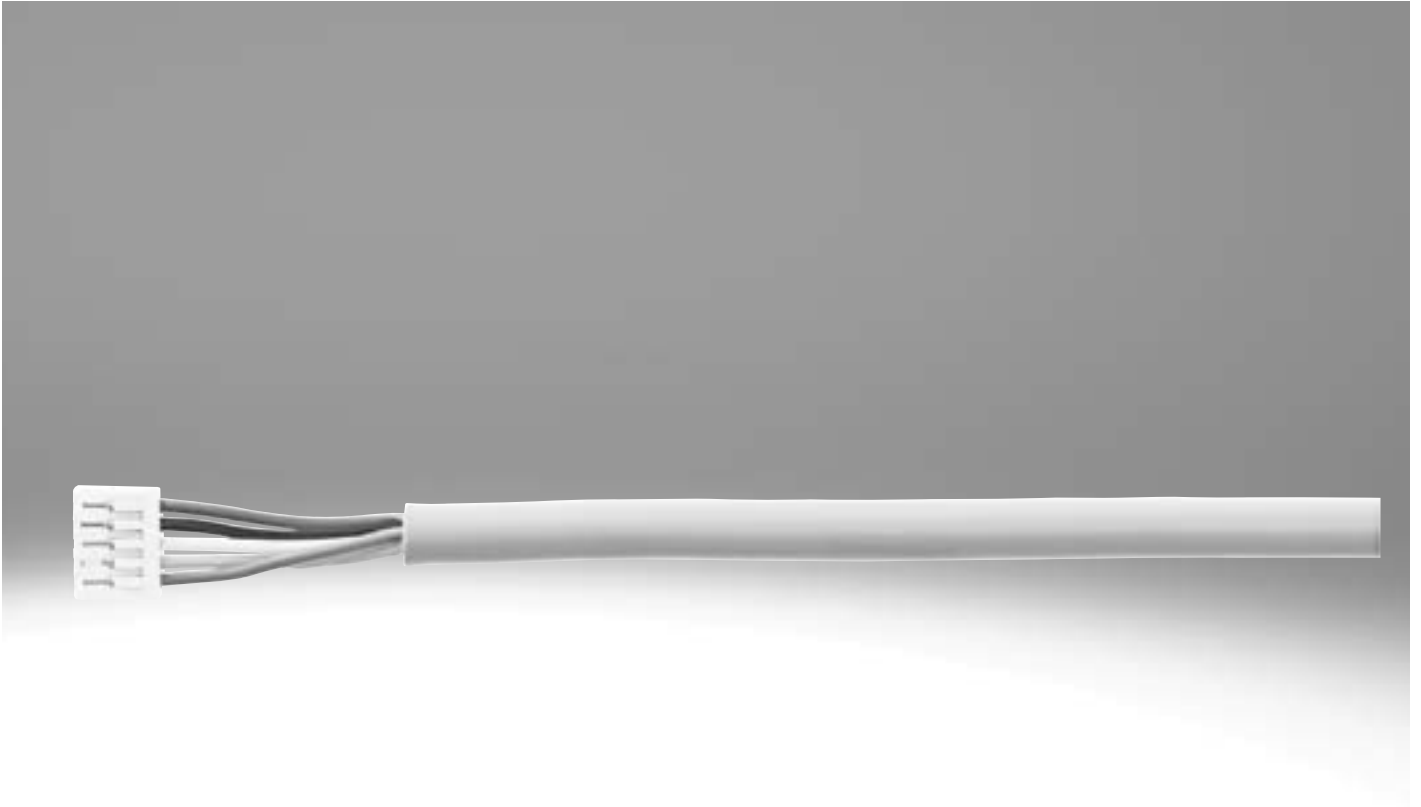


## Connecting cables NEBS, for sensors

**FESTO**



Product range overview

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

## Type codes

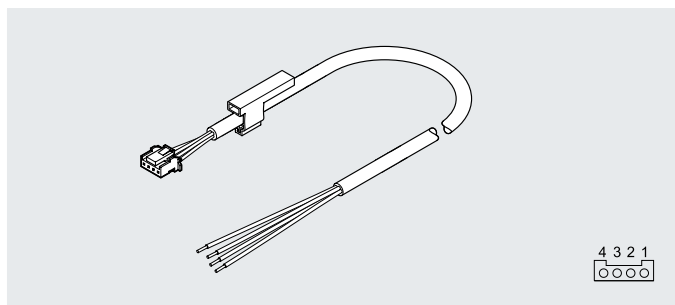
|             |  |  |
|-------------|--|--|
| <b>001</b>  | <b>Series</b>  |  |
| <b>NEBS</b> | Connecting cable for sensors                         |  |
| <b>002</b>  | <b>Connection technology left, field device side</b> |  |
| <b>M12</b>  | Socket M12x1 A-coded, EN 61076-2-101                 |  |
| <b>SM12</b> | Plug M12x1 A-coded                                   |  |
| <b>SM16</b> | Plug M16   |  |
| <b>L1</b>   | PCB plug connector                                   |  |
| <b>003</b>  | <b>Cable outlet left</b>                             |  |
| <b>G</b>    | Straight   |  |
| <b>004</b>  | <b>Number of pins/wires on the left</b>              |  |
| <b>4</b>    | 4  |  |
| <b>5</b>    | 5  |  |
| <b>12</b>   | 12   |  |
| <b>24</b>   | 24   |  |
| <b>005</b>  | <b>Cable characteristic</b>                          |  |
| <b>K</b>    | Standard   |  |
| <b>E</b>    | Suitable for energy chains                           |  |
| <b>006</b>  | <b>Cable design</b>                                  |  |
|             | Standard   |  |
| <b>S</b>    | With shielding                                       |  |

|             |   |  |
|-------------|---|--|
| <b>007</b>  | <b>Cable length [m]</b>                             |  |
| <b>0.3</b>  | 0.3   |  |
| <b>0.5</b>  | 0.5   |  |
| <b>1</b>    | 1   |  |
| <b>2</b>    | 2   |  |
| <b>2.5</b>  | 2.5   |  |
| <b>5</b>    | 5   |  |
| <b>10</b>   | 10  |  |
| <b>15</b>   | 15  |  |
| <b>008</b>  | <b>Cable identification</b>                         |  |
|             | With label holder                                   |  |
| <b>N</b>    | Without label holder                                |  |
| <b>009</b>  | <b>Connection technology right, controller side</b> |  |
| <b>M12</b>  | Plug M12x1 A-coded, EN 61076-2-101                  |  |
| <b>SM12</b> | Socket, M12, A-coded                                |  |
| <b>LE</b>   | Open end  |  |
| <b>010</b>  | <b>Plug/socket</b>                                  |  |
|             | None  |  |
| <b>G</b>    | Straight  |  |
| <b>011</b>  | <b>Number of pins/wires on the right</b>            |  |
| <b>4</b>    | 4   |  |
| <b>5</b>    | 5   |  |
| <b>12</b>   | 12  |  |
| <b>24</b>   | 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                       | ±0.1                       |
| 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 <sup>2</sup> ] | 4x0.25                     | 4x0.17                     |
| Conductor nominal cross section             | [mm <sup>2</sup> ] | 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        | Contains paint-wetting impairment substances |

| 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 <sup>1)</sup>             |      | 2                         | 4                    |
| CE marking (see declaration of conformity) <sup>2)</sup> |      | –                         | To EU RoHS Directive |
| Degree of protection                                     |      | IP65                      | IP40                 |
|  |      | IP67                      |                      |
|  |      | IP69K                     |                      |
| Note on degree of protection                             |      | When mounted              | When mounted         |
|  |      | IP40 for plug pattern L1] |                      |

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.

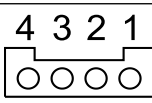
Corrosion resistance class CRC 4 to Festo standard FN 940070

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/sp](http://www.festo.com/sp) → Certificates.

Data sheet

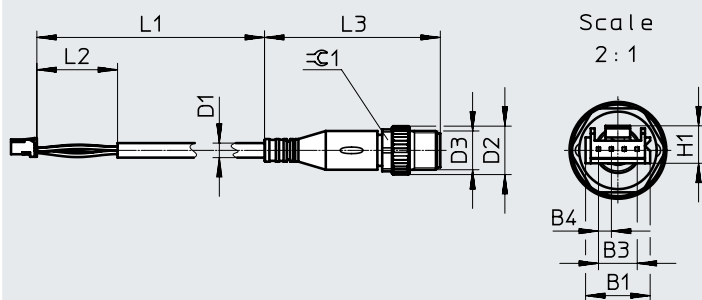
| Circuitry (socket view)  |   | Pin | Wire colour <sup>1)</sup> | Pin | Electrical connection 2 |
|--|---|-----|---------------------------|-----|-------------------------|
| Electrical connection 1  |   |     |                           |     |                         |
| <b>Electrical connection, socket, rectangular design L1 – open cable end</b>     |   |     |                           |     |                         |
|  | 1 |     | BN                        | -   | -                       |
|  | 2 |     | BK                        | -   | -                       |
|  | 3 |     | WH                        | -   | -                       |
|  | 4 |     | BU                        | -   | -                       |

1) To IEC 757

Dimensions

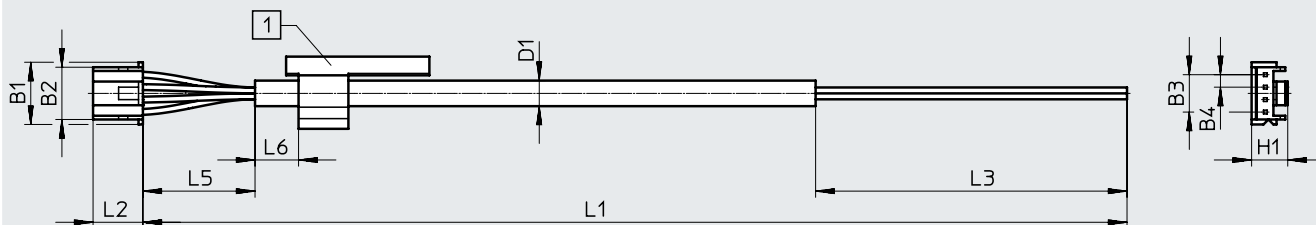
Download CAD data → [www.festo.com](http://www.festo.com)

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



| Type                  | B1 | B3 | B4 | D1<br>∅ | D2<br>∅ | D3    | H1  | L1   | L2 | L3   | ⊕  |
|-----------------------|----|----|----|---------|---------|-------|-----|------|----|------|----|
| 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

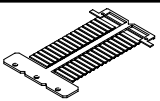


[1] Inscription label holder

| Type                | B1 | B2  | B3 | B4 | D1<br>∅ | 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                 |       |                     |        | Cable length<br>[m] | Weight<br>[g] | Part no.       | Type                         |
|-------------------------------|-------|---------------------|--------|---------------------|---------------|----------------|------------------------------|
| Electrical connection         |       | Connection 2        |        |                     |               |                |                              |
| Connection 1                  |       | Connection 2        |        |                     |               |                |                              |
| Socket, rectangular design L1 | 4-pin | Plug M12x1, A-coded | 4-pin  | 1                   | 40            | <b>8091514</b> | <b>NEBS-L1G4-K-1-N-M12G4</b> |
|                               |       | Open end            | 4-wire | 2.5                 | 53            | <b>572576</b>  | <b>NEBS-L1G4-K-2.5-LE4</b>   |
|                               |       |                     |        | 5                   | 106           | <b>572577</b>  | <b>NEBS-L1G4-K-5-LE4</b>     |

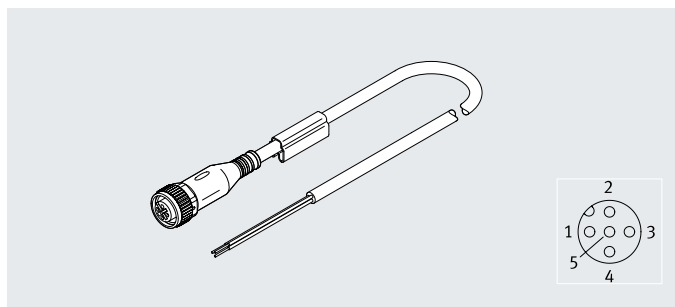
| Ordering data – Accessories   |   |         |               |                   |                  |
|---|---|---------|---------------|-------------------|------------------|
|   | Use   | Size    | Part no.      | Type              | pU <sup>1)</sup> |
|  | Inscription label for insertion in label holder | 23x4 mm | <b>541598</b> | <b>ASLR-L-423</b> | <b>30</b>        |

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                           | [mm <sup>2</sup> ] | 5x0.34                     |
|   |                    | Shielded                   |
| Conductor nominal cross section             | [mm <sup>2</sup> ] | 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                        |

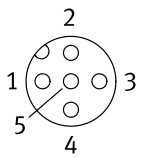


## Data sheet

| 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                       |

| Operating and environmental conditions                   |                      |             |
|--|----------------------|-------------|
| Ambient temperature                                      | [°C]                 | -40 ... +80 |
| Ambient temperature with flexible cable installation     | [°C]                 | -25 ... +60 |
| CE marking (see declaration of conformity) <sup>1)</sup> | To EU RoHS Directive |             |
| Degree of protection                                     | IP65                 |             |
|  | IP67                 |             |
| Note on degree of protection                             | When mounted         |             |

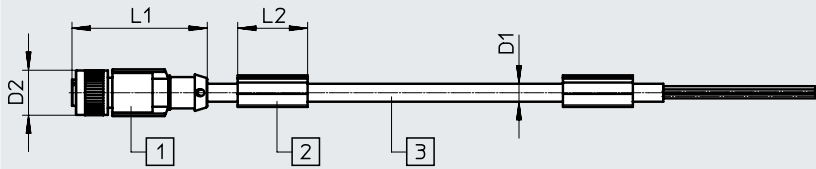
1) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates

| Circuitry (socket view)  |     |                           |     |                         |
|--|-----|---------------------------|-----|-------------------------|
| Electrical connection 1  | Pin | Wire colour <sup>1)</sup> | 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](http://www.festo.com)



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

[2] Inscription label holder

[3] Cable, length depending on the order

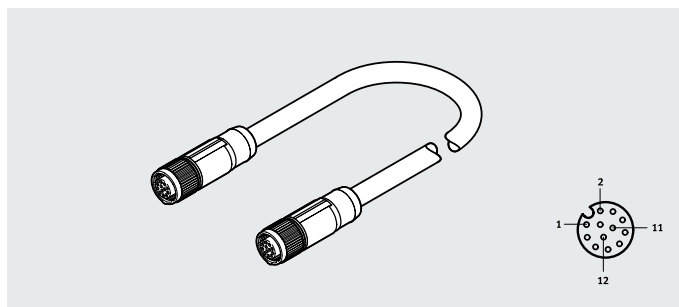
| Type                 | D1<br>∅ | D2<br>∅ | L1   | L2 |
|----------------------|---------|---------|------|----|
| NEBS-M12G5-ES-5-LE5  | 5.25    | 14.8    | 44.5 | 22 |
| NEBS-M12G5-ES-10-LE5 |         |         |      |    |
| NEBS-M12G5-ES-15-LE5 |         |         |      |    |

| Ordering data           |       |              |        | Cable length<br>[m] | Weight<br>[g] | Part no. | Type                 |
|-------------------------|-------|--------------|--------|---------------------|---------------|----------|----------------------|
| Electrical connection   |       | Connection 2 |        |                     |               |          |                      |
| 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                    | –               |
| 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 <sup>2</sup> ]               | 12x0.14                             |
|  | Shielded                            |
| Conductor nominal cross section [mm <sup>2</sup> ] | 0.14                                |
| Cable characteristic                               | Basic                               |
| Minimum cable bending radius [mm]                  | 85                                  |
| 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                      |

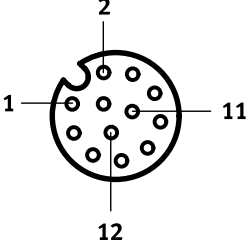
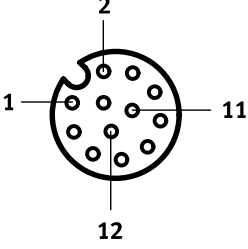
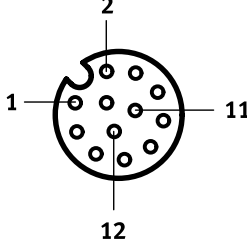
## Data sheet

| Operating and environmental conditions                   |      |                      |
|--|------|----------------------|
| Ambient temperature                                      | [°C] | -30 ... +80          |
| Ambient temperature with flexible cable installation     | [°C] | -25 ... +80          |
| CE marking (see declaration of conformity) <sup>2)</sup> |      | To EU RoHS Directive |
| Degree of protection                                     |      | IP67                 |
| Corrosion resistance class CRC <sup>1)</sup>             |      | 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) Más información en [www.festo.com/sp](http://www.festo.com/sp) → Certificados

| Circuitry (socket view)   |     |                           |     |   |
|---|-----|---------------------------|-----|---|
| Electrical connection 1   | Pin | Wire colour <sup>1)</sup> | Pin | Electrical connection 2   |
| <b>Electrical connection, socket M12x1, 12-pin – open cable end</b>                 |     |                           |     |   |
|    | 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                     | -   | -   |
| <b>Electrical connection, socket M12x1, 12-pin – socket M12x1, 12-pin</b>           |     |                           |     |   |
|  | 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  |   |

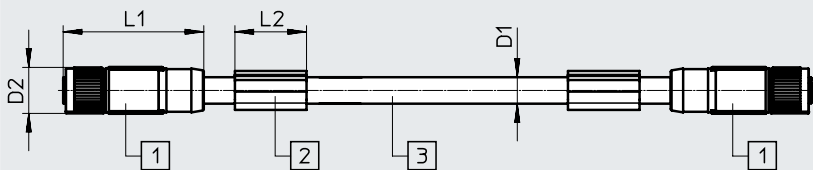
1) To IEC 757

Data sheet

**Dimensions**

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

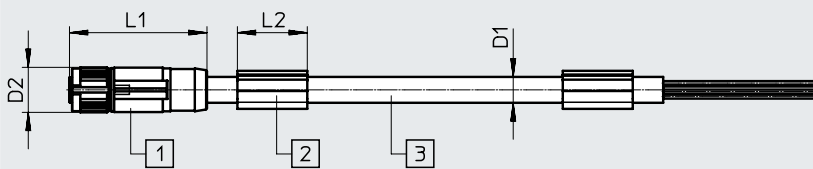
Electrical connection, socket M12x1, 12-pin – socket M12x1, 12-pin



- [1] Socket, straight, M12x1, A-coded
- [2] Inscription label holder
- [3] Cable, length depending on the order

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

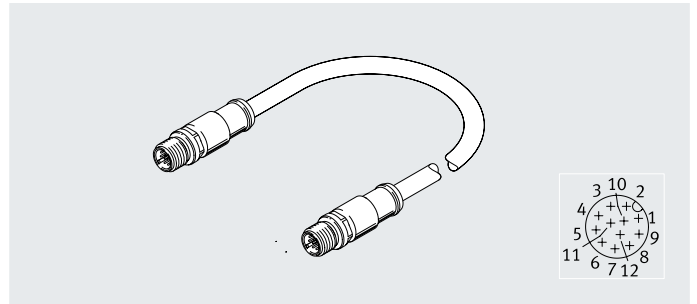
**Ordering data**

| Electrical connection   |          |                         |        | Cable length<br>[m] | Weight<br>[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 |
|                         |          |                         | 12-pin | 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 <sup>2</sup> ] | 12x0.25                    |
| Conductor nominal cross section             | [mm <sup>2</sup> ] | 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 <sup>1)</sup>         |      | 1            |

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).

Data sheet

| Circuitry (plug view)   |    | Electrical connection 1 |       | Pin | Wire colour <sup>1)</sup> | Pin | Electrical connection 2 |
|---|----|-------------------------|-------|-----|---------------------------|-----|-------------------------|
| <b>Electrical connection, plug M12x1, 12-pin – open cable end</b>     |    |                         |       |     |                           |     |                         |
|   | 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 | -   | -                         |     |                         |
| <b>Electrical connection, plug M12x1, 12-pin – plug M12x1, 12-pin</b> |    |                         |       |     |                           |     |                         |
|   | 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  |                           |     |                         |

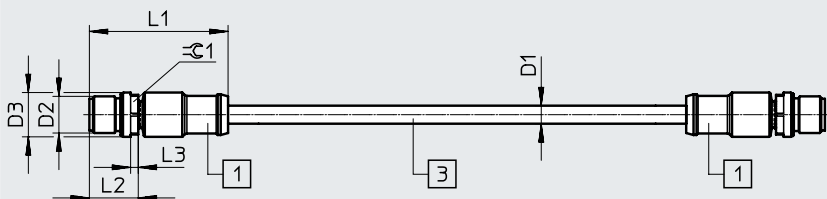
1) To IEC 757

Data sheet

Dimensions

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

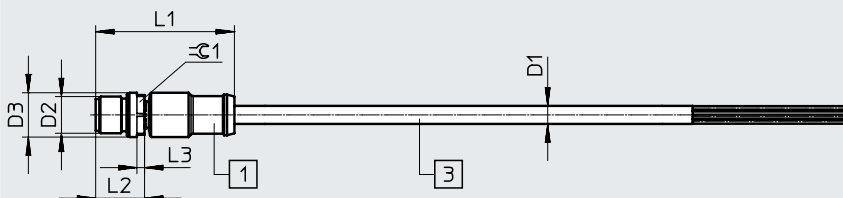
Electrical connection, plug M12x1, 12-pin – socket M12x1, 12-pin



- [1] Plug, straight, 12-pin, M12x1, A-coded
- [3] Cable, length depending on the order

| Type                        | D1<br>∅ | D2    | D3<br>∅ | L1   | L2 | L3  | ∅ 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



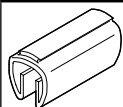
- [1] Plug, straight, 12-pin, M12x1, A-coded
- [3] Cable, length depending on the order

| Type                      | D1<br>∅ | D2    | D3<br>∅ | L1   | L2 | L3  | ∅ 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

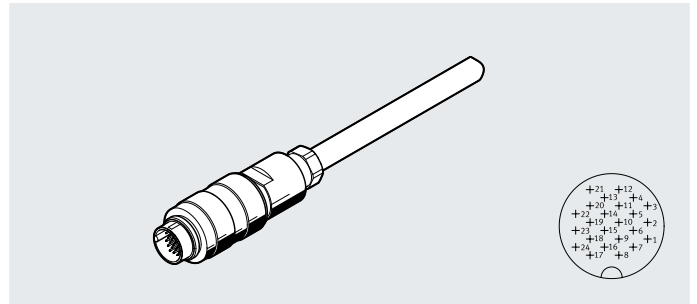
|  |   |          | Part no. | Type  |
|--|---|----------|----------|-------|
|  | Inscription labels for attachment to a cable with diameter 5 ... 8 mm | 11x20 mm | 33361    | KM-BZ |



## 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                           | [mm <sup>2</sup> ] | 25x0.14  |
| Conductor nominal cross section             | [mm <sup>2</sup> ] | 0.14     |
| Cable characteristic                        |                    | Standard |
| Bending radius, fixed cable installation    | [mm]               | ≥51      |
| Bending radius, flexible cable installation | [mm]               | ≥127.5   |

# Connecting cables, plug M16x0.75, 24-pin

## 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      |

| Operating and environmental conditions                   |      |                      |
|--|------|----------------------|
| Ambient temperature                                      | [°C] | -30 ... +70          |
| Ambient temperature with flexible cable installation     | [°C] | -5 ... +70           |
| CE marking (see declaration of conformity) <sup>1)</sup> |      | To EU RoHS Directive |
| Degree of protection                                     |      | IP67                 |

1) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates

| Circuitry (plug view)   |      |                           |     |                         |
|-------------------------|------|---------------------------|-----|-------------------------|
| Electrical connection 1 | Pin  | Wire colour <sup>1)</sup> | 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 |