Supplementary instructions

Plug connector ISO 4400

for continuously measuring sensors

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1 For your safety

1.1 Appropriate use
Plug connectors are accessory parts for level and pressure sensors. They are used for separable connection to power supply/signal processing for two-wire sensors. Those are sensors whose power supply as well as measurement signal are transmitted over one pair of wires.

1.2 Impermissible use
As a rule, it is not allowed to use plug connectors with four-wire instruments. Those are sensors 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 manual and come with the Ex-approved instruments. For instruments with Exd or StEx approval, the use of plug connectors is not allowed.
2 Product description

Scope of delivery
The scope of delivery encompasses:

- Instrument plug - to be screwed in the sensor housing
- Angle junction box - for cable connection
- 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 power supply and signal processing.

Configuration
The plug connector consists of an instrument 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.

Area of application
The plug connector is used instead of the cable gland in the single or double chamber housing.

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Fig. 1: Configuration plug connector ISO 4400 - Example

1. Connection cable
2. Instrument plug
3. Angle junction box
3 Mounting

3.1 Mounting preparations
The following tools are required for mounting:
- Spanner SW 24 for unscrewing the cable gland
- Screwdriver SW 32 for screwing in the plug

3.2 Installation procedure
The following illustration shows the position of the cable gland in the respective housing:

![Diagram showing position of plug connector on different instrument versions]

Fig. 2: Position of the plug connector on different instrument versions
1. Cable gland
2. Single chamber plastic
3. Single chamber stainless steel (electropolished)
4. Single chamber stainless steel (precision casting)
5. Single chamber Aluminium
6. Double chamber stainless steel (precision casting), Aluminium
7. 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 or connection compartment
2. Unscrew the cable gland
3. Screw in the instrument plug
4. Connect the wires according to chapter "Connect"

The mounting of the plug connector is finished.
Disassembly is carried out in reverse order.
4 Connecting to power supply

4.1 Connection procedure

Proceed as follows:

1. Loosen the screw on the rear of the plug connector
2. Remove angle junction box and sealing from the housing plug
3. Remove the plug insert from the plug housing

![Diagram of plug insert](image)

Fig. 3: Loosen the plug insert

1. Cable gland
2. Plug insert
3. Plug housing

4. Remove approx. 5 cm of the cable mantle, strip approx. 1 cm insulation from the individual wires
5. Lead the cable through the cable gland into the plug housing
6. Connect the wire ends to the screw terminals according to the wiring plan

![Diagram of screw terminals](image)

Fig. 4: Connection to the screw terminals

1. Cable gland
2. Plug housing
3. Plug insert
4. Plug seal

7. Snap the plug insert into the plug housing and insert the sensor seal
8. Plug the plug connector with sealing onto the instrument plug and tighten the screw

The electrical connection is finished.
4.2 Wiring plan

The illustration shows the assigned pins of the plug connector. The tables show the assignment of the individual contact pins to the terminals of the sensor electronics.

![Fig. 5: View to the plug connector - Instrument plug](image)

<table>
<thead>
<tr>
<th>Contact pin</th>
<th>Colour connection cable in the sensor</th>
<th>Terminal, electronics module</th>
<th>Function/Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>Terminal 1</td>
<td>Power supply/+</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>Terminal 2</td>
<td>Power supply/-</td>
</tr>
<tr>
<td>3</td>
<td>free</td>
<td>free</td>
<td>free</td>
</tr>
<tr>
<td>4</td>
<td>Green/Yellow</td>
<td></td>
<td>Screen</td>
</tr>
</tbody>
</table>

Voltage supply/Signal output

<table>
<thead>
<tr>
<th>Contact pin</th>
<th>Colour connection cable in the sensor</th>
<th>Terminal, electronics module</th>
<th>Function/Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>Terminal 7</td>
<td>Power supply/+</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>Terminal 8</td>
<td>Power supply/-</td>
</tr>
<tr>
<td>3</td>
<td>free</td>
<td>free</td>
<td>free</td>
</tr>
<tr>
<td>4</td>
<td>Green/Yellow</td>
<td></td>
<td>Screen</td>
</tr>
</tbody>
</table>

Additional current output

<table>
<thead>
<tr>
<th>Contact pin</th>
<th>Colour connection cable in the sensor</th>
<th>Terminal, electronics module</th>
<th>Function/Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>Terminal 7</td>
<td>Power supply/+</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>Terminal 8</td>
<td>Power supply/-</td>
</tr>
<tr>
<td>3</td>
<td>free</td>
<td>free</td>
<td>free</td>
</tr>
<tr>
<td>4</td>
<td>Green/Yellow</td>
<td></td>
<td>Screen</td>
</tr>
</tbody>
</table>
5 Supplement

5.1 Technical data

Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact support</td>
<td>PA</td>
</tr>
<tr>
<td>Contact surface</td>
<td>Sn</td>
</tr>
<tr>
<td>Housing</td>
<td>PA</td>
</tr>
<tr>
<td>Housing seal</td>
<td>NBR</td>
</tr>
</tbody>
</table>

Temperature range

<table>
<thead>
<tr>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug connector - separate</td>
<td>-40 … +125 °C (-40 … +257 °F)</td>
</tr>
<tr>
<td>Plug - mounted on the sensor</td>
<td>The lowest temperature is applicable</td>
</tr>
</tbody>
</table>

Electromechanical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable gland</td>
<td>PG 9</td>
</tr>
<tr>
<td>Cable diameter</td>
<td>4.5 … 7 mm</td>
</tr>
<tr>
<td>Type of connection</td>
<td>Screws</td>
</tr>
<tr>
<td>Wire cross-section</td>
<td>1.5² mm</td>
</tr>
</tbody>
</table>

Electrical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current</td>
<td>16 A</td>
</tr>
<tr>
<td>Reference voltage</td>
<td>250 V AC/DC</td>
</tr>
<tr>
<td>Degree of soiling</td>
<td>3</td>
</tr>
<tr>
<td>Forward resistance</td>
<td>≤ 4 mΩ</td>
</tr>
</tbody>
</table>

Protection rating

<table>
<thead>
<tr>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug connector - separate (connected status)</td>
<td>IP 65</td>
</tr>
<tr>
<td>Plug connector - mounted on the sensor (connected status)</td>
<td>The lowest protection category applies</td>
</tr>
</tbody>
</table>
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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