




Mess-, Regel- und
Überwachungsgeräte
für Haustechnik,
Industrie und Umweltschutz

Lindenstraße 20
74363 Güglingen
Telefon +49 7135-102-0
Service +49 7135-102-211
Telefax +49 7135-102-147
info@afriso.de
www.afriso.de



Instruction Manual

Pressure Transducer DMU 01, DMU 03, DMU 04, DMU 05, DMU 07, DMU 08, DMU 09, DMU 10, DMU 11

-  Read manual before use!
-  Observe all safety information!
-  Keep manual for future use!



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1 About this instruction manual

This instruction manual is part of the product.

- ▶ Read this manual before using the product.
- ▶ Keep this manual during the entire service life of the product and always have it readily available for reference.
- ▶ Always hand this manual over to future owners or users of the product.

1.1 Structure of warning

WARNING TERM The type and source of danger is shown here.



- ▶ Precautions to take in order to avoid the danger are shown here.

There are three different levels of warning:

| Warning term | Meaning |
|----------------|---|
| DANGER | Imminent danger! Failure to observe the information will result in death or serious injuries. |
| WARNING | Possible imminent danger! Failure to observe the information may result in death or serious injuries. |
| CAUTION | Dangerous situation! Failure to observe the information may result in minor or serious injuries as well as damage to property. |

1.2 Explanation of symbols and typeface

| Symbol | Meaning |
|-------------------------------------|--------------------------------------|
| <input checked="" type="checkbox"/> | Prerequisite for an activity |
| ▶ | Activity consisting of a single step |
| 1. | Activity consisting of several steps |
| ↪ | Result of an activity |
| • | Bulleted list |
| Text | Indication on a display |
| Highlighting | Highlighting |



1.3 Abbreviations

| | |
|---------|---|
| CP | Clamp connection |
| D/Dif | Differential pressure version |
| DMU | Pressure transducer |
| Ex area | Version for hazardous areas (explosive atmospheres) |
| FG | Weatherproof housing |
| FS | Full Scale: The errors for non-linearity, hysteresis and reproducibility must be added to this value to obtain the total accuracy. |
| FSO | Full Scale Offset: The errors for non-linearity, hysteresis and reproducibility are included in this value. |
| K: | Compact version |
| MR | Conical dairy fitting |
| P | Precision version |
| VM | Protruding diaphragm |



2 Safety

2.1 Intended use

The pressure transducers are exclusively suitable for the following use:

| DMU | Electronic pressure measurement | Electronic filling level measurement | Electronic level measurement | Differential pressure measurement |
|-----|---------------------------------|--------------------------------------|------------------------------|-----------------------------------|
| 01 | • | - | - | - |
| 03 | • | - | - | - |
| 04 | • | - | - | - |
| 05 | • | - | - | - |
| 07 | • | • | - | - |
| 08 | - | • | • | - |
| 09 | - | • | • | - |
| 10 | - | - | - | • |
| 11 | - | - | - | • |

Table 1: Application areas

| DMU | Industry | Domestic | Chemical applications | Process technology | Hygienic processes |
|------|----------|----------|-----------------------|--------------------|--------------------|
| 01 | • | • | - | - | - |
| 01 K | • | - | - | - | - |
| 03 | • | - | • | • | - |
| 04 | - | - | - | - | • |
| 05 | • | • | - | • | - |
| 07 | • | - | • | - | - |
| 08 | - | - | - | - | - |
| 09 | - | - | • | - | - |
| 10 | • | - | - | - | - |
| 11 | • | - | - | - | - |

Table 2: Application examples

| DMU | Examples |
|-------|---|
| 01 | Hydraulics, pneumatics, machines and facilities |
| 03 | Machines and facilities, chemical applications, process technology |
| 03 VM | Applications involving viscous, highly viscous or crystallising media |
| 04 | Food, pharmaceutical, biotechnology applications |
| 05 | Electroplating, water treatment, laboratory applications, measurement of gas consumption and heat energy |
| 07 | Facilities |
| 08 | Applications in wells, bores, waters, tanks, waste water facilities |
| 09 | Applications involving extremely aggressive liquids, in particular chemicals, landfill waste water |
| 10 | Applications involving non-aggressive gases and compressed air, in particular in machines and facilities |
| 11 | Applications involving aggressive gaseous and liquid media which are not highly viscous and do not crystallise. |

Any use other than the use explicitly stated in this instruction manual is not permitted.

2.2 Predictable incorrect application

The pressure transducers without the appropriate approval must never be used in the following:

- Hazardous areas (ex)
If the device is operated in hazardous areas, sparks may cause deflagrations, fires or explosions

2.3 Safe handling

This product represents state-of-the-art technology and is manufactured in accordance with the pertinent safety regulations. Each unit is subjected to a function and safety test prior to despatch.

- ▶ Operate the product only when it is in perfect condition. Always observe the instruction manual, all pertinent local and national directives and guidelines as well as health and safety regulations and directives regarding the prevention of accidents.



2.4 Qualification of personnel

The product may only be installed, commissioned, operated, maintained, shut down and disposed of by qualified, specially trained personnel.

Electrical work may only be carried out by qualified electricians in accordance with local and national regulations.

2.5 Modifications to the product

Changes or modifications made to the product by unauthorised persons may lead to malfunctions and are prohibited for safety reasons.

2.6 Use of spare parts and accessories

Use of unsuitable spare parts and accessories may cause damage to the product.

- ▶ Use only the manufacturer's genuine spare parts and accessories.

2.7 Liability information

The manufacturer shall not be liable for any direct or consequential damage resulting from failure to observe the technical instructions, guidelines and recommendations.

The manufacturer and the sales company shall not be liable for costs or damages incurred by the user or by third parties in the use or application of this device, particularly in case of improper use of the device, misuse or malfunction of the connection, malfunction of the device or of connected devices. The manufacturer or the sales company shall not be liable for damages resulting from any use other than the use explicitly stated in this instruction manual.

The manufacturer shall not be liable for misprints.

3 Product description

The pressure transducer converts pressures of gases or liquids into a proportional electrical signal.

3.1 Scope of delivery

DMU 01, DMU 03, DMU 04, DMU 05, DMU 07 and DMU 11

These pressure transducers are delivered without accessories.



DMU 08 and DMU 09

The submersible probes DMU 08 and DMU 09 can be delivered with the following accessories:

| Accessories | Part no. |
|---|-------------------------------|
| Screw connector set | 52125 |
| Terminal clamp or junction box with pressure relief port | 31825 31284 |
| Digital display unit DA 10, DA 12, VarioFox 12, VarioFox 14 | 31281, 31282, 31235, 31236 |

3.2 Properties

| DMU | Measuring principle | Wetted parts | Pressure transmission liquid |
|-----|--|-----------------------------|------------------------------|
| 01 | Piezo-resistive ceramic measuring cell | Ceramic/ stainless steel | - |
| 03 | Piezo-resistive stainless steel measuring cell | Stainless steel | Silicone oil |
| 04 | Piezo-resistive stainless steel measuring cell | Stainless steel | Food oil |
| 05 | Piezo-resistive stainless steel measuring cell | Stainless steel | Silicone oil |
| 07 | Capacitance ceramic measuring cell | Ceramic | - |
| 08 | Piezo-resistive stainless steel measuring cell | Stainless steel | - |
| 09 | Capacitance ceramic measuring cell | PVC/ceramic | Silicone oil |
| 10 | Piezo-resistive silicon measuring cell | Stainless steel | - |
| 11 | Piezo-resistive stainless steel measuring cell | Stainless steel | Silicone oil |



3.3 Overview pressure transducers



Fig. 1: DMU 01, standard version



Fig. 2: DMU 01 K, compact version



Fig. 3: DMU 01 VM, standard version with protruding diaphragm



Fig. 4: DMU 03 (Ex), industrial version up to 40 bar and 60 bar and more



Fig. 5: DMU 03 VM (Ex), industrial version with protruding diaphragm (for viscous, highly viscous or crystallising media)



Fig. 6: DMU 04 (Ex), with flush diaphragm



Fig. 7: DMU 04 CP (Ex), with clamp connection



Fig. 8: DMU 04 MR (Ex), high-temperature version with flush diaphragm and conical dairy fitting



Fig. 9: DMU 05 P (Ex), precision version up to 40 bar and 60 bar and more



Fig. 10: DMU 05 P VM (Ex), precision version with protruding diaphragm



*Fig. 11: DMU 07,
for level measurement*



*Fig. 12: DMU 07 FG,
for level measurement with weatherproof housing*



*Fig. 13: DMU 08 (Ex),
immersion probe, stainless steel version*



*Fig. 14: DMU 09,
immersion probe, plastic version*



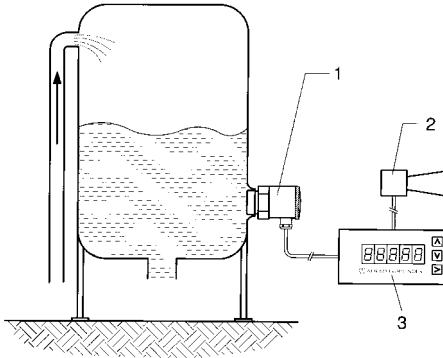
Fig. 15: DMU 10



*Fig. 16: DMU 11,
pressure transducer for differential pressure*

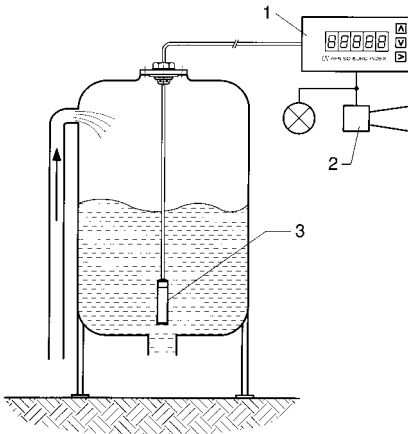


3.4 Application examples



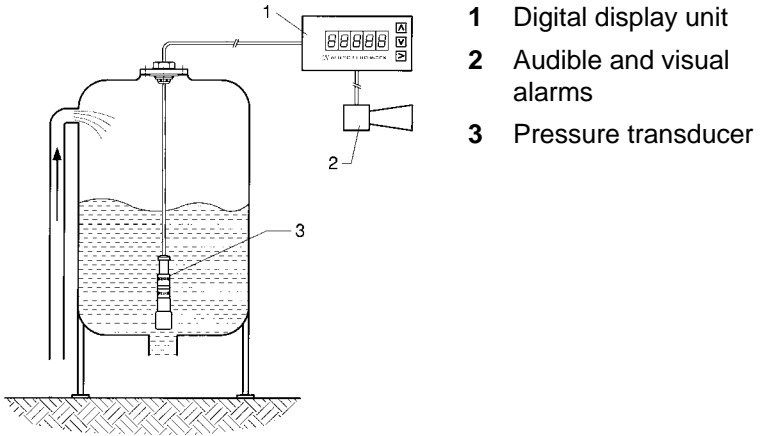
- 1 Pressure transducer
- 2 Audible and visual alarms
- 3 Digital display unit

Fig. 17: DMU 07



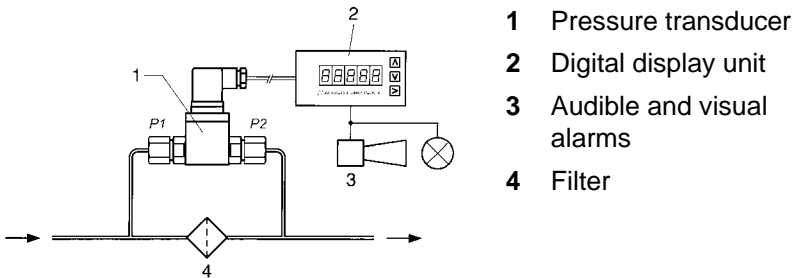
- 1 Digital display unit
- 2 Audible and visual alarms
- 3 Pressure transducer

Fig. 18: DMU 08



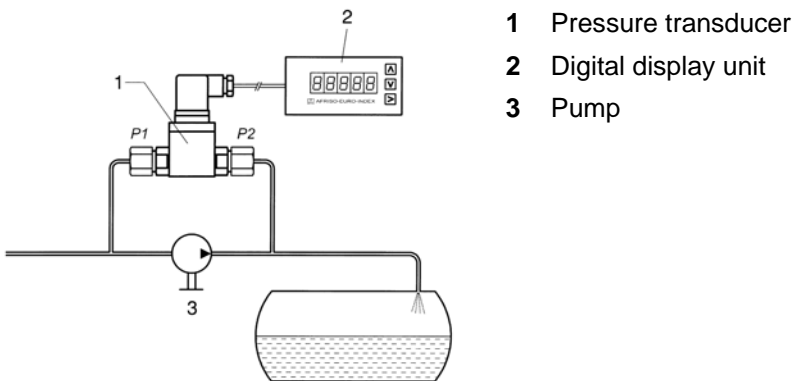
- 1 Digital display unit
- 2 Audible and visual alarms
- 3 Pressure transducer

Fig. 19: DMU 09



- 1 Pressure transducer
- 2 Digital display unit
- 3 Audible and visual alarms
- 4 Filter

Fig. 20: DMU 11 mit Filter



- 1 Pressure transducer
- 2 Digital display unit
- 3 Pump

Fig. 21: DMU 11 with pump



4 Specifications

4.1 Measuring ranges

Table 3: Screw-in probes and submersible probes

| DMU | Relative pressure | Absolute pressure | Overpressure safety | Burst pressure |
|------|-------------------------|------------------------|--|-----------------|
| 01 | 1/0 to 0/400 bar | 0/1 to 0/16 bar | - | - |
| 01 K | -1/0 to 0/100 bar | - | - | - |
| 03 | 0/40 mbar to 0/600 bar | 0/600 mbar to 0/25 bar | - | - |
| 04 | 0/100 mbar to 0/400 bar | 0/600 mbar to 0/25 bar | 250 bar (at least 2 x FS) > 250 bar (at least 1.5 x FS) | At least 3 x FS |
| 05 | 0/100 mbar to 0/600 bar | 0/600 mbar to 0/25 bar | 250 bar (at least 2 x FS) > 250 bar (at least 1.5 x FS) | At least 3 x FS |
| 07 | 0/60 mbar to 0/20 bar | - | 400 mbar (at least 8 x FS) > 400 mbar (at least 4 x FS) 20 bar (at least 3 x FS) | - |
| 08 | 0/100 mbar to 0/25 bar | - | At least 2 x FS | - |
| 09 | 0/60 mbar to 0/10 bar | - | 400 mbar (at least 3 x FS) > 400 mbar (at least 4 x FS) | - |

Table 4: Pressure transducers for differential pressure DMU 10, DMU 11

| Nominal pressure (bar) | Differential pressure measuring range (bar) | Max. static pressure at one end (bar) |
|------------------------|---|---------------------------------------|
| 0.4 | 0/0.04 to 0/0.4 | 1 |
| 1.0 | 0/0.1 to 0/1.0 | 3 |
| 2.5 | 0/0.25 to 0/2.5 | 6 |
| 6.0 | 0/0.6 to 0/6.0 | 16 |
| 16.0 | 0/1.6 to 0/16.0 | 40 |



4.2 Output signal/supply

| DMU | Output signal | | | Supply | | |
|----------------|---------------|------------|-------------------|------------------------|------------------------|------------------------|
| | Standard | Ex version | Option | Standard | Ex version | Option |
| 01 | 4-20 mA | - | 0-10 V | DC 12-36 V (2-wire) | - | DC 12-36 V (3-wire) |
| 01 K, 01 VM | 4-20 mA | 4-20 mA | 0-20 mA 0-10 V | DC 12-36 V (2-wire) | DC 12-28 V (2-wire) | DC 12-36 V (3-wire) |
| 03 | 4-20 mA | 4-20 mA | 0-20 mA 0-10 V | DC 12-36 V (2-wire) | DC 12-28 V (3-wire) | DC 12-36 V (3-wire) |
| 04 | 4-20 mA | 4-20 mA | 0-20 mA 0-10 V | DC 12-36 V (2-wire) | DC 12-28 V (2-wire) | DC 12-36 V (3-wire) |
| 05 | 4-20 mA | 4-20 mA | - | DC 10-36 V (2-wire) | DC 10-28 V (2-wire) | - |
| 07 | 4-20 mA | 4-20 mA | 0-20 mA 0-10 V | DC 12-36 V (2-wire) | DC 12-28 V (2-wire) | DC 12-36 V (3-wire) |
| 08 | 4-20 mA | 4-20 mA | - | DC 12-36 V (2-wire) | DC 12-28 V (2-wire) | - |
| 09 | 4-20 mA | - | 0-10 V | DC 12-36 V (2-wire) | - | DC 12-36 V (3-wire) |
| 10 | 4-20 mA | - | 0-10 V | DC 12-36 V (2-wire) | - | DC 12-36 V (3-wire) |
| 11 | 4-20 mA | - | 0-10 V | DC 12-36 V (2-wire) | - | DC 12-36 V (3-wire) |



4.3 Signal characteristics

| DMU | Accuracy | Admissible load |
|-----|--|--|
| 01 | ±0.5 % FSO | 4-20 mA [U_B (V) – 12 V/0.02 A] Ω 0-10 V > 1 MΩ |
| 03 | ±0.35 % FSO 0/40 mbar to 0/400 mbar: ±0.5 % FSO | 4-20 mA [U_B (V) – 12 V / 0.02 A] Ω 0-20 mA 500 Ω 0-10 V > 1 MΩ |
| 04 | ±0.5 % FSO | 4-20 mA [U_B (V) – 12 V/0.02 A] Ω 0-20 mA 500 Ω 0-10 V > 1 MΩ |
| 05 | ±0.1 % FSO | 4-20 mA [U_B (V) – 10 V/0.02 A] Ω |
| 07 | ±0.35 % FSO | 4-20 mA [U_B (V) – 12 V/0.02 A] Ω 0-10 V > 1 MΩ |
| 08 | ±0.35 % FSO 0/100 mbar to 0/400 mbar: ±0.5 % FSO | 4-20 mA [U_B (V) – 12 V/0.02 A] Ω |
| 09 | ±0.35 % FSO | 4-20 mA [U_B (V) – 12 V/0.02 A] Ω 0-10 V > 1 MΩ |
| 10 | > 0/160 mbar ±0.35 % FSO 0/40 mbar to 0/160 mbar: ±1 % FSO < 0/40 mbar ±2 % FSO | 4-20 mA [U_B (V) – 12 V/0.02 A] Ω |
| 11 | ±0.5 % FSO | 4-20 mA [U_B (V) – 12 V/0.02 A] Ω |



4.4 Dynamic characteristics

| DMU | Response time [ms] |
|-----|--------------------|
| 01 | < 5 |
| 03 | < 10 |
| 04 | < 10 |
| 05 | < 40 |
| 07 | < 10 |
| 08 | < 10 |
| 09 | < 10 |
| 10 | < 10 |
| 11 | < 10 |

4.5 Temperature ranges

| DMU | Measured medium | Ambient | Storage |
|-------------|-----------------|---------------|---------------|
| 01 | -25 to 125 °C | -25 to 85 °C | -40 to 125 °C |
| 01 K, 01 VM | -25 to 135 °C | -25 to 85 °C | -40 to 125 °C |
| 03 | -25 to 125 °C | -25 to 85 °C | -40 to 125 °C |
| 04 | -25 to 125 °C | -25 to 85 °C | -40 to 125 °C |
| 05 | -10 to 85 °C | -25 to 125 °C | -40 to 125 °C |
| 07 | -25 to 125 °C | -25 to 85 °C | -40 to 125 °C |
| 08 | -10 to 70 °C | -10 to 70 °C | -25 to 70 °C |
| 09 | 0 to 50 °C | 0 to 50 °C | -10 to 50 °C |
| 10 | -25 to 125 °C | -25 to 85 °C | -40 to 125 °C |
| 11 | -25 to 125 °C | -25 to 85 °C | -40 to 125 °C |



4.6 Protective electrical measures

| Protective electrical measures | Pressure transducer | | | | | | | | | |
|---|---------------------|----|----|----|----|----|----|----|----|---|
| | 01 | 03 | 04 | 05 | 07 | 08 | 09 | 10 | 11 | |
| Permanently short circuit-proof | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Polarity protected | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Electromagnetic compatibility (noise suppression and interference immunity according to EN 61326) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Optional Ex protection (II 1 G EEx ia IIC T4) | ● | - | - | - | - | - | - | - | - | - |
| Optional Ex protection (II 2 G EEx ia IIC T4) | ● | - | - | - | - | - | - | - | - | - |
| Optional Ex protection (II 1/2 G EEx ia IIC T4) | - | ● | ● | ● | - | ● | - | - | - | - |

4.7 Materials

| DMU | Housing | Pressure connection | Diaphragm | Seals |
|-----|------------------------|------------------------|--|-------------|
| 01 | Stainless steel 1.4305 | Stainless steel 1.4305 | Ceramic Al ₂ O ₃ 96% | FKM (Viton) |
| 03 | Stainless steel 1.4571 | Stainless steel 1.4571 | Stainless steel 1.4404 | FKM (Viton) |
| 04 | Stainless steel 1.4571 | Stainless steel 1.4571 | Stainless steel 1.4571 | - |
| 05 | Stainless steel 1.4571 | Stainless steel 1.4571 | Stainless steel 1.4571 | FKM (Viton) |
| 07 | Stainless steel 1.4305 | Stainless steel 1.4571 | Ceramic Al ₂ O ₃ 96% | FKM (Viton) |
| 08 | Stainless steel 1.4571 | - | Stainless steel 1.4404 | FKM (Viton) |
| 09 | PVC | - | Ceramic Al ₂ O ₃ 96% | FKM (Viton) |
| 10 | Aluminium | Stainless steel 1.4571 | - | PUR glued |
| 11 | Aluminium | Stainless steel 1.4571 | Stainless steel 1.4404 | FKM (Viton) |



5 Mechanical connections

Table 5: Overview

| Connections | Druckm Pressure transducer essumformer | | | | |
|--|--|-------------------|----------------------|----|------------------|
| | 01, 03, 05 | 04 | 07 | 10 | 11 |
| G¼ DIN 3852 | With spanner 24 * or 27 | - | - | - | Female thread |
| G½ DIN 3852 | ● | Diaphragm Ø 18 | - | - | - |
| | Flush ** | | | | |
| G¾ DIN 3852 | - | Diaphragm Ø 22 | ● | - | - |
| | | | With span- ner 34 | | |
| G1 DIN 3852 | - | Diaphragm Ø 28 | ● | - | - |
| G1½ DIN 3852 | - | - | ● | - | - |
| ¼" EN 837 | ● | - | - | - | - |
| G½ EN 837 | ● | - | - | - | ● |
| ¼" NPT | ● | - | - | - | - |
| ½" NPT | ● | - | - | - | - |
| Clamp 1" or 1½" ISO 2852 diaphragm Ø 24 or Ø 32 | - | ● | - | - | - |
| Clamp 2" ISO 2852 diaphragm Ø 45 | - | ● | - | - | - |
| Conical dairy fitting DN 25 diaphragm Ø 24 | - | ● | - | - | - |
| Conical dairy fitting DN 40 diaphragm Ø 32 | - | ● | - | - | - |
| Conical dairy fitting DN 50 diaphragm Ø 45 | - | ● | - | - | - |
| G1/8 female thread | - | - | - | ● | - |
| 7/16" UNF DIN 3866 | - | - | - | - | ● |

* Applies to DMU 01 standard version only

** Does not apply to DMU 01 standard version



Table 6: DMU 01, DMU 03, DMU 05

| G $\frac{1}{4}$ " DIN 3852 with spanner 27 | 1/4" EN 837 | 1/4" NPT |
|---|-------------------------------------|----------|
| | | |
| G $\frac{1}{2}$ " DIN 3852 | G $\frac{1}{2}$ " EN 837 | 1/2" NPT |
| | | |
| G $\frac{1}{4}$ " DIN 3852 with spanner 24* | G $\frac{1}{2}$ " DIN 3852 flush ** | |
| | | |

* Applies to DMU 01 standard version only

** Does not apply to DMU 01 standard version



Table 7: DMU 04

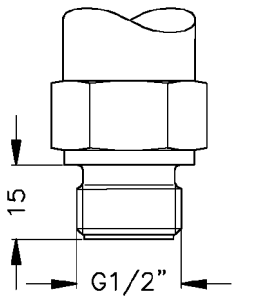
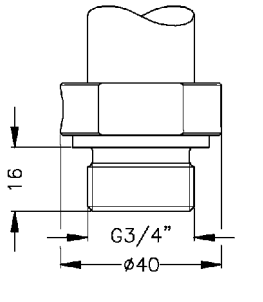
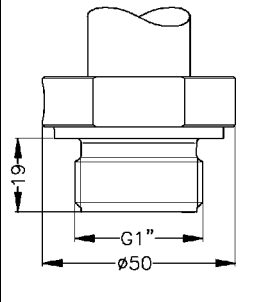
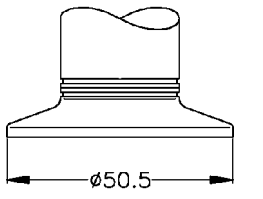
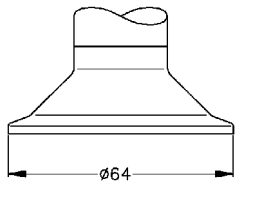
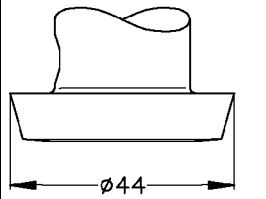
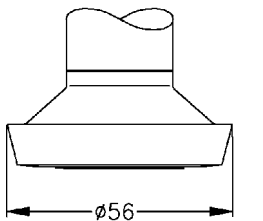
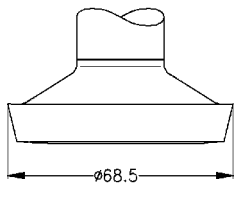
| G$\frac{1}{2}$ DIN 3852 diaphragm \varnothing 18 | G $\frac{3}{4}$ DIN 3852 diaphragm \varnothing 22 | G1 DIN 3852 diaphragm \varnothing 28 |
|---|--|---|
|  <p>15 G1/2"</p> |  <p>16 G3/4" \varnothing40</p> |  <p>19 G1" \varnothing50</p> |
| Clamp 1" or 1½ ISO 2852 diaphragm \varnothing 24 or \varnothing 32 | Clamp 2" ISO 2852 diaphragm \varnothing 45 | Conical dairy fitting DN 25 diaphragm \varnothing 24 |
|  <p>\varnothing50.5</p> |  <p>\varnothing64</p> |  <p>\varnothing44</p> |
| Conical dairy fitting DN 40, diaphragm \varnothing 32 | Conical dairy fitting DN 50, diaphragm \varnothing 45 | |
|  <p>\varnothing56</p> |  <p>\varnothing68.5</p> | |



Table 8: DMU 07

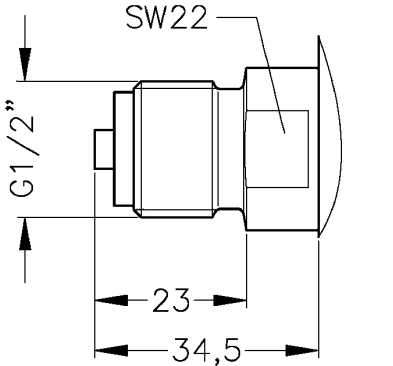
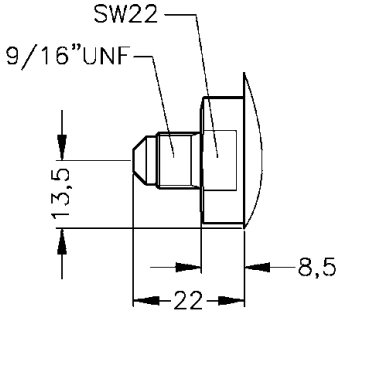
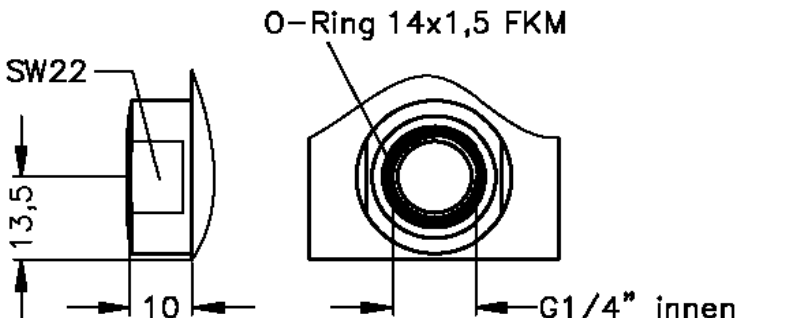
| G ³ / ₄ DIN 3852 | G ³ / ₄ DIN 3852 with spanner 34 |
|--|--|
| | |
| G1 DIN 3852 | G1½ DIN 3852 |
| | |

Table 9: DMU 10

| G1/8 female thread | |
|--------------------|--|
| | |



Table 10: DMU 11

| G $\frac{1}{2}$ EN 837 | 7/16" UNF DIN 3866 |
|---|--|
|  <p>SW22</p> <p>G$\frac{1}{2}$"</p> <p>23</p> <p>34,5</p> |  <p>SW22</p> <p>9/16" UNF</p> <p>13,5</p> <p>22</p> <p>8,5</p> |
| G $\frac{1}{4}$ DIN 3852 female thread | |
|  <p>SW22</p> <p>13,5</p> <p>10</p> <p>O-Ring 14x1,5 FKM</p> <p>G$\frac{1}{4}$" innen</p> | |

6 Electrical connections

Table 11: Overview

| Connections | Pressure transducer | | | | | | |
|---------------------------------|---------------------|-------------|----|----|----|----|----|
| | 01* | 01 K, 01 VM | 03 | 04 | 07 | 10 | 11 |
| Binder 723 (5 poles) IP 67 | ● | ● | ● | ● | ● | - | ● |
| Binder 723 (7 poles) IP 67 | - | ● | ● | ● | ● | - | - |
| Brad Harrison Mini Chance IP 67 | - | - | - | - | - | - | ● |
| Bulgin Buccaneer IP 68 | - | ● | ● | ● | ● | - | - |
| DIN 43650 IP 65 | ● | ● | ● | ● | ● | ● | ● |
| DIN 43650 C IP 65 | ● | - | - | - | - | - | - |
| Cable output IP 68 K | ● | - | - | - | - | - | - |
| Cable gland IP 67 | ● | ● | ● | ● | ● | ● | - |
| M12x1 (4 poles) IP 67 | ● | ● | ● | ● | ● | ● | - |
| M12x1 (5 poles) IP 67 | - | - | - | - | - | - | ● |

* Standard version

Table 12: DMU 01

| DIN 43650C IP 65 | Kabelausgang IP 68 K |
|------------------|----------------------|
| | |



Table 13: DMU 01, DMU 03, DMU 04, DMU 05, DMU 07

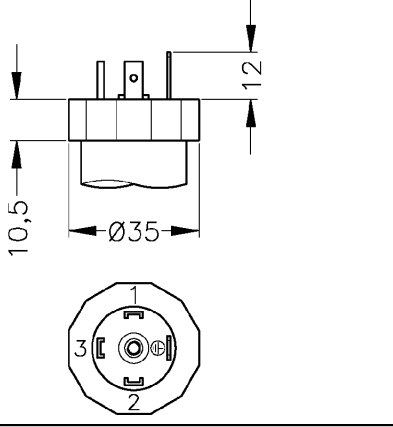
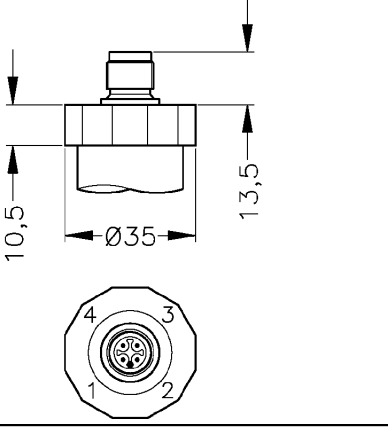
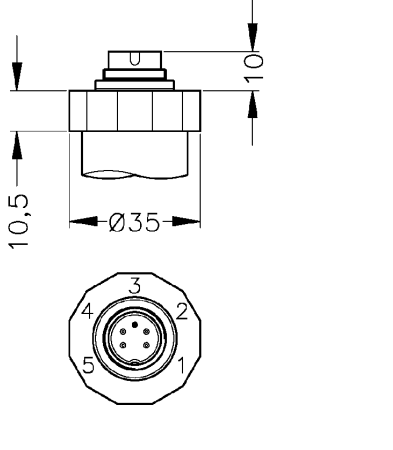
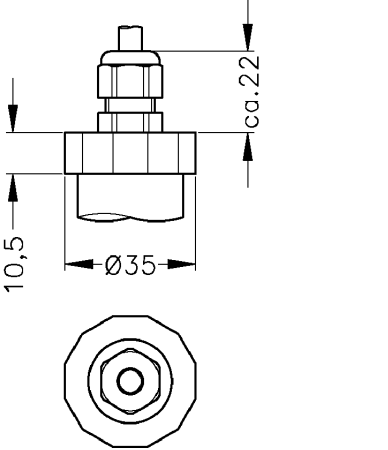
| DIN 43650 IP 65 | M12x1 (4 poles) IP 67 |
|--|---|
|  |  |
| Binder 723 (5 poles) IP 67 | Cable gland IP 67 |
|  |  |



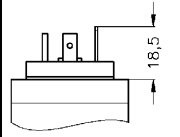
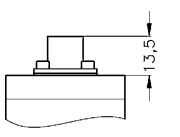
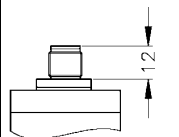
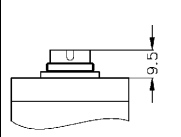
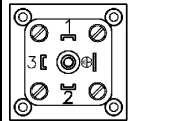
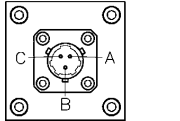
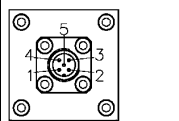
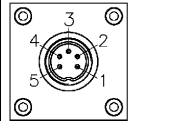
Table 14: DMU 01 K, DMU 01 VM, DMU 03, DMU 04, DMU 05, DMU 07

| Binder 723 (7 poles) IP 67 | Bulgin Buccaneer IP 68 |
|----------------------------|------------------------|
| | |

Table 15: DMU 10

| DIN 43650 IP 65 | M12x1 (4 poles) IP 67 | Cable gland IP 67 |
|-----------------|-----------------------|-------------------|
| | | |

Table 16: DMU 11

| DIN 43650 IP 65 | Brad Harrison Mini Chance IP 67 | M12x1 (5 poles) IP 67 | Binder 723 (5 poles) IP 67 |
|---|---|---|--|
|  |  |  |  |
|  |  |  |  |

6.1 Assignment

Table 17: DMU 01 (standard version)

| | Electrical connections | | | |
|----------------------|---------------------------|---------------------|-------------------------|-----------------------------|
| | DIN 43650/ DIN 43650 C | M 12x1 (4 poles) | Binder 723 (5 poles) | Wire colours (DIN 47100) |
| 2-wire system | | | | |
| Supply + | 1 | 1 | 3 | White |
| Supply - | 2 | 2 | 4 | Brown |
| Earth | Earth contact | 4 | 5 | Screen |
| 3-wire system | | | | |
| Supply + | 1 | 1 | 3 | White |
| Supply - | 2 | 2 | 4 | Brown |
| Signal + | 3 | 3 | 1 | Green |
| Earth | Earth contact | 4 | 5 | Screen |



Table 18: DMU 01 K, DMU 01 VM, DMU 03, DMU 04, DMU 05, DMU 07

| Electrical connections | | | | | | |
|------------------------|---------------|---------------------|-------------------------|-------------------------|------------------------|-----------------------------|
| | DIN 43650 (C) | M 12x1 (4 poles) | Binder 723 (5 poles) | Binder 723 (7 poles) | Buccaneer (4 poles) | Wire colours (DIN 47100) |
| 2-wire system | | | | | | |
| Supply + | 1 | 1 | 3 | 3 | 1 | White |
| Supply - | 2 | 2 | 4 | 1 | 2 | Brown |
| Earth | Earth contact | 4 | 5 | 2 | 4 | Screen |
| 3-wire system | | | | | | |
| Supply + | 1 | 1 | 3 | | 1 | White |
| Supply - | 2 | 2 | 4 | | 2 | Brown |
| Signal + | 3 | 3 | 1 | | 3 | Green |
| Earth | Earth contact | 4 | 5 | | 4 | Screen |

Table 19: DMU 08, DMU 09

| Electrical connections | |
|------------------------|--------|
| Wire colours | |
| 2-wire system | |
| Supply + | White |
| Supply - | Brown |
| Earth | Screen |
| 3-wire system | |
| Supply + | White |
| Supply - | Brown |
| Signal + | Green |
| Earth | Screen |



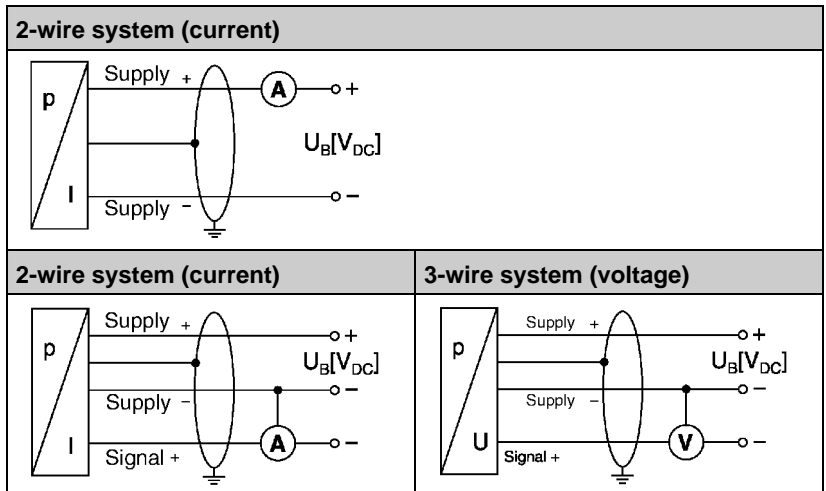
Table 20: DMU 10, DMU 11

| | Electrical connections | | | | |
|----------------------|------------------------|--------------------------|----------------------------|-------------------------|-----------------------------|
| | DIN 43650 | M 12x1 (4 or 5 poles) | Brad Harrison (3 poles) | Binder 723 (5 poles) | Wire colours (DIN 47100) |
| 2-wire system | | | | | |
| Supply + | 1 | 1 | A | 3 | White |
| Supply - | 2 | 2 | B | 4 | Brown |
| Earth | Earth contact | 4 | C | 5 | Screen |
| 3-wire system | | | | | |
| Supply + | 1 | 1 | - | 3 | White |
| Supply - | 2 | 2 | - | 4 | Brown |
| Signal + | 3 | 3 | - | 1 | Green |
| Earth | Earth contact | 4 | - | 5 | Screen |

6.2 Wiring diagrams

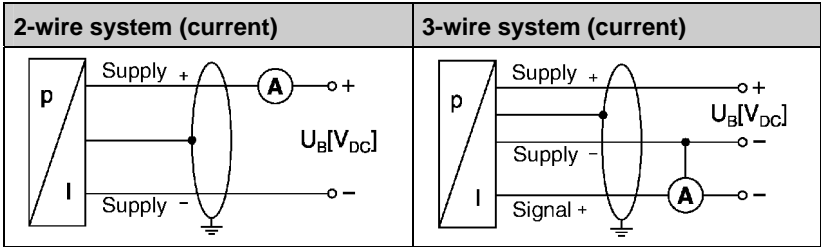
DMU 01, DMU 03, DMU 04, DMU 05, DMU 07, DMU 08, DMU 09

The supply voltage U_B is indicated on the type designation plate; it must be adhered to.



DMU 10, DMU 11

The supply voltage U_B is indicated on the type designation plate; it must be adhered to.



7 Transportation and storage

7.1 Transportation

CAUTION



The measuring cell of the pressure transducer may be damaged if the device is not transported properly.

- ▶ Transport the pressure transducer only in the original package.
- ▶ Never touch the measuring diaphragm of pressure transducers with clamp connection.
- ▶ Transport pressure transducers with clamp connection only with the protective cap mounted.
- ▶ Do not throw the pressure transducer.
- ▶ Do not drop the pressure transducer.

7.2 Storage

- ▶ Store the pressure transducer in a dry and clean space.
- ▶ Make sure the ambient temperature is as required (refer to chapter 4, page 14).
- ▶ Avoid shocks.

8 Installation and commissioning

8.1 Precautions in hazardous areas

Always observe the information provided below to ensure the device is operated safely and as intended when used in hazardous areas.

WARNING **Danger of explosion caused by ignition sources.**

- ▶ Use only intrinsically safe current circuits for live parts.
- ▶ In case there is danger of explosion, never perform work on live parts if such parts do not have an intrinsically safe current circuit.

WARNING **Danger of accidents and injuries.**

The specifications quoted for hazardous areas correspond to the values certified in the "European Approval for Potentially Explosive Atmospheres."

However, you are fully responsible for checking the devices for their suitability for the intended application. The manufacturer shall not be liable for this in any way whatsoever.

- ▶ Prior to installation, you must make sure the devices are suitable for the intended application and the environmental conditions.
- ▶ Ensure that there is potential equalisation for the complete cable both inside and outside the hazardous area.
- ▶ Observe the limit values specified in the EC design type approval. Capacitance and inductance of the connection cable are not considered in the values.
- ▶ Only specially trained and authorised persons who are familiar with the devices may install, maintain and clean the devices.
- ▶ Always observe all regulations and directives concerning explosion protection (such as VDE 0160, VDE 0165, EN 60079-14, EN 50014-50039 and any other regulations and directives that apply at the place of installation) as well as all pertinent regulations and directives concerning the prevention of accidents when installing, maintaining and cleaning the devices.

If modifications are made to the devices and the connections, the approval for hazardous areas and the warranty become void.

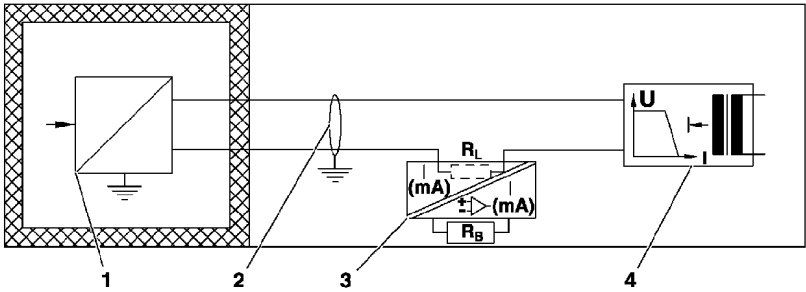


Fig. 22: Installation in hazardous areas

- | | | | |
|---|-----------------------------------|---|---------------------|
| 1 | Pressure transducer (4 ... 20 mA) | 3 | Isolating amplifier |
| 2 | Screened cable | 4 | Supply (230 V ~A) |

8.2 General installation notes

- ▶ Never apply force when installing the devices.

CAUTION



Damage may result when the pressure transducer is screwed in with a spanner at the housing.

- ▶ Use a suitable spanner at the hex to screw in these pressure transducers.

- ▶ Hand-screw the cable glands. In most cases, the material is plastic.
- ▶ In case of high measuring accuracy requirements, return the device every 12 months for calibration.
- ▶ In case of hydraulic systems, arrange the pressure transducer in such a way that the pressure connection points upward (vent).
- ▶ Provide a cooling section if the unit is used in steam pipes.
- ▶ If the devices are mounted outdoor, install a surge protection device between the supply unit or the control cabinet and the pressure transducer.

CAUTION



In case of very small pressure ranges, the characteristic may shift if the pressure transducer is tightened too much.

- ▶ Do not apply too much torque, in particular in case of pressure transducers with a plastic pressure connection.

Pressure transducers for pressure ranges of more than 25 bar feature a spanner flat.

Pressure transducers DMU 07 for pressure ranges of up to 25 bar are equipped with a knurled collar.

- ▶ Hand-tighten pressure transducers at the knurled collar. Do not use tools.

Stainless steel weatherproof housing:

The standard cable gland has a clamping range of \varnothing 5 to 9 mm.

If you require a greater clamping range (\varnothing 6 to 12 mm), replace the installed seal insert.

The larger seal insert (\varnothing 6 to 12 mm) is included (located at the plug of the cable gland).

8.3 Installation DMU 01, DMU 03, DMU 05

Connections according to DIN 3852 (devices with O ring seals)

1. Make sure the O ring is properly positioned in the groove.
2. Ensure that the sealing surface of the component into which the device is mounted is immaculate.
3. Hand-screw the pressure transducer into the thread.
- ↳ This already ensures full sealing capacity.
4. Tighten pressure transducers with a spanner flat by means of a spanner (max. torque 50 Nm).

Connections according to DIN 3852 or NPT (devices without O ring seals)

1. Seal the pressure transducer.
The type of sealing depends on the application.
2. Tighten the pressure transducer by means of a spanner (max. torque 50 Nm).

Connections according to EN 837 (former DIN 16288, pressure gauge connection)

- ☑ A spare copper seal can be provided. The copper seal is not included in the scope of delivery.
1. Use a copper seal according to the diameter of the thread.
 2. Ensure that the sealing surfaces of the pressure transducer and in reception hole are immaculate.
 3. Hand-screw the pressure transducer into the thread.
 - ↳ This already ensures full sealing capacity.
 4. Tighten pressure transducers with a spanner flat by means of a spanner (max. torque 50 Nm).



8.4 Installation DMU 04

Connections according to DIN 3852 (thread measured in inches)

1. Make sure the O ring is properly positioned in the groove.
2. Ensure that the sealing surface of the component into which the device is mounted is immaculate.
3. Hand-screw the pressure transducer into the thread.
- ↳ This already ensures full sealing capacity.
4. Tighten pressure transducers with a spanner flat by means of a spanner (max. torque 50 Nm).

Connections according to ISO 2852 (Clamp)

- ☑ A spare seal can be provided. The seal is not included in the scope of delivery.
1. Place the seal onto the pressure connection or the counter-piece of the pressure transducer.
 2. Hold the parts together in such a way that they are centred by the seal.
 3. Place the clamp around the connection flanges.
The clamp must fully enclose the connection flanges.
 4. Close the clamp.
 5. Place the wing nut in the holder.
 6. Hand-screw the wing nut.

Connections according to DIN 11851 (dairy fitting)

- ☑ A spare seal can be provided. The seal is not included in the scope of delivery.
1. Place the seal onto the pressure connection or the counter-piece of the pressure transducer.
 2. Place the cone of the pressure connection into its counter-piece.
 3. Push the grooved union nut with the thread pointing down over the electrical connection.
 4. First, hand-tighten the nut.
 5. Tighten the nut with a hook spanner.

8.5 Installation DMU 07

1. Make sure the O ring is properly positioned in the groove.
2. Ensure that the sealing surface of the component into which the device is mounted is immaculate.
3. Hand-screw the pressure transducer into the thread.
4. Hand-tighten pressure transducers without spanner flat at the knurled collar.
5. Tighten pressure transducers with a spanner flat by means of a spanner (max. torque 50 Nm).

8.6 Installation DMU 08, DMU 09

The compressed air connection (1) is required for relative pressure measurement.

CAUTION



Incorrect measuring results if the compressed air connection is not connected properly or if it is defective.

- ▶ Make sure not to damage the compressed air connection (1) when installing the submersible probes.
 - ▶ Ensure that there is always a connection between the compressed air connection (1) and the ambient air.
-



1 Compressed air connection

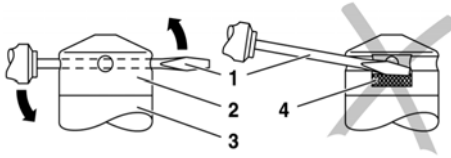
Fig. 23: Submersible probe DMU 08

The submersible probes DMU 08 and DMU 09 are equipped with a protective cover to protect against damage of the diaphragm.

If you remove the protective cover, the submersible probe is flush. You can then use the submersible probe in media with higher viscosities such as sludge.

Protective cover

Removing the cover with a tool



- 1 Tool
- 2 Protective cover
- 3 Probe element
- 4 Measuring cell

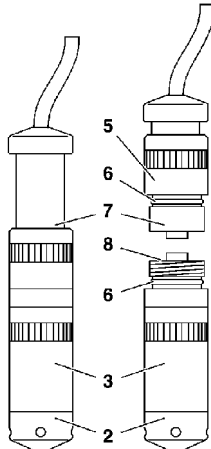
Fig. 24: Protective cover

1. Push a thin tool (1) such as a screwdriver straight through the two opposing holes (2) of the protective cover. When doing so, make sure not to touch the measuring cell (4) with the tip of the tool (1) under any circumstances.
2. Lift the protective cover (2). When doing so, make sure not to damage the measuring cell (4).

Removing the cover manually

1. Hold the probe element (3).
2. Tilt the protective cover (2) and pull it off.

Separable submersible probes



- 1 Tool, refer to fig. 24, page 36
- 2 Protective cover
- 3 Probe element
- 4 Measuring cell, refer to fig. 24, page 36
- 5 Union nut
- 6 Radial O ring
- 7 Connection element with cable
- 8 Axial O ring

Fig. 25: Separable submersible probe

Disassembly

Some submersible probes allow you to separate the probe element (3) and the connection element with the cable (7). The two elements are connected by means of a plug connection.

1. Carefully turn the union nut (5) to the left by hand.
When doing so, make sure not to turn the connection element with the cable (7). Hold the connection (7) element straight when turning.
2. Loosen the union nut (5) from the probe element (3).
3. Pull the connection element (7) straight off the probe element (3).

Check

1. Check the O rings (6) and (8) for damage.
2. Replace defective O rings.
3. Grease the O rings (6) with vaseline or O ring grease.
4. Remove excess grease from the axial O ring (8).

Mounting

1. Push the connection element (7) straight onto the probe element (3).
2. Carefully hand-tighten the union nut (5).

The standard scope of delivery does not include fastening accessories. Contact your dealer or the manufacturer for fastening accessories for the submersible probes, such as a cable clamp, various screw connections, flanges and clamps.

8.7 Installation DMU 10, DMU 11

1. Fasten the housing with four screws (M4).

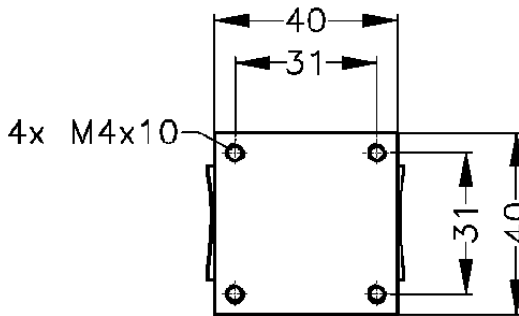


Fig. 26: Gehäusebefestigung

2. Connect the higher pressure range to the input (+).
3. Connect the lower pressure range to the input (-).

Connections according to EN 837 (former DIN 16288, pressure gauge connection)

- A spare copper seal can be provided. The copper seal is not included in the scope of delivery.



1. Use a copper seal according to the diameter of the thread.
2. Ensure that the sealing surfaces of the pressure transducer and in reception hole are immaculate.
3. Hand-screw the pressure transducer into the thread.
4. Tighten pressure transducers with a spanner flat by means of a spanner (max. torque 50 Nm).

Connections with female threads (devices with O ring seals)

1. Make sure the O ring is properly positioned in the groove.
 2. Ensure that the sealing surface of the component into which the device is mounted is immaculate.
 3. Hand-screw the pressure transducer into the thread.
- ↳ This already ensures full sealing capacity.
4. Tighten pressure transducers with a spanner flat by means of a spanner (max. torque 50 Nm).

Connections with female thread or UNF thread

1. Seal the pressure transducer.
The type of sealing depends on the application.
2. Tighten the pressure transducer by means of a spanner (max. torque 50 Nm).
3. Den höheren Druckbereich mit dem Eingang (+) verbinden.
4. Den niedrigeren Druckbereich mit dem Eingang (-) verbinden.

8.8 Installation of the weatherproof housing

Standard version

1. Unscrew the cover.
The connection terminals are located directly under the cover.
2. Check the O ring and the sealing surface of the housing for damage.
3. Replace defective O rings.
4. Carefully hand-tighten the cover.

With display and switching module ASM 400

- The PCB with the connection terminals is located below the display (3).

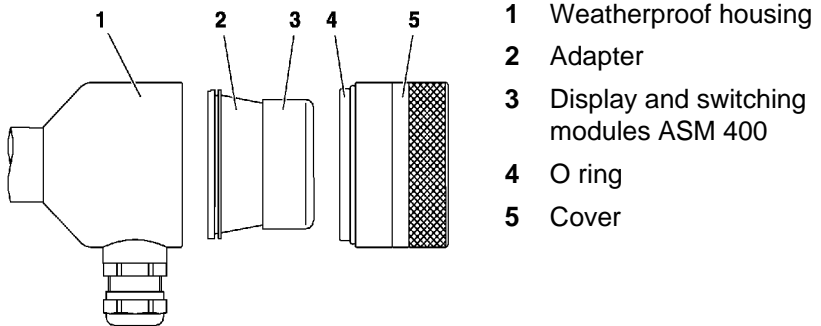


Fig. 27: Weatherproof housing

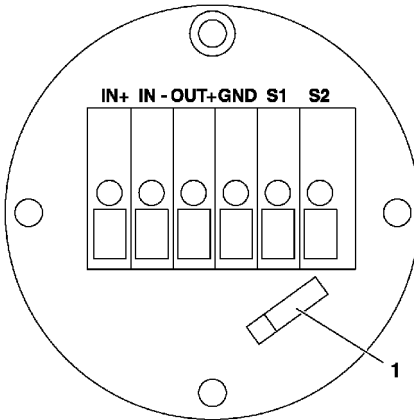
1. Carefully turn the cover (5) to the left by hand.
2. Remove the cover (5) from the weatherproof housing (1).
3. Carefully pull the display and switching module (3) together with the adapter (2) out of the weatherproof housing (1).

The display and switching modules (3) is connected to the terminal board in the field housing (1) by means of a plug connection. Disconnect the plug connection, if required.

1. Check the O ring (4) for damage.
2. Replace defective O rings.
3. Connect the plug connector of the display and switching module (3) to the terminal board.
4. Refit the display and switching module (3) with the connected adapter (2) in the weatherproof housing (1).
The adapter (2) is equipped with an anti-twist device for the weather-proof housing (1). When connecting the display and switching module (3) and the weatherproof housing (1), pay attention to the counter-piece of the anti-twist device at the cable gland. Position the adapter (2) accordingly.
5. Carefully hand-tighten the cover (5).

Electrical connections stainless steel weatherproof housing

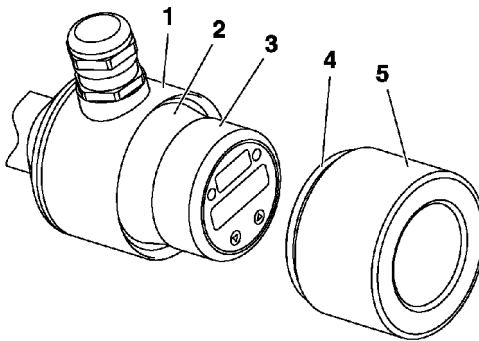
The terminals are designed for wires or massive conductors with cross sections of up to 2.5 mm².



- IN+** Supply +
- IN-** Supply -
- OUT+** Signal
- GND** Earth
- S1** Switch point 1
- S2** Switch point 2
- 1** Plug for display and switching module ASM 400

Fig. 28: Electrical connections

Aligning the display and switching module



- 1** Weatherproof housing
- 2** Adapter
- 3** Display and switching modules ASM 400
- 4** O ring
- 5** Cover

Fig. 29: Weatherproof housing

1. Carefully turn the cover (5) to the left by hand.
2. Remove the cover (5) from the weatherproof housing (1).
The display and switching module is equipped with an anti-twist device. The display and switching module can be turned by approx. 330° with reference to the adapter (2).
3. Rotate the display and switching module (3) into the desired position.
4. Check the O ring (4) for damage.
5. Replace the O ring if it is damaged.
6. Refit the cover (5).

7. Hand-tighten the cover (5).

9 Operation

The output module displays the measured pressure.

10 Maintenance

The devices are maintenance-free. The measuring accuracy of the device should be checked at regular intervals, in particular in case of high accuracy requirements. Only qualified staff with appropriate equipment may perform such tests.

Cleaning

Regularly clean the pressure connection in case of pollution of the pressure sensor, irrespective of the medium and the degree of pollution. Do not use aggressive cleaning solvents.

CAUTION



Damage caused by improper cleaning.

- ▶ Never touch the diaphragm of stainless steel sensors.
 - ▶ Be particularly careful when cleaning flush mounted sensors with process connections (e.g. DMU 04).
-

11 Troubleshooting

Repairs may only be performed by specially trained, qualified staff.
In case of malfunctions:

- ▶ Check the supply voltage.
- ▶ Send the device to the manufacturer (see chapter 13, page 42).

12 Shutting down and disposal



1. Disconnect mains supply.
2. Remove the device (see chapter 7.1, page 30, steps in reverse sequence).
3. To protect the environment, this device must **not** be disposed of together with the normal household waste. Dispose of the device according to local directives or council guidelines.

This device consists of materials that can be reused by recycling firms. The electronic inserts can be removed easily and are constructed from recyclable materials.

If you do not have the opportunity to dispose of the old device in accordance with environmental regulations, please contact us for possibilities to dispose of it or to return it (see chapter 13, page 42).



13 Returning the device

In order to protect the environment and our staff, we will transport, check, repair or dispose of returned devices only if this is possible without risk to health and environment.

- ▶ Always enclose a contamination declaration when returning a device. This declaration confirms that the device does not present a hazard.
- ▶ The declaration of decontamination can be downloaded at www.afriso.com.

We cannot process your returns without a contamination declaration. Thank you for your understanding.

If the device was used with hazardous media:

1. Decontaminate the device in accordance with all pertinent directives.
- ↳ The device is free from hazardous media.
2. Enclose proof of decontamination in accordance with all pertinent directives when returning the device.

14 Warranty

The manufacturer's warranty for this product is 24 months from date of purchase. This warranty applies to all countries in which this product is sold by the manufacturer or its authorised representatives.

15 Copyright

The manufacturer holds the copyright to this manual. This manual may only be reprinted, translated, copied in part or in whole with the prior written consent of the manufacturer.

We reserve the right to modify any specifications or alter any illustrations in this manual without prior notice.

16 Customer satisfaction

Customer satisfaction is our prime objective. Please get in touch with us if you have any questions, suggestions or problems regarding your product.

17 Addresses

The addresses of our worldwide representatives can be found on the Internet at www.afriso.de.



18 Appendix


18.1 Declaration of conformity

| | | |
|---|------------------------|---------------------------------------|
| EG - Konformitätserklärung EC-Declaration of Conformity / Déclaration CE de conformité Declaración de conformidad CE | | Formblatt FB 27 - 03 |
| Name und Anschrift des Herstellers: AFRISO-EURO-INDEX GmbH, Lindenstr. 20, 74383 Güglingen Fabricateur / Fabricante: AFRISO-EURO-INDEX GmbH, Lindenstr. 20, 74383 Güglingen | | |
| Produkt / Produit: Drehtastensystem 4...20mA Product / Produto: Drehtastensystem 4...20mA | | |
| Typenbezeichnung: DMU01, DM, DMU 03, DMU 04, DMU 05, DMU 07, DM 09 Designation: DMU01, DM, DMU 03, DMU 04, DMU 05, DMU 07, DM 09 | | |
| Betriebsdaten: 4...20mA Caractéristiques: 4...20mA | | |
| Techn. Details: Características: Das bezeichnete Erzeugnis stimmt mit den Vorschriften folgender Europäischer Richtlinien überein: The above mentioned product meets the requirements of the following European Directives Le produit mentionné est conforme aux prescriptions des Directives Européennes suivantes : El producto mencionado cumple con las prescripciones de las Directivas Europeas siguientes | | |
| Elektromagnetische Verträglichkeit (2004/108/EG) Directive Electromagnetic Compatibility / Directive compatibilité électromagnétique / Directiva compatibilitat electromagnética - Störaussendung nach DIN EN 61000-6-4 - Störfestigkeit nach DIN EN 61000-6-2 | | |
| Unterzeichner: <u>Dr. Altmayer, Geschäftsführer/Technik</u> Signed / Signatara / Firmante: <u>Dr. Altmayer, Technical Director</u> | | |
| Datum / Date / Fecha: <u>28.6.2010</u> | | |
| 74383 GÜGLINGEN AFRISO-EURO-INDEX, Tel: (0713) 1166-1, www.afriso.de | | |
| Version: 2 / Index: 2 | AFRISO-EURO-INDEX GmbH | D-74383 Güglingen |
| | | Seite: 1 von 1 |

18.2 Approval documents

| | |
|---|--|
| <p>IBeU Institut für Sicherheitstechnik GmbH An-Institut der TU Bergakademie Freiberg</p> | <p>EG-BAUMUSTERPRÜFBEZWEIGNUNG gemäß Richtlinie 94/9/EG, Anhang III Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen, Richtlinie 94/9/EG</p> <p>EG-Baumusterprüfbescheinigungsnummer IBEX011ATEX1054 X</p> <p>Gerät: Druckmessumformer Typ DMU 01, DMU 03, DMU 05 und DMU 08</p> <p>Hersteller: AFRISO-EURO-INDEX GmbH</p> <p>Anschritt: Lindenstraße 20 74383 Güglingen Deutschland</p> <p>Die Baureihe des unter [4] genannten Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zur dieser EG-Baumusterprüfbescheinigung festgelegt.</p> <p>IBeU Institut für Sicherheitstechnik GmbH, BENANNTE STELLE Nr. 0537 nach Artikel 9 der Richtlinie 94/9/EG des Europäischen Parlamentes und des Rates vom 23. März 1994, beschränkt, dass dies unter [4] genannte Gerät die in Anhang II der Richtlinie festgelegten grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau des Gerätes erfüllt. Die Prüfbescheinigung ist in der Anlage zur dieser EG-Baumusterprüfbescheinigung festgelegt. Die Prüfbescheinigung ist in der Anlage zur dieser EG-Baumusterprüfbescheinigung festgelegt.</p> <p>Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung EN 60079-0:2004, EN 60079-11:2007, EN 60079-26:2007 und EN 61241-11:2006.</p> <p>Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser EG-Baumusterprüfbescheinigung unter [11] hingewiesen.</p> <p>Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf die Konzeption und den Bau des besagten Gerätes. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes.</p> <p>Die Kennzeichnung des unter [4] genannten Gerätes muss mindestens eine der folgenden Angaben enthalten:</p> <p>Ⓢ II 1G Ex Ia ICBIB T4 Ga Ⓢ II 1D Ex IbD 20 T85 °C</p> <p>IBeU Institut für Sicherheitstechnik GmbH Postfach 10 700 000 09599 Freiberg, Deutschland ☎ +49 (0) 3731 3905-0 · ☎ +49 (0) 3731 23550</p> <p>Zertifizierungsstelle Explosionsschutz Im Auftrag (Dr. Wagner)</p> <p style="text-align: right;">Freiberg, 04.05.2011 Bescheinigungen ohne Bescheinigungsnummer haben keine Gültigkeit. Bescheinigungen dürfen nur für den bestimmungsgemäßen Verwendungszweck verwendet werden.</p> <p style="text-align: right;">Seite 1 von 2 IBEX011ATEX1054 X</p> |
| Anlage | |



| | | | |
|---|---|-----------------------|---|
| IBEXU Institut für Sicherheitstechnik GmbH An-Institut der TU Bergakademie Freiberg | | | |
| [13] | Anlage | | |
| [14] | zur EG-BAUMUSTERPRÜFESCHENUNG IBE-U11ATEX1054 X | | |
| [15] | Beschreibung des Gerätes | | |
| Die Druckmessformel DMU 01, DMU 03, 05 und DMU 08 stellen unterschiedliche Druckmessformeln dar. Die Druckmessformeln sind für die Verwendung in explosionsgefährdeten Bereichen der ASt, Messstelle und Alarmelektronik verwendet. Die Messstellen sind für die Verwendung in explosionsgefährdeten Bereichen, die Kategorie 1-IG-Betriebsmittel erfordern, vorgesehen. Sie werden durch eine ergonomische Stromversorgung der Kategorie „A“ gespeist. | | | |
| Typen: | | | |
| DMU 01 | Anschlussschleife | IBex, Gas, EV | IBex, Staub, EX |
| DMU 03, 05 | Sensoren | II 1G Ex Ia IIC 14 Ga | II 1G Ex, iB 20 T85°C |
| DMU 08 | Kabel | Tauchsonde | II 1G Ex Ia IIB 14 Ga II 1D Ex, iB 20 T85°C |
| Technische Daten | | | |
| Verzögerungsstromerlösch in Zündschutzart Ex, ia IIC (Verzögerung „+“ und „-“) | | | |
| 85 °C V, 93 mA | | | |
| wirksame innere Kapazität | | | |
| P, 650 mW | | | |
| wirksame innere Induktivität | | | |
| C, vernachlässigbar | | | |
| L, vernachlässigbar | | | |
| Zuge Leitungsinduktivitäten 1 µmH und Leitungskapazitäten 100 pF/m (bei weissenem Kabel) | | | |
| Die Stromversorgungsschalter besitzen gegenüber dem Gehäuse eine innere Kapazität von max. 27 nF. | | | |
| Umgebungstemperaturbereich: von -20 °C bis +70 °C | | | |
| [16] | Prüfbericht | | |
| Der Nachweis des Explosionschutzes ist im Detail im Prüfbericht IB-11-04317 dargestellt. Die Prüfergebnisse sind Bestandteil des Prüfberichtes und dort aufgeführt. | | | |
| Zusammenfassung der Prüfberichte: | | | |
| Die Druckmessformel DMU 01, DMU 03, 05 und DMU 08 erfüllen die Anforderungen der Zündschutzart Ex, ia IIC, als an elektrische Geräte der Gerätegruppe II, Kategorie 1G und 1D, Explosionsgruppe IIC oder IIB und Temperaturklasse T4. | | | |
| [17] | Besondere Bedingungen | | |
| Die Geräte mit Stöckerausführung sind so zu errichten, dass immer der IP-Schutzgrad IP 20 erhalten bleibt: | | | |
| - die Schutzschaltung gegen Beschädigung durch mechanische, Stöße, und Mehrschichtweise und die Umgebungsfeuchtigkeit von -20 °C, +70 °C sind zu beachten. | | | |
| - Das Gerät darf in explosionsfähiger Atmosphäre, die Betriebsmittel der Kategorie 1 erfordert, nur dann betrieben werden, wenn atmosphärische Bedingungen vorliegen (Temperatur von -20 °C bis +70 °C, Druck von 0,8 bar bis 1,1 bar). | | | |
| [18] | Grundlegende Sicherheits- und Gesundheitsanforderungen | | |
| Erfüllt durch Einhaltung von Normen (siehe [9]) | | | |
| Im Auftrag | | | |
|  (Dr. Wagner) | | | |
| Freiberg, 04.05.2011 | | | |
| Seite 2 von 2 IBEXU11ATEX1054 X | | | |

18.3 Information on the Pressure Equipment Directive

Please visit us at www.afribo.com for a summary of the information contained in the Pressure Equipment Directive (PED) with reference to the CE mark and of the preparations and measures we have taken.