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Operating manual

DE44

Digital 2-channel differential pressure switch/transmitter with colour-change LCD

⇨ ⇦
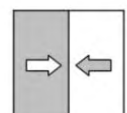
Masthead

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

Bielefelderstr. 37a
D-32107 Bad Salzuflen

Telephone: +49 5222 974 0
Telefax: +49 5222 7170

eMail: info@fischermesstechnik.de
web: www.fischermesstechnik.de

Technical editorial team: Documentation representative: T. Malischewski
Technical editor: R. Kleemann

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Rev. ST4-C 07/17	Version 3 (Correction)
Rev. ST4-D 03/19	Version 3 (new ATEX markings)

Table of Content

1 Safety guidelines

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 Use as intended

The DE44 is a multi-functional switching unit with an optional transmitter output. It has two independent differential pressure inputs and is suitable for measuring overpressure, under-pressure and differential pressure in dry and neutral gaseous media. The device is to be exclusively used for the applications agreed between the manufacturer and the user.

2.2 Function diagram with 2 switching outputs
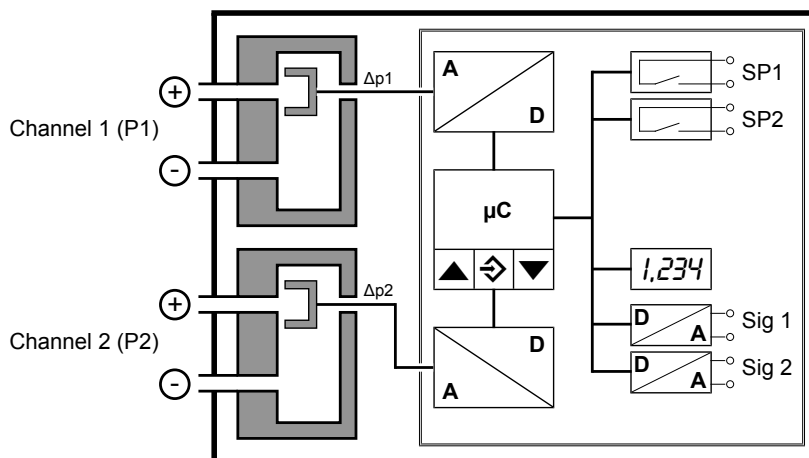
Fig. 1: Function diagram with 2 switching outputs

2.3 Function diagram with 4 switching outputs
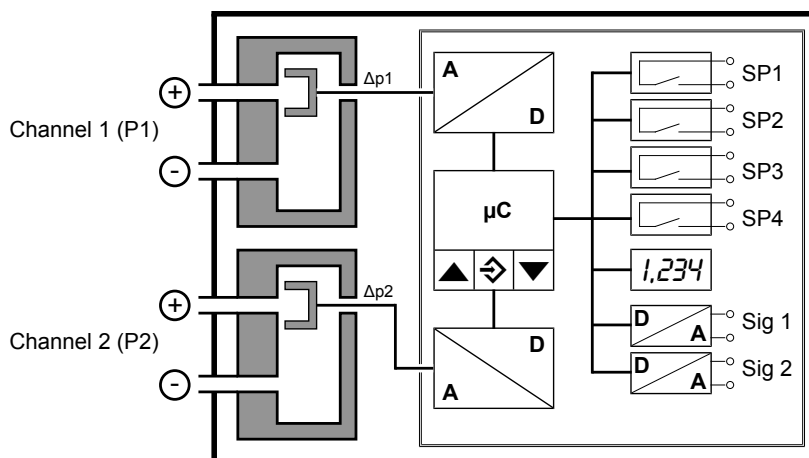
Fig. 2: Function diagram with 4 switching outputs

2.4 Design and mode of operation

This switch unit is based on two piezo-resistor sensor elements that are suitable for measuring over-pressure, under-pressure and differential pressure. The pressure that is to be measured acts upon a silicone membrane that is equipped with a resistor bridge.

This pressure-related movement of the diaphragm induces a change of resistance, which is evaluated by the device's electronics and transformed into signals for the display and two or four switch contacts. There are also (optional) two transmitter outputs available. The outputs are permanently assigned to the input channels.

- Channel 1 (P1) → Output 1 (Sig 1)
- Channel 2 (P2) → Output 2 (Sig 2)

An output signal between the uniform signals 0 … 20 mA, 4 … 20 mA and 0 … 10 V can be selected. Both outputs can be dampened, spread and inverted. Both outputs can also be square-rooted and transformed via a table function even if it is non-linear.

In the case of flow measurements, larger values with 5 or 6 digits can be shown (see also Parameter decimal place measuring range).

a) Model with 2 switching outputs

The switching outputs can be assigned to the input channels by means of configuration:

- Channel 1 (P1) → SP1, SP2
- Channel 1 (P1) → SP1
  Channel 2 (P2) → SP2
- Channel 2 (P2) → SP1, SP2

b) Model with 4 switching outputs

The switching outputs are permanently assigned to the input channels as follows:

- Channel 1 (P1) → SP1, SP2
- Channel 2 (P2) → SP3, SP4

2.5 Part designations
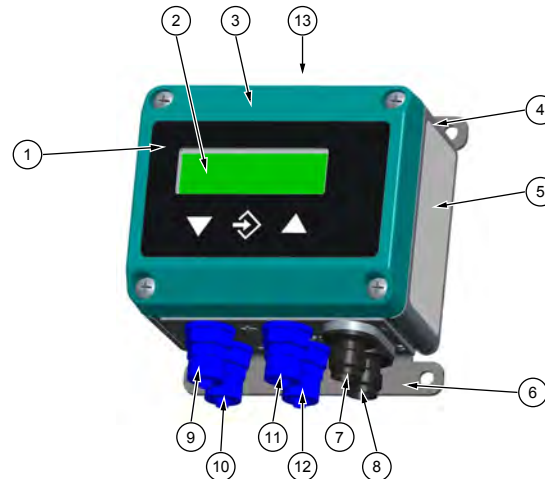
Fig. 3: DE44_LCD_Overview

1	Foil keypad	2	LC display
3	Casing lid	4	Lower part of casing
5	Circuit diagram	6	Wall bracket
7	M12 plug 1	8	M12 plug 2
9	Process connection P1 (+)	10	Process connection P1 (-)
11	Process connection P2 (+)	12	Process connection P2 (-)
13	Type plate		

Type plate

The presented type plates serve to show an example of the information shown. 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.
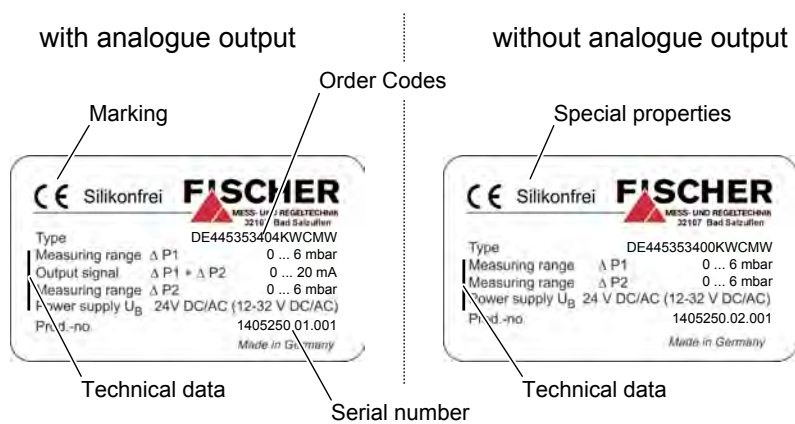
Fig. 4: Type plate

3 Installation and assembly

3.1 General

The device is designed for installation onto flat assembly plates. For screw connection to the assembly plate, the device features four assembly bores on its back, which can be used for Ø 3.5 mm tapping screws.

Optionally, the device can be delivered with a wall-mounting plate. This is also available as accessory.

At the factory, the device is calibrated for vertical installation, but the installation position is arbitrary. For any installation positions that are not vertical, the zero-point signal can be corrected via the installed offset correction.

The enclosure protection type IP 65 is only guaranteed, if a suitable power supply cable is used (see accessories).

If the device is intended for outdoor use, we recommend permanently protecting the membrane keypad against UV radiation and using a suitable enclosure or at least the erection of a sufficiently dimensioned canopy as a protection measure against constant rain or snow.

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)

⚠ **CAUTION**

Do not blow into the pressure connections.

This may damage the sensor.

P1(+)
P1(-)
P2(+)
P2(-)
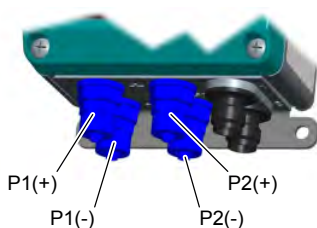
Fig. 5: Process connection

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

The differential pressure inputs are marked with P1 and P2.

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.

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.

The device is connected as follows in a 3-wire switch:
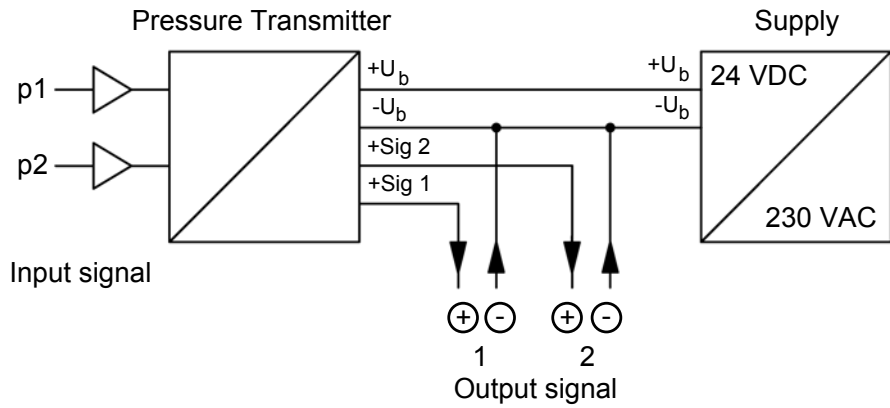
Fig. 6: 3L connection

Electrical connection

Connector 1

Fig. 7: M12 plug 5-pin

Pin	Signal name		Cable colour
1	Supply	$+U_b$	brown
2	Output 2	$+Sig2$	white
3	Supply	$-U_b$	blue
4	Output 1	$+Sig1$	Black
5	unused		green/yellow
A	Coding A		

Tab. 1: Supply and output signal

a) Model with 2 switching outputs

Connector 2

Fig. 8: M12 plug 4-pin

Pin	Signal name		Cable colour
1	Switching output 1	SP1	brown
2	Switching output 2	SP2	white
3	Switching output 2	SP2	blue
4	Switching output 1	SP1	Black
A	Coding A		

Tab. 2: Two switching outputs

b) Model with 4 switching outputs

Connector 2

Fig. 9: M12 plug 8-pin

Pin	Signal name		Cable colour
1	Switching output 1	SP1	white
2	Switching output 1	SP1	brown
3	Switching output 2	SP2	green
4	Switching output 2	SP2	yellow
5	Switching output 3	SP3	grey
6	Switching output 3	SP3	pink
7	Switching output 4	SP4	blue
8	Switching output 4	SP4	red
A	Coding A		

Tab. 3: Four switching outputs

4 Commissioning

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 Configuration

During commissioning there are a number of setting options that allow the device to be adapted to the measuring point and measuring task. To facilitate the input, the individual parameters are placed into groups in so-called menu levels.

Depending on the device model some menu items are not available. For instance, no switch points can be set on a device without contacts.

NOTICE

Parameter configuration on the PC

All the device settings can be made easily on the PC using the PC adapter. You will need a EU03 Transmitter PC Interface and the associated software Trans-Para for this. For more details, please refer to the Accessories section. The TransPara software makes all parameters directly visible and accessible. Also, the entire configuration can be loaded, saved and documented as a printout.

4.3 Control Elements

4.3.1 LC display

In normal mode, the current measured value of an input channel is shown on a 4-digit LC display. The corresponding input channel is displayed (channel display). However, both measured values of the input channels can be shown at the same time. To show very large values, it is possible to switch to a 5 or 6-digit presentation (see Parameter MB decimal place).

Various colours can be selected for the back lighting. Depending on the measured value, the colour of the back lighting can be automatically changed. This can be used e.g. to depict good/poor differences. The back lighting can also be deactivated.

The measured value can also be shown in a bar chart. The measured value is also shown in smaller pictures as a number.

During the programming, the menu items and the associated parameters are shown on the display. The device continues to function whilst the parameters are being set; apart from one exception, the changes come into effect instantly. The exception here is a change of switching times - here the previously valid time must have run down.

a) Model with 2 switching outputs

Display: Measured value
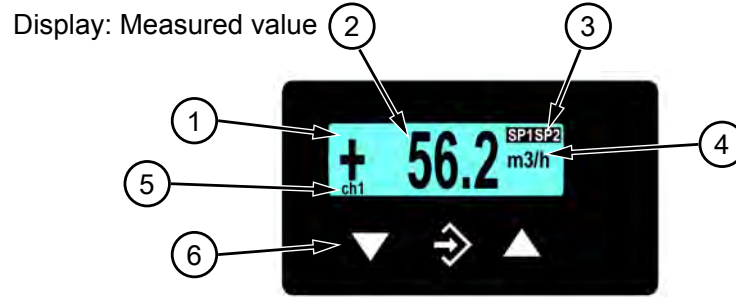
Display: Bar chart

Fig. 10: LC display (2 switching outputs)

SP1SP2

Fig. 11: LC display 2SP

The unit is shown to the right of the measured value. If the device is equipped with contacts, a closed contact is always symbolised by an inverted text "**SP1**" or "**SP2**". One exception is the 1-channel bar chart diagram. Here, the switching points are symbolised with simple numbers "**12**".

b) Model with 4 switching outputs

Display: Measured value
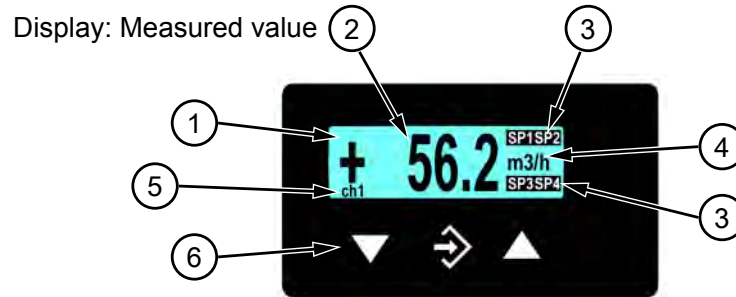
Display: Bar chart

Fig. 12: LC display (4 switching outputs)

1	LCD with back lighting	4	Unit
2	Measurement display 4…6 digits	5	Channel display
3	Status display of the switch points	6	Keyboard

SP1 SP2
SP3 SP4

Fig. 13: LC display 4SP

The unit is shown to the right of the measured value. If the device is equipped with contacts, a closed contact is always symbolised by an inverted text "**SP1**", "**SP2**", "**SP3**" "**SP4**". One exception is the 1-channel bar chart diagram. Here, the switching points are symbolised with simple numbers "**1234**".

4.3.2 Keyboard
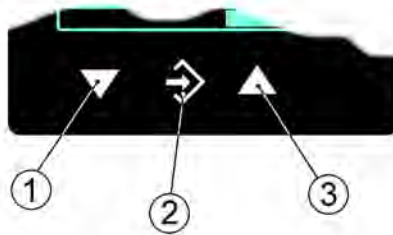
Fig. 14: Operating keys [LC display]

1	Page down menu	Reduce value
2	Call up menu	Save value
3	Page up menu	Increase value

The individual menu items and parameters can be displayed using the buttons ▲ and ▼. The respective menu item is selected or the parameters for making changes are called up via the button ⇨.

If a parameter can be changed, the display flashes. The change is made via the buttons ▲ and ▼. The value is saved with the button ⇨.

To leave a menu level or the entire menu, select the parameter "**Menu level Quit**" and press ⇨.

Example:

Switch-on point set switchpoint 1

In normal mode, press the button ⇨ to enter the menu. The **menu level Switch points** appears. Press the enter key ⇨ again to call up the display parameter.

The first parameter **SP 1 On** is displayed. To change this parameter, press the button ⇨ again.

The device jumps to the input:

- The parameter is stated in the 1st line.
- The value that is to be changed is shown in the 2nd line, the display flashes.
- The input limits are displayed in the 3rd line (if there is one).

The required value is set with the buttons ▲ and ▼ and then confirmed with ⇨.

4.4 Menu levels

The menu levels are structured as follows:

```
                        ┌─────────────────┐
                        │ Menu level      │
                        │ quit            │────► Outlet
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
      Reception ───►    │ Menu Level      │
                        │ Switch points   │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu Level      │
                        │ Input           │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu Level      │
                        │ Measuring       │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu Level      │
                        │ Output          │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu Level      │
                        │ Function        │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu level      │
                        │ Function 2      │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu Level      │
                        │ Display         │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu Level      │
                        │ System          │
                        └─────────────────┘
                                 ↕
                        ┌─────────────────┐
                        │ Menu level      │
                        │ quit            │────► Outlet
                        └─────────────────┘
```
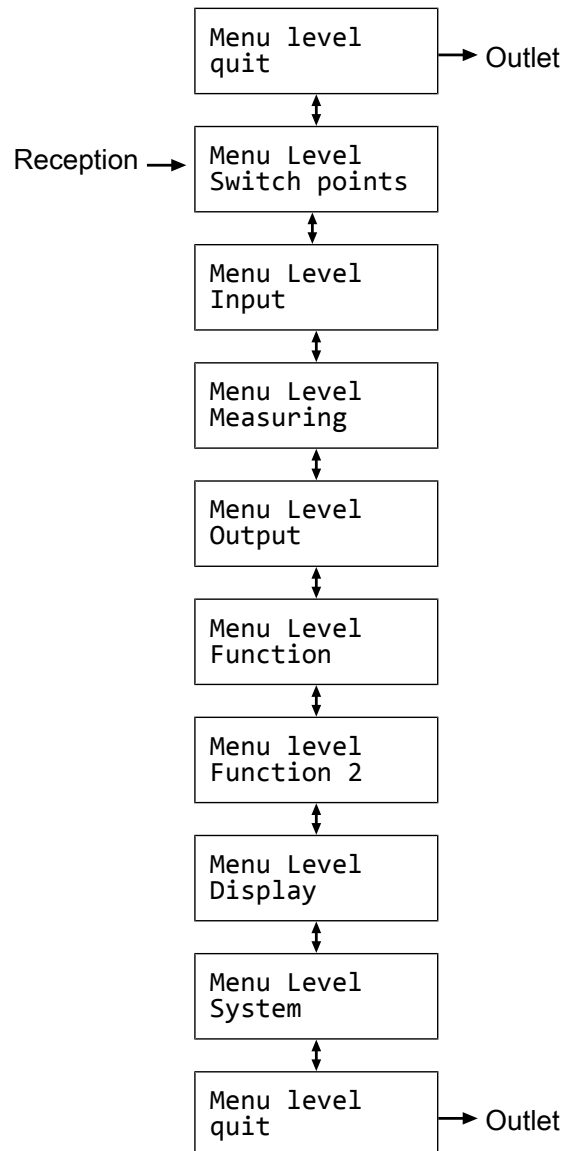
Fig. 15: Menu levels

The following tables provide an overview of the parameters of the individual menu levels. In the System menu level you can change to the respective national language using the **Language** parameter. You can see which languages are supported there.

4.4.1 Menu Level Switch points (2SP)

NOTICE! This menu only appears on models with two switching outputs.

Parameter name	Description	Value range
SP1 On	Switch point 1 On	MBA-50% … MBE+50%
SP1 Off	Switching point 1 off	MBA-50% … MBE+50%
SP1 Delay	Switching point 1 delay	0…1800 s
SP1 Function	Switching point 1 function	NO, NC
Assignment SP	Channel assignment	Channel 1, 2 and 1+2
SP2 On	Switch point 2 On	MBA-50% … MBE+50%
SP2 Off	Switching point 2 off	MBA-50% … MBE+50%
SP2 Delay	Switching point 2 delay	0…1800 s
SP2 Function	Switching point 2 function	NO, NC

The two switching outputs are configured by four parameters respectively.
For the switch point 1 these are

- **SP1 On**
- **SP1 Off**
- **SP1 Delay**
- **SP1 Function**

Accordingly for switch point 2:

- **SP2 On**
- **SP2 Off**
- **SP2 Delay**
- **SP2 Function**

The function of the individual parameters is explained for both switch points using Switch point 1 as an example.

SP1 On defines the activation point, **SP1 Off** the deactivation point of switching output 1. The values are shown in the valid unit and set accordingly. The values are shown in the valid unit and set accordingly. Both parameters can be set independently over the entire value range.

The value range ranges from MBA – 50% to MBE + 50%. MBA stands for start of measuring range and MBE for the end of the measuring range.

Example:

Measuring range = 0 … 100 %

The value range for this measuring range is -50 % … +150 %.

Function of the switch points

Together, the two parameters **SP1 On** and **SP1 Off** determine the switch function of switching output 1:

- If **SP1 On** > **SP1 Off**, the output switches on, if the measured value exceeds SP1 On. It is only switched off again if the measured value SP1 Off is undercut (hysteresis function).
- If **SP1 On** = **SP1 Off**, the output switches on if the measured value exceeds SP1 On and off if the measured value undercuts the same value (SP1 Off).
- If **SP1 On** < **SP1 Off**, the output switches on, if the measured value lies within these switch points: i.e:
  SP1 On < Measured value < **SP1 Off** (window function).

SP1 Delay allows the reaction of the switching output to be delayed by between 0 and 1800 s. This parameter applies equally for switching on and off.

SP1 Function changes the function of the switching output 1. It is possible here to define whether the contact should work as a open contact (NO) or a break contact (NC).

Assignment SP is used to define the input to which the contacts are assigned. The following options are available:

- Channel 1
  Both contacts are assigned to channel 1.

- Channel 1, channel 2
  A contact is assigned to every channel.
  Channel 1: SP1
  Channel 2: SP2

- Channel 2
  Both contacts are assigned to channel 2.

The unit and the input range are adapted accordingly when entering the switch points.

4.4.2 Menu Level Switch points (4SP)

NOTICE! This menu only appears on models with four switching outputs.

Parameter name	Description	Value range
SP1 On	Switch point 1 On	MBA-50% … MBE+50%
SP1 Off	Switching point 1 off	MBA-50% … MBE+50%
SP1 delay	Switching point 1 delay	0…1800 s
SP1 Function	Switching point 1 function	NO, NC
SP2 On	Switch point 2 On	MBA-50% … MBE+50%
SP2 Off	Switching point 2 off	MBA-50% … MBE+50%
SP2 delay	Switching point 2 delay	0…1800 s
SP2 Function	Switching point 2 function	NO, NC
SP3 On	Switch point 2 On	MBA-50% … MBE+50%
SP3 Off	Switching point 2 off	MBA-50% … MBE+50%
SP3 delay	Switching point 2 delay	0…1800 s
SP3 Function	Switching point 2 function	NO, NC
SP4 On	Switch point 2 On	MBA-50% … MBE+50%
SP4 Off	Switching point 2 off	MBA-50% … MBE+50%
SP4 delay	Switching point 2 delay	0…1800 s
SP4 Function	Switching point 2 function	NO, NC

The switching outputs are configured by four parameters respectively.
For the switch point 1 these are

- **SP1 On**
- **SP1 Off**
- **SP1 delay**
- **SP1 Function**

The same correspondingly marked parameters apply for the switching point 2...4.

The function of the individual parameters is explained for all four switch points using switch point 1 as an example.

SP1 On defines the activation point, **SP1 Off** the deactivation point of switching output 1. The values are shown in the valid unit and set accordingly. The values are shown in the valid unit and set accordingly. Both parameters can be set independently over the entire value range.

The value range ranges from MBA – 50% to MBE + 50%. MBA stands for start of measuring range and MBE for the end of the measuring range.

Example:

Measuring range = 0 … 100 %

The value range for this measuring range is -50 % … +150 %.

Function of the switch points

Together, the two parameters **SP1 On** and **SP1 Off** determine the switch function of switching output 1:

- If **SP1 On** > **SP1 Off**, the output switches on, if the measured value exceeds SP1 On. It is only switched off again if the measured value SP1 Off is undercut (hysteresis function).

- If **SP1 On** = **SP1 Off**, the output switches on if the measured value exceeds SP1 On and off if the measured value undercuts the same value (SP1 Off).

- If **SP1 On** < **SP1 Off**, the output switches on, if the measured value lies within these switch points: i.e:
  SP1 On < Measured value < **SP1 Off** (window function).

SP1 Delay allows the reaction of the switching output to be delayed by between 0 and 1800 s. This parameter applies equally for switching on and off.

SP1 Function changes the function of the switching output 1. It is possible here to define whether the contact should work as a open contact (NO) or a break contact (NC).

The contacts are assigned to the inouts ad follows:

- Channel 1: SP1 and SP2
- Channel 2: SP3 and SP4

The unit and the input range are adapted accordingly when entering the switch points.

4.4.3 Menu Level Input

Channel 1:

Parameter name	Description	Value range
Absorption	Damping	0…100 s
Offset corr.	Offset correction	⅓ basic measuring range
Zero-pt. wind.	Zero-point window	⅓ basic measuring range

Channel 2:

Parameter name	Description	Value range
Absorption 2	Damping	0…100 s
Offset corr. 2	Offset correction	⅓ basic measuring range
Zero-pt. wind.2	Zero-point window	⅓ basic measuring range

The parameters for both channels are set in the same way. The following explains the parameters for the first channel as an example for both channels.

If there are unsteady measurement readings during operation, you can use the parameters **Damping** and **Zero-pt. wind.** to stabilise the reading (and the output signal).

The parameter **Absorption** functions like a capillary throttle. However, it only acts on the display, output signal and switch points (if these exist) but not on the measuring cell itself.

You can set the response time to measuring value jumps in the range 0.0 to 100 s.

NOTICE

Response time

At maximum damping it can take over 2 minutes until after a measurement jump from 100% to 0% is also shown as zero in the display.

In many cases, unsteady readings are not a problem during normal operating mode, but this is not true for the idle state, i.e. if a measured value of zero is expected. The parameter **Zero-pt. wind.** is designed to solve this. Its value defines a range around zero at which the measured value is set to zero (see fig.).

The display only stops showing zero when the measurement leaves the set window. When reaching double the value, the measured value and the reading match again. This avoids jumps in the display.
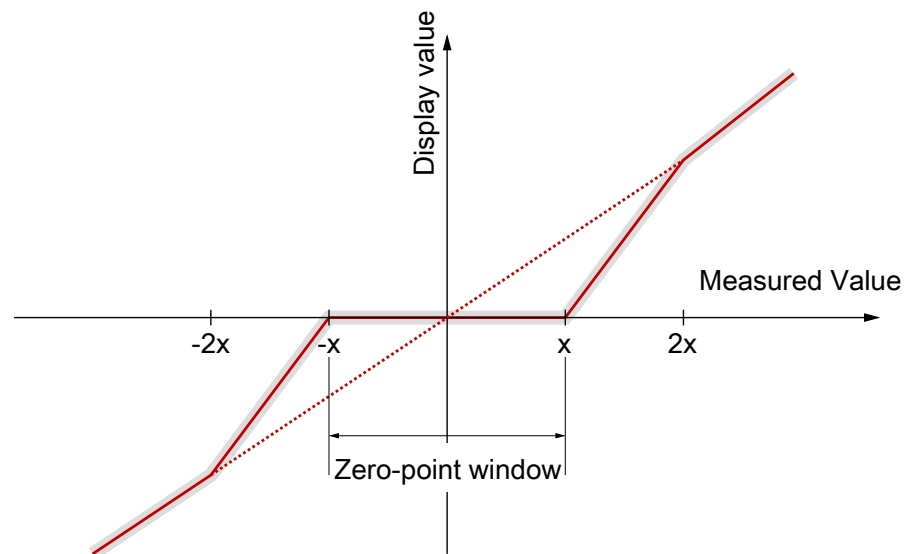

Fig. 16: Zero-point window

It may be necessary to set the offset to correct the impact of the installation position.

Select the **Offset corr.** parameter and correct the reading using the buttons ▲ or ▼ until zero is shown in the display.

When setting the offset, the current measured value is displayed. The zero-point window is not active during the offset setting.

4.4.4 Menu Level Measurement

Channel 1:

Parameter name	Description	Value range
MB start	Measuring range start	Basic measuring range
MB end	Measuring range end	Basic measuring range
Unit	Measuring range unit	
Limit	Measuring range limit	yes, no

Channel 2:

Parameter name	Description	Value range
MB 2 start	Measuring range start	Basic measuring range
MB 2 end	Measuring range end	Basic measuring range
Unit 2	Measuring range unit	

The output signals of the transmitter primarily depend on the measured input variables (channel 1 or channel 2). However, you have the option of adjusting the output signals to a large extent to suit your requirements.

The two channels are configured by three parameters respectively. The 2nd channel is configured analogue to the first channel. The settings are identical for both channels and are explained in the following using channel 1 as an example.

NOTICE

Adjustment of the output signal

The basic measuring range (indicated on the type label) and the type of output signal (voltage / current) are not variable.

The parameters **MB start** and **MB end** initially define the two measurements between which the output signal will change at all. Both values are adjustable across the entire basic measuring range. The set values also refer to the measurement in the respective unit. However, the signal values (current / voltage) for Start of measuring range and End of measuring range are fixed.

If **MB start** is smaller than **MB end**, this is called an increasing characteristic curve; the output signal increases as the measurement increases.

If **MB end** is smaller than **MB start**, this is a decreasing characteristic curve and the output signal decreases as the measurement increases.

The difference between the values **MB start** and **MB end** must be at least 25 % of the basic measuring range.

You can select a unit other than the unit of the basic measuring range with the parameter **Unit**. The user should remember however that not every unit is suitable. The conversion is automatic.

The parameter **Limit** allows the display, output and switching points to be limited to the range between Start of measuring range and End of measuring range. If Limit is set to "no", those measured values that are greater or smaller than the end values are shown.

4.4.5 Menu Level Output

There are two output signals available that are permanently assigned to the respective input channels. The type of output signal (0/4…20 mA, 0…10V) must be stated on the order and cannot be changed.

Both outputs are configured in the same way, which is why this is only explained for the first output.

Output 1 (→channel 1)

Parameter name	Description	Value range
min. output	min. output	
max. output	max. output	0.0 … 21.0 mA or 0.0 … 11.0 V
Error signal	Measuring range unit	

Output 2 (→channel 2)

Parameter name	Description	Value range
min. output 2	min. output	
max. output 2	max. output	0.0 … 21.0 mA or 0.0 … 11.0 V
Error signal 2	Measuring range unit	

The parameters **min. output**, **max. output** and **error signal** define the limits of the output signal that may not be undercut or exceeded regardless of the measured variable. The limit values take priority over the range defined by the **Start of measuring range** and **End of measuring range** parameters! These parameters primarily serve to prevent error messages in downstream systems caused by brief overstepping of measuring ranges.

The parameter **Min. output** is usually only used for devices with an output signal 4…20 mA because frequently values of below 3.8 mA are evaluated as error signals.

The **Max. output** value can be used for the voltage and current to limit the maximum value.

The value defined via the parameter **Error signal** is issued if the device detects an internal error and can no longer work correctly. It should be noted here that not all potential errors and faults can be detected by the device itself.

4.4.6 Menu Level Function

> **NOTICE**
>
> **The function is only effective on channel 1.**
>
> There is a subsequent menu level function 2 for channel 2.

The Function menu level is a variable menu whose appearance depends on the value of the Function parameter. There are linear, square rooted and table functions

Linear function

The input signal is linear before being sent to the display and the output. The range defined in the menu "Measuring" serves as the measuring range. If the function LINEAR is active, the other menu items are cancelled.

Parameter name	Description	Value range
Function	Function	**Value = linear**

Square rooted function

Here, the input signal is square rooted before being sent to the display and the output. A free unit can be defined for the display. To do this, the start and end of the display range and the number of decimal points are defined. It is also possible to define the unit with 4 characters.

Parameter name	Description	Value range
Function	Function	Value = square rooted
MB decimal pl.	Measuring range decimal places	1234, 123.4, 12.34, 1,234, 12345, 123456
MB start	Measuring range start	-9999 … +9999
MB end	Measuring range end	-9999 … +9999
MB unit	Measuring range unit	4 characters

The following section contains descriptions of the parameters **MB decimal pl.**, **MB start**, **MB end** and **MB unit** to describe the table function.

Tables function

This function allows free adjustment of the input variable to the display and output via a table with up to 30 support points. A value pair comprising a measured value and display value is issued for every support point.

NOTICE

Change of parameter

When switching from TABLE to another function, the table is initialised again and the existing values are lost.

Parameter name	Description	Value range
Function	Function	Value = Table
MB decimal pl.	Measuring range decimal places	1234, 123.4, 12.34, 1,234, 12345, 123456
MB start	Measuring range start	-9999 … +9999
MB end	Measuring range end	-9999 … +9999
MB unit	Measuring range unit	4 characters
No. of pairs	Number of pairs	n = 3…30
Value pair1	Value pair 1	
Value pair2	Value pair 2	MB-start … MB-end
Value pair3	Value pair 3	
...		
Value pair30	Value pair 30	

The display range is defined with the parameters **MB decimal pl.**, **MB start** and **MB end**. The user can select the configuration freely.

Using the parameter **MB decimal pl.**, it is possible to select between a 5 or 6-digit presentation. The resolution is not increased. Only an extra zero or two zeros are added. This serves the correct display of larger values. The measuring range must be positive for the 6 digit presentation.

The **MB unit** gives the user the option of defining a completely independent unit. Letters, numbers or special characters can be used. The unit can be max. 4 characters long.

If the function TABLE is selected, then it is also necessary to state the **No. of pairs**. It is defined here how many pairs of values (support points) are used in the table. A table is made up of at least 3, max. 30 support points.

NOTICE

Number of value pairs

If the number of value pairs is changed, the table is initialised again and the existing values are deleted.


```
┌─────────────────────────┐
│ Value pair    2         │
│ +14,6 mbar      +8,6 %  │
│                         │
│ +0,0  ... +100,0 mbar   │
└─────────────────────────┘
```

1 input mark (value flashes)
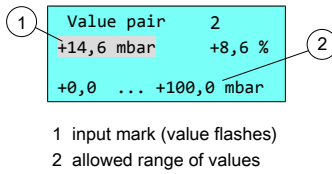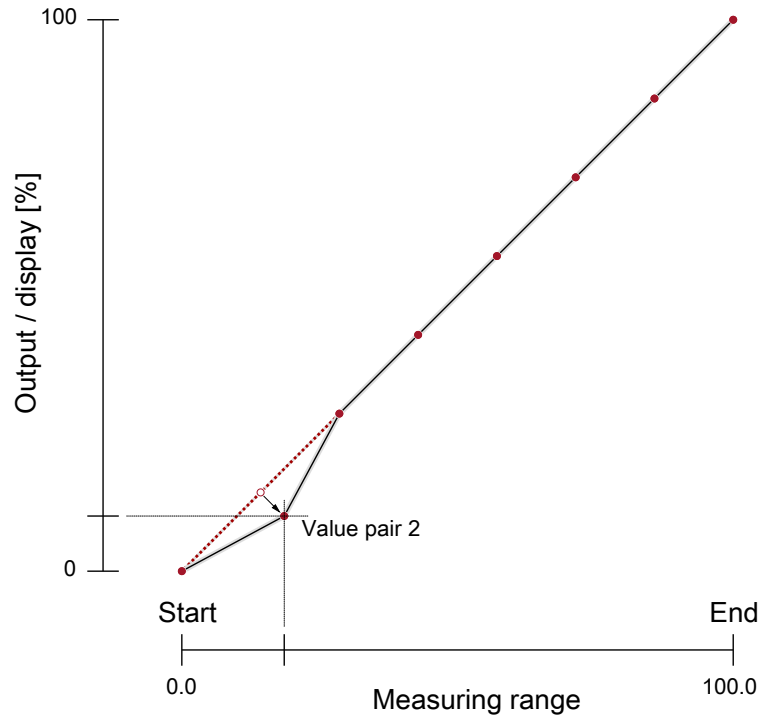2 allowed range of values

Fig. 17: Value pair

Fig. 18: Table function (example)

The individual value pairs can be seen and changed with the **Value pair1** to **Value pair30** parameters. A value pair comprises a measured value (left side) and a display value (right side). The measured value must lie within the measuring range and the display value must lie within the defined "free unit". The respective limits are shown during input. The table must contain either increasing or decreasing values. the table must contain either continuously increasing or continuously failing values. A change from an increasing to a decreasing characteristic curve within a support point table is not allowed.

4.4.7 Menu level function 2

NOTICE

The function 2 is only effective on channel 2.

The parameters on this menu level are identical to the parameters on the menu level function for the channel 1. Therefore the paramaters are not described again here.

4.4.8 Menu Level Display

The Display menu level is a variable menu whose appearance depends on the value of the colour parameter. In addition to the various colours for the background lighting, there are also two auto-functions with colour switching available.

Parameter name	Description	Value range
Assignm. switch.	Assignment of the coour switch	Channel 1, channel 2
Colour	Colour	Off, red, green, yellow, blue, pink, turquoise, white, **Auto1: Red-green** **Auto2: Red-yellow-green**
Lighting	Lighting time	0 s, 10 … 600 s
Contrast	Kontrast (contrast)	15 … 45
Bar chart	Barchart display	yes, no
Channel select.	Channel selection	Channel 1, channel 2, both channels alternating 3s, 6s, 9s

The parameter **Assignm. switch.** is used to define an input channel to which the colour change refers. The most important parameter however is **Colour**. A fixed colour can be defined for the background colour here. There are also two auto-functions with colour switching available. Alternatively, the background illumination can be permanently deactivated.

If permanent lighting is not required, the parameter **Lighting** can be used to define when the lighting should be switched off after the last time a button is pressed. In addition to permanent lighting (0 s), automatic shut-down after 10… 600 s is also possible. The set time is only valid if the parameter **Colour** is not set to "off".

Amongst other things, the legibility of the display depends on the temperature and the reading angle. To ensure optimised legibility, the display can be adjusted using the parameter **Contrast**. When the contrast is changed, it is possible that the display appears empty or almost completely black. In this case, the contrast must be turned up or down.

Via the parameter **Bar chart**, the display can be switched between a display where the measured value is either shown in large digits or the display shows small digits and an additional barchart.

The **Channel select.** parameter offers the user the option of deciding which of the measured values need to be shown on the display. The following values can be entered for the parameter:

- Channel 1
- Channel 2
- Both channels
- alternating 3s, 6s or 9s

The time that a measurement is shown on the display can be set with the value 'alternating. The channel is changed after this time.

Auto1: Colour-change red to green

If parameter **Colour** is set to Auto 1: red-green, the menu changes as follows:

Parameter name	Description	Value range
Assignm. switch.	Assignment switching	Channel 1, channel 2
Red-Gr. switch.	Red-green switching	MB-start - 50% …
Gr-Red switch.	Green-red switching	MB-end + 50%
Hysteresis	Hysteresis	0.1 … 10.0 %
Delay	Delay	0 … 1800 s
Colour	Colour	Off, red, green, yellow, blue, pink, turquoise, white, **Auto1: Red-green** Auto2: Red-yellow-green
Lighting	Lighting time	0 s, 10 … 600 s
Contrast	Kontrast (contrast)	15 … 45
Bar chart	Barchart display	yes, no
Channel select.	Channel selection	Channel 1, channel 2

The parameter **Assignm. switch.** is used to define an input channel to which the colour change refers.

In the Auto 1 mode with the automatic colour switchover, the parameters **Red-Gr. switch.** or **Gr-Red switch.** serve to enter the required thresholds. The colour change F1 and F2 can be moved anywhere within the measuring range. The series of colour changes however cannot be altered.
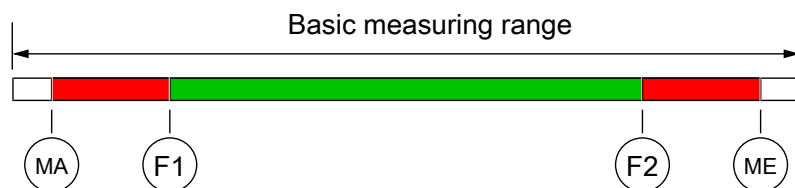

Fig. 19: Function Auto1

MA	**MB-start**	Measuring range start
F1	**Red-Gr. switch.**	Red-green switching
F2	**Gr-Red switch.**	Green-red switching
ME	**MB-end**	Measuring range end

The parameter **Hysteresis** can be used to prevent fast and unwanted colour changes. The hysteresis is set in the range 0.1... 10 %.

NOTICE

Overlapping colour areas

Note: In the case of large hysteresis values, steps must be taken to ensure that the ranges of the individual colours do not overlap. Otherwise it is possible that the colour change may not function in the desired way.

The parameter **Delay** offers a further option to prevent unwanted colour changes. The colour change here can be delayed between 0…1800 s.

The parameters **Lighting**, **Contrast**, **Bar chart** and **Channel select.** are explained in the previous section.

Auto2: Colour-change red-yellow-green

If the parameter Colour is set to Auto 2: red-yellow-green, the menu changes as follows:

Parameter name	Description	Value range
Assignm. switch.	Assignment switching	Channel 1, channel 2
Red-Yell.switch.	Red-yellow switchover	
Yell.-Gr.switch.	Yellow-green switchover	MB-start - 50% … MB-end + 50%
Gr.-Yell. switch	Green-yellow switchover	
Yell.-Red switch	Yellow-red switchover	
Hysteresis	Hysteresis	0.1 … 10.0 %
Delay	Delay	0 … 1800 s
Colour	Colour	Off, red, green, yellow, blue, pink, turquoise, white, Auto1: Red-green **Auto2: Red-yellow-green**
Lighting	Lighting time	0 s, 10 … 600 s
Contrast	Kontrast (contrast)	15 … 45
Bar chart	Barchart display	yes, no
Channel select.	Channel selection	Channel 1, channel 2

In the Auto 2 mode with the automatic colour switchover, it is possible to enter the required switch thresholds via the parameters **Red-Yell.switch.**, **Yell.-Gr.switch.**, **Gr.-Yell. switch**, **Yell.-Red switch** The colour change F1, F2, F3 and F4 can be moved anywhere within the measuring range. The series of colour changes however cannot be altered.
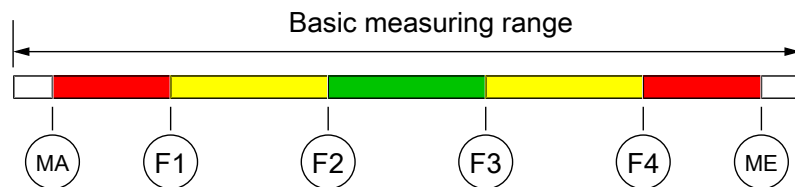
Fig. 20: Function Auto2

MA	MB-start	Measuring range start
F1	Red-Yell.switch.	Colour-change red to yellow
F2	Yell.-Gr.switch.	Colour-change yellow to green
F3	Gr.-Yell. switch	Colour-change green to yellow
F4	Yell.-Red switch	Colour-change yellow to red
ME	MB-end	Measuring range end

NOTICE

Unused range

If a range is not to be used, the associated switch thresholds (F1…F4) can be set to the same value.

Example

The parameter Colour is set to Auto2. Only the green, yellow and red ranges are required here. To fade out the lower ranges red and yellow, the switch thresholds "red-yellow switching" and "yellow-green switching" are set to the start of the measuring range.
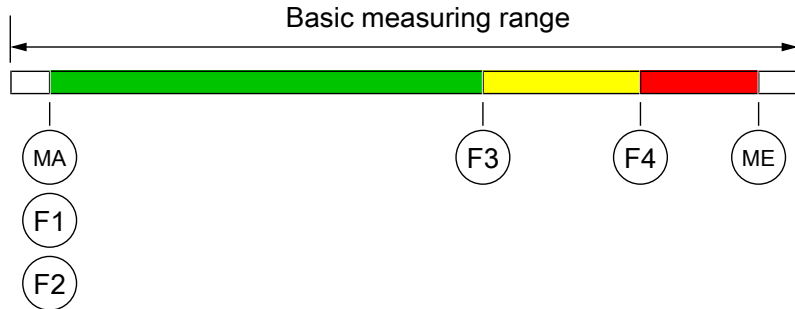

Fig. 21: Example Auto2

The parameters **Hysteresis**, **Delay**, **Lighting**, **Contrast**, **Bar chart** and **Channel select.** are explained in the previous sections.

4.4.9 Menu Level System

Parameter name	Description	Value range
Language	Language change	DE, EN, FR, ES, IT,PT,HU
Software info	Information about the software	Device type, serial number, firmware version
Config. info	Information about the configuration	Basic measuring range, output signal, contacts
Statistics	Statistics	Operating time, switch cycles of the contacts
Password	Password	0/1…999
Load config.	Load configuration	
Save config.	Save configuration	

The user menu can be switched to German, English, French, Spanish, Italian, Portuguese or Hungarian using the parameter **Language**.

The menu items **Software info** and **Config info** provide information about the device. This information helps to answer questions about the device quickly.

- The serial number and the firmware version is shown in the **Software info**.
- The basic measuring range, the defined output signal and existing contacts are stated in the **Config info**.

The **Statistics** provide information about the operating time and the relay switching cycles from the time of delivery. The operating time is shown in days (d) and hours (h)

A **Password** can be used to protect the menu against unauthorised access. The password is a figure from 1 to 999. The input 0 means that no password is active.

The password needs to be set if the user presses the button in normal mode to enter the menu. If a wrong password is entered, the system automatically jumps back to normal mode again. If no password is active, the display immediately jumps to the menu.

> **NOTICE**
>
> **Forgotten password**
>
> The user can export and change a forgotten password using the TransPara Software. If TransPara (and EU03) cannot be used, the device needs to be released by the manufacturer.

The user can load a saved configuration via the menu item **Load config**. This means that a functional set of parameters can be loaded after trying out various settings.

The menu item **Save config.** serves to save the existing parameters in a protected memory area. This is helpful if the settings of a functional device needs to be optimised. **Save config.** and **Load config.** can be used to quickly restore the initial status again.

> **NOTICE**
>
> **Delivery condition**
>
> If the user has not yet saved a configuration, the default values (status on delivery) are loaded. In this case, any measuring range spreads or switch points are reset and the device needs to be newly configured.

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 Accessories

- Set of cables with M12 connectors.
- Transmitter PC Interface Type EU03 or EU05 (with optional battery) incl. PC software TransPara.

Please also note the information in the order code.

5.5 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

Please also observe the order code here.

6.2 Input variables

Measuring variable

2 x differential pressure for gas-like media

Measuring range

Measuring range			Stat. operating pressure max.	Bursting pressure
mbar	Pa	kPa	mbar	mbar
0…4	0…400	---	50	150
0…6	0…600	---	50	150
0…10	0…1000	0…1	100	300
0…16	0…1600	0…1.6	100	300
0…25	---	0…2.5	250	750
0…40	---	0…4	250	750
0…60	---	0…6	500	1500
0…100	---	0…10	500	1500
0…160	---	---	1500	3000
0…250	---	---	1500	3000
±2.5	±250	---	50	150
±4	±400	---	50	150
±6	±600	---	50	150
±10	±1000	±1	100	300
±16	±1600	±1.6	100	300
±25	---	±2.5	250	750
±40	---	±4	250	750
±60	---	±6	500	1500
±100	---	---	500	1500

Tab. 4: Measuring ranges

You can select a unit other than the unit of the basic measuring range with the parameter **Unit** (measuring menu level). The conversion is automatic. All measuring ranges listed in the table are listed in the order code and can be ordered.

6.3 Output parameters

Output signal

There are two output signals available that are permanently assigned to the respective input channels. The type of output signal (0/4…20 mA, 0…10V) must be stated on the order and cannot be changed. Signal range and load are identical for both outputs.

Output 1 (P1)	Output 2 (P2)	Signal range	Apparent ohmic resistance
0…20 mA	0…20 mA	0.0…21.0 mA	$U_b \leq 26\ V : R_L \leq (U_b - 4\ V)/0.02\ A$
4…20 mA,	4…20 mA,		$U_b > 26\ V : R_L \leq 1100\ \Omega$
0…10 V	0…10 V	0.0…11.0 V	$R_L \geq 2\ k\Omega$

Tab. 5: Signal range and load

Switching outputs

a) Model with 2 switching outputs

2 potential-free relay contacts

2 potential-free semiconductor switches (MOSFET)

	Relay	MOSFET
Progr. switching function	Open contact (NO) Break contact (NC)	One-pin activator (NO) One-pin deactivator (NC)
allowed Switching voltage	32 V AC/DC	12…32 V AC/DC
Max. switching current	2A	0.25A
Max. switching output	64 W / 64 VA	8 W / 8 VA $R_{ON} \leq 4\ \Omega$

Tab. 6: Two switching outputs

b) Model with 4 switching outputs

4 potential-free semiconductor switches (MOSFET)

	MOSFET
Progr. switching function	One-pin activator (NO) One-pin deactivator (NC)
Allowed switching voltage	12…32 V AC/DC
Max. switching current	0.25A
Max. switching output	8 W / 8 VA $R_{ON} \leq 4\ \Omega$

Tab. 7: Four switching outputs

6.4 Measuring accuracy

Characteristic curve deviation

(Non-linearity and hysteresis)

Maximum: 1.0 % FS
Typical: 0.5 % FS

Tab. 8: Characteristic curve deviation

The information refers to a linear, non-spread characteristic curve at 25 C and applies to all measuring ranges. FS (Full Scale) refers to the basic measuring range.

Temperature coefficient (TK)

Measuring range			TK zero-point [% FS/10K]		TK span [% FS/10K]	
mbar	Pa	kPa	typ.	max.	typ.	max.
0…4	0…400	---	0.2	1.0	0.3	1.0
0…6	0…600	---	0.2	1.0	0.3	1.0
0…10	0…1000	0…1	0.2	0.4	0.3	0.3
0…16	0…1600	0…1.6	0.2	0.4	0.3	0.3
0…25	---	0…2.5	0.2	0.4	0.3	0.3
0…40	---	0…4	0.2	0.4	0.3	0.3
0…60	---	0…6	0.2	0.4	0.3	0.3
0…100	---	0…10	0.2	0.4	0.3	0.3
0…160	---	---	0.2	0.4	0.3	0.3
0…250	---	---	0.2	0.4	0.3	0.3
±2.5	±250	---	0.2	1.0	0.3	1.0
±4	±400	---	0.2	0.5	0.3	0.5
±6	±600	---	0.2	0.4	0.3	0.3
±10	±1000	±1	0.2	0.4	0.3	0.3

Measuring range			TK zero-point [% FS/10K]		TK span [% FS/10K]	
mbar	Pa	kPa	typ.	max.	typ.	max.
±16	±1600	±1.6	0.2	0.4	0.3	0.3
±25	---	±2.5	0.2	0.4	0.3	0.3
±40	---	±4	0.2	0.4	0.3	0.3
±60	---	±6	0.2	0.4	0.3	0.3
±100	---	---	0.2	0.4	0.3	0.3

Tab. 9: Temperature coefficient

With reference to the basic measuring range (FS), Compensation range 0..60°C.

6.5 Auxiliary energy

Rated Voltage	24 V AC/DC
Admissible operating voltage	U_b = 12…32 V AC/DC
Power consumption	Typ. 2 W / Max. 3 W

Tab. 10: Auxiliary energy
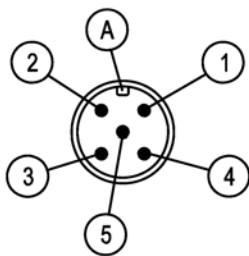
Electrical connection
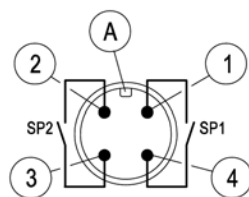
Connector 1

Fig. 22: M12 plug 5-pin

Pin	Signal name		Cable colour
1	Supply	$+U_b$	brown
2	Output 2	+Sig2	white
3	Supply	$-U_b$	blue
4	Output 1	+Sig1	Black
5	unused		green/yellow
A	Coding A		

Tab. 11: Supply and output signal

a) Model with 2 switching outputs

Connector 2

Fig. 23: M12 plug 4-pin

Pin	Signal name		Cable colour
1	Switching output 1	SP1	brown
2	Switching output 2	SP2	white
3	Switching output 2	SP2	blue
4	Switching output 1	SP1	Black
A	Coding A		

Tab. 12: Two switching outputs
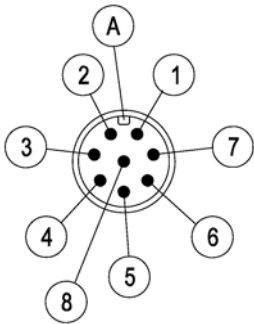
b) Model with 4 switching outputs

Connector 2

Fig. 24: M12 plug 8-pin

Pin	Signal name		Cable colour
1	Switching output 1	SP1	white
2	Switching output 1	SP1	brown
3	Switching output 2	SP2	green
4	Switching output 2	SP2	yellow
5	Switching output 3	SP3	grey
6	Switching output 3	SP3	pink
7	Switching output 4	SP4	blue
8	Switching output 4	SP4	red
A	Coding A		

Tab. 13: Four switching outputs

6.6 Application conditions

Ambient conditions

Ambient temperature	-10 … +70 °C
Media temperature	-10 … +70 °C
Storage temperature	-20 … +70 °C
Enclosure protection class	IP65 as per EN 60529
EMC	EN 61326-1:2013 EN 61326-2-3:2013

6.7 Construction design

Process connection

4 x aluminium hose screw connection for 6/4 or 8/6 mm hose
4 x pneumatic plug connector for 6/4 or 8/6 mm hose

Materials

|	
Housing	Polyamide (PA) 6.6
Media-contacting material	Silicon, Viton, brass nickel plate, aluminium anodised

Assembly

Attachment boreholes on the rear side for attachment to mounting plates.
Wall mounting using wall mounting plate
Panel mounting set for installing the panel
Assembly of the mounting rails using an adapter

Tab. 14: Important design features

Dimensional drawings   All dimensions in mm unless otherwise stated

6.7.1 Process and electric connections
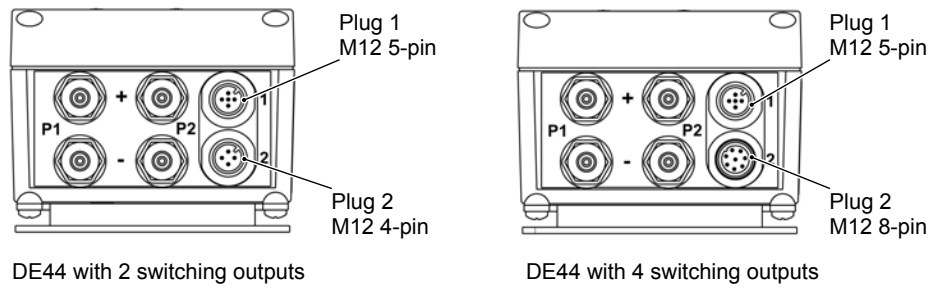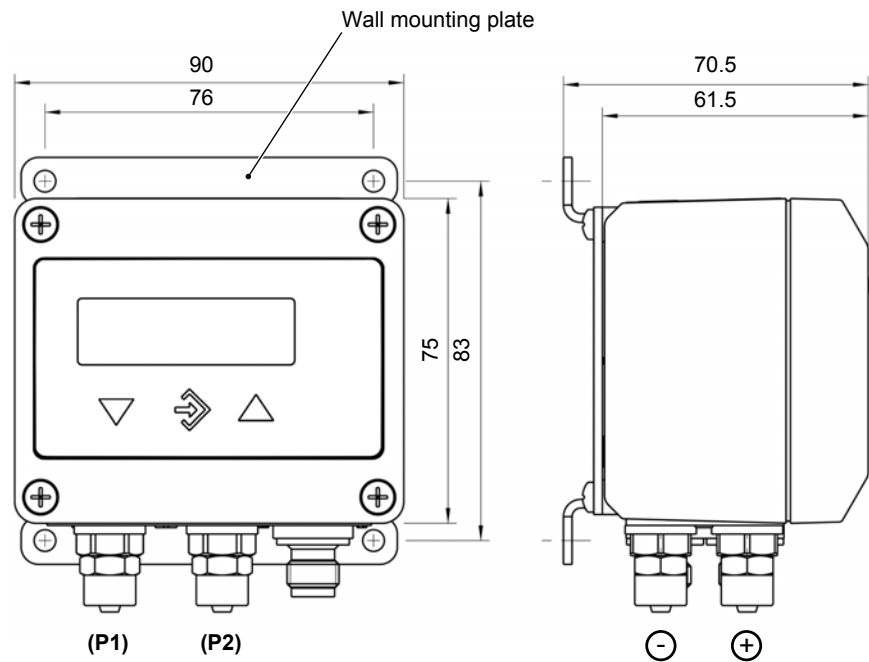

Fig. 25: Ports

6.7.2 Wall mounting

Fig. 26: Wall mounting dimension diagram

6.7.3 Assembly on an assembly plate

The standard model is not supplied with a wall mounting plate. It is attached to flat mounting plates using attachment boreholes on the rear side.

Assembly plate
2 ... 3 mm

61.5

78

63

Tapping screw
4x 3.5x13mm

Fastening bore
4x Ø3.5
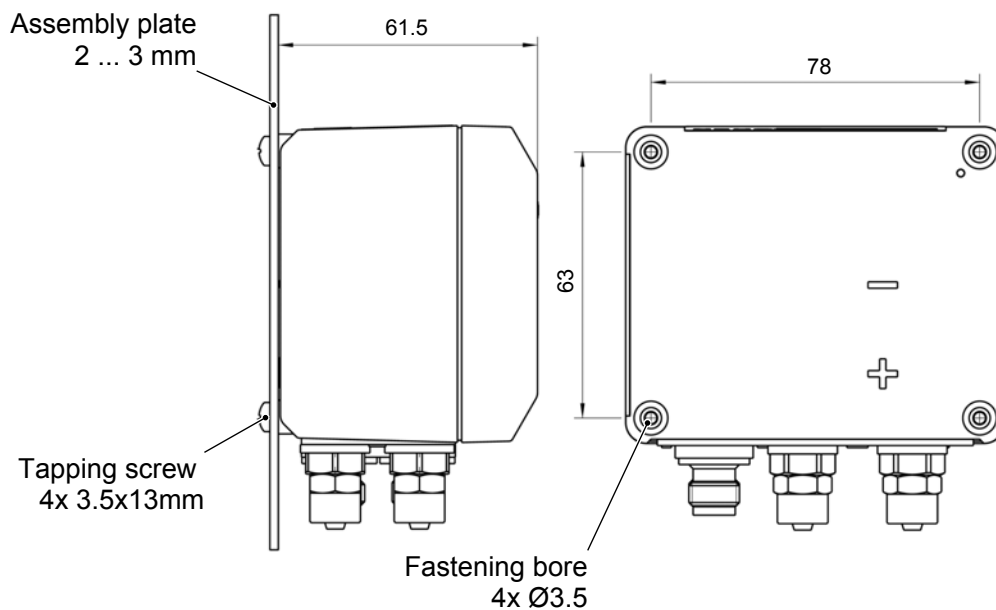
Fig. 27: Assembly on an assembly plate dimension diagram

6.7.4 Installation of front panel

Detail

Front panel

1
2
3
4
5

Detail
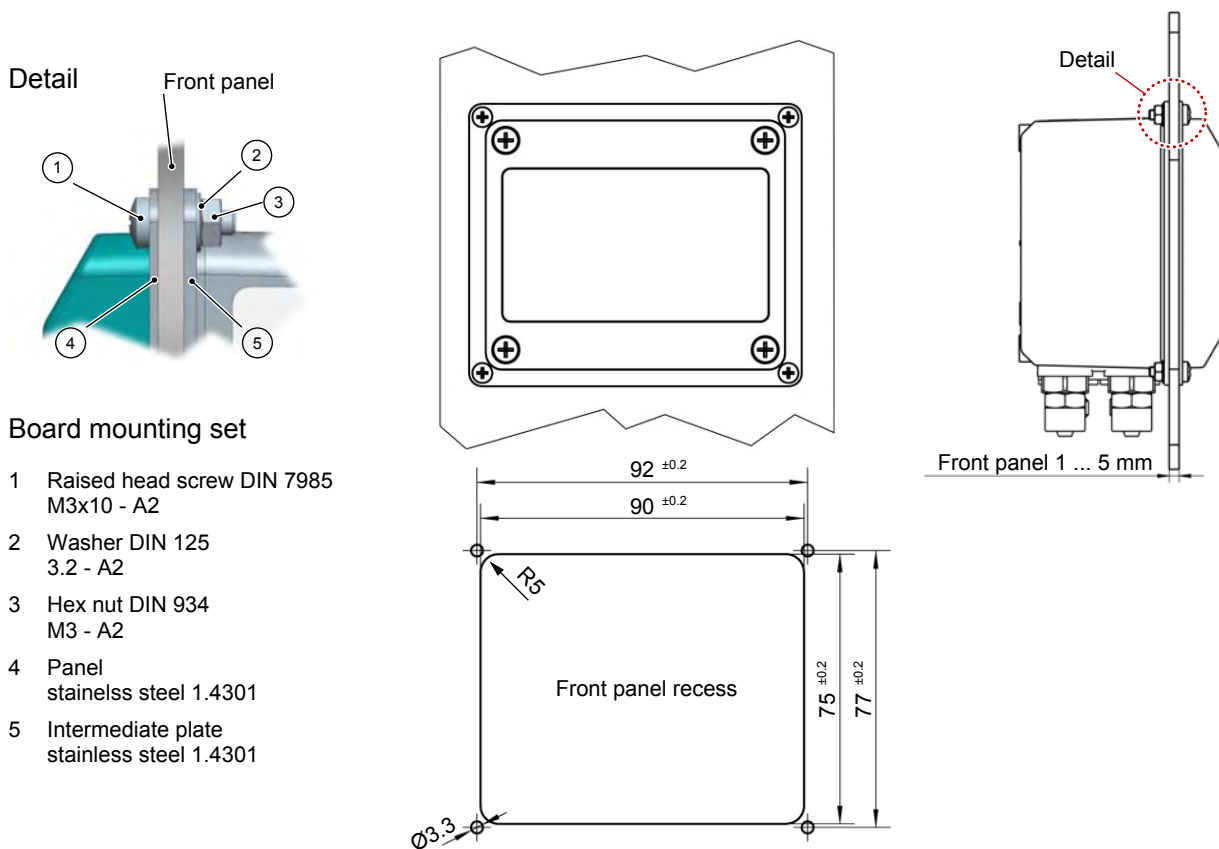
Board mounting set

1   Raised head screw DIN 7985
    M3x10 - A2

2   Washer DIN 125
    3.2 - A2

3   Hex nut DIN 934
    M3 - A2

4   Panel
    stainelss steel 1.4301

5   Intermediate plate
    stainless steel 1.4301

Front panel 1 ... 5 mm

$92^{±0.2}$

$90^{±0.2}$

R5

Front panel recess

$75^{±0.2}$

$77^{±0.2}$

Ø3.3

Fig. 28: Front panel dimensional diagram

6.7.5 Assembly of the mounting rails
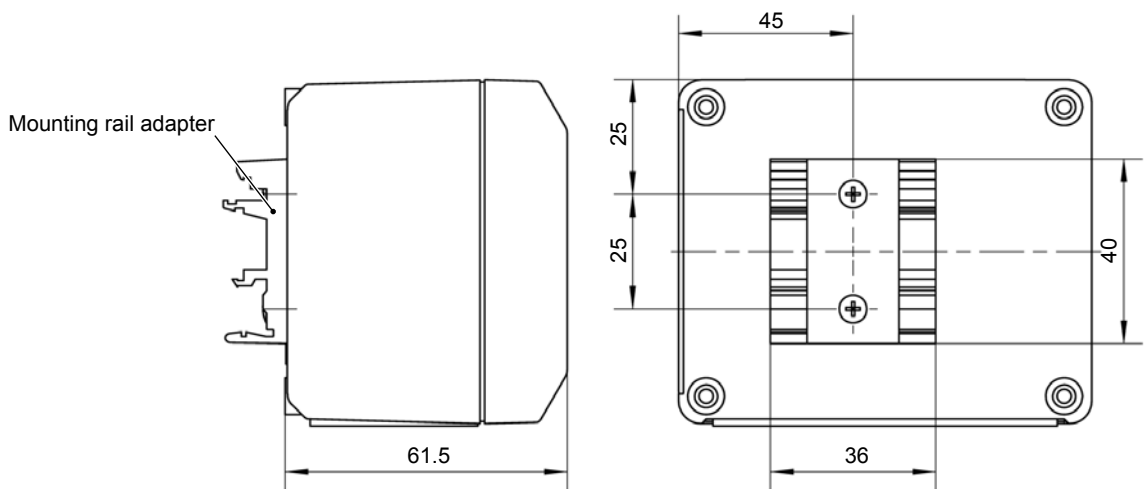
The device can be mounted to the following mounting rails using the mounting rail adapter:

Mounting rail acc. to EN50022 **TS35**
35 x 7.5 mm

Mounting rail acc. to EN50022 **TS35**
35 x 15 mm

Mounting rail acc. to EN50022 **TS15**
15 x 5 mm

G-rail acc. to EN50035   **TS32**

Fig. 29: Mounting rail dimensional diagram

6.8 Display and operating interface

Advertisement

4...6-digit LCD, full graphic, colour backlighting

Programming

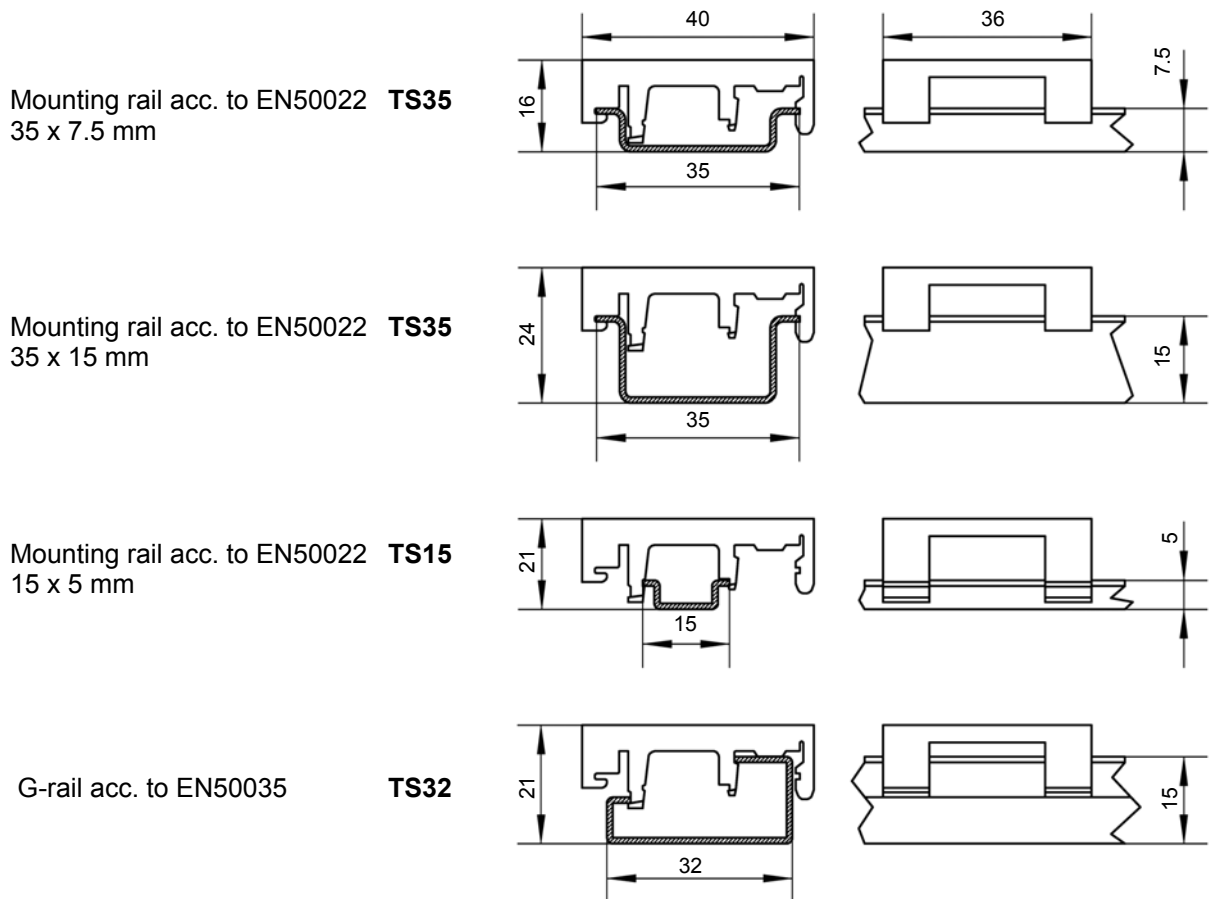|	
Attenuation	0.0…100.0s (jump response 10/90%)
Display assignment	P1 and P2 are shown at the same time
Switching output channel 1 and channel 2	Switch-off point, switch-on point, delay (0...1800s), function (NC / NO contact)
	• 2 switching outputs: assignment to the relay
	• 4 switching outputs: fixed assignment
Offset correction	±⅓ of the basic measuring range [1]
Zero-point window	Measured values around zero are set to zero within settable limits
Output signal	User-definable within the basic measuring range [2]
Characteristic curve P1	linear, square rooted, table with 3...30 support points
Characteristic curve P2	linear, square rooted, table with 3...30 support points
Password	001 ... 999 (000 = no password protection)

Tab. 15: Important features of the user interface

(1) To compensate different installation positions.
(2) Max. effective spread 4:1

7 Order Codes
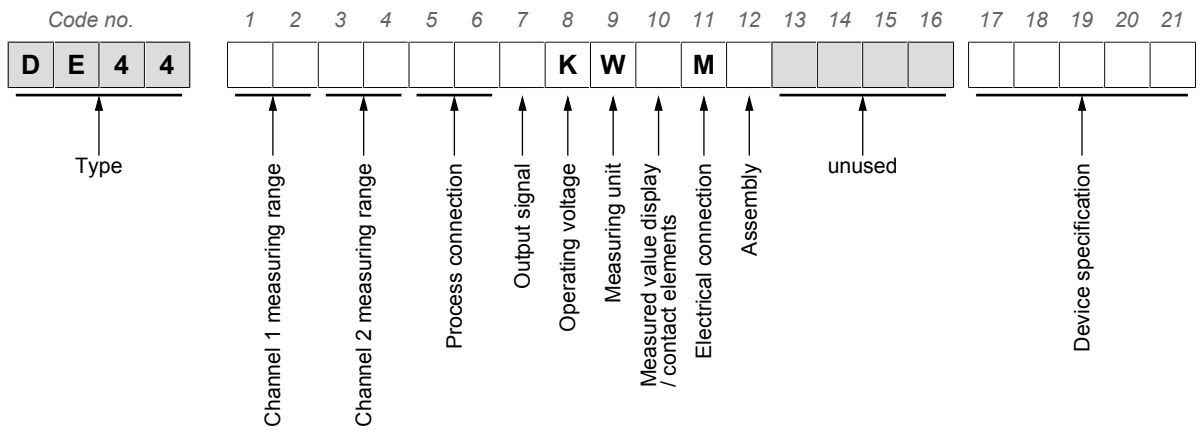
Measuring range:

Channel 1

[1.2]	(Code no.)
52	0 … 4 mbar
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
60	0 … 160 mbar
82	0 … 250 mbar
A6	-2.5 … +2.5 mbar
A7	-4 … +4 mbar
A8	-6 … +6 mbar
A9	-10 … +10 mbar
B1	-16 … +16 mbar
B2	-25 … +25 mbar
C5	-40 … +40 mbar
B3	-60 … +60 mbar
B4	-100 … +100 mbar
D7	0 … 400 Pa
D8	0 … 600 Pa
D9	0 … 1000 Pa
E1	0 … 1600 Pa
L6	-250 … +250 Pa

[1.2]	(Code no.)
N1	0 … 1 kPa
N2	0 … 1.6 kPa
N3	0 … 2.5 kPa
N4	0 … 4 kPa
N5	0 … 6 kPa
E5	0 … 10 kPa
L8	-1 … +1 kPa
L9	-1.6 … +1.6 kPa
M6	-2.5 … +2.5 kPa
M7	-4 … +4 kPa
M8	-6 … +6 kPa

Channel 2

[3.4]	(Code no.)
52	0 … 4 mbar
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
60	0 … 160 mbar
82	0 … 250 mbar
A6	-2.5 … +2.5 mbar
A7	-4 … +4 mbar
A8	-6 … +6 mbar
A9	-10 … +10 mbar
B1	-16 … +16 mbar
B2	-25 … +25 mbar
C5	-40 … +40 mbar
B3	-60 … +60 mbar
B4	-100 … +100 mbar
D7	0 … 400 Pa
D8	0 … 600 Pa
D9	0 … 1000 Pa
E1	0 … 1600 Pa
L6	-250 … +250 Pa

[3.4]	(Code no.)
N1	0 … 1 kPa
N2	0 … 1.6 kPa
N3	0 … 2.5 kPa
N4	0 … 4 kPa
N5	0 … 6 kPa
E5	0 … 10 kPa
L8	-1 … +1 kPa
L9	-1.6 … +1.6 kPa
M6	-2.5 … +2.5 kPa
M7	-4 … +4 kPa
M8	-6 … +6 kPa

Pressure connection:

[5.6]	(Code no.)
40	Aluminium screw connection for 6 / 4 mm hose
41	Aluminium screw connection for 8 / 6 mm hose
P6	Pneumatic plug connector for 6/4 mm hose
P8	Pneumatic plug connector for 8/6 mm hose

Output signal:

[7]	(Code no.)
0	without output signal
4	0 ... 20 mA (3-wire) channel 1+2
6	4 ... 20 mA (3-wire) channel 1+2
5	0 ... 10 V (3-wire) channel 1+2

Operating voltage

[8]	(Code no.)
K	24 V AC/DC

Measuring unit:

[9]	(Code no.)
W	Selectable pressure units

Measured value display / contact elements:

[10]	(Code no.)
C	4-digit colour change LCD / 2 relay contacts
D	4-digit colour change LCD / 2 semiconductor switches
G	4-digit colour change LCD / 4 semiconductor switches

Electrical connection

[11]	(Code no.)
M	M12 plug connector (plastic)

Assembly option:

[12]	(Code no.)
0	Standard (attachment boreholes on rear side)
S	Assembly of the mounting rails
T	Panel mounting set
W	Wall mounting

7.1 Accessories

Order no.	Planned measures	No. of Poles	Length
06401993	Connection cable for switching outputs with M12 connector	4-pin	2 m
06401994	Connection cable for switching outputs with M12 connector	4-pin	5m
09011146	Connection cable for switching outputs with M12 connector	8-pin	5m
06401995	Connection cable for supply/signal with M12 connector	5-pin	2 m
06401996	Connection cable for supply/signal with M12 connector	5-pin	5 m
EU03F300	Transmitter PC Interface incl. PC software Casing: 107x54x30 mm		
EU050000	Transmitter PC Interface incl. PC software Casing: 195x101x44 mm	without battery	
EU050001		With battery	
	A data sheet about the EU03 ad EU 05 models is available on our website www.fischermess-technik.de or on request.		

8 Attachments

8.1 EU Declaration of Conformity

FISCHER
MESS- UND REGELTECHNIK

CE

EU Declaration of Conformity   *(Translation)*

For the product described as follows

Product designation **Digital 2-channel differential pressure switch /transmitter with colour change LCD**

Type designation **DE44**

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

The products were tested in compliance with the following standards.

Electromagnetic compatibility (EMC)

EN 61326-1:2013   Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

EN 61326-2-3:2013   Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements – Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

RoHS

EN 50581:2012   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**".

The object of the declaration described above is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

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 5222 974 0

Documentation   Mr. Stefan Richter
representative   Dipl. Ing.
General Manager R & D

The devices bear the CE
following marking:

Bad Salzuflen,   S. Richter
2016-07-20   General Manager R & D

09010179 CE_EN_DE44_LCD Rev.A 07/16

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Fig. 30: CE_DE_DE44_LCD

8.2 EAC Declaration of Conformity

ЕАС ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Заявитель Общество с ограниченной ответственностью «МАТИС-М». Место нахождения: 117261, город Москва, улица Вавилова, дом 70, корпус 3, комната правления, Российская Федерация. Адрес места осуществления деятельности: 109029, город Москва, город, Сибирский проезд, дом 2, корпус 12, Российская Федерация, Основной государственный регистрационный номер: 1037739575125, телефон: +7 495 725-23-09, адрес электронной почты: info@matis-m.ru

в лице Генерального директора Шарова Александра Анатольевича

заявляет, что Датчик/преобразователь перепада давления, тип DE13, DE25, DE27, DE38, DE39, DE40, DE44, DE45, DE46, DE49, DE50
Продукция изготовлена в соответствии с Директивой 2014/30/EU

Изготовитель «FISCHER Mess- und Regeltechnik GmbH»
Место нахождения: Bielefelder StraBe 37a, D-32107 Bad Salzuflen, Германия. Филиал завода-изготовителя:
FISCHER Mess- und Regeltechnik GmbH", Место нахождения: Bielefelder StraBe 37a, D-32107 Bad Salzuflen, Германия.
Код ТН ВЭД ЕАЭС 9026 20 200 0, серийный выпуск

Соответствует требованиям Технического регламента Таможенного союза ТР ТС 020/2011 "Электромагнитная совместимость технических средств"

Декларация о соответствии принята на основании протокола № 01331-02/2017-06 от 15.06.2017 года. Испытательной лаборатории (центра) продукции народного потребления "Отдел 101" Общества с ограниченной ответственностью "Межрегиональный центр исследований и испытаний", регистрационный номер аттестата аккредитации № RA.RU.21AO47 Схема декларирования: 3д

Дополнительная информация разделы 5 и 7 ГОСТ 30804.3.2-2013 (IEC 61000-3-2:2009) «Совместимость технических средств электромагнитная. Эмиссия гармонических составляющих тока техническими средствами с потребляемым током не более 16 A (в одной фазе). Нормы и методы испытаний», раздел 5 ГОСТ 30804.3.3-2013 (IEC 61000-3-3:2008) «Совместимость технических средств электромагнитная. Ограничение изменений напряжения, колебаний напряжения и фликера в низковольтных системах электроснабжения общего назначения. Технические средства с потребляемым током не более 16 A (в одной фазе), подключаемые к электрической сети при несоблюдении определенных условий подключения. Нормы и методы испытаний».
Условия хранения продукции в соответствии с ГОСТ 15150-69. Срок хранения (службы, годности) указан в прилагаемой к продукции товаросопроводительной и/или эксплуатационной документации.

Декларация о соответствии действительна с даты регистрации по 14.06.2022 включительно

М.П.

(подпись)

Шаров Александр Анатольевич

(Ф. И. О. заявителя)

Регистрационный номер декларации о соответствии: ЕАЭС N RU Д-DE.АЛ16.B.77757

Дата регистрации декларации о соответствии: 15.06.2017

Fig. 31: ЕАЭС N RU Д-DE.АЛ16.B.77757