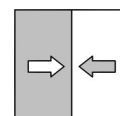




Operating manual

DS13

Differential pressure switch



Masthead

Manufacturer:**FISCHER Mess- und Regeltechnik GmbH**

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Subject to technical amendments.



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Version history

Rev. ST4-A 04/20	Version 1 (first edition)
Rev. ST4-B 11/21	Version 2 (Correction perm. stat. operating pressure; UKCA)
Rev. ST4-C 03/23	Version 3 (Correction switching hysteresis)

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1 Safety instructions

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.

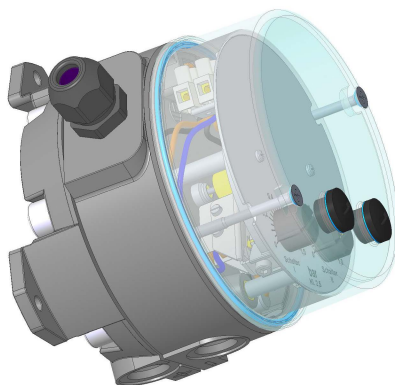
2 Product and functional description

2.1 Delivery scope

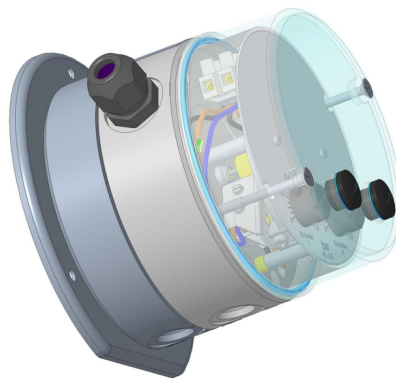
- Differential pressure switch DS13
- Operating Manual

2.2 Equipment versions

2.2.1 Pressure chamber



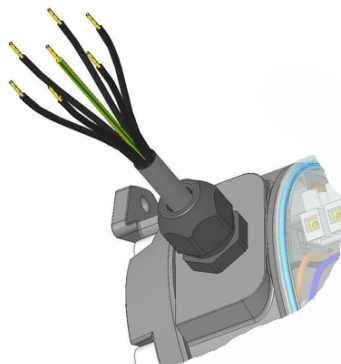
Aluminium



Stainless steel

Fig. 1: Material options for the pressure chamber

2.2.2 Electrical connection



Number cable



Cable socket/plug connection

Fig. 2: Options for the electrical connection

2.2.3 Type plate

This type plate serves as an example of the information that is stated. For more information, please see the order code at the end of these instructions.

Connection diagram

Unit depress. and de-energised	Article no.	Order code	FISCHER <small>MESS- UND REGELTECHNIK</small> MESS- UND REGELTECHNIK GmbH D-32107 Bad Salzufen <i>Made in Germany</i>
	Measuring range		
	P stat. max.		
	P max.		
	Prod. no.		
Switching capacity:		Serial number	
Conformity CE, UKCA, etc.			

Fig. 3: Type plate

2.3 Intended use

The DS13 is a switching device for differential pressure, over and under-pressure for gaseous and fluid media. This series is ideally suited for various measuring tasks in rough environments.

Typical application cases are the monitoring of tanks, filters and compressors.

Please contact the manufacturer before using this unit with dirty or aggressive media because the unit needs to be adapted in terms of the parts that come into contact with the media.

The device can be used as a functional safety components (SIL) as agreed with the manufacturer (see order code).

The device is to be exclusively used for the applications agreed between the manufacturer and the user.

2.4 Function diagram

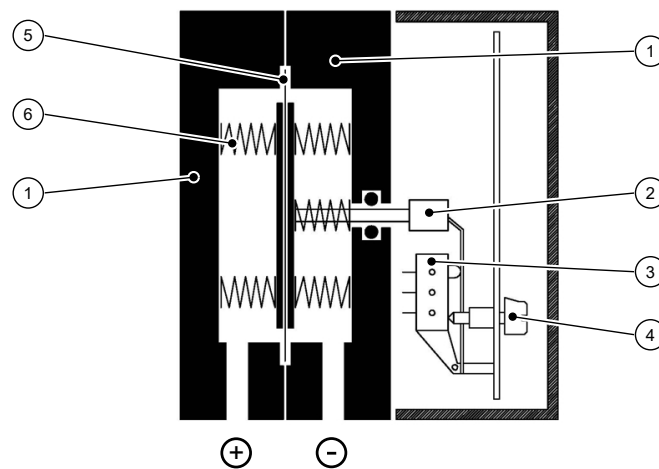


Fig. 4: Function diagram

1	Pressure chamber	2	Tappet
3	Micro-switch	4	Switch point setting
5	Measuring diaphragm	6	Measuring springs

2.5 Design and mode of operation

A sturdy non-sensitive diaphragm measuring unit that is suitable for measuring differential pressure, and over and under-pressure is used as a measuring system. The unit uses the same measuring principle for all three measuring applications.

In the rest position, the spring forces on both sides of the membrane are balanced out. Due to the pressure or under-pressure to be measured, a single-sided force is created on the membrane which shifts the membrane system against the measurement range springs up to compensation of the spring forces. In case of overload, the membrane supports against the metallic support surfaces.

A centrally positioned tappet transfers the movement of the membrane system onto the operating elements of the micro-switches.

3 Assembly

3.1 General

The device is designed for wall mounting.

NOTICE! At the factory, the device is calibrated for vertical installation and only this installation position is allowed.

To ensure safety during installation and maintenance, we recommend installing a suitable shut-off valve on the system (see accessories). A shut-off valve offers the following advantages:

- The device can be depressurized or decommissioned.
- The device can be disconnected from the power supply within the applicable system for repairs or inspections.
- A function test of the device can be performed on-site.

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)

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.

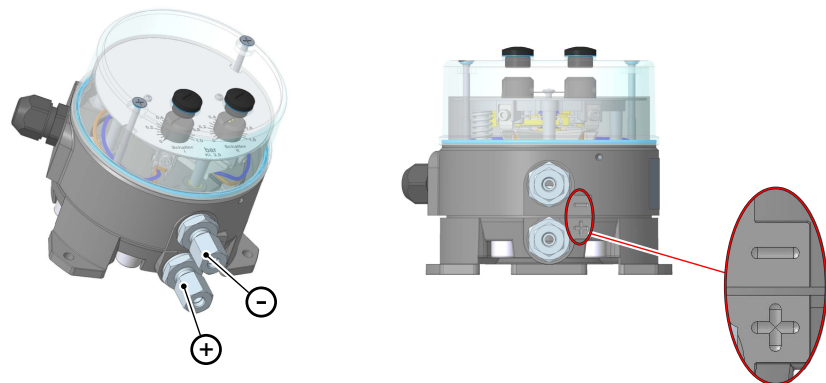


Fig. 5: Process connection

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.

In the case of fluid measuring media, the pressure lines must be vented because different fluid columns in the lines will distort the measurements.

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

Pulsating pressure on the system side can lead to wear and functional problems. To safeguard this, we recommend installing absorption elements in the pressure line.

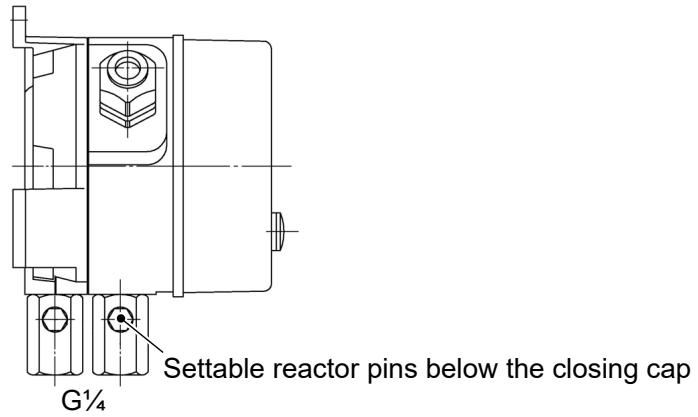
Fluid media

Fig. 6: Controllable damping reactor MZ40

In the operational status, the reactor pins need to be set so that the measurement display follows the pressure changes with a delay.

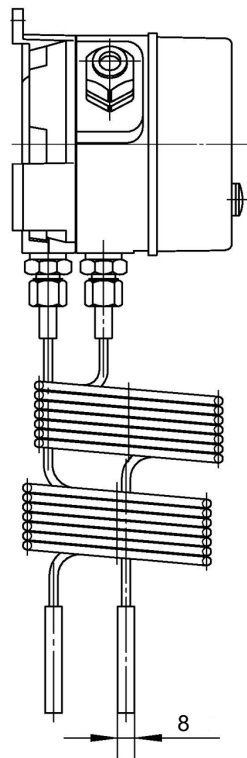
Gaseous media

Fig. 7: Capillary throttle coils MZ401

4 Start-up

4.1 General

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 the pressure connections do not leak before commissioning.

4.2 Control elements

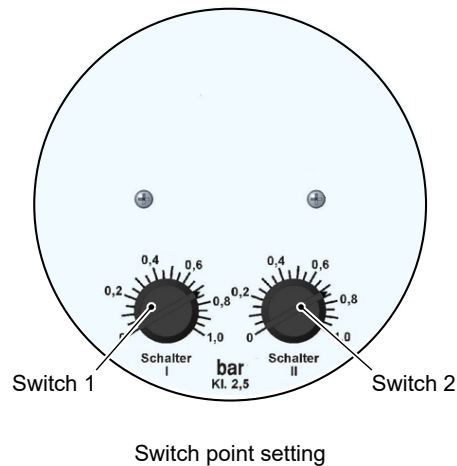


Fig. 8: Control elements

- Depending on the enclosure model, the switch point setting is accessible in different ways.
- The enclosure must be opened to set the zero-point.

4.3 Opening the enclosure

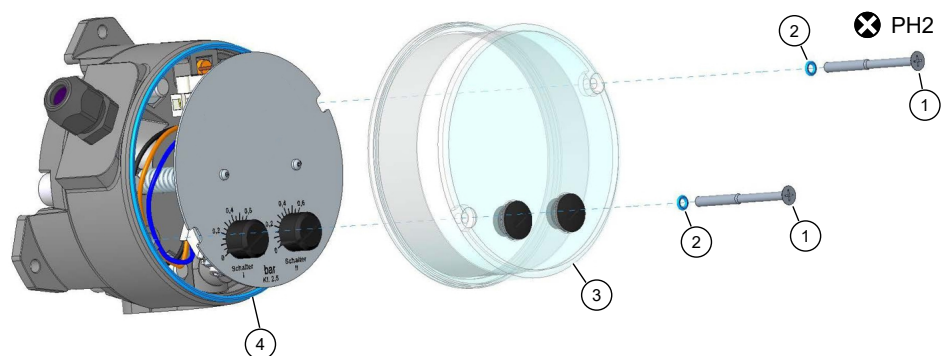


Fig. 9: Remove the cover hood

1. Remove the attachment screws (1) with a screwdriver. Ensure that the sealing rings (2) do not get lost. The protection class is no longer guaranteed without these sealing rings.
2. Remove the Makrolon in the hood (3) and the seal (4).
3. It is assembled in reverse order. The seal (4) must lie precisely in the groove of the hood before the hood is screwed on.

4.4 Switch point setting

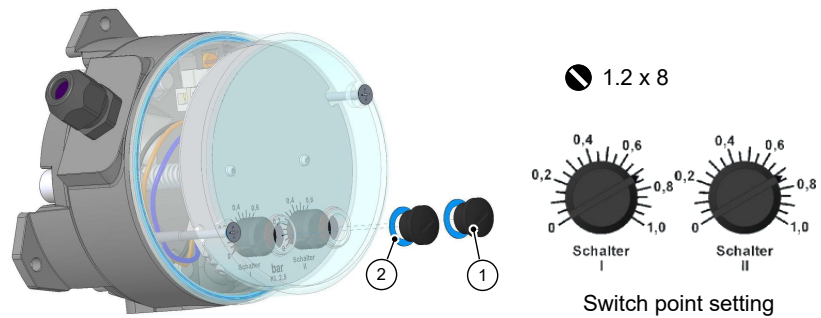


Fig. 10: Switch point setting

1. Remove the plugs (1) and the seals (2) in the hood and/or open the bayonet ring enclosure.
2. The required switch points can be set on the reference scale guide with a screwdriver. The achievable accuracy is 5 %.
3. Replace the plug and/or the bayonet ring after completing the settings.

4.5 Function test

Remove both plugs in the hood for testing. Carry out the test for both microswitches. After the test, the switch points need to be reset.

Checking the switch points when the system is depressurized.

- No measurement is shown and the measurement display points to zero.
- Turn the switch point setting button toward the zero-point until the micro-switch is activated.
- Check whether the signal is available on the terminals.

Test when the system is operational

- A measurement is shown.
- Turn the switch point setting button toward the measurement until the micro-switch is activated.
- Check whether the signal is available on the terminals.

After the successful test, commission the device again otherwise contact our repair department.

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

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.

6 Technical data

6.1 General Information

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	

6.2 Input variables

Measuring ranges	Measuring accuracy	Allowed static operating pressure	Overpressure	Underpressure
0 ... 250 mbar	± 6.25 mbar	16 bar	25 bar	- 1 bar
0 ... 400 mbar	± 10 mbar	16 bar		
0 ... 0.6 bar	± 0.015 bar	16 bar		
0 ... 1 bar	± 0.025 bar	16 bar		
0 ... 1.6 bar	± 0.04 bar	25 bar		
0 ... 2.5 bar	± 0.625 bar	25 bar		
0 ... 4 bar	± 0.1 bar	25 bar		
0 ... 6 bar	± 0.15 bar	25 bar		
0 ... 10 bar	± 0.25 bar	25 bar		
0 ... 16 bar	± 0.4 bar	25 bar		
0 ... 25 bar	± 0.625 bar	25 bar		
-0.6 ... 0 bar	± 0.015 bar	16 bar		
-1 ... 0 bar	± 0.025 bar	16 bar		
-1 ... +0.6 bar	± 0.04 bar	25 bar		
-1 ... +1.5 bar	± 0.0625 bar	25 bar		
-1 ... +3 bar	± 0.1 bar	25 bar		
-1 ... +5 bar	± 0.15 bar	25 bar		

Rated pressure of the measuring system	25 bar
Test pressure	1.5 times the rated pressure
Zero-point setting	Arranged in the front panel of the scale
Measuring accuracy	± 2.5% of the measuring span

6.3 Output parameters

Switch contacts	1 to 2 micro-switches
Switching function (per contact)	Changeover contact
Switch point setting	Can be set to reference scales from outside
Smallest settable value	5% of the measuring span
Switch hysteresis	approx. 2.5% of the measuring span

Per contact	AC	DC
Switching voltage	250 V	30 V
Switching current	5 A	0.4 A
Switching output	250 VA	10 W

6.4 Operating conditions

Increase ambient temperature	-10 ... +70 °C
Media temperature	-10 ... +70 °C
Storage temperature	-15 ... +75 °C
Enclosure protection class	IP55 as per EN 60529
NSR	EN 61010-1:2010
RoHS	EN 50581:2012
SIL2	EN 61508:2010 Parts 1-7

6.5 Construction design

Process connection	Inner thread G $\frac{1}{4}$
	Inner thread $\frac{1}{4}$ -18 NPT
<i>Brass, CrNi steel</i>	Connection shank G $\frac{1}{2}$ B DIN EN 837
	Connection shank G $\frac{1}{4}$ B DIN EN 837
	Connecting shanks $\frac{1}{4}$ -18 NPT
<i>Brass, CrNi steel, galvanised steel</i>	Cutting ring connection in brass for 6 mm pipe
	Cutting ring connection in brass for 8 mm pipe
	Cutting ring connection in brass for 10 mm pipe
Electrical connection	Permanently wired numbered cables
	7-pin plug connection
	Cable socket
Installation position	vertical
Dimensions	See dimensional drawings
Weight	Pressure chamber in aluminium 1.2 kg
	Pressure chamber in stainless steel 3.5 kg

6.5.1 Materials

Parts in contact with the medium	
Pressure chamber	Aluminium GkAlSi10(mg); painted black
	Aluminium GkAlSi10(mg); HART-COAT® surface protection
	Chromium nickel steel 1.4305
	Chromium nickel steel 1.4571
Measuring diaphragm	NBR
	VITON®
	Inconel 718
Seals	NBR
	VITON®
Other inner parts	Rustproof steel 1.4310, 1.4305
Process connection	Brass
Connection shanks	Chromium nickel steel
Process connection	Brass
Cutting ring screw connection	Galvanised steel
	Chromium nickel steel

Parts with no contact with the medium

Cover hood	IP55	Makrolon
Bayonet ring housing	IP65	Stainless steel 1.4301
Dial face and needle		Aluminium
Setting buttons		AlCuMgPb 3.1645

6.5.2 Dimensional drawings

All dimensions in mm unless otherwise stated

The following are the dimensional diagrams for the pressure chambers in aluminium. The dimensional diagrams for the pressure chambers in stainless steel are similar. For this reason, there is no illustration.

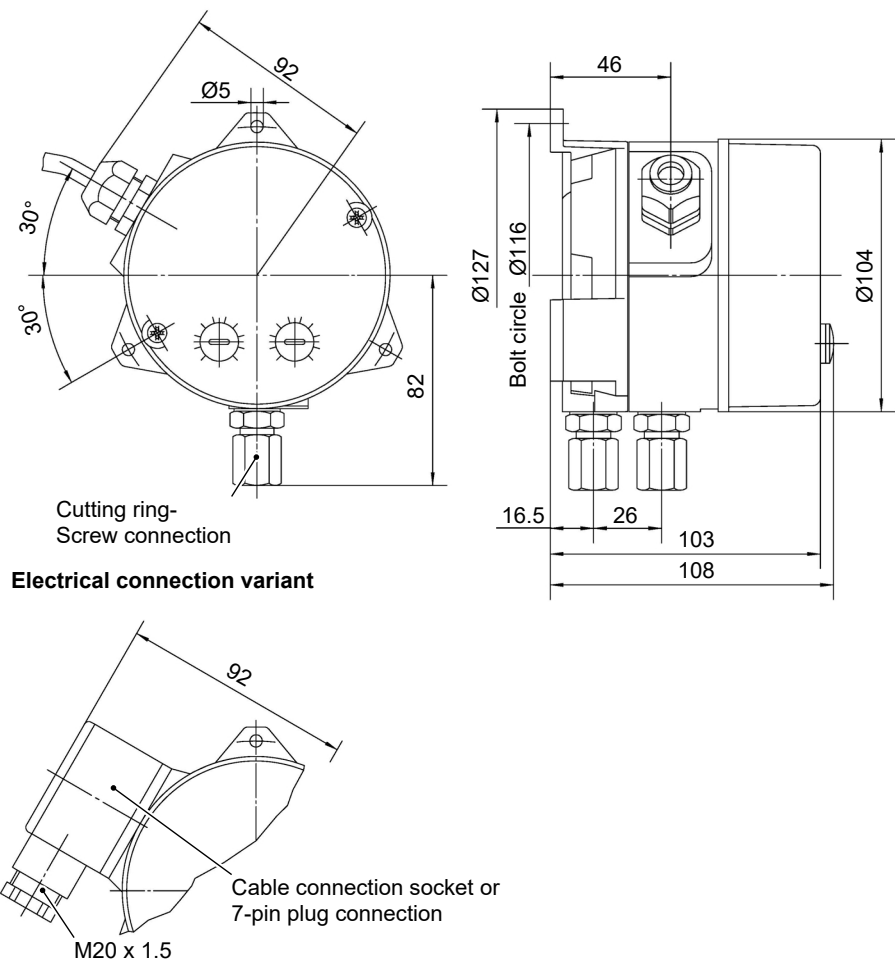


Fig. 11: Dimensional picture

Process connection variants

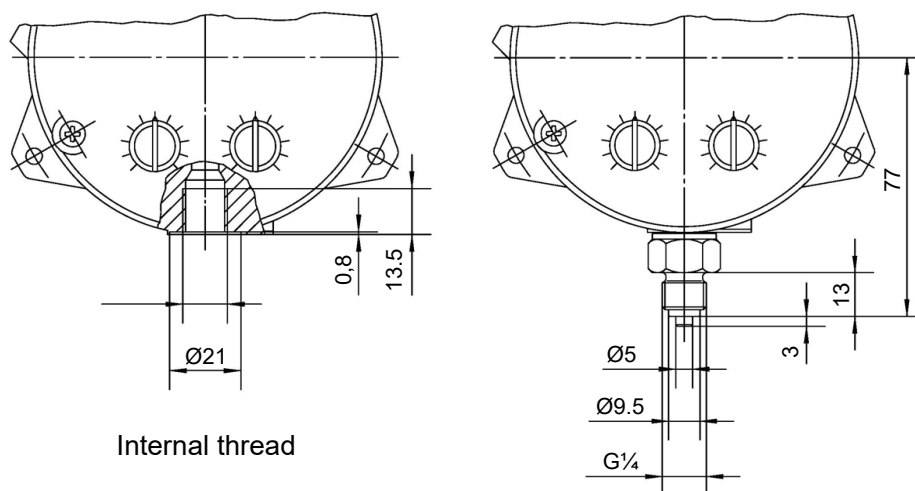
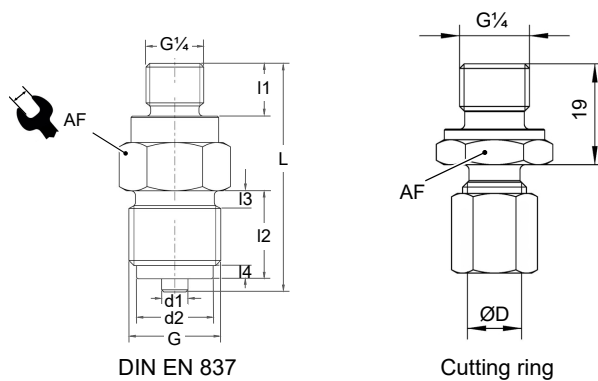
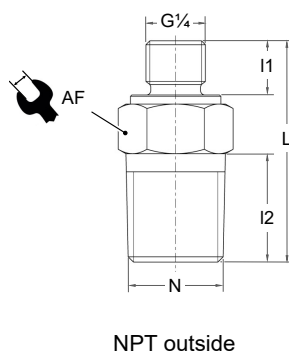


Fig. 12: Process connection

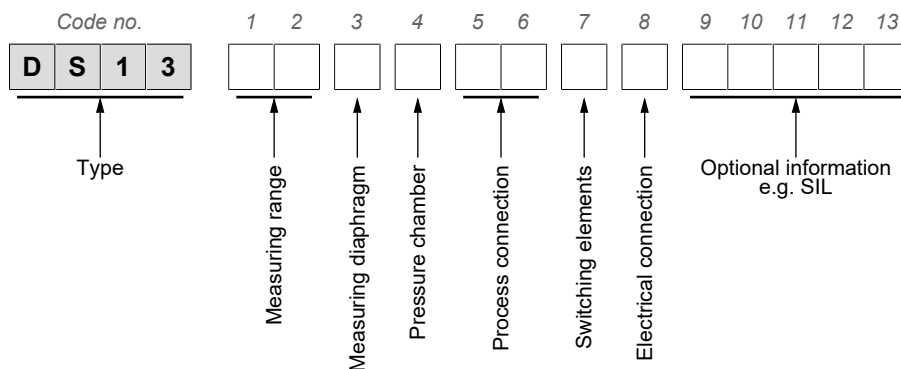


Connecting shanks	d1	d2	I1	I2	I3	I4	SW
G¼B	5	9,5	12	13	3	2	19
G½B	6	17,5	12	20	4,5	3	22
Cutting ring screw connection				ØD			SW
Pipe diameter				6, 8, 10			19



Connecting shanks	N	L	I1	I2	A/F
NPT outside	¼-18 NPT	42	12	18	19

7 Order Codes



Measuring diaphragm			
[1.2]	Measuring range	NBR / VITON	Inconel 718
82	0 ... 250 mbar	x	
83	0 ... 400 mbar	x	
01	0 ... 0.6 bar	x	
02	0 ... 1 bar	x	
03	0 ... 1.6 bar	x	
04	0 ... 2.5 bar	x	
05	0 ... 4 bar	x	
06	0 ... 6 bar	x	
07	0 ... 10 bar	x	
08	0 ... 16 bar	x	
09	0 ... 25 bar		x
30	-0.6 ... 0 bar	x	
31	-1 ... 0 bar	x	
32	-1 ... +0.6 bar	x	
33	-1 ... +1.5 bar	x	
34	-1 ... +3 bar	x	
35	-1 ... +5 bar	x	

[3]	Measuring dia- phragm	Sealant	Comment
N	NBR	NBR	
V	VITON®	VITON®	
D	Inconel 718	NBR	Only measuring ranges 0 ... 25 bar
E	Inconel 718	VITON®	Only measuring ranges 0 ... 25 bar

[4]	Pressure chamber	Comment
A	Aluminium	Only measuring range ≤ 0 ... 16 bar
D	Aluminium HART COAT®	
W	Stainless steel 1.4305	
V	Stainless steel 1.4571	

[5.6] Process connection		Material
01	Inner thread G $\frac{1}{4}$	
04	Inner thread $\frac{1}{4}$ -18 NPT	
06	Connection shanks with external thread G $\frac{1}{4}$ B	Brass
11	Connection shanks with external thread G $\frac{1}{4}$ B	CrNi steel
14	Connecting port G $\frac{1}{2}$ with outer thread $\frac{1}{4}$ -18 NPT	CrNi steel
20	Cutting ring connection in brass for 6 mm pipe	Galvanised steel
21	Cutting ring connection in brass for 8 mm pipe	Galvanised steel
22	Cutting ring connection in brass for 10 mm pipe	Galvanised steel
24	Cutting ring connection in brass for 6 mm pipe	CrNi steel 1.4571
25	Cutting ring connection in brass for 8 mm pipe	CrNi steel 1.4571
26	Cutting ring connection in brass for 10 mm pipe	CrNi steel 1.4571
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
87	1 x connection shank with external thread G $\frac{1}{2}$ B	CrNi steel
[7] Switching Elements		
A	1 adjustable micro-switch	
B	2 adjustable microswitches	
[8] Electrical connection		
1	1 metre numbered cable; permanently wired	
2	2.5 metre numbered cable; permanently wired	
5	5 metre numbered cable; permanently wired	
K	Cable connection socket	
W	7-pin plug connection	
S	DNV-GL approved version with 3 m connection cable	
[9-13] Optional information		
#####	Code for special models e.g. SIL The code is generated as agreed with our sales team.	

Accessories

Please go to our website fischermesstechnik.de for data sheets for the measuring device accessories.

DZ11	Installation set for retrofitting from wall mounting to switch panel installation. Please state the precise device type of the DS13 because there are different switch panel installation sets depending on the model.
DZ23/24	<p>The shut-off valve DZ23 in a three spindle model and DZ24 in a four spindle model can be particularly beneficial when mounting the differential pressure measuring and switch device DS13.</p> <p>The following can be used for example:</p> <ul style="list-style-type: none"> • is a system is to be depressurized or taken out of operation • for repairs or tests to disconnect differential pressure devices within the affected systems from the mains supply <p>The shutoff devices can therefore also be used for function tests on site. In contrast to DZ23, the DZ24 also has a venting valve to vent the connected pipe system. The shut-off and venting valves are designed for the rated pressure level PN40. The housing can be selected in aluminium, brass or chrome-nickel-steel 1.4301. There are various pressure connections available for process-side screw connections or connection threads.</p>
MZ	Measuring device accessory (throttles, siphons, etc.)

8 Attachments

8.1 SIL Certificate



Hiermit wird bescheinigt, dass das unten beschriebene Produkt der Firma
This certifies that the product mentioned below from company

Fischer Mess- und Regeltechnik
Bielefelder Straße 37a
32107 Bad Salzuflen
Deutschland

die Anforderungen der folgenden Prüfunterlage(n) erfüllt.
fulfills the requirements of the following test regulations.

Geprüft nach: **EN 61508:2010 Teile/Parts 1-7**
Tested in accordance with:

Beschreibung des Produktes: **Differenzdruck Mess- und Schaltgerät / Differential Pressure Switch**
 (Details s. Anlage 1) **Kontaktmanometer / Contact Pressure Gauge**
Description of product:
 (Details see Annex 1)

Typenbezeichnung: **DS11, DS13 und DS21**
Type Designation: **MS11**

Dieses Zertifikat bescheinigt das Ergebnis der Prüfung an dem vorgestellten Prüfgegenstand. Eine allgemein gültige Aussage über die Qualität der Produkte aus der laufenden Fertigung kann hieraus nicht abgeleitet werden.
This certifies the result of the examination of the product sample submitted by the manufacturer. A general statement concerning the quality of the products from the series manufacture cannot be derived there from.

Registrier-Nr. / *Registered No.* 44 799 13759902
 Prüfbericht Nr. / *Test Report No.* 3526 2583
 Aktenzeichen / *File reference* 8003015248

Gültigkeit / *Validity*
 von / *from* 2020-03-18
 bis / *until* 2025-03-17


 Zertifizierungsstelle der
 TÜV NORD CERT GmbH

Essen, 2020-03-18

TÜV NORD CERT GmbH Langemarckstraße 20 45141 Essen www.tuev-nord-cert.de technology@tuev-nord.de

Bitte beachten Sie auch die umseitigen Hinweise
Please also pay attention to the information stated overleaf

Fig. 13: SIL_4479913759902



ANLAGE ANNEX

Anlage 1, Seite 1 von 1
Annex 1, page 1 of 1

zum Zertifikat Registrier-Nr. / to Certificate Registration No. 44 799 13759902

Allgemeine Angaben
General Information

Siehe auch Seite 1 des Zertifikats
See also page 1 of the certificate

Produktbeschreibung:
Product description:

Differenzdruck Mess- und Schaltgerät / Differential Pressure Switch DS11, DS13, DS21
Kontaktmanometer / Contact Pressure Gauge MS11

Technische Daten:
Technical data:

Sicherheitsparameter / Safety Parameter
SFF = 70 %
PFH = $3,3 \cdot 10^{-11}$ 1/h
HFT = 0
Typ-A-Teilkomponente / Type

Die Geräte können mit einer geeigneten Testung in SIL2 Anwendungen eingesetzt werden.
The components can be used with an appropriate testing in SIL2 applications.


Zertifizierungsstelle der
TÜV NORD CERT GmbH

Essen, 2020-03-18

TÜV NORD CERT GmbH

Langemarckstraße 20

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Fig. 14: SIL_4479913759902

8.2 EU Declaration of Conformity



(Translation) **CE**

EU Declaration of Conformity

For the product described as follows

Product designation **Differential Pressure Switch**
Type designation **DS13**

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)

DIN EN 61010-1:2020-03
EN 61010-1:2010 + A1:2019 + A1:2019/
AC:2019

Safety requirements for electrical equipment for measurement, control, and laboratory use -
 Part 1: General requirements

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 Salzuflen, Germany
 Tel. +49 (0)5222 974 0

Documentation representative Torsten Malischewski
 General Manager R&D

The devices bear the following marking:



Bad Salzuflen
14 Dez 2020

G. Gödde
 Managing director

09010418 • CE_EN_DS13 • Rev. ST4-B • 12/21

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Fig. 15: CE_DE_DS13

8.3 UKCA Declaration of Conformity



UKCA Declaration of Conformity

For the product described as follows

Product designation Differential Pressure Switch
Type designation DS13 ## # # ## # # #####

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

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

The products have been tested according to the following standards.

Low Voltage Directive (LVD):

BS EN 61010-1+A1:2017-03-31	Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements
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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
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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
14 Dez 2021

G. Gödde
Managing director



Fig. 16: UKCA_EN_DS13



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