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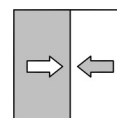


## Operating manual

**DA09**

Differential pressure measuring unit  
Pressure levels PN10/PN25

Diaphragm manometer  
CrNi-steel model



## Masthead

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### Version history

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Rev. ST4-B 09/19	Version 2 (new accessories)
Rev. ST4-C 10/19	Version 3 (correction of order code/Technical Data)
Rev. ST4-D 07/20	Version 4 (correction of rotary encoder connection)
Rev. ST4-E 11/20	Version 5 (INCONEL disc spring from 10 bar)
Rev. ST4-F 10/21	Version 6 (UKCA Declaration)
Rev. ST4-G 02/23	Version 7 (liquid filling for inductive contacts)
Rev. ST4-H 03/25	Version 8 (Update of EU Declaration of Conformity)

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# 1 Safety information

## 1.1 General

This operating manual contains basic instructions for the installation, operation and maintenance of the device that must be followed without fail. It must be read by the installer, the operator and the responsible specialist personnel before installing and commissioning the device.

This operating manual is an integral part of the product and therefore needs to be kept close to the instrument in a place that is accessible at all times to the responsible personnel.

The following sections, in particular instructions about the assembly, commissioning and maintenance, contain important information, non-observance of which could pose a threat to humans, animals, the environment and property.

The instrument described in these operating instructions is designed and manufactured in line with the state of the art and good engineering practice.

## 1.2 Personnel Qualification

The instrument may only be installed and commissioned by specialized personnel familiar with the installation, commissioning and operation of this product.

Specialized personnel are persons who can assess the work they have been assigned and recognize potential dangers by virtue of their specialized training, their skills and experience and their knowledge of the pertinent standards.

## 1.3 Risks due to Non-Observance of Safety Instructions

Non-observance of these safety instructions, the intended use of the device or the limit values given in the technical specifications can be hazardous or cause harm to persons, the environment or the plant itself.

The supplier of the equipment will not be liable for damage claims if this should happen.

## 1.4 Safety Instructions for the Operating Company and the Operator

The safety instructions governing correct operation of the instrument must be observed. The operating company must make them available to the installation, maintenance, inspection and operating personnel.

Dangers arising from electrical components, energy discharged by the medium, escaping medium and incorrect installation of the device must be eliminated. See the information in the applicable national and international regulations.

Please observe the information about certification and approvals in the Technical Data section.

## 1.5 Unauthorised Modification

Modifications of or other technical alterations to the instrument by the customer are not permitted. This also applies to replacement parts. Only the manufacturer is authorised to make any modifications or changes.

## 1.6 Inadmissible Modes of Operation

The operational safety of this instrument can only be guaranteed if it is used as intended. The instrument model must be suitable for the medium used in the system. The limit values given in the technical data may not be exceeded.

The manufacturer is not liable for damage resulting from improper or incorrect use.

## 1.7 Safe working practices for maintenance and installation work

The safety instructions given in this operating manual, any nationally applicable regulations on accident prevention and any of the operating company's internal work, operating and safety guidelines must be observed.

The operating company is responsible for ensuring that all required maintenance, inspection and installation work is carried out by qualified specialized personnel.

## 1.8 Pictogram explanation



### ⚠ DANGER

#### Type and source of danger

This indicates a **direct** dangerous situation that could lead to death or **serious injury** (highest danger level).

1. Avoid danger by observing the valid safety regulations.



### ⚠ WARNING

#### Type and source of danger

This indicates a **potentially** dangerous situation that could lead to death or **serious injury** (medium danger level).

1. Avoid danger by observing the valid safety regulations.



### ⚠ CAUTION

#### Type and source of danger

This indicates a **potentially** dangerous situation that could lead to slight or serious injury, damage or **environmental pollution** (low danger level).

1. Avoid danger by observing the valid safety regulations.



### NOTICE

#### Note / advice

This indicates useful information of advice for efficient and smooth operation.

## 2 Product and functional description

### 2.1 Delivery scope

- Diaphragm manometer DA09
- Operating Manual

### 2.2 Intended use

The diaphragm manometer DA09 serves to measure and display differential pressures in gaseous, fluid and aggressive media. The unit is completely made of CrNi-steel and is suitable for use in aggressive environments. If used with aggressive media, the media compatibility with the materials used must be checked (see Techn. data).

The DA09 can be delivered with a contact element. If the set limit values are exceeded, the output power circuits are opened or closed, and/or a 0/4...20 mA output signal proportional to the displayed value is issued for a capacitive rotation angle encoder.

### 2.3 Function diagram

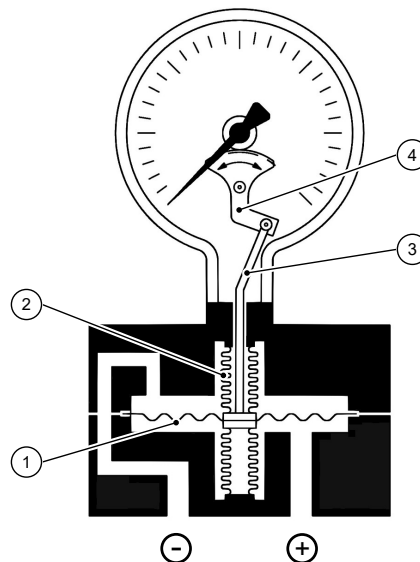


Fig. 1: Function diagram

1 Measuring diaphragm	2 Bellows
3 Tie rod	4 Motion train

### 2.4 Design and mode of operation

The measuring system comprises a diaphragm and two separate pressure chambers. Differential pressure between the chambers causes axial movement of the diaphragms. A tie rod transfers this movement to an indicator.

The seal between the pressure chamber and tie rod is realised with metal bellows. To compensate the static operating pressure, the measuring system is symmetrical.

## 2.5 Equipment versions

The illustrations are just examples. The equipment features can be combined according to the order code.

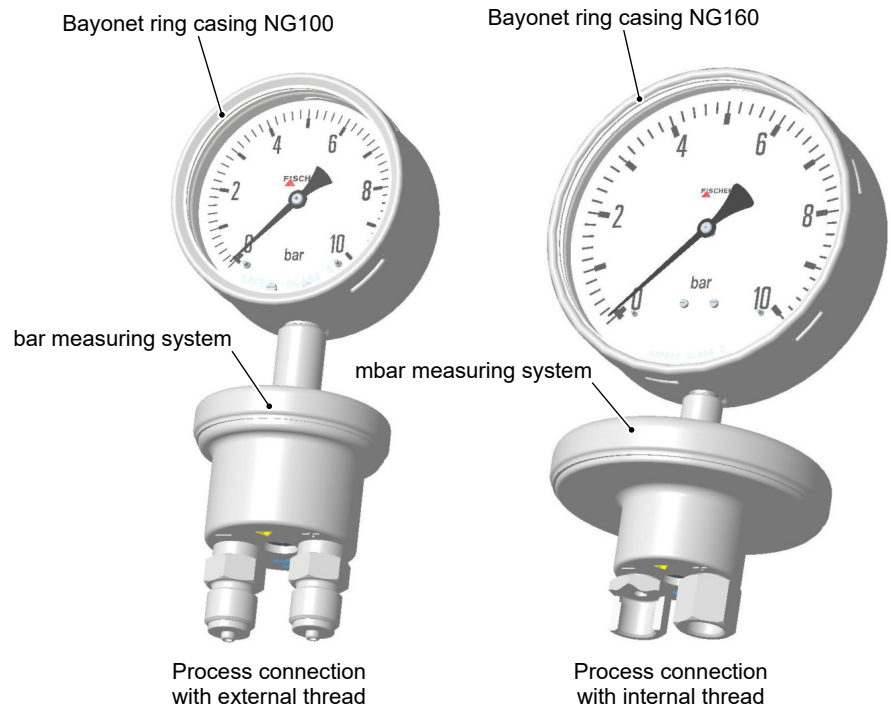


Fig. 2: Equipment versions NG100, NG160

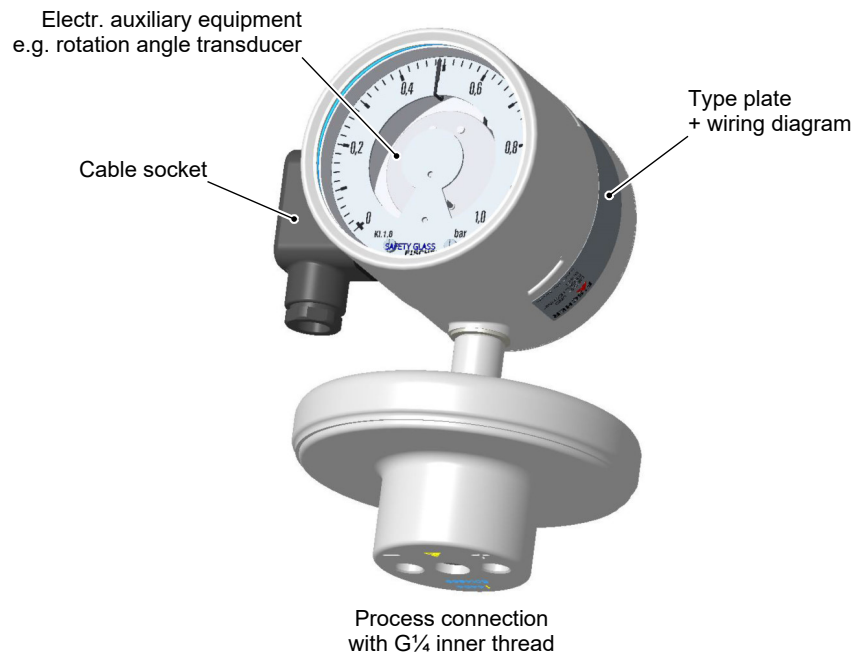


Fig. 3: Equipment versions additional equipment

## 2.6 Nameplate

This type plate serves as an example of the information that is stated. The data shown is purely fictive, but does correspond to the actual conditions. For more information, please see the order code at the end of these instructions.

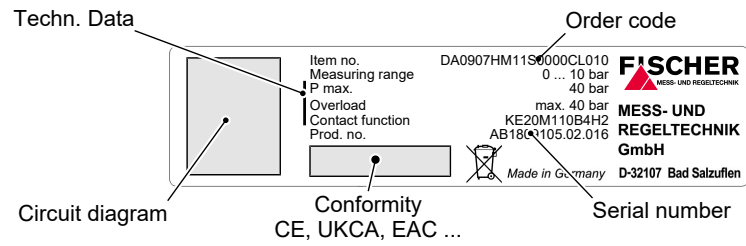


Fig. 4: Type plate



## 3 Assembly

### 3.1 General

The device can be mounted in one of the following ways:

1. Direct assembly  
The unit is suitable for direct assembly to pressure lines. The unit weight depends on the design. A suitable support construction may be needed.
2. Wall mounting  
The unit is equipped with a wall holder and is suitable for mounting to mounting plates and even walls.
3. Pipe assembly  
The device is equipped with a special pipe assembly set and is suitable for mounting to a 2" pipe (DN50).



**Wall mount**



**Pipe assembly**

Fig. 5: Assembly types

### 3.2 Process connection

- By authorized and qualified specialized personnel only.
- The pipes need to be depressurized when the instrument is being connected.
- Appropriate steps must be taken to protect the device from pressure surges.
- Check that the device is suitable for the medium being measured.
- Maximum pressures must be observed (cf. Tech. data)

All supply lines are arranged so that there are no mechanical forces acting on the device.

The pressure lines must be kept as short as possible and installed without any tight bends to avoid delays.

The pressure lines must be installed at an inclination so that when fluids are measured no air pockets are created or when measuring gases, no water pockets are created. If the required inclination is not reached, water or air filters must be installed at suitable places.

The pressure lines need to be vented for fluid measuring media.

If water is used as a measuring medium, the unit must be protected against frost.

If the pressure sensing lines are already pressurized at the time of commissioning, zero-point control and adjustment cannot be performed. In such cases, the device should be only connected to the mains without the pressure sensing lines.

The process connections are marked on the unit with (+) and (-) symbols. The pressure lines are to be mounted according to this marking.

### Differential pressure

- ⊕ Higher pressure
- ⊖ lower pressure

The following options are available for the process connection:

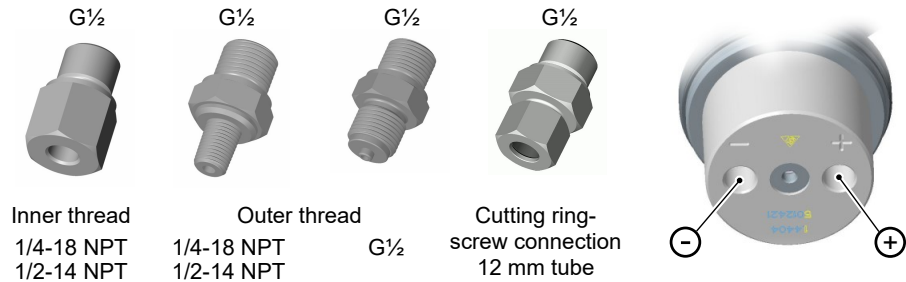


Fig. 6: Process connection

### 3.3 Electrical connections

- By authorized and qualified specialized personnel only.
- When connecting the unit, the national and international electro-technical regulations must be observed.
- Disconnect the system from the mains, before electrically connecting the device.
- Install the consumer-adapted fuses.
- Do not connect the connector if strained.

Only devices with contact elements are connected to the electrical supply. To this end there is a cable socket on the side of the device, or a HAN plug in the power plant version.

#### 3.3.1 Cable socket / HAN 7D

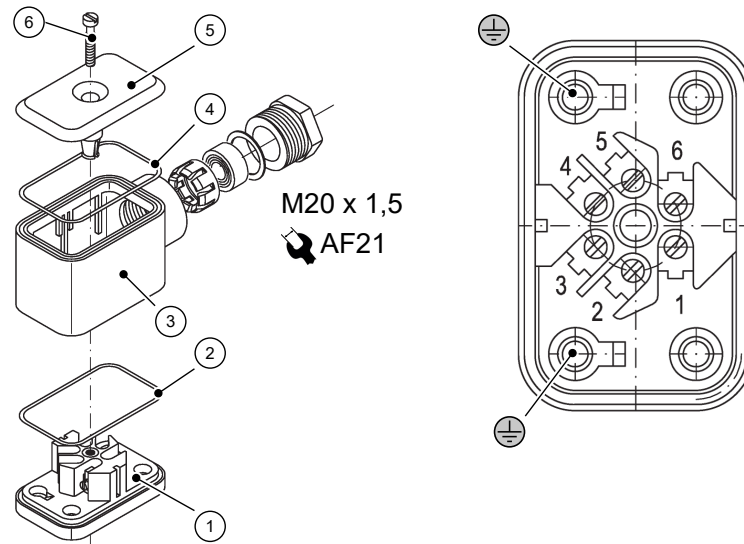


Fig. 7: Cable socket

1	Lower part	2	Sealing ring EPDM
3	Middle part	4	Sealing ring EPDM
5	Lid	6	Lid screw

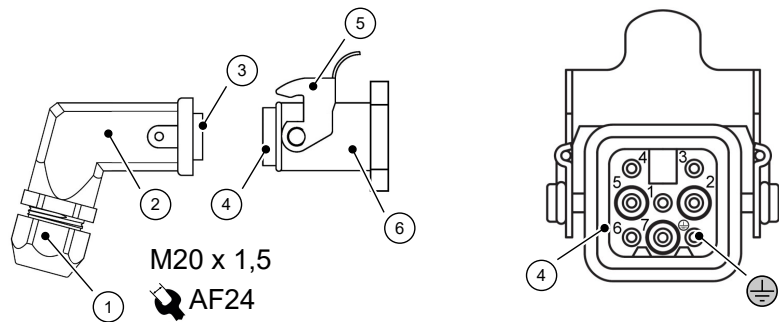


Fig. 8: HAN 7D

1	Cable screw connection M20 x 1.5	2	Sleeve housing Han 3A
3	Socket insert Han 7D	4	Pin insert Han 7D
5	Safety clip	6	Attachment casing Han 3D

### 3.3.2 Contact elements

Contact elements are supplied in accordance with data sheet KE. This illustrates all variants, their pin assignment and the technical data.

#### Creep and magnetic spring contacts

The terminal numbers always correspond to the contact number and are assigned to the target indicators from left to right. Up to three contacts can be used. There are assigned to the target indicators as follows:

1. For 2 contacts
  - Contact 1: left target indicator
  - Contact 2:right target indicator
2. For 3 contacts
  - Contact 1: left target
  - Contact 2: middle target
  - Contact 3: right target

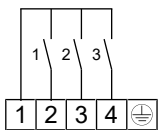
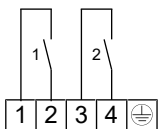
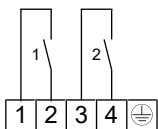


Fig. 9: Contacts



$E_b = 5 \dots 25V$

Fig. 10: Inductive contacts

#### Inductive contacts

In the case of inductive contacts, the switch function is not only determined by the slot type initiator but also by the switch amplifier. Up to max two contacts can be used. There are assigned to the target indicators as follows:

- Contact 1: left target indicator
- Contact 2:right target indicator.

### 3.3.3 Rotation angle transducers KINAX 3W2

The rotation angle encoder serves to record angular positions, to prepare and provide the measured values as electrical output signals 0/4 ... 20 mA for the following device. Rotation angle encoder is supplied in accordance with data sheet KE09. This contains further information about the pin assignment and the technical data.

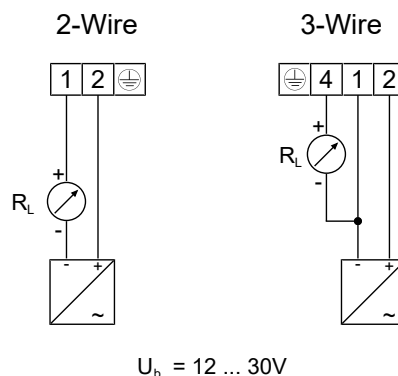


Fig. 11: Rotation angle transducers connection

## 4 Commissioning

### 4.1 General

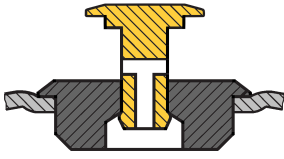


Fig. 12: Open vents

All electrical supply, operating and measuring lines, and the pressure connections must have been correctly installed before commissioning. All supply lines are arranged so that there are no mechanical forces acting on the device.

Check that all pressure connections are free of leaks before commissioning.

In models filled with fluid, the venting valve on the upper side of the bayonet casing must be opened before commissioning! To do this, remove the yellow valve plug.

### 4.2 Zero point correction

The pressure measuring units are set in the factory before delivery so that they do not usually need to be adjusted at the assembly site.

Any necessary zero-point correction is carried out as follows:

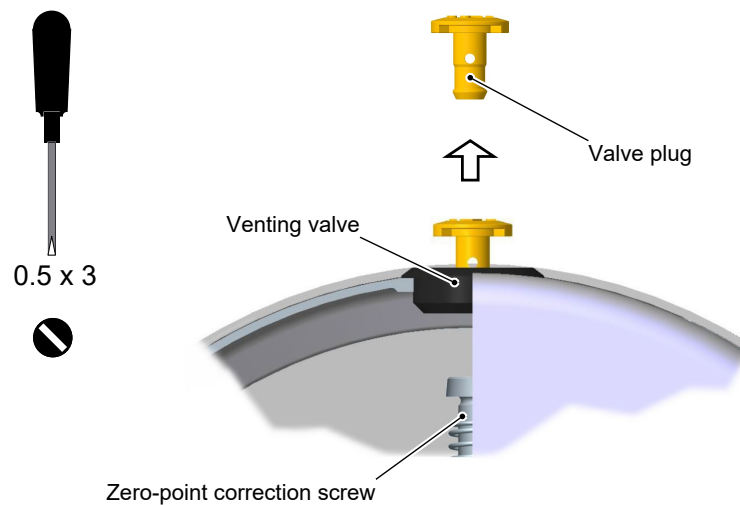


Fig. 13: Zero point correction

1. Depressurize the pressure line and/or equalise both pressure lines and exert equally with the static pressure.
2. Open the venting valve as shown in the illustration and carefully remove the entire valve plug from the casing.
3. Adjust the measurement value pointer using zero point correction screw to the scale zero point.
4. Refit the valve plug into the casing.
5. Close the venting valve.



Fig. 14: Vent closed

**NOTICE!** Please ensure that in models filled with fluid, the venting valve must be opened during operation.

### 4.3 Switch point setting

There is an adjustment lock attached to the front pane of the measuring unit on units with contact elements. This means that the contacts attached to the target indicators can be set to any point along the scale.

To facilitate switching precision and the service life of the mechanical measuring system, the switching points should lie between 10% and 90% of the measuring range.

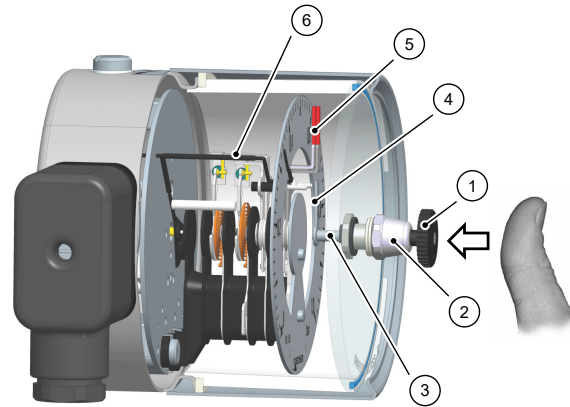


Fig. 15: Switch point setting

1	Adjustment key	2	Adjusting lock
3	Axle	4	Drive arm
5	Set-point display	6	Actual value display

#### Adjustment sequence:

- Press the axle inwards until the drive arm reaches behind the setting pin of the target value indicator.
- Set the target value indicator to the required switch point by turning the setting key.
- Relieve the axle.
- The switch-point setting can be secured against unintentional adjustment by removing the attachment screw and the adjustment key.

## 5 Servicing

### 5.1 Maintenance

The instrument is maintenance-free. We recommend the following regular inspection to guarantee reliable operation and a long service life:

- Check the function in combination with downstream components.
- Check the leak-tightness of the pressure connection lines.
- Check the electrical connections.

The exact test cycles need to be adapted to the operating and environmental conditions. In combination with other devices, the operating instructions for the other devices also need to be observed.

### 5.2 Transport

The measuring device must be protected against impacts. It should be transported in the original packaging or a suitable transport container.

### 5.3 Service

All defective or faulty devices should be sent directly to our repair department. Please coordinate all shipments with our sales department.



#### **WARNING**

##### **Process media residues**

Process media residues in and on dismantled devices can be a hazard to people, animals and the environment. Take adequate preventive measures. If required, the devices must be cleaned thoroughly.

Return the device in the original packaging or a suitable transport container.

### 5.4 Disposal

#### **WEEE-Reg.-No. DE 31751293**

Please help to protect our environment and dispose of the workpieces and packaging materials used in an environmentally friendly manner. Observe the country-specific waste treatment and disposal regulations.

The year of production can be found in the production number (serial number):

**P#** **23** 03618.03.123

Production year 2023 —↑

Further information on disposal can be found on our website  
[[www.fischermesstechnik.de](http://www.fischermesstechnik.de)]



## 6 Technical Data

### 6.1 General

Please also observe the order code here.

### 6.2 Input variables

#### Measuring variable

Absolute pressure for gaseous, fluid and aggressive media.

#### Measuring ranges [bar, mbar]

Measuring range	PN	Measuring range	PN
0 ... 0.6 bar	25 bar	-1 ... 0.6 bar	25 bar
0 ... 1 bar	25 bar	-1 ... 1.5 bar	25 bar
0 ... 1.6 bar	25 bar	-1 ... 3 bar	25 bar
0 ... 2.5 bar	25 bar	-1 ... 5 bar	25 bar
0 ... 4 bar	25 bar		
0 ... 6 bar	25 bar		
0 ... 10 bar	25 bar		
0 ... 16 bar	25 bar		
0 ... 25 bar	25 bar		
0 ... 25 mbar	10 bar	-40 ... 60 mbar	10 bar
0 ... 40 mbar	10 bar	-60 ... 100 mbar	10 bar
0 ... 60 mbar	10 bar	-100 ... 150 mbar	10 bar
0 ... 100 mbar	10 bar	-150 ... 250 mbar	25 bar
0 ... 160 mbar	10 bar		
0 ... 250 mbar	10 bar		
0 ... 400 mbar	25 bar		
0 ... 600 mbar	25 bar		

#### Measuring ranges [kPa, PSI]

Measuring range	PN	Measuring range	PN
0 ... 2.5 kPa	10 bar	0 ... 3 PSI	10 bar
0 ... 4 kPa	10 bar	0 ... 5 PSI	25 bar
0 ... 6 kPa	10 bar	0 ... 10 PSI	25 bar
0 ... 10 kPa	10 bar	0 ... 15 PSI	25 bar
0 ... 16 kPa	10 bar	0 ... 30 PSI	25 bar
0 ... 25 kPa	10 bar	0 ... 60 PSI	25 bar
0 ... 40 kPa	25 bar	0 ... 100 PSI	25 bar
0 ... 60 kPa	25 bar	0 ... 250 PSI	25 bar
0 ... 100 kPa	25 bar	0 ... 300 PSI	25 bar
0 ... 160 kPa	25 bar		
0 ... 250 kPa	25 bar		
0 ... 400 kPa	25 bar		
0 ... 600 kPa	25 bar		

**Pressure load**

Idle load	Scale upper value
Alternating load	Scale upper value
Overload capability on one side (+) and (-)	10 x Scale upper value ≤ PN

**6.3 Measurement accuracy**

Accuracy class	1.6
Characteristic curve deviation	± 1.6 % of the measuring range (FS)
Temperature influence (Reference + 20°C)	± 0.8 %FS / 10K
Influence of static pressure for measuring ranges (MBR) < 250 mbar	≤ 0,1 % + $\frac{0,004 \%}{\text{MBR [bar]}}$
Influence of static pressure for measuring ranges (MBR) ≥ 250 mbar	≤ $\frac{0,1 \%}{\text{bar}}$

**6.4 Operating conditions**

Permissible ambient temperature	-20 ... +80 °C
Admissible storage temperature	-20 ... +80 °C
Admissible media temperature	≤ 100 °C
Type of protection	IP 66 acc. to EN 60529

**6.5 Construction design****Materials**

	Material	Material no.
Bayonet ring housing NG100, NG160	CrNi steel	1.4301, 1.4404
Safety housing	CrNi steel	1.4404
Process connection	CrNi steel	1.4404
Motion train	CrNi steel	
Dial face and needle	Aluminium, painted, printed	
Inspection disk	Safety laminated glass	

**Parts in contact with the medium**

	Material	Material no.
Pressure chamber	CrNi steel	1.4404
Diaphragm MB ≤ 160 mbar	CrNi steel	1.4571
Diaphragm MB ≥ 250 mbar and ≤ 6 bar	NiCrCo alloy	DURATHERM®
Diaphragm MB ≤ 10 bar	NiCr. alloy	INCONEL® 718
Bellows	NiCr. alloy	Alloy 625
Seal	Metal seal	

**Process connection**

	Material	Material no.
Connecting piece and port	CrNi steel	1.4404
Cutting ring screw connections	CrNi steel	1.4571



### Electrical connection

In the case of devices with additional electronic equipment, the connection is realised using a cable socket attached to the side and/or with a Han 7D connector on the power plant models. The pin assignment depends on the ordered mode and is stated in the data sheet KE or KE09.

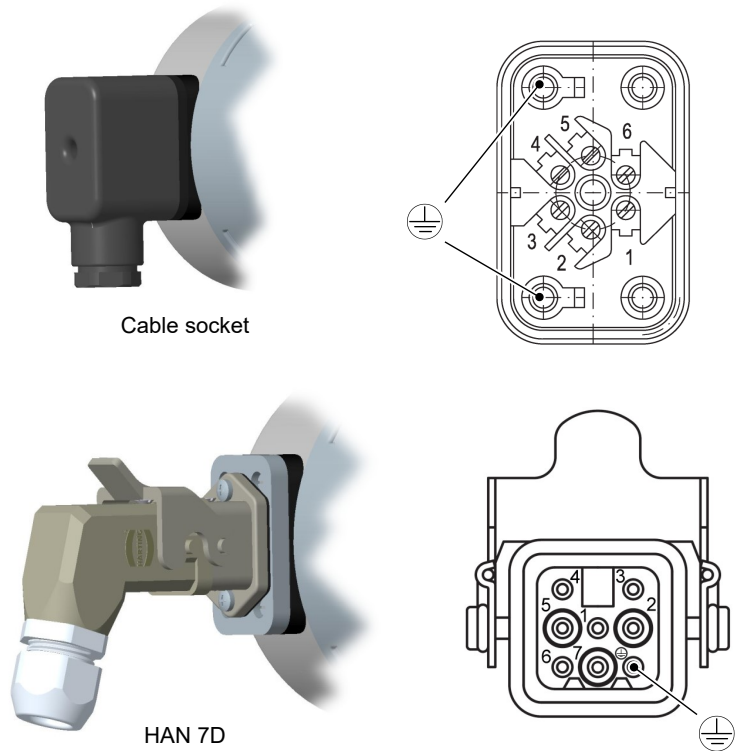


Fig. 16: Cable socket

#### Cable socket

Number of screw terminals	6 + 2PE
Rated current	See data sheet KE
Rated voltage	250 V
Cable diameter	up to 1.5 mm <sup>2</sup> with wire protection
Cable screw connection	M20 x 1.5, terminal range 7 ... 13 mm

#### HAN 7D

No. of crimp contacts	7 + PE
Rated current	See data sheet KE
Rated voltage	50 V
Cable diameter	1 mm <sup>2</sup>
Cable screw connection	M20 x 1.5, terminal range 7 ... 13 mm

### Assembly

Direct assembly	Mounted to the pipes
Wall mounting	Flanged assembly plate
Pipe mounting	Flanged assembly plate and attachment bracket
Mounting position	Vertical
Weight	Depending on the version 2,7 ... 7 kg

## Additional Attachments

### Contact elements

Limit signal transmitters (contacts) and capacitive rotation angle transducers with an output signal proportional to the angular position can be fitted into a housing augmented by a corresponding bayonet ring connector.

A certain minimum pressure level is required to operate this kind of contact element, which is why there is a lower limit for the mbar measuring ranges. This limit depends on the model type and is stated in the section 'General'.

The measuring deviation increases by  $\pm 0.5\%$  per contact when the contacts are driven and switched.

For more information and the order key, please refer to the data sheet:

- for limit switch in data sheet KE
- for rotation angle converter in the data sheet KE09

### Fluid charging

Under aggravated operating conditions, such as vibrations and extreme pressure fluctuations, or in order to avoid condensation forming if used outdoors, the casing can be filled with the following fluids depending in the type of contacts installed:

without contacts	Paraffin oil, glycerine, silicon oil
Low-action contacts	Paraffin oil, silicon oil
Magnetic spring contacts	Silicon oil
Inductive contacts	Paraffin oil, silicon oil
Rotation angle transducer	no filling possible

### Marker needle

A settable red marker can be attached to the scale to clearly show a certain pressure (limit value).

### Trailing needle

The trailing needle is 'dragged' with the measured value indicator. As there is no fixed connection between the two needles, one-off maximum values are stored. The trailing needle can be reset using an adjusting dial in the window. Trailing needles cannot be used in conjunction with contacts. A certain minimum pressure level is required to move the drag indicator, which is why there is a lower limit for the mbar measuring ranges. This limit depends on the model type and is stated in the section 'General'.

### Shut-off fitting

Three-spindle equalisation and shut-off valve DZ93 or four-spindle equalisation and shut-off valve DZ94.

- Material 1.4404
- Functions: Shut-off, pressure compensation

### 6.6 Dimensional drawings

All dimensions in mm unless otherwise stated

#### 6.6.1 Standard version

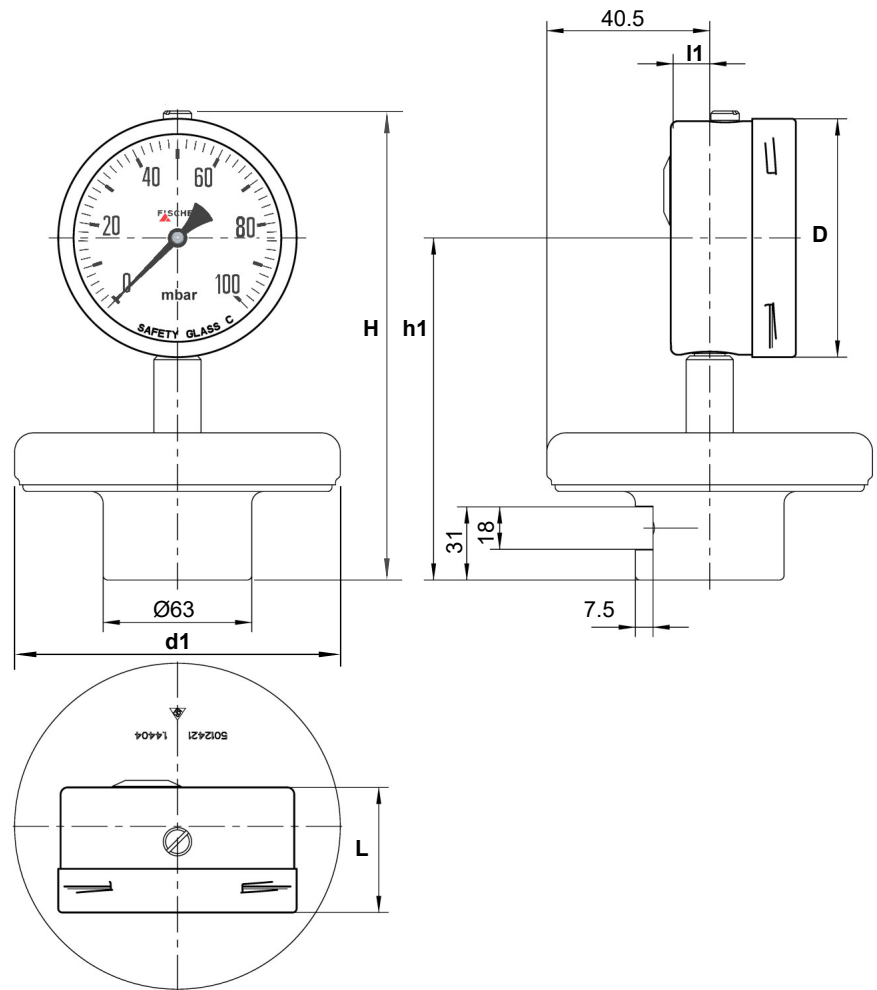


Fig. 17: Dimensional picture 25 ... 250 mbar

#### Measuring range 25...250 mbar

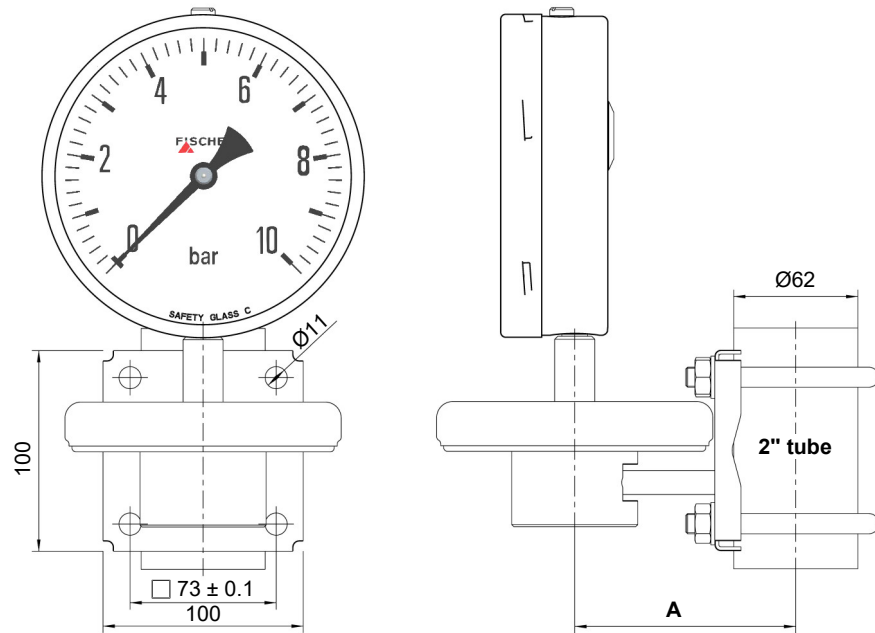
Housing	Tol.	D	d1	H	h1	L	l1
NG100	± 0.1	101	138	199	145	53	15.5
NG160	± 0.1	161	138	259	175	53.5	16.5

#### Measuring ranges 0.4 ... 25 bar

Housing	Tol.	D	d1	H	h1	L	l1
NG100	± 0.1	101	81	198	144	53	15.5
NG160	± 0.1	161	81	258	174	54.5	16.5

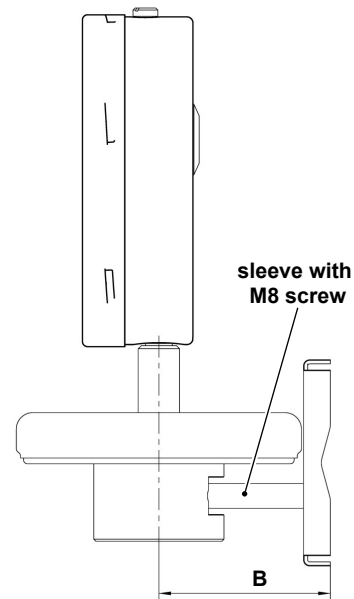
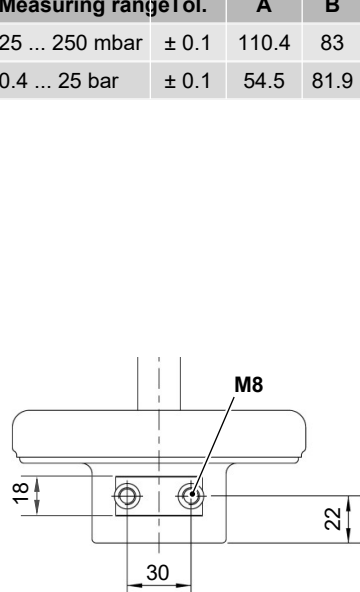
### 6.6.2 Tube and wall mounting

The dimensions stated apply for all housing models. The example shown is a bayonet ring housing NG160.



**Tube assembly**

Measuring range	Tol.	A	B
25 ... 250 mbar	± 0.1	110.4	83
0.4 ... 25 bar	± 0.1	54.5	81.9



**wall mounting**

Fig. 18: Tube and wall mounting

### 6.6.3 Process connection

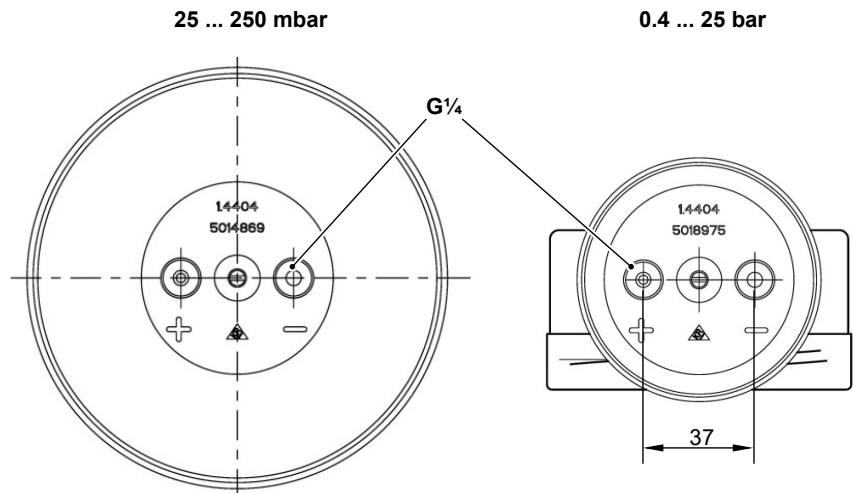


Fig. 19: Process connection

#### 6.6.3.1 Connection port with cylindrical external thread

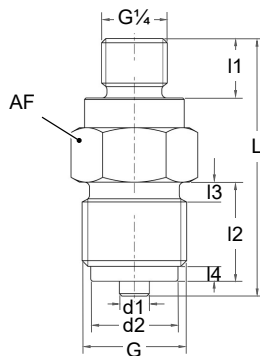


Fig. 20: Connecting port G

G	d1	d2	L	I1	I2	I3	I4	SW
<b>Tol.</b>	$\pm 0.1$	$\pm 0.2$	$\pm 0.3$	$\pm 0.2$	$\pm 0.2$	$\pm 0.1$	$\pm 0.1$	
<b>G<math>\frac{1}{2}</math></b>	6	17.5	52	12	23	4	3	22
<b>G<math>\frac{1}{4}</math></b>	5	9.5	39	12	15	3	2	19

SW:= Key width

#### 6.6.3.2 Connection shanks with tapered external thread

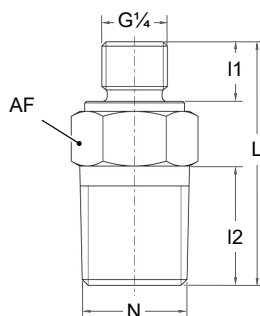


Fig. 21: Connecting port NPT

N	L	I1	I2	SW
<b>Tol.</b>	$\pm 0.3$	$\pm 0.2$	$\pm 0.2$	
<b><math>\frac{1}{2}</math>-14 NPT</b>	49	12	24	22
<b><math>\frac{1}{4}</math>-18 NPT</b>	42	12	18	19

SW:= Key width

#### 6.6.3.3 Connecting port with inner thread

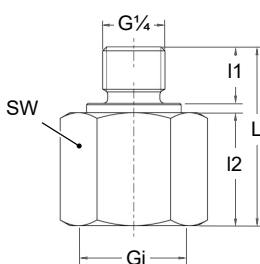


Fig. 22: Connecting port Gi

Gi	L	I1	I2	SW
<b>Tol.</b>	$\pm 0.3$	$\pm 0.2$	$\pm 0.2$	
<b>G<math>\frac{1}{2}</math></b>	38	12	24	27
<b><math>\frac{1}{2}</math>-14 NPT</b>	38	12	24	27
<b><math>\frac{1}{4}</math>-18 NPT</b>	32	12	18	19

SW:= Key width

## 6.6.4 Additional Attachments

### 6.6.4.1 Safety model

The device can be supplied in a safety housing acc. to DIN 837 with an unbreakable partition wall and a rear wall that can be blown out (S3).

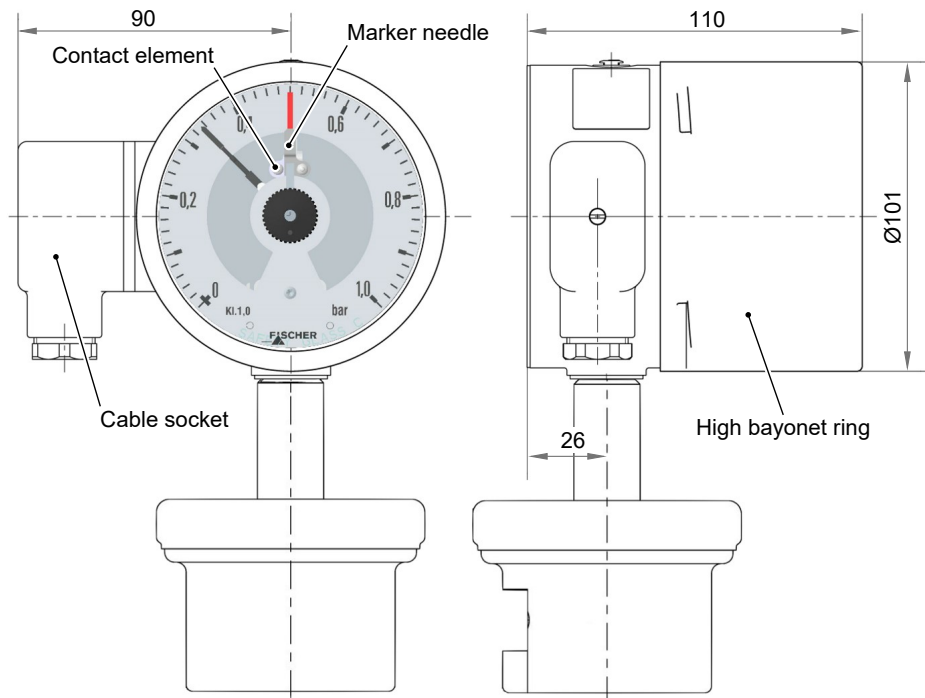


Fig. 23: Safety housing

### 6.6.4.2 Bayonet ring housing

#### Model with cable socket

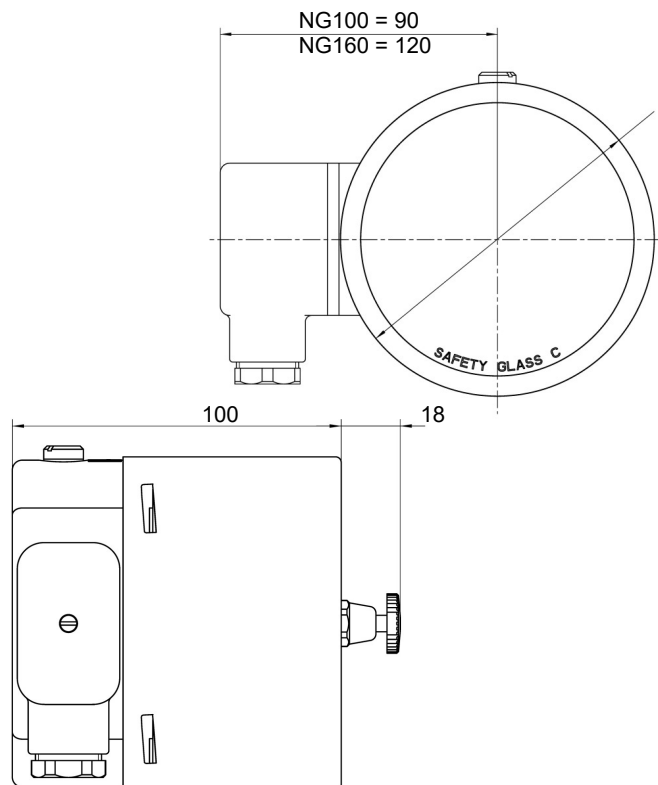
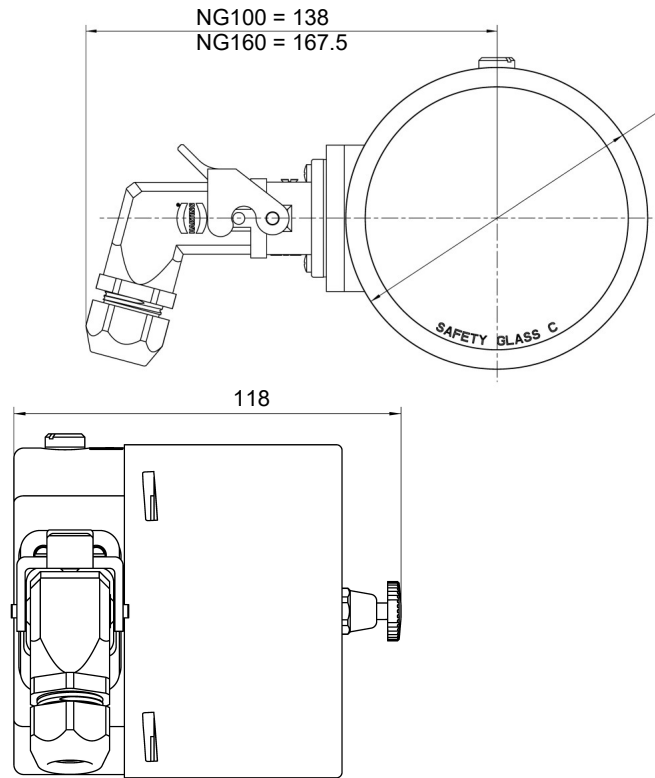


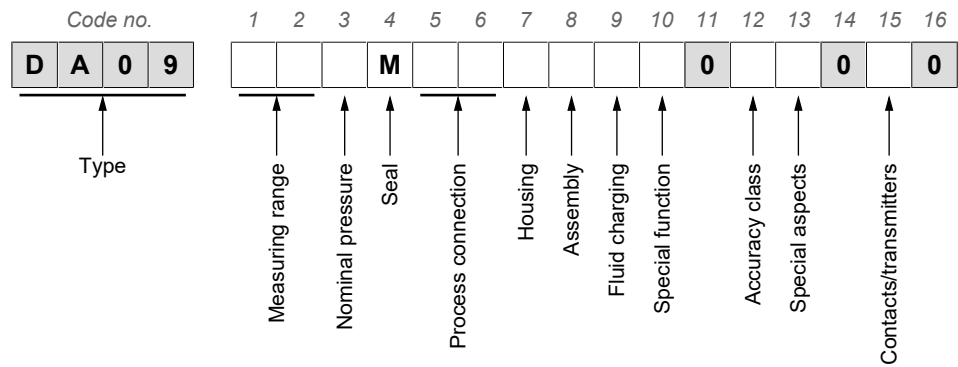
Fig. 24: Bayonet ring housing with cable socket

**Model with HAN 7D (power plant)**



*Fig. 25: Bayonet ring housing with HAN 7D*

## 7 Order Codes



[1.2]	Measuring range	PN	[1.2]	Measuring range	PN
01	0 ... 0.6 bar	25 bar	32	-1 ... 0.6 bar	25 bar
02	0 ... 1 bar	25 bar	33	-1 ... 1.5 bar	25 bar
03	0 ... 1.6 bar	25 bar	34	-1 ... 3 bar	25 bar
04	0 ... 2.5 bar	25 bar	35	-1 ... 5 bar	25 bar
05	0 ... 4 bar	25 bar			
06	0 ... 6 bar	25 bar			
07	0 ... 10 bar	25 bar			
08	0 ... 16 bar	25 bar			
09	0 ... 25 bar	25 bar			
56	0 ... 25 mbar (180° scale)	10 bar	70	-40 ... 60 mbar	10 bar
57	0 ... 40 mbar	10 bar	72	-60 ... 100 mbar	10 bar
58	0 ... 60 mbar	10 bar	74	-100 ... 150 mbar	10 bar
59	0 ... 100 mbar	10 bar	76	-150 ... 250 mbar	25 bar
60	0 ... 160 mbar	10 bar			
82	0 ... 250 mbar	10 bar			
83	0 ... 400 mbar	25 bar			
C1	0 ... 600 mbar	25 bar			

[1.2]	Measuring range	PN	[1.2]	Measuring range	PN
N3	0 ... 2.5 kPa (180° scale)	10 bar	H1	0 ... 3 PSI	10 bar
N4	0 ... 4 kPa	10 bar	H2	0 ... 5 PSI	25 bar
N5	0 ... 6 kPa	10 bar	H3	0 ... 10 PSI	25 bar
E5	0 ... 10 kPa	10 bar	H4	0 ... 15 PSI	25 bar
E6	0 ... 16 kPa	10 bar	H5	0 ... 30 PSI	25 bar
E7	0 ... 25 kPa	10 bar	H6	0 ... 60 PSI	25 bar
E8	0 ... 40 kPa	25 bar	H7	0 ... 100 PSI	25 bar
F1	0 ... 60 kPa	25 bar	Q1	0 ... 250 PSI	25 bar
F2	0 ... 100 kPa	25 bar	P1	0 ... 300 PSI	25 bar
F3	0 ... 160 kPa	25 bar			
F4	0 ... 250 kPa	25 bar			
F5	0 ... 400 kPa	25 bar			
F6	0 ... 600 kPa	25 bar			



[3] Nominal pressure (PN)	
<b>E</b>	10 bar = 1 MPa ≈ 145 PSI    MB ≤ 250 mbar = 25 kPa ≈ 3.63 PSI
<b>G</b>	25 bar = 2.5 MPa ≈ 362 PSI    MB ≥ 400 mbar = 40 kPa ≈ 5.80 PSI

The rated pressure ranges (PN) are linked to the measuring ranges (MB) and cannot be freely combined.

[4] Seal	
<b>M</b>	Metal seal

[5.6] Process connection (EN 873)	Material
<b>01</b> Inner thread G $\frac{1}{4}$	1.4404
<b>03</b> Inner thread G $\frac{1}{2}$	
<b>04</b> Inner thread $\frac{1}{4}$ - 18 NPT	
<b>05</b> Inner thread $\frac{1}{2}$ - 14 NPT	
<b>11</b> External thread G $\frac{1}{4}$	
<b>13</b> External thread G $\frac{1}{2}$	
<b>14</b> External thread $\frac{1}{4}$ - 18 NPT	
<b>15</b> External thread $\frac{1}{2}$ - 14 NPT	

[7] Housing	Material
<b>S</b> Bayonet ring housing Ø100	1.4404
<b>T</b> Bayonet ring housing Ø160	
<b>0</b> Safety housing Ø100      Acc. to EN 837	
<b>P</b> Safety housing Ø160      Acc. to EN 837	

[8] Assembly	
<b>0</b>	Direct connection (Standard)
<b>R</b>	Pipe mounting
<b>W</b>	Wall mounting

[9] Fluid charging	
<b>0</b>	Without fluid filling
<b>3</b>	Without fluid filling; suitable for O <sub>2</sub> measurements (free of oil and grease)
<b>1</b>	Glycerine      Only for units without contacts
<b>4</b>	Paraffin oil    Not for units with magnetic spring contacts
<b>5</b>	Silicon oil      For units with and without contacts

It is not possible to fill fluids into units with an installed capacitive position encoder.

[10] Special function	
<b>0</b>	Without special function
<b>1</b>	Adjustable marker needle
<b>2</b>	Resettable drag needle      Measuring range ≥ 60 mbar

[12] Accuracy class	
C	1.0
B	1.6

Standard version

[13] Special aspects	
0	None
L	Increased load change resistance

[15] Contacts/transmitters		
0	No contacts/transmitters	
1	Contacts as per data sheet KE	Measuring range $\geq$ 100 mbar
2	Rotation angle encoder in accordance with data sheet KE09	Measuring range $\geq$ 100 mbar
5	Contacts with socket	Power plant model

## 7.1 Accessories

Order no.	Planned measures
DZ93 00HE##	Three-spindle compensating and shut-off valve
DZ94 00HE##	Four-spindle equalisation and shut-off valve with venting valve

For more details, please see data sheet DZ93-94 at [www.fischermesstechnik.de](http://www.fischermesstechnik.de).

# 8 Attachments

## 8.1 EU declarations of conformity



(Translation) **CE**

### EU Declaration of Conformity

For the product described as follows

**Product designation**                      **Differential Pressure Gauge**  
 (with contact device KE ## S/M ##### H2)

**Type designation**                         **DA09 ... 10**  
    **DA09 ... 50**

it is hereby declared that it corresponds with the basic requirements specified in the following designated directives:

- |               |   |
|---------------|---|
| 2014/35/EU    | Low Voltage Directive   |
| 2011/65/EU    | RoHS Directive  |
| (EU) 2015/863 | Delegated Directive amending Annex II to Directive 2011/65/EU |

The products were tested in compliance with the following standards.

**Low Voltage Directive (LVD)**

- |  |   |
|--|---|
| <b>DIN EN 61010-1:2020-03</b>                      | <i>Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements</i> |
| <i>EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019</i> |   |

**RoHS Directive (RoHS 3)**

- |                                 |   |
|---------------------------------|---|
| <b>DIN EN IEC 63000:2019-05</b> | <i>Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances</i> |
| <i>EN IEC 63000:2018</i>        |   |

Also they were subjected to the conformity assessment procedure „Internal production control“.

Sole responsibility for the issue of this declaration of conformity in relation to fulfilment of the fundamental requirements and the production of the technical documents is with the manufacturer.

**Manufacturer**                                      **FISCHER Mess- und Regeltechnik GmbH**  
 Bielefelder Str. 37a  
 32107 Bad Salzuflen, Germany  
 Tel. +49 (0)5222 974 0

The devices bear the following marking: **CE**

**Bad Salzuflen**  
**06 Mar 2025**

T. Malischewski  
 Managing Director



Fig. 26: CE\_EN\_DA09\_10



(Translation)

## EU Declaration of Conformity

For the product described as follows

**Product designation** **Differential Pressure Gauge**  
(with transmitter for angular position KE0905#9)

**Type designation** **DA09 ... 20**

it is hereby declared that it corresponds with the basic requirements specified in the following designated directives:

2014/30/EU

*EMC Directive*

2011/65/EU

*RoHS Directive*

(EU) 2015/863

*Delegated Directive amending Annex II to Directive 2011/65/EU*

The products were tested in compliance with the following standards.

### **Electromagnetic compatibility (EMC)**

*DIN EN IEC 61000-6-2:2019-11*  
*EN IEC 61000-6-2:2019*

*Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments*

*DIN EN 61000-6-3:2022-06*  
*EN IEC 61000-6-3:2021*

*Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments*

### **RoHS Directive (RoHS 3)**

*DIN EN IEC 63000:2019-05*  
*EN IEC 63000:2018*

*Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances*

Also they were subjected to the conformity assessment procedure „**Internal production control**“.

Sole responsibility for the issue of this declaration of conformity in relation to fulfilment of the fundamental requirements and the production of the technical documents is with the manufacturer.

**Manufacturer** **FISCHER Mess- und Regeltechnik GmbH**  
Bielefelder Str. 37a  
32107 Bad Salzufflen, Germany  
Tel. +49 (0)5222 974 0

The devices bear the following marking:



**Bad Salzufflen**  
**06 Mar 2025**

T. Malischewski  
Managing Director



Fig. 27: CE\_EN\_DA09\_20

## 8.2 UKCA Declarations of Conformity



### UKCA Declaration of Conformity

For the product described as follows

**Product designation**                      **Differential Pressure Gauge**  
 (with contact device KE ## S/M ##### H2)

**Type designation**                         **DA09 ... 10**  
    **DA09 ... 50**

is hereby declared to comply with the essential requirements, specified in the following UK regulations:

<i>Statutory regulation No.</i>	<i>Description</i>
2016 No. 1101	<i>The Electrical Equipment (Safety) Regulations 2016</i>
2022 No. 1647	<i>The Hazardous Substances and Packaging (Legislative Functions and Amendment) (EU Exit) Regulations 2020</i>
2021 No. 422	<i>The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (Amendment) Regulations 2021</i>

The products have been tested according to the following standards.

**Low Voltage Directive (LVD):**

BS EN 61010-1+A1:2017-03-31	<i>Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements</i>
-----------------------------	--

**Restriction of Hazardous Substances (RoHS):**

BS EN IEC 63000:2018-12-10	<i>Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances</i>
----------------------------	---

The sole responsibility for drawing up this declaration of conformity in relation to the fulfilment of the essential requirements and the preparation of the technical documentation lies with the manufacturer.

**Manufacturer**                                      **FISCHER Mess- und Regeltechnik GmbH**  
 Bielefelder Str. 37a  
 32107 Bad Salzufflen, Germany  
 Tel. +49 (0)5222 974 0

The devices bear the following marking:                      **UK  
CA**

**Bad Salzufflen**                                      G. Gödde  
**04 Okt 2021**                                         Managing director



Fig. 28: UKCA\_EN\_DA09\_10



(Translation) UK  
CA

## UKCA Declaration of Conformity

For the product described as follows

**Product designation** **Differential Pressure Gauge**  
(with transmitter for angular position KE0905#9)

**Type designation** **DA09 ... 20**

is hereby declared to comply with the essential requirements, specified in the following UK regulations:

<b>Statutory regulation No.</b>	<b>Description</b>
2016 No. 1091	The Electromagnetic Compatibility Regulations 2016
2022 No. 1647	The Hazardous Substances and Packaging (Legislative Functions and Amendment) (EU Exit) Regulations 2020
2021 No. 422	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (Amendment) Regulations 2021

The products have been tested according to the following standards.

### Electromagnetic compatibility (EMC):

BS EN IEC 61000-6-2:2019-02-25	Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments
BS EN IEC 61000-6-3:2021-03-30	Electromagnetic compatibility (EMC). Generic standards. Emission standard for equipment in residential environments

### Restriction of Hazardous Substances (RoHS):

BS EN IEC 63000:2018-12-10	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
----------------------------	--

The sole responsibility for drawing up this declaration of conformity in relation to the fulfilment of the essential requirements and the preparation of the technical documentation lies with the manufacturer.

**Manufacturer** **FISCHER Mess- und Regeltechnik GmbH**  
Bielefelder Str. 37a  
32107 Bad Salzufflen, Germany  
Tel. +49 (0)5222 974 0

The devices bear the following marking:



Bad Salzufflen  
04 Okt 2021

G. Gödde  
Managing director



### 8.3 EAC Declaration

## ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ



**Заявитель** Общество с ограниченной ответственностью «МАТИС-М»

Место нахождения: Российская Федерация, Москва, 117261, улица Вавилова, дом 70, строение 3, Комната Правления. Адрес места осуществления деятельности: Российская Федерация, Москва, 109029, Сибирский проезд, дом 2, строение 9. Основной государственный регистрационный номер: 1037739575125, номер телефона: +74957252309, адрес электронной почты: info@matis-m.ru,  
в лице Генерального директора Шарова Александра Анатольевича

**заявляет, что** Измерительные устройства: Манометры для измерения дифференциального давления, серии DS, DA

**Изготовитель** FISCHER Mess- und Regeltechnik GmbH. Место нахождения и адрес места осуществления деятельности: Германия, Bielefelder Str. 37a D-32107 Bad Salzuflen Germany, координаты системы ГЛОНАСС (52.056894, 8.725524)

Продукция изготовлена в соответствии с Директивой 2014/35/EU

Код ТН ВЭД ЕАЭС 9026 20 400 0 Серийный выпуск

**соответствует требованиям**

ТР ТС 004/2011 О безопасности низковольтного оборудования

**Декларация о соответствии принята на основании**

Протокол испытаний № АЛС-011-0163 от 27.01.2022 года, выданного испытательной лабораторией Общества с ограниченной ответственностью «АТМОСФЕРА», аттестат аккредитации РОСС RU.32468.04ЛЕГО.002

Схема декларирования 1д

**Дополнительная информация**

Условия и сроки хранения стандартные при нормальных значениях климатических факторов внешней среды, срок службы (годности) указан в эксплуатационной документации. Договор на выполнение функций иностранного изготовителя № 2016-09-29/01 от 29.09.2016.

**Декларация о соответствии действительна с даты регистрации по 27.01.2027 включительно**

  
(подпись)



М. П.

Шаров Александр Анатольевич

(Ф.И.О. заявителя)

Регистрационный номер декларации о соответствии: ЕАЭС N RU Д-DE.РА01.В.43065/22

Дата регистрации декларации о соответствии: 28.01.2022

Fig. 30: EAC\_RU\_DS-DA



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