

## Supplementary instructions

### Connection cables

With M12 plug connector



Document ID: 55494



**VEGA**

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## **1 For your safety**

### **1.1 Appropriate use**

The connection cables described here are used to connect sensors with plug connector M12 x 1 to the power supply/signal processing.

### **1.2 Impermissible use**

As a rule, the cables are not allowed to be used with four-wire instruments. Four-wire instruments are sensors for direct mains connection whose power supply and measurement signal are transmitted over two separate pairs of wires.

### **1.3 General safety instructions**

The safety information in the operating instructions manual of the respective sensor must be noted.

### **1.4 Safety instructions for Ex areas**

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions and come with the Ex-approved instruments.

For instruments with Ex-d or StEx approval, the use of these cables is not allowed.

## 2 Product description

### 2.1 Configuration

#### Scope of delivery

The scope of delivery encompasses:

- Connection cable
- Documentation
  - This operating instructions manual

#### Versions

The cables are available in the following versions:

- M12 plug connector on both sides
- M12 plug connector one-sided, open cable ends
- With food/pharmaceutical certificate

### 2.2 Principle of operation

#### Area of application

The cables are used to connect sensors with M12 plug connectors to the power supply/signal processing. The versions with M12 plug connector on both sides are intended in particular for connecting sensors with IO-Link to an IO-Link master.

The cables are suitable for the following sensors:.

- Sensors of the plics® family
  - VEGAPULS series 60
  - VEGAFLEX 80 series
  - VEGASON series 60
  - VEGABAR series 80
  - VEGACAL series 60
  - VEGASWING series 60
  - VEGAVIB series 60
  - VEGAWAVE series 60
- Compact devices
  - VEGAPULS 10, 20, 30 series
  - VEGABAR 10, 20, 30 series
  - VEGAPOINT 10, 20, 30 series
  - VEGASWING 51

#### Position in the housing - plics® devices

The following illustration shows the position of the M12 plug connector in the respective housing:

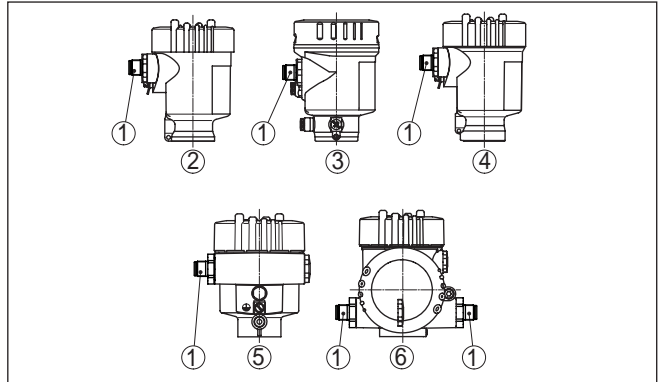


Fig. 1: Position M12 plug connector - plics® devices

- 1 Plug connector
- 2 Single chamber housing plastic
- 3 Single chamber housing, stainless steel (electropolished)
- 4 Single chamber housing stainless steel (precision casting)
- 5 Single chamber housing Aluminium
- 6 Double chamber housing stainless steel (precision casting), Aluminium
- 7 Double chamber stainless steel (precision casting), Aluminium - with additional current output

**Position in the housing - compact devices**

The following illustration shows the position of the M12 plug connector in the respective housing:

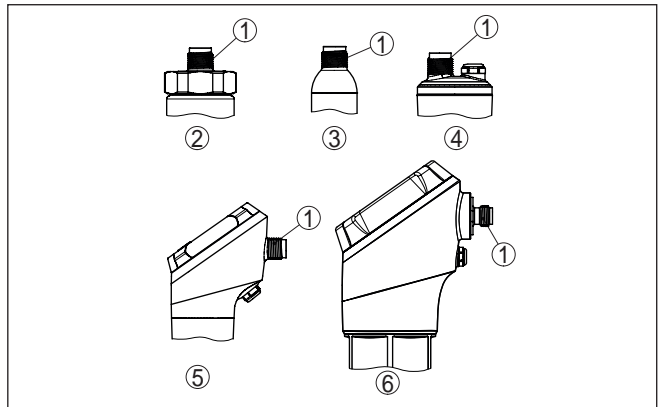


Fig. 2: Position M12 plug connector - compact devices

- 1 M12 plug connector
- 2 VEGABAR 10 series, VEGASWING 51
- 3 VEGAPOINT 10 series
- 4 VEGABAR 20 series, VEGAPOINT 20, 30 series
- 5 VEGABAR 30 series
- 6 VEGAPULS 30 series

### 3 Wiring plan

#### 3.1 Plug connector on both sides

**Plug connector, straight**

Product code: M12PC.XXXX

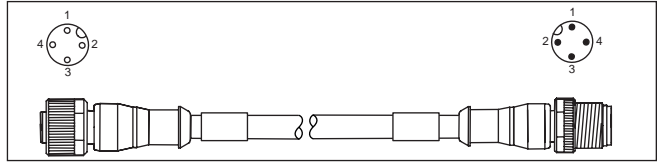


Fig. 3: Connection cable with plug connector on both sides - straight

**Plug connector, bent**

Product code: M12PC.XXXX

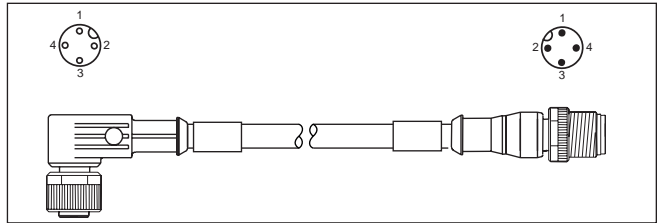


Fig. 4: Connection cable with plug connector on both sides - bent

#### 3.2 Plug connector one-sided, open cable ends

**Plug connector  
straight – Stainless steel**

Product code: M12FL.XXX

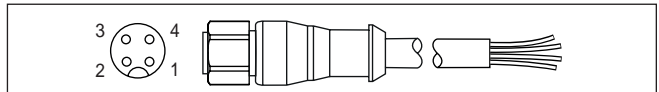


Fig. 5: Connection cable with plug connector at single-sided - straight, stainless steel

**Plug connector  
bent – Stainless steel**

Product code: M12FL.XXX

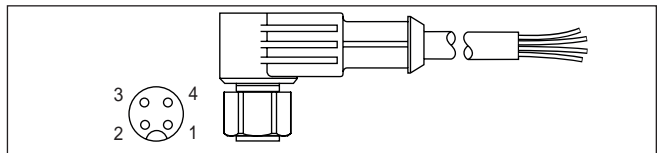


Fig. 6: Connection cable with plug connector at single-sided - bent, stainless steel

**Plug connector  
bent – Zinc nickel plated**

Product code: M12FL.XXX

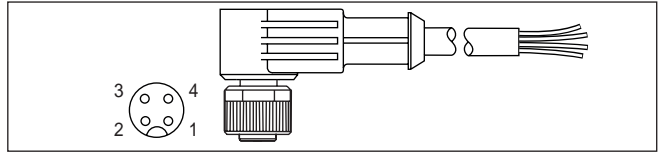


Fig. 7: Connection cable with plug connector at single-sided - bent, Zinc nickel plated

**Assignment**

Contact, plug connector	Wire colour	Function/Polarity
1	Brown	Voltage supply/Plus
2	White	Sensor-dependent
3	Blue	Voltage supply/Minus
4	Black	Sensor-dependent

**3.3 Plug connector single-sided (special cable for PA/FF sensors with VEGADIS 81)**

Product code: ASL.XX

**Plug connector straight – Brass nickel plated**

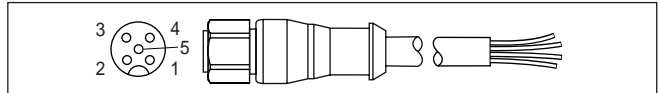


Fig. 8: Connection cable with plug connector at single-sided - straight, brass nickel plated

Contact, plug connector	Wire colour	Function/Polarity
1	Brown	Voltage supply/Plus
2	White	Free
3	Blue	Voltage supply/Minus
4	Black	Inner shielding
5	Yellow-green	Outer shielding

## 4 Supplement

### 4.1 Technical data

#### Mechanical data

##### Cable

- |                                      |                                  |
|--------------------------------------|----------------------------------|
| - Length                             | Depending on order specification |
| - Diameter standard approx.          | 5.0 mm (0.197 in)                |
| - Diameter special cable approx.     | 7.1 mm (0.280 in)                |
| - Min. bending radius at 25 °C/77 °F | 25 mm (0.984 in)                 |

##### Threaded fitting

- |                                 |                      |
|---------------------------------|----------------------|
| - Size                          | M12x1                |
| - Wrench size                   | SW 13                |
| - Recommended tightening torque | 0.6 Nm (0.45 lbf ft) |

#### Materials

##### Cable

- |   |                 |
|---|-----------------|
| - Cover                                       | PVC, PUR, TPE-S |
| - Colour standard/Ex version                  | black/blue      |
| - Colour with food/pharmaceutical certificate | Pastel blue     |

##### Threaded fitting

Stainless steel 1.4404, brass nickel-plated, zinc die-cast nickel-plated

##### Overmoulding

PP, PUR

#### Ambient conditions

##### Ambient temperature

- |  |                                   |
|--|-----------------------------------|
| - Standard                             | -25 ... +80 °C (-13 ... +176 °F)  |
| - With food/pharmaceutical certificate | -25 ... +105 °C (-13 ... +221 °F) |

#### Electrical data

##### Wire cross-section

4 x 0.34 mm<sup>2</sup> (AWG 22)

##### Operating voltage U<sub>B</sub> max.

- |  |             |
|--|-------------|
| - Standard                             | 250 V AC/DC |
| - With food/pharmaceutical certificate | 125 V AC/DC |

##### Reference surge voltage

- |  |        |
|--|--------|
| - Standard                             | 2.5 kV |
| - With food/pharmaceutical certificate | 1.5 kV |
| - Special cable                        | 2.0 kV |
| - Standard                             | 2.5 kV |

##### Operating current per contact, max.

4 A

##### Insulating material group

Category 1 acc. to IEC 60664-1



**Electrical protective measures**

Protection in assembled and screwed state

- Plug connector on both sides IP67 according to EN 60529
- Plug connector on both sides with food/pharmaceutical certificate IP69K according to EN 60529
- Plug connector single-sided, brass nickel-plated IP67 according to EN 60529
- Plug connector single-sided, stainless steel IP68 according to EN 60529

Pollution degree 3

**4.2 Dimensions**

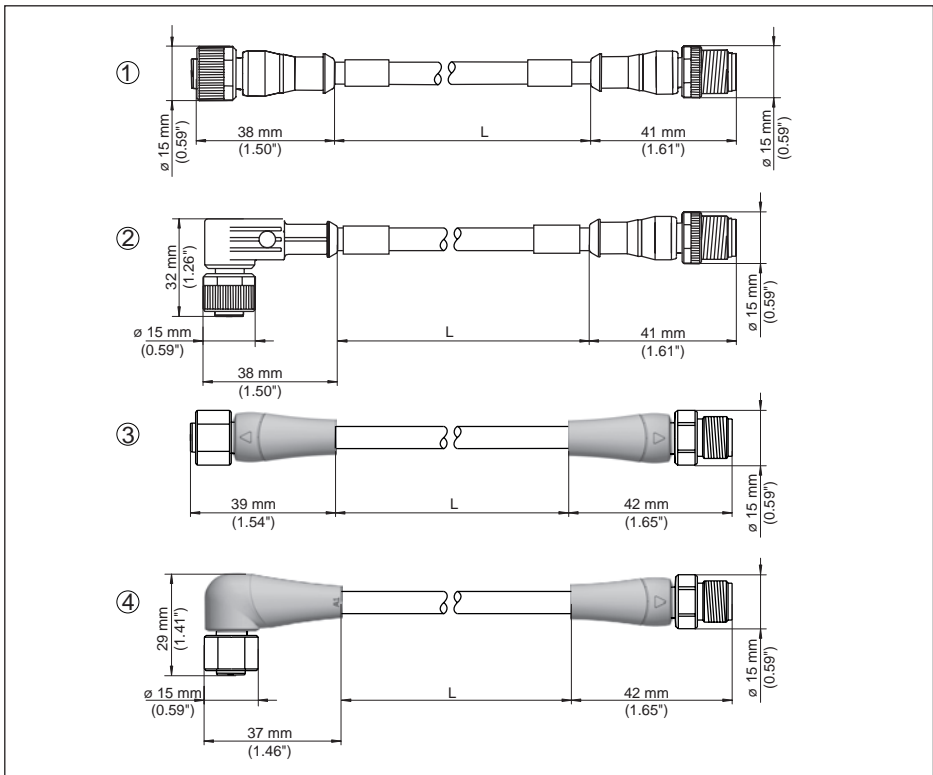


Fig. 9: Dimensions connection cables with plug connector M12 on both sides

- 1 Plug connector, straight
- 2 Plug connector, bent
- 3 Plug connector straight – with food/pharmaceutical certificate
- 4 Plug connector bent – with food/pharmaceutical certificate

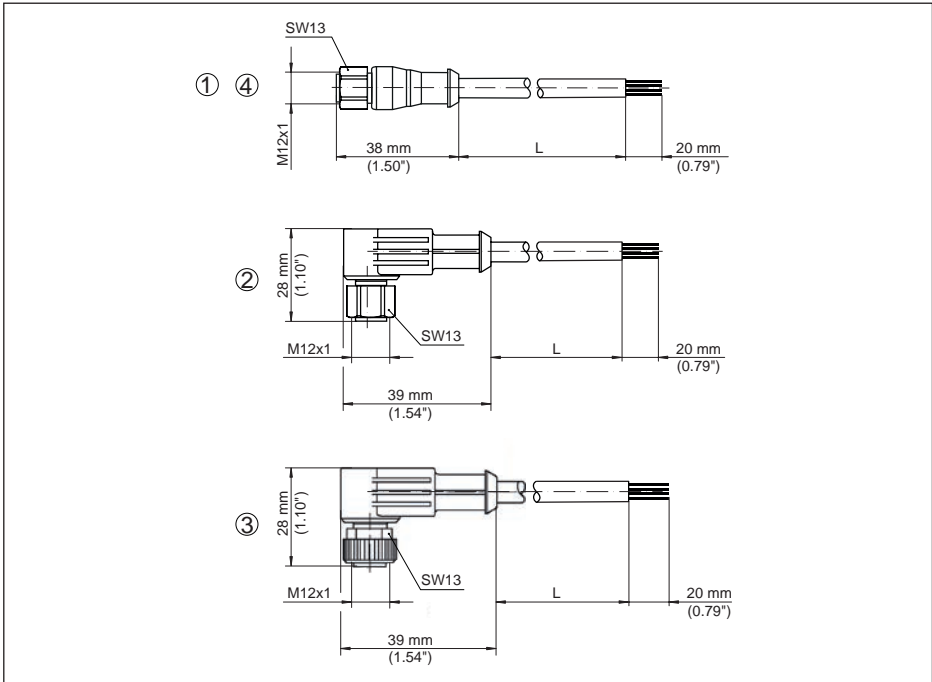


Fig. 10: Dimensions connection cables with plug connector M12 single-sided, open cable ends

- 1 Plug connector straight - Stainless steel
- 2 Plug connector bent - Stainless steel
- 3 Plug connector bent - Zinc die-cast
- 4 Plug connector straight - Brass nickel plated



Printing date:

# VEGA

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice

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55494-EN-191204

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