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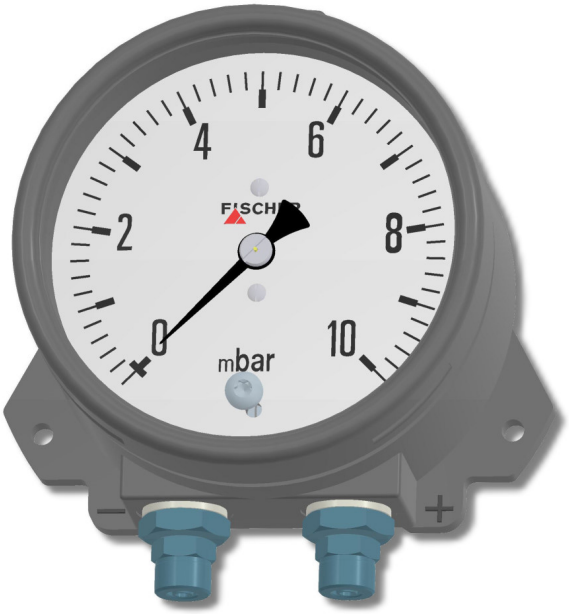

Operation manual

DA08

Differential pressure measuring unit

09005367 • BA_EN_DA08 • Rev. ST4-A • 07/18

Masthead

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Version history

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1 Safety instructions

1.1 General

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).

a) 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).

a) 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).

a) 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

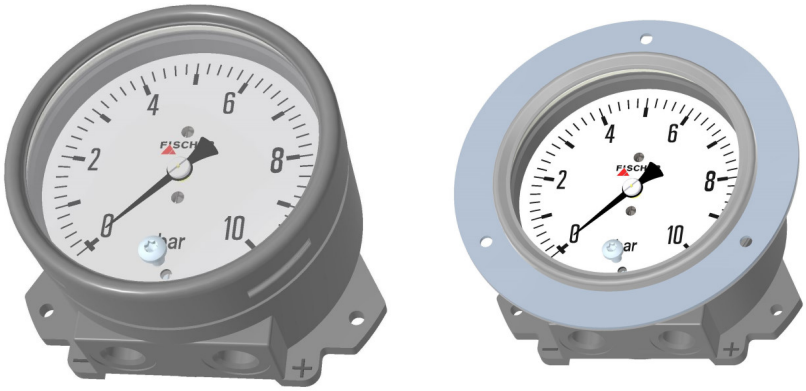
2.1 Delivery scope

- Differential pressure measuring unit DA08
- Operating Manual

2.2 Intended use

The DA08 serves to measure differential pressures in gaseous, non-aggressive, dry, oil and grease-free media. The unit can be used to monitor small and minute differential pressures on roller tape filters, fans, venturi nozzles etc.

2.3 Equipment versions

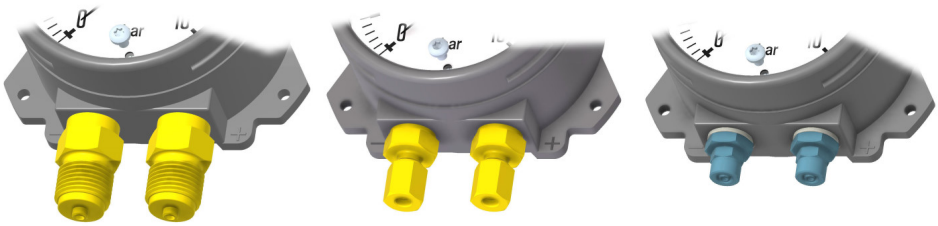


Wall mounting Installation into the control panel

Fig. 1: Equipment versions

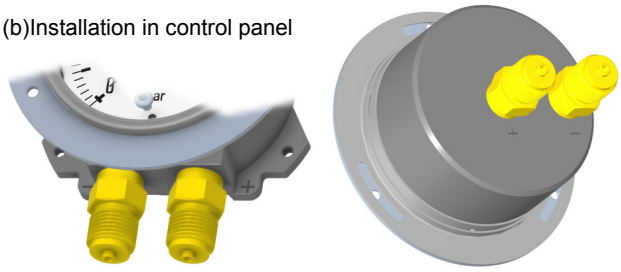
Process connection

(a) Wall mounting



Connection pin Cutting ring screw connection Hose screw connection

(b)Installation in control panel



Connection bottom Connection rear

Fig. 2: Process connections

NOTICE! All named screw connections can also be used for installation in a control panel.

Type plate

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.

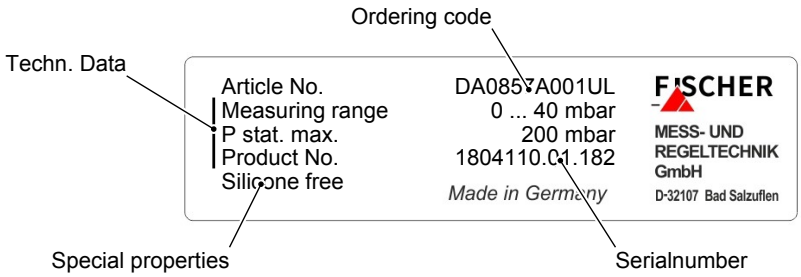


Fig. 3: Type plate

2.4 Function diagram

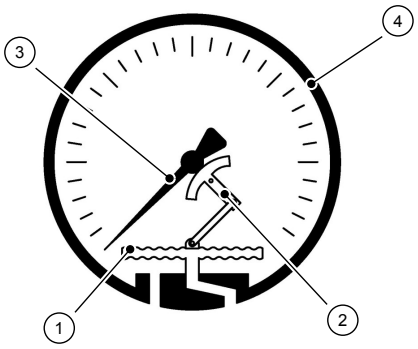


Fig. 4: Function diagram

1	Diaphragm capsule	2	Motion train
3	Needle	4	Housing

2.5 Design and mode of operation

A capsule measuring unit is installed in a pressure-resistant casing is fitted The higher pressure (+) acts on the inside of the capsule, the lower pressure (-) is exerted into the pressure-resistant casing.

The differential pressure created between the inside and outside of the measuring element changes the shape of the capsule. This is shown by a pointer mechanism.

3 Assembly and Starting Operation

3.1 General

The unit is supplied for wall mounting or installation in a control panel. Ex-works, the device is set for vertical installation.

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 installed at an inclination so that no water pockets are created. If the required gradient is not reached, water filters need to be installed at suitable points.

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

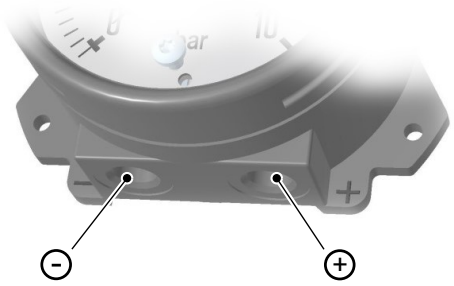


Fig. 5: Process connection

The pressure connections are marked with (+) and (-) symbols on the device. When the differential pressure is measured, the higher pressure is connected to the (+) side and the lower pressure to the (-) side.

Use a suitable flat seal according to DIN 837 on units with a straight connection pin.

3.3 Start-up

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

⚠ CAUTION

Leak test

The pressure lines need to be checked for leaks before commissioning.

Zero point correction

The DA08 is adjusted ex-works for vertical installation so that a zero point correction is usually not necessary. However, if the installation deviates by more than 10° from the vertical, it may be necessary to correct the zero point.

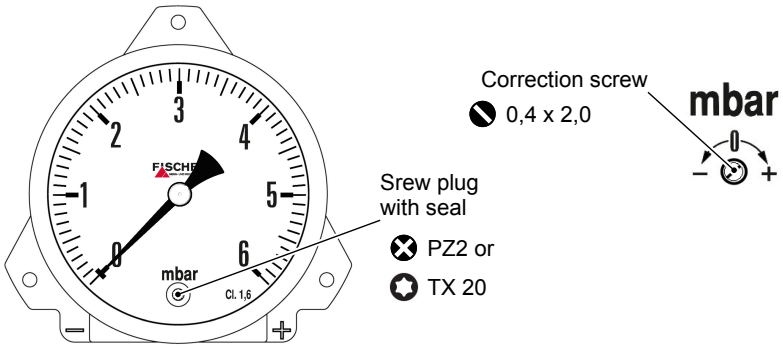


Fig. 6: Zero-point adjustment

Proceed as followed to correct the zero point:

a) Depressurize the measuring chambers (+) and (-) side.
CAUTION! The inner space is pressurized. Only remove the closing screw if the unit is depressurized.

b) Remove the closing screw in the front pane. Take care not to lose this screw.

⇨ The correction screw is no accessible

c) Set the pointer to zero using correction screw.

d) Close the front pane using the closing screw.

e) Restart the DA08 by restoring the system pressure.

⇨ The zero point correction is completed.

4 Servicing

4.1 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.

4.2 Transport

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

4.3 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.

4.4 Disposal

Please help to protect the environment by always disposing of the work pieces and packaging materials in compliance with the valid national waste and recycling guidelines or reuse them.

5 Technical Data

5.1 General

General information	
Type designation	DA08
Pressure type	Differential pressure
Measuring principle	Diaphragm capsule

Reference conditions (acc. to IEC 61298-1)		
Temperature	+15 … +25 °C	
Relative humidity	45 … 75 %	
Air pressure	86 … 106 kPa	860 … 1060 mbar
Installation position	vertical	

5.2 Input variables

Measuring ranges		Max. durability	
mbar	PA	mbar	kPa
0 … 6	0 … 600	60	6
0 … 10	0 … 1000	100	10
0 … 16	0 … 1600	160	16
0 … 25	0 … 2500	200	20
0 … 40	0 … 4000	200	20
0 … 60	---	200	20
0 … 100	---	200	20

Maximum system pressure	200 mbar	20 kPa

5.3 Measured value display

Measured value display		Round housing Ø100
Scale	0 … 6 mbar	162°
	0 … 10 mbar	169°
	All other measuring ranges	270°
Display precision		Class 1.6 gem. DIN EN 837

5.4 Operating conditions

Ambient temperature range	-20 … +70 °C
Storage temperature range	-20 … +80 °C
Medium temperature range	Max. 50 °C
Protection class IP	IP65 acc. to DIN EN 60529

5.5 Construction design

Process connection	Material
Inner thread G¼	Aluminium
Connection shanks with external thread G¼ (DIN EN 837)	Brass
Connection shanks with external thread G½ (DIN EN 837)	Brass
Cutting ring connection in brass for 6 mm pipe	Brass
Cutting ring connection in brass for 8 mm pipe	Brass
Cutting ring connection in brass for 10 mm pipe	Brass
CK fast screw connection for 6/4 mm hose	Aluminium
CK fast screw connection for 8/6 mm hose	Aluminium

Installation position	senkrecht
Dimensions (H x W x D)*)	118 x 118 x 61
Weight	approx. 650 g

*) Process connection inner thread G¼

5.5.1 Materials

Process connection	M	U	Brass, aluminium
Seal for CK fast screw connection	M	U	Hard PVC
Measuring unit	M		Brass, copper-beryllium
Needle	M		Aluminium, black
Housing	M		Aluminium, painted black
Bayonet ring		U	St 1403, painted black
Seal	M		NBR
Inspection disk	M	U	Acrylic glass

M: contact with measuring medium
U: contact with environment

5.5.2 Dimensional drawings

All dimensions in mm unless otherwise stated

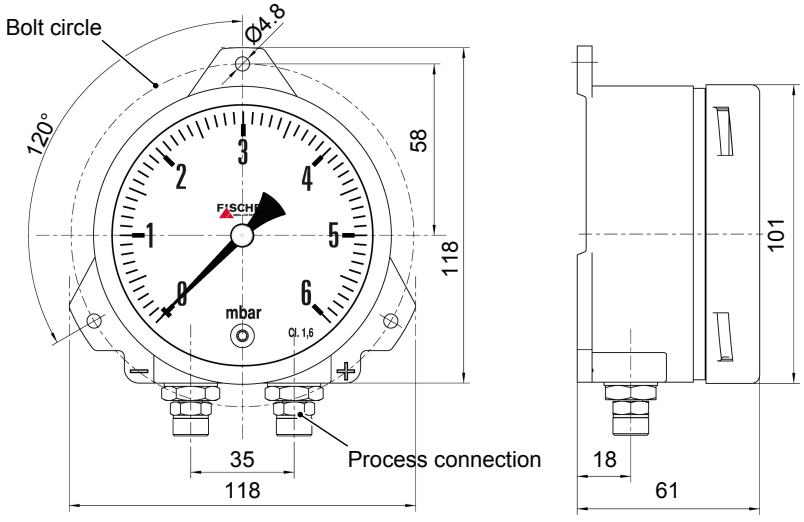
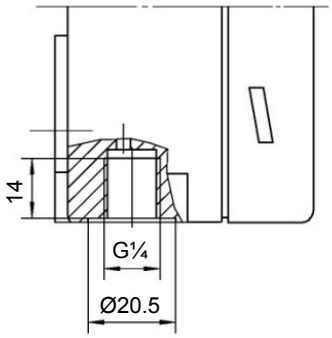


Fig. 7: Dimensional picture

Process connection



Code 01

Fig. 8: Inner thread G¼

Connection port with cylindrical external thread

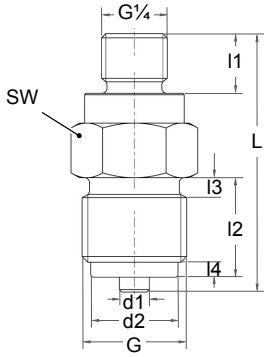


Fig. 9: Connecting port G

G	d1	d2	L	l1	l2	l3	l4	SW
Tol.	*±0.1*	*±0.2*	*±0.3*	*±0.2*	*±0.2*	*±0.1*	*±0.1*	
G½	6	17.5	52	12	23	4	3	22
G¼	5	9.5	39	12	15	3	2	19

SW:= Key width

Cutting ring screw connection

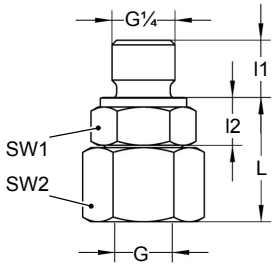


Fig. 10: Screw-in connection

g	L	l1	l2	SW1	SW2
Ø tube		*±0.2*	*±0.2*		
6	28	12	7	19	17
8	30	12	7	19	17
10	31	12	8	19	19

SW:= Key width

Screw connection

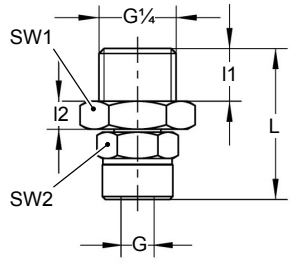


Fig. 11: CK fast screw connection

g	L	l1	l2	SW1	SW2
Ø (outside / inside)		*±0.2*	*±0.2*		
6/4	26	9	4.8	17	12
8/6	26	9	4.8	17	14

SW:= Key width

Panel mounting set

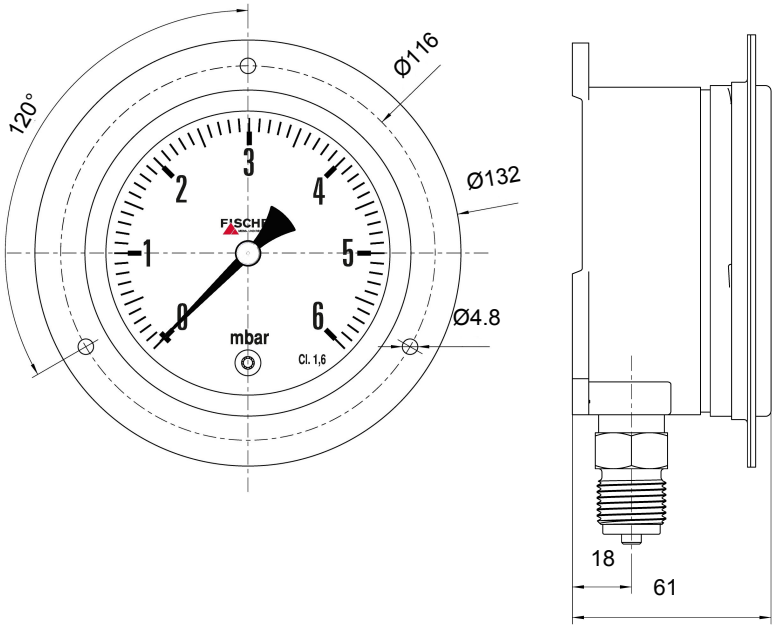


Fig. 12: Connections bottom

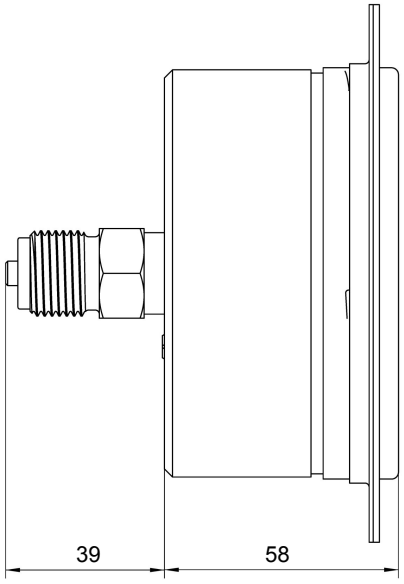
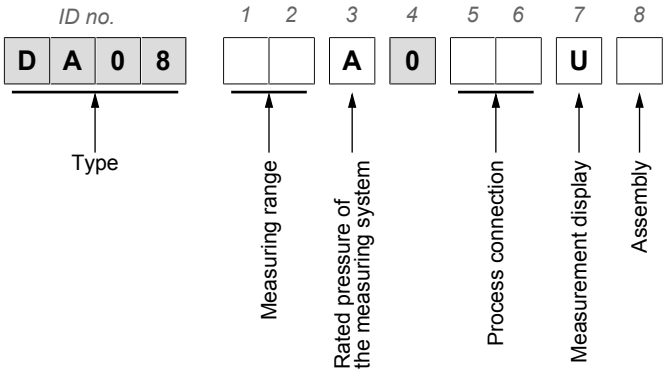


Fig. 13: Connections back

6 Order codes



[1.2]	Measuring range
53	0 … 6 mbar
54	0 … 10 mbar
55	0 … 16 mbar
56	0 … 25 mbar
57	0 … 40 mbar
58	0 … 60 mbar
59	0 … 100 mbar
D8	0 … 600 Pa
D9	0 … 1000 Pa
E1	0 … 1600 Pa
E2	0 … 2500 Pa
E3	0 … 4000 Pa

[3]	Rated pressure of the measuring system
A	200 mbar (20 kPa)

[5.6]	Process connection	Material
01	Inner thread G¼	
06	Connection shanks with external thread G¼	Brass
08	Connection shanks with external thread G½	Brass
28	Cutting ring connection in brass for 6 mm pipe	Brass
29	Cutting ring connection in brass for 8 mm pipe	Brass
30	Cutting ring connection in brass for 10 mm pipe	Brass
47	Hose screw connection for 6/4 mm hose	Aluminium
48	Hose screw connection for 8/6 mm hose	Aluminium

[7]	Measured value display	Material
U	Bayonet ring housing Ø100	Aluminium

[8]	Assembly	Process connection
B	Wall mounting	Bottom
L	Panel mounting set	Bottom
g	Panel mounting set	rear