-V1 ¹⁾
			554 033	NEBU-M12G5-E-2.5-W3-M8G4-V2 ²⁾
Cable quality – suitable for robots				
Straight socket, M8x1, 5-pin	Straight plug, M8x1, 4-pin	2	556 946	NEBU-M8G4-R-2-M8G4

- 1) Pin assignment designed for connection of pressure transmitter SDET-...-I to signal converter SVE4-IS
 2) Pin assignment designed for connection of pressure transmitter SDET-...-U to signal converter SVE4-US

 Note

Additional variants can be configured and ordered via the NEBU modular product system → 8. Pin allocations → Internet: nebu

Connecting cables NEBU

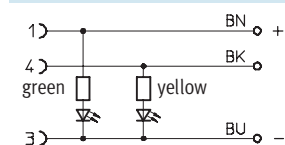
Technical data

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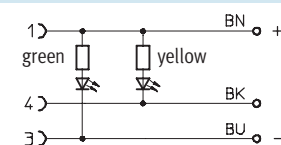
Ordering data – With switching status display					
Electrical connection, left	Electrical connection, right	Switch output	Cable length [m]	Part No.	Type
Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	PNP	2.5	541 337	NEBU-M8W5P-K-2.5-LE3
			5	541 340	NEBU-M8W5P-K-5-LE3
		NPN	2.5	541 336	NEBU-M8W5N-K-2.5-LE3
			5	541 339	NEBU-M8W5N-K-5-LE3
Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	PNP	2.5	541 366	NEBU-M12W5P-K-2.5-LE3
			5	541 369	NEBU-M12W5P-K-5-LE3
		NPN	2.5	541 365	NEBU-M12W5N-K-2.5-LE3
			5	541 368	NEBU-M12W5N-K-5-LE3

Circuit diagram and pin allocation

PNP switch output





NPN switch output



 Note

Additional variants can be configured and ordered via the NEBU modular product system → 8. Pin allocations → Internet: nebu

Ordering data – Inscription labels, safety clips						
	Material	Use	Size	Part No.	Type	PU ¹⁾
	Polycarbonate	For insertion in the inscription label holder	18x4 mm	546 111	ASLR-L-418	57
			23x4 mm	541 598	ASLR-L-423	51
	Polyamide	For protecting push-in connectors from inadvertent disconnection (no tool needed)	M8	548 067	NEAU-M8-GD	1
			M12	548 068	NEAU-M12-GD	1

1) Packaging unit in quantity per frame

Connecting cables NEBU, M8/M12

Ordering data – Modular products

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M Mandatory data					O Options →
Module No.	Function	Connection, left	Socket design	Number of pins/wires (left)	Display
539 052	NEBU	LE M8 M12	G W	3 4 5	– P N
Order example					
539 052	NEBU	– M12	W	5	P

Ordering table					Condi- tions	Code	Enter code
M	Module No.	539 052					
	Function	Connecting cable				NEBU	NEBU
						–	–
	Connection, left	Open end				LE	
		Socket with connecting thread				M8	
		Socket with connecting thread, A-coded				M12	
	Socket design	Straight	6			G	
		Angled	6			W	
	Number of pins/wires (left)	3-pin (suitable for M8 plug)	7 10			3	
		4-pin (suitable for M8 plug)	7 10			4	
		5-pin (suitable for 3-, 4- and 5-pin M12 plug)	10			5	
O	Display	Without LED (standard)					
		LED, PNP	1			P	
↓		LED, NPN	1			N	

1 P, N

Only in combination with M8 connection at left-hand end with socket design W and number of pins/wires (left-hand end) 3
or
only in combination with M12 connection at left-hand end with socket design W and number of pins/wires (left-hand end) 5 and number of pins/wires (right-hand end) 3.

6 G, W

7 3, 4

10 3, 4, 5

Must be selected with M8, M12 connection at left-hand end.

Not in combination with LE connection at left-hand end.

Not in combination with LE connection at left-hand end.

With open end LE the number of pins/cores must be equal or less than the number of pins of the opposite side.

Transfer order code

539 052 NEBU –

Connecting cables NEBU, M8/M12

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Ordering data – Modular products

→ [M] Mandatory data		[O] Options	[M]	[O]	[M]
Cable quality	Cable length	Cable designation	Connection, right	Plug design	Number of pins/wires (right)
K E R	0,1 ... 30	– N	LE M8 M12	G W	3 4 5
– E	– 3.5	– N	– M8	G	3

Ordering table					
Module No.	539 052			Condi- tions	Code
Enter code					
↓					
[M]	Cable quality	Standard		–	K
		suitable for 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]				–	
	Cable designation	With inscription label holder (standard)			
		Without inscription label holder		N	
[M]				–	
	Connection, right	Open end	[8]	LE	
		Plug with connecting thread		M8	
		Plug with connecting thread, A-coded		M12	
[O]	Plug design	Straight	[2]	G	
		Angled	[2]	W	
[M]	Number of pins/wires (right)	3-pin (suitable for M8/M12 socket)	[3] [9] [10]	3	
		4-pin (suitable for M8/M12 socket)	[4] [9] [10]	4	
		5-pin (suitable for M12 socket)	[5] [9] [10]	5	

- [2] **G, W** Must be selected with M8, M12 connection at right-hand end.
Not in combination with LE connection at right-hand end.
- [3] **3** Not in combination with M8 connection at left-hand end and number of pins/cores = 4.
- [4] **4** Not in combination with M8 connection at left-hand end and number of pins/cores = 3.

- [5] **5** Only in combination with LE, M12 connection technology at right-hand end.
Not in combination with M8 connection at left-hand end.
- [8] **LE** Not with LE connection at left-hand end.
- [9] **3, 4, 5** With LE connection at left-hand end the number of pins/cores (left-hand end) is used.
- [10] **3, 4, 5** With open end LE the number of pins/cores must be equal or less than the number of pins of the opposite side.

Transfer order code

– [] – [] – [] – [] [] []

Plug sockets with cable SIM

Type codes

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		SIM	–	M12	–	RS	–	3	GD	–	3	–		–	
Type															
SIM	Plug socket with cable for sensors														
Electrical connection															
M12	M12x1 locknut														
K	Clip-on plug														
Welding field immunity															
	Basic type, no welding field immunity														
RS	Welding field immune														
Number of wires															
	3-wire														
4	4-wire														
8	8-wire														
Connection direction															
GD	In-line														
WD	Angled														
Cable length															
2	2 m														
2.5	2.5 m														
3	3 m														
5	5 m														
10	10 m														
Material, cable sheath															
PU	Polyurethane														
Easy cleaning															
	Basic version														
CDN	Clean Design, suitable for foodstuffs														

Plug sockets with cable SIM, KSMH, KM12

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Technical data

Technical data – Connecting cables M8x1, M12x1				
Type		KSMH		KM12
Cable attribute		Standard		
Electrical connection, left		Straight socket, M8x1, 4-pin		Straight socket, M12x1, 8-pin
Electrical connection, right		Straight plug, M8x1, 4-pin		Straight plug, M12x1, 8-pin
Operating voltage range	DC	[V]	≤ 75	≤ 70
	AC	[V]	≤ 60	≤ 45
Ambient temperature		[°C]	–5 ... +70	–25 ... +80
Protection class		IP68		

Technical data – Plug sockets with cable M12x1, 8-pin				
Cable attribute		Standard		
Electrical connection, left		Straight socket, M12x1, 8-pin		
Electrical connection, right		Cable, open end, 8-wire		
Operating voltage range	DC	[V]	≤ 70	
	AC	[V]	≤ 45	
Ambient temperature		[°C]	–25 ... +80	
Protection class		IP68		

Technical data – Plug sockets with cable M12x1, welding field immune				
Cable attribute		Standard		
Electrical connection, left		Straight or angled socket, M12x1, 3-pin		
Electrical connection, right		Cable, open end, 3-wire		
Operating voltage range	DC	[V]	≤ 70	
	AC	[V]	≤ 45	
Ambient temperature		[°C]	–25 ... +80	
Ambient temperature with flexible cable installation		[°C]	0 ... +80	
Protection class		IP65, IP67		

Technical data – Plug sockets with cable, clip-on				
Type		SIM-K		SIM-K-4
Cable attribute		Standard		
Electrical connection, left		Straight or angled socket, clip-on, 3-pin		Straight or angled socket, clip-on, 4-pin
Electrical connection, right		Cable, open end, 3-wire		Cable, open end, 4-wire
Operating voltage range	DC	[V]	≤ 70	
	AC	[V]	≤ 45	
Ambient temperature		[°C]	–40 ... +70	
Ambient temperature with flexible cable installation		[°C]	–5 ... +70	
Protection class		IP65, IP67		


Technical data – Plug sockets with cable, clip-on, Clean Design				
Cable attribute		Standard		
Electrical connection, left		Straight or angled socket, clip-on, 3-pin		
Electrical connection, right		Cable, open end, 3-wire		
Operating voltage range	DC	[V]	≤ 70	
	AC	[V]	≤ 45	
Ambient temperature		[°C]	–30 ... +70	
Ambient temperature with flexible cable installation		[°C]	–5 ... +70	
Protection class		IP65, IP67, IP69		

Plug sockets with cable SIM, KSMH, KM12

FESTO

Technical data

Ordering data				
Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
Connecting cable				
Straight socket, M8x1, 4-pin	Straight plug, M8x1, 4-pin	2	175 714	KSMH-1-M8-2-M8
Straight socket, M12x1, 8-pin	Straight plug, M12x1, 8-pin	2	525 617	KM12-8GD8GS-2-PU
Plug socket with cable M12x1, basic version				
Straight socket, M12x1, 8-pin	Cable, open end, 8-wire	2	525 616	SIM-M12-8GD-2-PU
		5	525 618	SIM-M12-8GD-5-PU
Plug socket with cable M12x1, welding field immune				
Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	30 450	SIM-M12-RS-3GD-3
Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	30 451	SIM-M12-RS-3WD-3
Plug socket with cable, clip-on, basic version				
Straight socket, clip-on, 3-pin	Cable, open end, 3-wire	2.5	164 257	SIM-K-GD-2,5-PU
		5	164 256	SIM-K-GD-5-PU
		10	192 962	SIM-K-GD-10-PU
Angled socket, clip-on, 3-pin	Cable, open end, 3-wire	2.5	164 255	SIM-K-WD-2,5-PU
		5	164 254	SIM-K-WD-5-PU
		10	192 963	SIM-K-WD-10-PU
Straight socket, clip-on, 4-pin	Cable, open end, 4-wire	2.5	164 250	SIM-K-4-GD-2,5-PU
		5	164 251	SIM-K-4-GD-5-PU
Angled socket, clip-on, 4-pin	Cable, open end, 4-wire	2.5	164 252	SIM-K-4-WD-2,5-PU
		5	164 253	SIM-K-4-WD-5-PU
Plug socket with cable, clip-on, Clean Design				
Straight socket, clip-on, 3-pin	Cable, open end, 3-wire	2.5	525 259	SIM-K-GD-2,5-CDN
		5	525 260	SIM-K-GD-5-CDN
Angled socket, clip-on, 3-pin	Cable, open end, 3-wire	2.5	525 261	SIM-K-WD-2,5-CDN
		5	525 262	SIM-K-WD-5-CDN

Ordering data – Safety clip				
	Material	Use	Size	Part No. Type
	Polyamide	For protecting push-in connectors from inadvertent disconnection (no tool needed)	M8	548 067 NEAU-M8-GD
			M12	548 068 NEAU-M12-GD