Supplementary instructions

Plug connector M12 x 1

for level sensors

Document ID: 30382

Contents

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 manual and come with the Ex-approved instruments.

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1 For your safety

1.1 Appropriate use

The plug connectors belong to the accessories for level, switching and pressure sensors. They provide a detachable connection to power supply/signal processing for level switches.

1.2 General safety instructions

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

1.3 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 manual and come with the Ex-approved instruments.

For instruments with Exd or StEx approval, the use of plug connectors is not allowed.

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2 Product description

Scope of delivery

The scope of delivery encompasses:

- Plug connector
- Documentation
  - This supplementary instructions manual

Function

The plug connector is an accessory part for sensors with single or double chamber housing. It is used as separable connection to:

- the voltage supply or signal processing
- an external display and adjustment unit
- a slave sensor

Configuration

The plug connector consists of an M12 x 1 plug, a multicore, fixed connected cable as well as the corresponding angle junction box. The individual cores are marked with figures for the terminals of the electronics module. The number of cores differs depending on the signal output of the sensor.

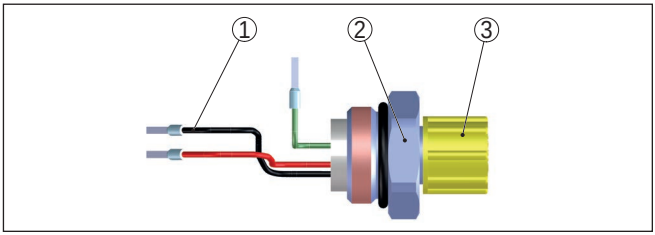

Fig. 1: Configuration plug connector M12 x 1 - Example

1 Connection cable
2 M12 x 1 plug
3 Protective cap

Area of application

The plug connector is inserted instead of the cable gland into the single chamber or the blind plug into the double chamber housing. The plug connector is available with M16 (for blind plugs) and M20 (for cable glands) threads.

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3 Mounting

3.1 Mounting preparations

Tools

The following tools are required for mounting:

- Single chamber housing
  - Spanner SW 24 for unscrewing the cable gland
  - Screwdriver SW 24 for screwing in the plug
- Double chamber housing
  - Screwdriver SW 19 for unscrewing the blind plug
  - Screwdriver SW 24 for screwing in the plug

3.2 Installation procedure

Position in the housing

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

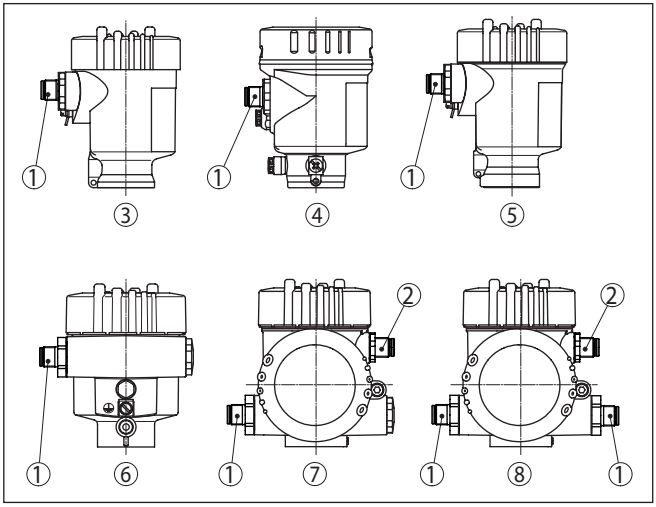

Fig. 2: Position of the plug connector on different instrument versions

1 Plug, connector voltage supply or signal processing
2 Plug, connector external display and adjustment unit or Slave sensor
3 Single chamber plastic
4 Single chamber stainless steel (electropolished)
5 Single chamber stainless steel (precision casting)
6 Single chamber Aluminium
7 Double chamber stainless steel (precision casting), Aluminium
8 Double chamber stainless steel (precision casting), Aluminium with additional current output

Installation

Proceed as follows to mount the plug connector:

1. Open the cover of the electronics compartment
2. Unscrew the blind plug
3. Screw in the M12 plug
4. Connect the wires according to chapter "*Connect*"

The mounting of the plug connector is finished.

Disassembly is carried out in reverse order.

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4 Connecting to power supply

4.1 General information

Each respective wiring plan shows the assignment of the individual pins of the plug connector to the respective signal outputs. The table shows the assignment of the individual contact pins to the terminals of the sensor electronics.

4.2 Wiring plan - M12 x 1 plug, 4-pole

Transistor output

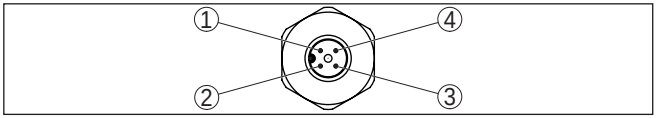

Fig. 3: View to the plug connector (M12 x 1 plug - 4-pole)

1 + (Pin 1)
2 Transistor output (Pin 2)
3 Transistor output (Pin 3)
4 - (Pin 4)

Contact pin	Colour - connection cable	Terminal - electronics module			
		VEGACAP, VEGAWAVE, VEGAVIB, VEGASWING 61 63, VEGAKON	VEGASWING 66	VEGAMIP R61, R62	VEGAMIP T61
Pin 1	Brown	1	1	1	1
Pin 2	White	2 (collector)	2 (PNP)	6	-
Pin 3	Blue	3 (emitter)	3 (NPN)	7	-
Pin 4	Black	4	4	2	2

Transistor output according to EN 50044

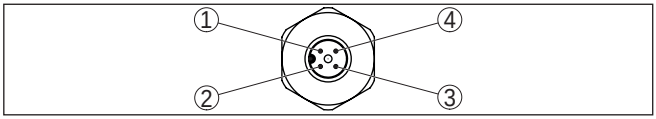

Fig. 4: View to plug connector according to EN 50044 (M12 x 1 plug - 4-pole)

1 + (Pin 1)
2 + (Pin 2) - cord not required, have it isolated
3 - (Pin 3)
4 Transistor output (Pin 4)

Contact pin	Colour - connection cable	Terminal - electronics module			
		VEGACAP, VEGAWAVE, VEGAVIB, VEGASWING 61 63, VEGAKON	VEGASWING 66	VEGAMIP R61, R62	VEGAMIP T61
Pin 1	Brown	1	1	1	1
-	Brown	2[1)]	-	6[2)]	-
Pin 3	Blue	4	4	2	2
Pin 4	Black	3	2	7	-

Two-wire output, NAMUR output

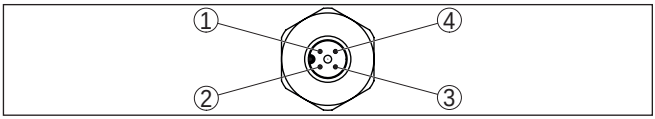

Fig. 5: View to the plug connector (M12 x 1 plug - 4-pole)

1 + (Pin 1)
2 free (Pin 2)
3 - (Pin 3)
4 free (Pin 4)

Contact pin	Colour - connection cable	Terminal, electronics module
Pin 1	Brown	1
Pin 3	Blue	2

4.3 Wiring plan - M12 x 1 plug, 5-pole

Transistor output

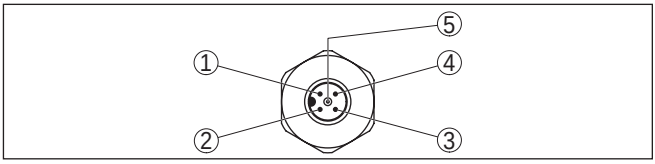

Fig. 6: View to the plug connector (M12 x 1 plug - 5-pole)

1 + (Pin 1)
2 Transistor output (Pin 2)
3 Transistor output (Pin 3)
4 - (Pin 4)
5 Screen (Pin 5)

[1)] Cable bridge between terminal 1 and terminal 2 on the electronics module
[2)] Cable bridge between terminal 1 and terminal 6 on the electronics module

Contact pin	Colour - connection cable	Terminal, electronics module
Pin 1	Brown	1
Pin 2	White	2
Pin 3	Blue	3
Pin 4	Black	4
Pin 5		⏚

Two-wire output, NAMUR output

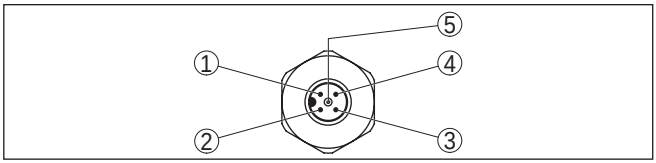

Fig. 8: View to the plug connector (M12 x 1 plug - 5-pole)

1 + (Pin 1)
2 free (Pin 2)
3 - (Pin 3)
4 free (Pin 4)
5 Screen (Pin 5)

Contact pin	Colour - connection cable	Terminal, electronics module
Pin 1	Brown	1
Pin 3	Blue	2
Pin 5		⏚

5 Supplement

5.1 Technical data

Materials	
Contact support	PA, self-extinguishing
Contact	CuZn, nickel layer and 0.8 µm gold-plated
Housing	
– Plastic version	PA 66 (UL94-HB)
– Stainless steel version (only for two-wire and NAMUR versions)	316L
O-ring	FKM

Temperature range	
Plug connector - separate	-40 … +85 °C (-40 … +185 °F)
Plug - mounted on the sensor	The lowest temperature is applicable

Electrical data	
Ampacity	4 A
Reference voltage	
– Plug - 4-pole	50 V AC
– Plug - 5-pole	35 V AC
Insulation group	C according to VDE 0110
Test voltage	2 kV eff./60 s
Isolation resistance	> 10^3 MOhm

Protection rating	
Plug connector - separate (connected status)	
– Plastic version	IP 67
– Stainless steel version (only for two-wire and NAMUR versions)	IP 68 (0.2 bar/3 psig)
Plug connector - mounted on the sensor (connected status)	
– All versions	The lowest protection category applies

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VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail: info.de@vega.com
www.vega.com