Connecting cables NEBS, for sensors

FESTO

Product range overview

Function	Design	Type	Connection technology (Electrical connection 2)	Cable characteristic	Length	→ Page/ Internet
Connecting cable	**Electrical connection 1: socket, rectangular design L1 (circuit board connector)**					
	4-pin	NEBS-L1G4	Plug M12, 4-pin Open cable end	Standard	1 m 2.5 m 5 m	4
	Electrical connection 1: socket M12					
	5-pin	NEBS-M12G5	Open cable end	Suitable for energy chains	5 m 10 m 15 m	8
	12-pin	NEBS-M12G12	Socket M12, 12-pin Open cable end	Basic	0.5 m 2 m 5 m 10 m	10
	Electrical connection 1: plug M12					
	12-pin	NEBS-SM12G12	Plug M12, 12-pin Open cable end	Suitable for energy chains	0.3 m 0.5 m 5 m	13
	Electrical connection 1: plug M16					
	24-pin	NEBS-SM16G24	Open cable end	Standard	5 m 10 m	17

Type codes

001	Series	
NEBS	Connecting cable for sensors	

002	Connection technology left, field device side	
M12	Socket M12x1 A-coded, EN 61076-2-101	
SM12	Plug M12x1 A-coded	
SM16	Plug M16	
L1	PCB plug connector	

003	Cable outlet left	
G	Straight	

004	Number of pins/wires on the left	
4	4	
5	5	
12	12	
24	24	

005	Cable characteristic	
K	Standard	
E	Suitable for energy chains	

006	Cable design	
	Standard	
S	With shielding	

007	Cable length [m]	
0.3	0.3	
0.5	0.5	
1	1	
2	2	
2.5	2.5	
5	5	
10	10	
15	15	

008	Cable identification	
	With label holder	
N	Without label holder	

009	Connection technology right, controller side	
M12	Plug M12x1 A-coded, EN 61076-2-101	
SM12	Socket, M12, A-coded	
LE	Open end	

010	Plug/socket	
	None	
G	Straight	

011	Number of pins/wires on the right	
4	4	
5	5	
12	12	
24	24	

Data sheet

Connecting cable NEBS-L1G4

- Pre-assembled at one or both ends
- Cable lengths 1 m, 2.5 m and 5 m
- 4 wires
- Socket, rectangular design L1
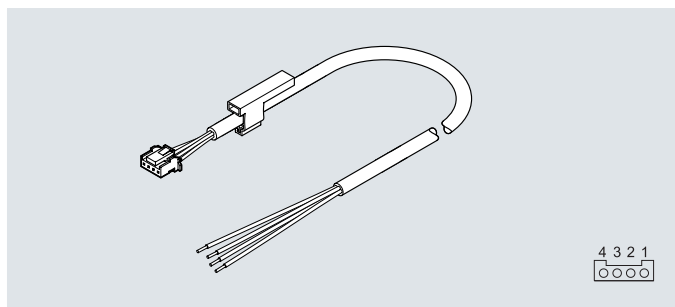
General technical data

Type	NEBS-...-M12G4	NEBS-...-LE4
Cable designation	Without inscription label holder	With inscription label holder
Contact durability	100	100

Technical data – Electrical connection 1

Type	NEBS-...-M12G4	NEBS-...-LE4
Function	Field device side	Field device side
Connection type	Socket	Socket
Cable outlet	Straight	Straight
Design	Angular	Angular
Connection technology	Plug pattern L1J	Plug pattern L1J
Number of pins/wires	4	4
Assigned pins/wires	4	4
Type of mounting	Snap-locking	Snap-locking

Technical data – Electrical connection 2

Type	NEBS-...-M12G4	NEBS-...-LE4
Function	Controller side	Controller side
Connection type	Plug	Cable
Cable outlet	Straight	–
Design	Round	–
Connection technology	M12x1, A-coded to EN 61076-2-101	Open end
Wire ends	–	Cut off bluntly
Number of pins/wires	4	4
Assigned pins/wires	4	4
Type of mounting	Screw-type lock with hex A/F 13 mm and longitudinal knurl	–

Technical data – Electrical properties

Operating voltage range	[V DC]	0 ... 30
Surge resistance	[kV]	0.8
Current rating at 40°C	[A]	1
Pollution degree		2

Data sheet

Technical data – Cable

Type		NEBS-...-M12G4	NEBS-...-LE4
Cable diameter	[mm]	4.5	4.1
Cable diameter tolerance	[mm]	±0.1	±0.2
Cable characteristic		Standard	Standard
Cable test conditions		Test conditions on request	Test conditions on request
Bending radius, fixed cable installation	[mm]	≥14	≥13
Bending radius, flexible cable installation	[mm]	≥46	≥42
Cable composition	[mm^2]	4x0.25	4x0.17
Conductor nominal cross section	[mm^2]	0.25	0.17

Materials

Type	NEBS-...-M12G4	NEBS-...-LE4
Housing	PA	PA
	TPE-U(PUR)	
Housing colour	Black	White
	White	
Screw-type lock	Nickel-plated brass	–
Pin contacts	Tin-plated bronze	Tin-plated bronze
	Gold-plated brass	–
Cable sheath	TPE-U(PUR)	PVC
Cable sheath colour	Grey	Grey
Insulating sheath	PP	PVC
Note on materials	RoHS-compliant	RoHS-compliant
	Halogen-free	–
PWIS conformity	VDMA24364-B2-L	–

Operating and environmental conditions

Type		NEBS-...-M12G4	NEBS-...-LE4
Ambient temperature	[°C]	−20 ... +60	−20 ... +60
Ambient temperature with flexible cable installation	[°C]	−5 ... +60	−5 ... +60
Storage temperature	[°C]	−20 ... +60	−20 ... +60
Corrosion resistance class CRC[1]		2	4
CE marking (see declaration of conformity)[2]		To EU RoHS Directive	To EU RoHS Directive
UKCA marking (see declaration of conformity)[2]		To UK RoHS instructions	To UK RoHS instructions
Degree of protection		IP65	IP40
		IP67	
		IP69K	
Note on degree of protection		When mounted	When mounted
		IP40 for plug pattern L1J	

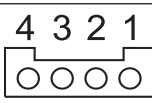[1] Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded by tests
(➔ also FN 940082), using appropriate media.

[2] Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.
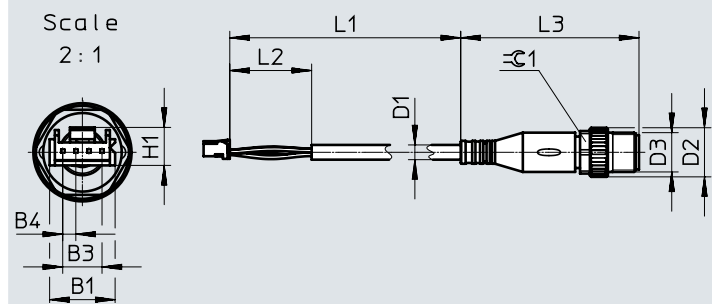
Data sheet

Circuitry (socket view)

| Electrical connection 1	Pin	Wire colour[1]	Pin	Electrical connection 2
Electrical connection, socket, rectangular design L1 – open cable end				
4 3 2 1	1	BN	–	–
	2	BK	–	
	3	WH	–	
	4	BU	–	

1) To IEC 757

Dimensions Download CAD data ➔ www.festo.com

Electrical connection, socket, rectangular design L1 – plug M12x1, A-coded

Type	B1	B3	B4	D1 Ø	D2 Ø	D3	H1	L1	L2	L3	⌇1
NEBS-L1G4-K-1-N-M12G4	10	6	2	4.5	15	M12x1	5.8	1000	25	54.5	13

Electrical connection, socket, rectangular design L1 – open cable end
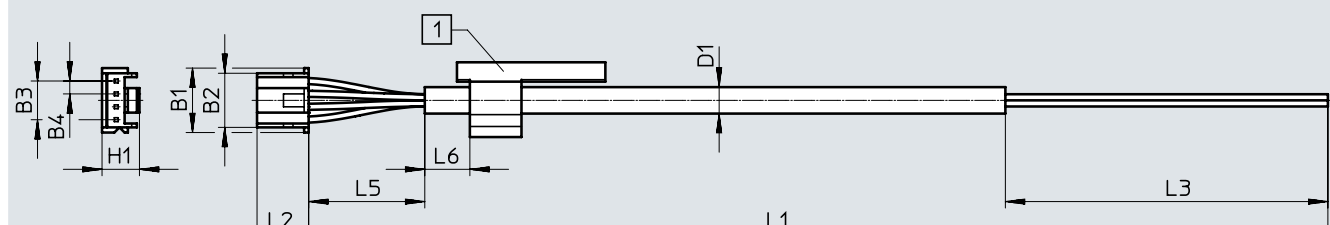
[1] Inscription label holder

Type	B1	B2	B3	B4	D1 Ø	H1	L1	L2	L3	L5	L6
NEBS-L1G4-K-2.5-LE4	10	8.4	6	2	4.1	5.8	2500	8	50	35	≥ 5
NEBS-L1G4-K-5-LE4							5000				

Data sheet

Ordering data

Electrical connection				Cable length	Weight	Part no.	Type
Connection 1		Connection 2		[m]	[g]		
Socket, rectangular design L1	4-pin	Plug M12x1, A-coded	4-pin	1	40	**8091514**	**NEBS-L1G4-K-1-N-M12G4**
		Open end	4-wire	2.5	53	**572576**	**NEBS-L1G4-K-2.5-LE4**
				5	106	**572577**	**NEBS-L1G4-K-5-LE4**

Ordering data – Accessories

	Use	Size	Part no.	Type	PU[1]
	Inscription label for insertion in label holder	23x4 mm	**541598**	**ASLR-L-423**	**30**

1) Packaging unit

Data sheet

Connecting cable
NEBS-M12G5

- Pre-assembled at one end
- Cable lengths 5 m, 10 m and 15 m
- 5 wires
- Socket M12x1
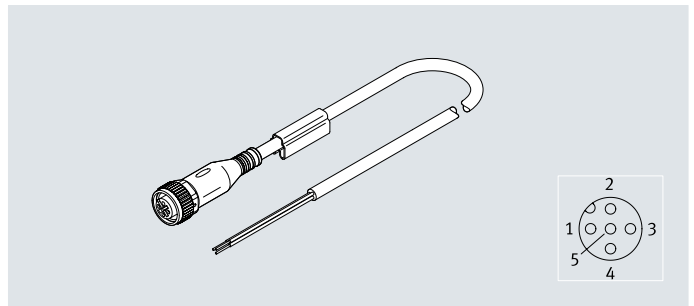
General technical data	
Cable designation	With 2x inscription label holders

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

Technical data – Electrical connection 2	
Function	Controller side
Connection type	Cable
Connection technology	Open end
Wire ends	Cut off bluntly
Number of pins/wires	5
Assigned pins/wires	5

Technical data – Electrical properties		
Operating voltage range	[V DC]	0 ... 60
	[V AC]	0 ... 48
Surge resistance	[kV]	1.5
Current rating at 40°C	[A]	4
Screening		Yes
Pollution degree		3

Technical data – Cable		
Cable diameter	[mm]	5.25
Cable diameter tolerance	[mm]	±0.2
Cable composition	[mm²]	5x0.34
		Shielded
Conductor nominal cross section	[mm²]	0.34
Cable characteristic		Suitable for energy chains
Cable test conditions		Test conditions on request
Bending radius, fixed cable installation	[mm]	≥26
Bending radius, flexible cable installation	[mm]	≥52

Data sheet

Materials

Seals	NBR
Pin contacts	Nickel-plated and gold-plated bronze
Cable sheath	TPE-U(PUR)
Cable sheath colour	Black
Insulating sheath	PP
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

Operating and environmental conditions

Ambient temperature	[°C]	−40 ... +80
Ambient temperature with flexible cable installation	[°C]	−25 ... +60
CE marking (see declaration of conformity)[1]		To EU RoHS Directive
UKCA marking (see declaration of conformity)[1]		To UK RoHS instructions
Degree of protection		IP65
		IP67
Note on degree of protection		When mounted

[1] Additional information: www.festo.com/catalogue/... ➜ Support/Downloads.

Circuitry (socket view)

Electrical connection 1	Pin	Wire colour[1]	Pin	Electrical connection 2
	1	BN	–	–
	2	WH	–	
	3	BU	–	
	4	BK	–	
	5	GY	–	

[1] To IEC 757

Dimensions   Download CAD data ➜ www.festo.com

[1] Socket, straight, M12x1, A-coded   [2] Inscription label holder   [3] Cable, length depending on the order
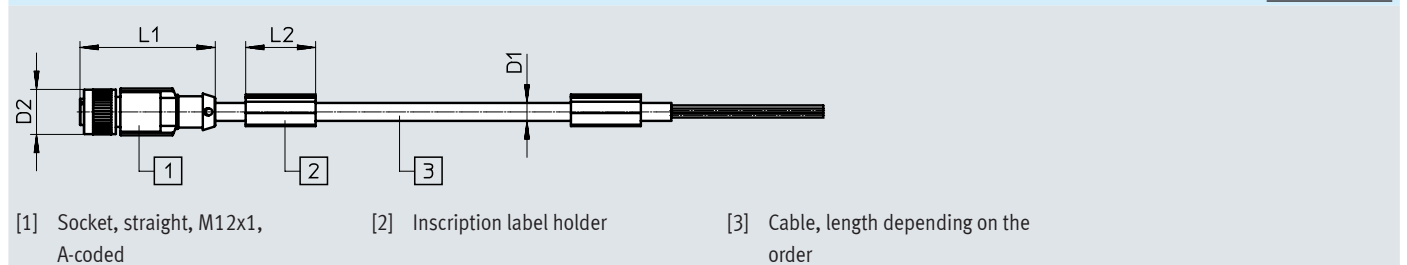
Type	D1 ∅	D2 ∅	L1	L2
NEBS-M12G5-ES-5-LE5	5.25	14.8	44.5	22
NEBS-M12G5-ES-10-LE5				
NEBS-M12G5-ES-15-LE5				

Ordering data

Electrical connection				Cable length [m]	Weight [g]	Part no.	Type
Connection 1		Connection 2					
Socket, straight design	5-pin	Open end	5-wire	5	276	**8030962**	**NEBS-M12G5-ES-5-LE5**
				10	528	**8030963**	**NEBS-M12G5-ES-10-LE5**
				15	828	**8097576**	**NEBS-M12G5-ES-15-LE5**

Data sheet

**Connecting cable
NEBS-M12G12**

- Pre-assembled at one or both ends
- Cable lengths 0.5 m, 2 m, 5 m and 10 m
- 12 wires
- Socket M12x1
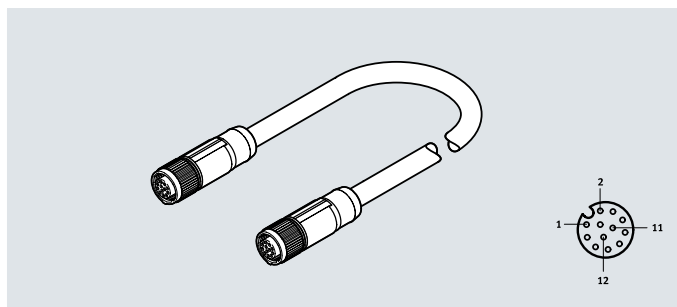
General technical data	
Cable designation	With inscription label holder

Technical data – Electrical connection 1	
Connection type	Socket
Cable outlet	Straight
Connection technology	M12x1, A-coded
Number of pins/wires	12

Technical data – Electrical connection 2		
Connection type	Socket	Cable
Cable outlet	Straight	–
Connection technology	M12x1, A-coded	Open end
Number of pins/wires	12	12

Technical data – Electrical properties			
Electrical connection 2		Socket, M12x1, A-coded	Cable, open end
Nominal operating voltage	[V DC]	30	30
Operating voltage range	[V DC]	0 ... 30	0 ... 30
Surge resistance	[kV]	0.8	0.8
Current rating at 40°C	[A]	1.5	1.5
Pollution degree		3	3

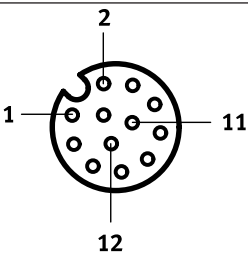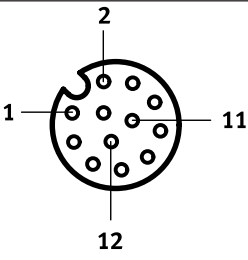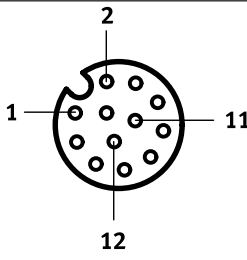| Technical data – Cable		
Cable diameter	[mm]	8.5
Cable diameter tolerance	[mm]	±0.2
Cable composition	[mm^2]	12x0.14
		Shielded
Conductor nominal cross section	[mm^2]	0.14
Cable characteristic		Basic
Minimum cable bending radius	[mm]	85
Bending radius, fixed cable installation	[mm]	42.5
Cable test conditions		Bending strength: to Festo standard

Materials	
Screw-type lock	Die-cast zinc
Seals	NBR
Pin contacts	Nickel-plated and gold-plated brass
Cable sheath	TPE-U(PUR)
Cable sheath colour	Black
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

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

Data sheet

Operating and environmental conditions

Ambient temperature	[°C]	−30 … +80
Ambient temperature with flexible cable installation	[°C]	−25 … +80
CE marking (see declaration of conformity)[2]		To EU RoHS Directive
UKCA marking (see declaration of conformity)[2]		To UK RoHS instructions
Degree of protection		IP67
Corrosion resistance class CRC[1]		0

1) Corrosion resistance class CRC 0 to Festo standard FN 940070
   No corrosion stress. Applies to small, visually irrelevant standard parts such as threaded pins, circlips and clamping sleeves which are usually only available on the market in a phosphated or burnished version (and possibly oiled) as well as to ball bearings (for components < CRC 3) and plain bearings.
2) Additional information: www.festo.com/catalogue/... ➜ Support/Downloads.

Circuitry (socket view)

Electrical connection 1	Pin	Wire colour[1]	Pin	Electrical connection 2
Electrical connection, socket M12x1, 12-pin – open cable end				

	Pin	Wire colour[1]	Pin	
	1	BN	–	–
	2	BU	–	
	3	WH	–	
	4	GN	–	
	5	PK	–	
	6	YE	–	
	7	BK	–	
	8	GY	–	
	9	RD	–	
	10	VT	–	
	11	GY PK	–	
	12	RD BU	–	

Electrical connection, socket M12x1, 12-pin – socket M12x1, 12-pin

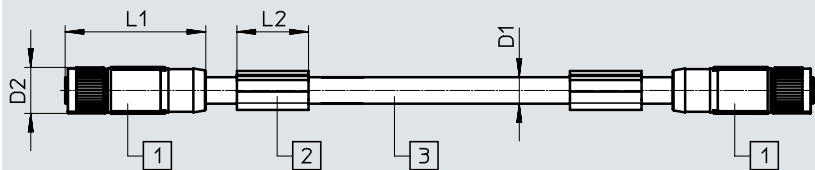|	Pin	Wire colour[1]	Pin	
	1	BN	1	
	2	BU	2	
	3	WH	3	
	4	GN	4	
	5	PK	5	
	6	YE	6	
	7	BK	7	
	8	GY	8	
	9	RD	9	
	10	VT	10	
	11	GY PK	11	
	12	RD BU	12	

1) To IEC 757

Data sheet
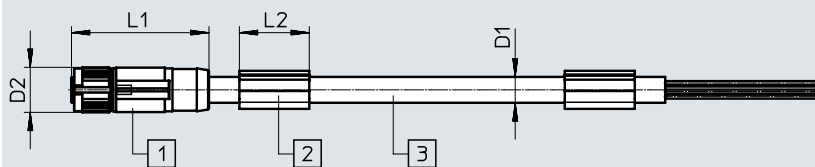
Dimensions Download CAD data ➜ www.festo.com

Electrical connection, socket M12x1, 12-pin – socket M12x1, 12-pin

[1] Socket, straight, M12x1,
     A-coded

[2] Inscription label holder

[3] Cable, length depending on the
     order

Type	D1 ∅	D2 ∅	L1	L2
NEBS-M12G12-KS-0.5-SM12G12	8.5	14.8	45.2	22
NEBS-M12G12-KS-2-SM12G12				

Electrical connection, socket M12x1, 12-pin – open cable end

[1] Socket, straight, M12x1,
     A-coded

[2] Inscription label holder

[3] Cable, length depending on the
     order

Type	D1 ∅	D2 ∅	L1	L2
NEBS-M12G12-KS-5-LE12	8.5	14.8	45.2	22
NEBS-M12G12-KS-10-LE12				

Ordering data

Electrical connection				Cable length [m]	Weight [g]	Part no.	Type
Connection 1		Connection 2					
Socket, straight design	12-pin	Socket, straight design	12-pin	0.5	87	**3056124**	**NEBS-M12G12-KS-0.5-SM12G12**
				2	223	**3058527**	**NEBS-M12G12-KS-2-SM12G12**
		Open end	12-wire	5	492	**3058614**	**NEBS-M12G12-KS-5-LE12**
				10	945	**2912452**	**NEBS-M12G12-KS-10-LE12**

Data sheet

Connecting cable
NEBS-SM12G12

- Pre-assembled at one or both ends
- Cable lengths 0.3 m, 0.5 m and 5 m
- 12 wires
- Plug M12x1
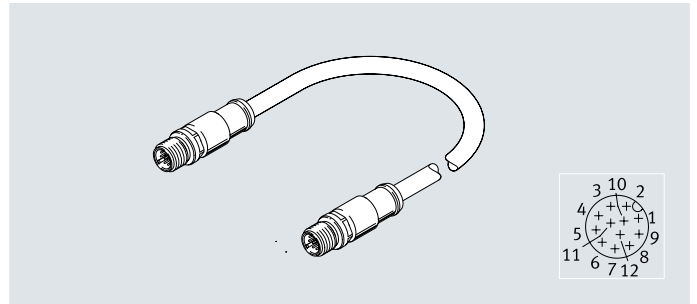
General technical data	
Conforms to standard	EN 61076-2-101
Cable designation	With accessories

Technical data – Electrical connection 1	
Function	Field device side
Connection type	Plug
Cable outlet	Straight
Design	Round
Connection technology	M12x1, A-coded to EN 61076-2-101
Number of pins/wires	12
Assigned pins/wires	12
Type of mounting	Screw-type lock with hexagon A/F 13 mm

Technical data – Electrical connection 2		
Function	Controller side	Controller side
Connection type	Plug	Cable
Cable outlet	Straight	–
Design	Round	–
Connection technology	M12x1, A-coded to EN 61076-2-101	Open end
Wire ends	–	Cut off bluntly
Number of pins/wires	12	12
Assigned pins/wires	12	12
Type of mounting	Screw-type lock with hexagon A/F 13 mm	–

Technical data – Electrical properties		
Operating voltage range	[V DC]	0 … 30
	[V AC]	0 … 30
Surge resistance	[kV]	0.5
Current rating at 40°C	[A]	1.5
Pollution degree		3
Contact durability		100

Data sheet

Technical data – Cable

Cable diameter	[mm]	6.5
Cable composition	[mm^2]	12x0.25
Conductor nominal cross section	[mm^2]	0.25
Cable characteristic		Suitable for energy chains
Bending radius, fixed cable installation	[mm]	≥32
Bending radius, flexible cable installation	[mm]	≥65
Cable test conditions		Test conditions on request

Materials

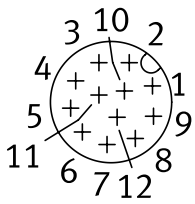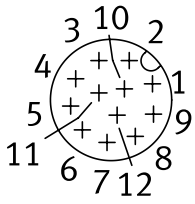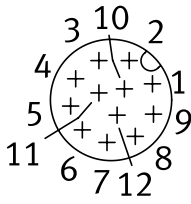|	
Housing	TPE-U(PUR)
Housing colour	Black
Screw-type lock	Nickel-plated, die-cast zinc
Pin contacts	Gold-plated brass
Cable sheath	TPE-U(PUR)
Cable sheath colour	Black
Note on materials	RoHS-compliant

Operating and environmental conditions

Ambient temperature	[°C]	−5 ... +70
Ambient temperature with flexible cable installation	[°C]	−5 ... +70
Degree of protection		IP67
Note on degree of protection		When mounted
Corrosion resistance class CRC[1]		1
CE marking (see declaration of conformity)[2]		To EU RoHS Directive
UKCA marking (see declaration of conformity)[2]		To UK RoHS instructions
PWIS conformity		VDMA24364-B2-L

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
   Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

2) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

Data sheet

Circuitry (plug view)

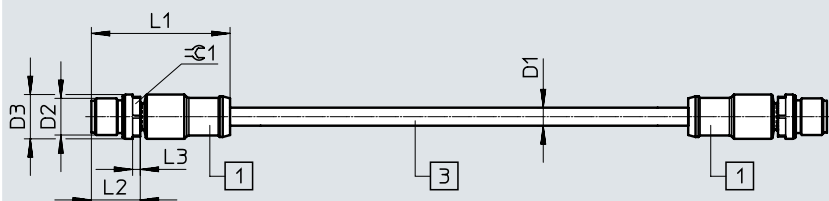| Electrical connection 1	Pin	Wire colour[1]	Pin	Electrical connection 2
Electrical connection, plug M12x1, 12-pin – open cable end				
	1	BN	–	–
	2	BU	–	
	3	WH	–	
	4	GN	–	
	5	PK	–	
	6	YE	–	
	7	BK	–	
	8	GY	–	
	9	RD	–	
	10	VT	–	
	11	GY PK	–	
	12	RD BU	–	
Electrical connection, plug M12x1, 12-pin – plug M12x1, 12-pin				
	1	BN	1	
	2	BU	2	
	3	WH	3	
	4	GN	4	
	5	PK	5	
	6	YE	6	
	7	BK	7	
	8	GY	8	
	9	RD	9	
	10	VT	10	
	11	GY PK	11	
	12	RD BU	12	

1) To IEC 757

Data sheet

Dimensions
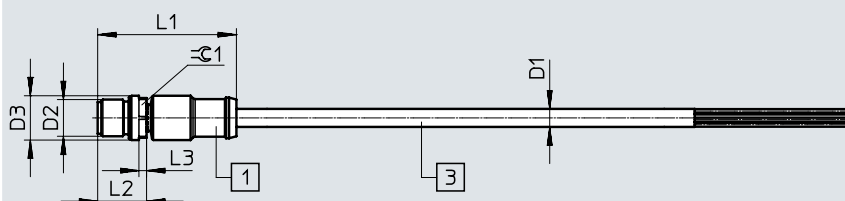
Download CAD data ➔ www.festo.com

Electrical connection, plug M12x1, 12-pin – socket M12x1, 12-pin

[1]   Plug, straight, 12-pin, M12x1,
      A-coded

[3]   Cable, length depending on the
      order

Type	D1 Ø	D2	D3 Ø	L1	L2	L3	⚊C 1
NEBS-SM12G12-E-0.3-N-M12G12	6.5	M12x1	14.5	45.4	16	2.5	13

Electrical connection, plug M12x1, 12-pin – open cable end
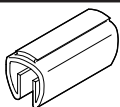
[1]   Plug, straight, 12-pin, M12x1,
      A-coded

[3]   Cable, length depending on the
      order

Type	D1 Ø	D2	D3 Ø	L1	L2	L3	⚊C 1
NEBS-SM12G12-E-0.5-N-LE12	6.5	M12x1	14.5	45.4	16	2.5	13
NEBS-SM12G12-E-5-N-LE12							

Ordering data

Electrical connection				Cable length [m]	Part no.	Type
Connection 1		Connection 2				
Plug, straight design	12-pin	Plug, straight design	12-pin	0.3	**3947404**	**NEBS-SM12G12-E-0.3-N-M12G12**
		Open end	12-wire	0.5	**3947401**	**NEBS-SM12G12-E-0.5-N-LE12**
				5	**3947395**	**NEBS-SM12G12-E-5-N-LE12**

Ordering data – Accessories

			Part no.	Type
	Inscription labels for attachment to a cable with diameter 5 … 8 mm	11x20 mm	**33361**	**KM-BZ**

Data sheet

Connecting cable
NEBS-SM16G24

- Connecting cable for Checkbox CHB-C
- Pre-assembled at one end
- Cable lengths 5 m and 10 m
- 25 wires
- Plug M16x0.75
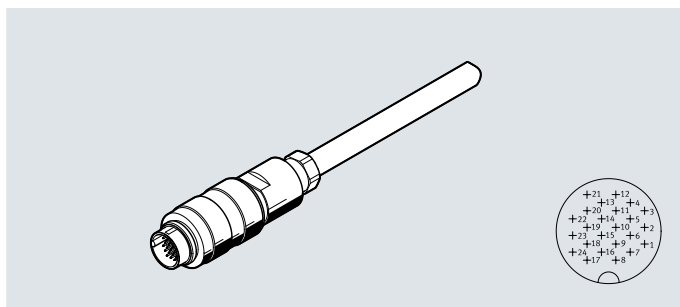
General technical data	
Based on standard	EN 61076-2-106
Conforms to standard	DIN 47100
Cable designation	Without inscription label holder

Technical data – Electrical connection 1	
Function	Field device side
Connection type	Plug
Cable outlet	Straight
Design	Round
Connection technology	M16x0.75
Number of pins/wires	24
Assigned pins/wires	24
Type of mounting	Screw-type lock

Technical data – Electrical connection 2	
Function	Controller side
Connection type	Cable
Connection technology	Open end
Wire ends	Cut off bluntly
Number of pins/wires	25
Assigned pins/wires	24

Technical data – Electrical properties		
Operating voltage range	[V DC]	30
Surge resistance	[kV]	0.5
Current rating at 40°C	[A]	1
Pollution degree		1
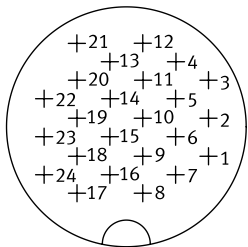
Technical data – Cable		
Cable diameter	[mm]	8.5
Cable composition	[mm²]	25x0.14
Conductor nominal cross section	[mm²]	0.14
Cable characteristic		Standard
Bending radius, fixed cable installation	[mm]	≥51
Bending radius, flexible cable installation	[mm]	≥127.5

Data sheet

Materials

Housing	PA
Screw-type lock	Nickel-plated brass
Pin contacts	Gold-plated brass
Cable sheath	PVC
Cable sheath colour	Grey
Insulating sheath	PVC
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364-B2-L

Operating and environmental conditions

Ambient temperature	[°C]	−30 ... +70
Ambient temperature with flexible cable installation	[°C]	−5 ... +70
CE marking (see declaration of conformity)[1]		To EU RoHS Directive
UKCA marking (see declaration of conformity)[1]		To UK RoHS instructions
Degree of protection		IP67

1) Additional information: www.festo.com/catalogue/... ➔ Support/Downloads.

Circuitry (plug view)

Electrical connection 1	Pin	Wire colour[1]	Pin	Electrical connection 2
	1	WH	–	–
	2	BN	–	
	3	GN	–	
	4	YE	–	
	5	GY	–	
	6	PK	–	
	7	BU	–	
	8	RD	–	
	9	BK	–	
	10	VT	–	
	11	GY PK	–	
	12	RD BU	–	
	13	WH GN	–	
	14	BN GN	–	
	15	WH YE	–	
	16	YE BN	–	
	17	WH GY	–	
	18	GY BN	–	
	19	WH PK	–	
	20	PK BN	–	
	21	WH BU	–	
	22	BN BU	–	
	23	WH RD	–	
	24	BN RD	–	
	n.c.	WH BK	–	

1) To IEC 757

Ordering data

Electrical connection				Cable length	Weight	Part no.	Type
Connection 1		Connection 2		[m]	[g]		
Plug, straight design	24-pin	Open end	25-wire	5	745	**8048653**	**NEBS-SM16G24-K-5-N-LE24**
				10	1490	**8048654**	**NEBS-SM16G24-K-10-N-LE24**

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