

Operating manual

DE45

Digital differential pressure switch / transmitter
with 4-digit colour change LCD

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1 Safety Instructions

1.1 General information



This operating manual contains detailed information about the installation, operation and maintenance of the instrument.

This information must be observed and read by the installer, operator and other skilled personnel prior to any installation and commissioning of the instrument.

This operating manual forms part of the product and must be kept in the immediate vicinity of the instrument for easy access by the responsible personnel at any time.

The following chapters, especially the instructions on installation, commissioning and maintenance contain important safety information, the non-compliance of which may result in hazards to persons, animals, environment and objects.

1.2 Personnel qualification

Only personnel trained in the installation, commissioning and operation of this product may install and operate the same.

Skilled personnel are persons who are able to judge delegated work and possible hazards based on their technical education, proficiency and experiences, particularly due to their knowledge about the applicable norms.



1.3 Risks of non-compliance with safety instructions

Non-compliance with these safety instructions, inappropriate use of this product, and/or operation of this product outside the limits specified for any of its technical parameters, may result in harm to persons, the environment or the system in which it is installed.

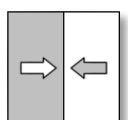
The producer is not liable for any claims for damages in such circumstances.

1.4 Safety instructions for operators

Safety instructions for the proper use of this product must be followed. This information must be available at all times to personnel responsible for installation, operation, maintenance and inspection of this product.

Adequate steps must be taken to prevent the occurrence of hazardous conditions that can be caused by electric energy and the convertible energy of the process media and/or improper connection of the instrument. Detailed information can be found in the relevant national and/or international rules and regulations.

In Germany DIN EN, UVV apply, for industry-specific applications regulations of DVGW, Ex, GL, as well as the rules of the local authorities (EVUs in Germany).



1.5 Forbidden modifications

Modification or other technical alteration of the device by the customer is not permissible. This also applies for the use of spare parts. Any eventual modifications/ variations will be carried out solely by Fischer Mess- und Regeltechnik GmbH.

1.6 Impermissible operational modes

The operational dependability of the device is guaranteed only if it is used as intended. The device version must be adapted to the medium used in the system. The limiting values stated in the technical data must not be exceeded.

1.7 Safety Considerations during Installation and Maintenance

The safety instructions stated in this manual, existing national regulations on accident prevention and the internal rules and procedures on working, operation and safety of the operator are to be observed.

It is the responsibility of the operator to ensure that only authorised and skilled technical personnel carry out any required maintenance, inspection and installation works.

1.8 Explanation of symbols



WARNING!

... indicates a possible hazardous situation the non-observance of which might result in hazards to humans, animals, environment and objects.



INFORMATION!

... points out important information for efficient and trouble-free operation.



TIP!

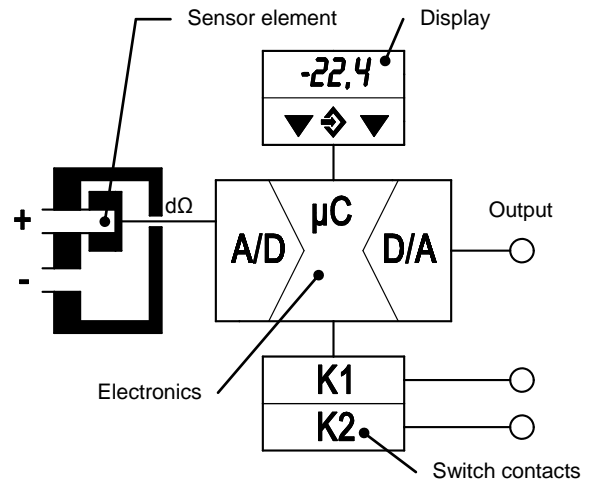
... points out useful recommendations that are not necessarily required for operation that might however be of use in certain situations.

2 Intended use

Display and switching device for Differential pressure of gaseous media. The instrument is to be exclusively used for the applications agreed between the manufacturer and user.

3 Product Description and Function

3.1 Functional Scheme



3.2 Design and mode of operation

The device is based on a piezo-resistive sensor element that is suitable for measuring overpressure, underpressure and differential pressure. The pressures to be compared directly act on a silicon diaphragm equipped with piezo-resistive resistors. In case of equal pressure, the measuring diaphragm is in its idle state. In case of pressure difference, the force acting on the measuring membrane causes it to be moved towards the side of the lower pressure. This movement of the diaphragm induces a change of resistance, which is evaluated by the device's electronics and transformed into signals on the display, switch contacts and an output signal. The optional output signal can be dampened, spread, inverted and can also be transformed in a non-linear manner via a table function.

4 Installation and assembly

The unit is designed for mounting on 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.

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 zero-point adjuster.

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

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.

4.1 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 the suitability of the device for the media to be measured.
- Maximum pressures shall be observed.
- Do not blow into the pressure connections!

The pressure sensing lines must be installed on a gradient so that no air pockets e.g. for liquid measurements or water pockets e.g. for gas measurements can be created. If the required incline is not reached, water and/or air filters need to be installed at suitable points.

The pressure sensing lines need to be kept as short as possible and installed without sharp bends to avoid interfering delay times.

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

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

4.2 Electrical connection

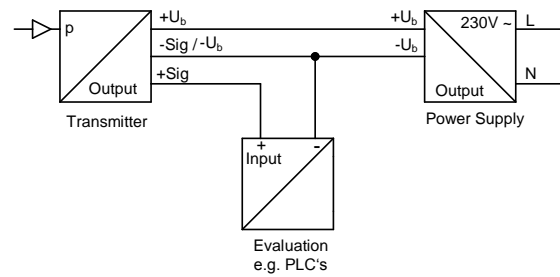
- By authorized and qualified specialized personnel only.
- The instrument must be connected electrically in accordance with the relevant VDE guidelines and the guidelines of the local EVU.
- Disconnect the system from the mains, before electrically connecting the device.
- Install the consumer-adapted fuses.

The nominal supply voltage and the admissible range can be found in the technical data.

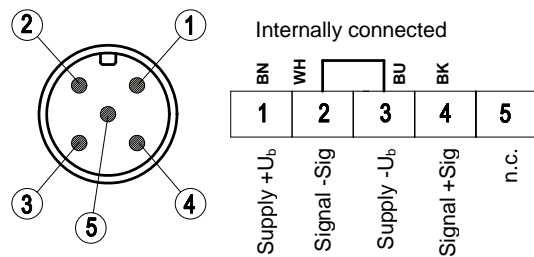
The admissible load / resistance for the signal output are stated in the technical data.

The connection "Signal ground"(-Sig) is connected internally to the supply ground. It only serves as the ground connection for the output signal. This means that the output signal is free of interference levels on the power supply lines.

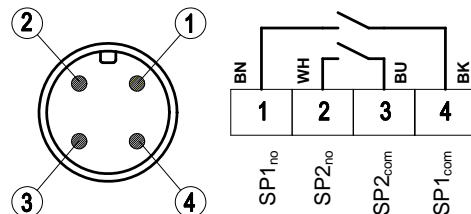
3-wire circuit



Plug 1: Power Supply and Output signal



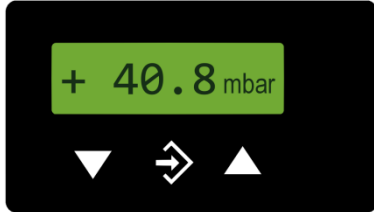
Plug 2: Switching output



5 Starting operation

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.

5.1 Display



The 4-digit LCD display represents the current differential pressure in normal mode. The unit is shown on the right of the display. If the device is equipped with contacts, a closed contact is always symbolised by an inverted text "SP1" or "SP2".

The colour of the background lighting can change to indicate a good / poor measured value. Alternatively, a fixed colour can be defined for the background colour. The background lighting can also be switched off.

The menu item and the associated parameters are shown in the display during programming. The device continues to work during the parameter configuration process. Apart from one exception, changes are realised immediately. The exception refers to changed switching times - in this case, the previously valid time must run down first.

5.2 Configuration

For commissioning there is a multitude of setting options for optimum adaptation of the device to the measuring point and task at hand. To make the input easier, the individual parameters are summarised into groups in the menu.

Depending on the device model (power output / voltage output / contacts), some menu items may not be available.

5.3 Operation

It is operated via the buttons ▼, ⬡ and ▲.

In normal mode, press the button ⬡ to enter the menu. (After pressing the button ⬡ it may be necessary to enter a password via the buttons ▲ and ▼ and to confirm this password with the button ⬡.)

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 "Quit" and press ⬡.



Example: Setting the switch points

In normal mode, press the button ⬡ to enter the menu. *Menüebene Schaltpunkte* appears in the display; to change the switch points press the ⬡ button again and the parameter *SP1 ein* is shown.

Select other parameters with the buttons ▲ or ▼. If the parameter that is to be changed is displayed press the button ⬡ again.

The device jumps to the input:

- The parameter is stated in the first line.
- The value that is to be changed is shown in the second line, the display flashes.
- The input limits are stated in the 3rd line (of available).

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



Please Note:

The names of the parameters used in the menu are in German language. Currently there is no menu in English available. Therefore you find a bilingual list in the following chapter.

5.4 Menu

Switch points

- Switch point 1 On
- Switch point 1 Off
- Switch point 1 Delay
- Switch point 1 Funktion
- Switch point 2 On
- Switch point 2 Off
- Switch point 2 Delay
- Switch point 2 Funktion

Input

- Damping
- Offset correction
- Zero-point window

Measurement

- Start of measuring range
- End of measuring range
- Unit
- Limitation

Output

- min. output
- max. output
- error signal

Function

- Function
- free unit "Decimal places"
- free unit "Start of measuring range"
- free unit "End of measuring range"
- free unit "Unit"
- Table: Number of value pairs
- Table: Value pair 1
- ...
- Table: Value pair n

Display

- Colour Auto1:
 - red-green switchover
 - green-red switchover
- Colour Auto2:
 - red-yellow switchover
 - yellow-green switchover
 - green-yellow switchover
 - yellow-red switchover
- Hysteresis (for colour change)
- Delay (for colour change)
- Colour
- Illumination time
- Contrast
- Bargraph

System

- Software-Info
- Config.-Info
- Statistics
- Password
- Config. load
- Config. save

Schaltpunkte

- Schaltpunkt 1 Ein
- Schaltpunkt 1 Aus
- Schaltpunkt 1 Verzögerung
- Schaltpunkt 1 Funktion
- Schaltpunkt 2 Ein
- Schaltpunkt 2 Aus
- Schaltpunkt 2 Verzögerung
- Schaltpunkt 2 Funktion

Eingang

- Dämpfung
- Offsetkorrektur
- Nullpunktfenster

Messung

- Messbereich Anfang
- Messbereich Ende
- Einheit
- Begrenzung

Ausgang

- min. Ausgang
- max. Ausgang
- Fehlersignal

Funktion

- Funktion
- freie Einheit „Nachkomma“
- freie Einheit „Messbereich Anfang“
- freie Einheit „Messbereich Ende“
- freie Einheit „Einheit“
- Tabelle: Anzahl Wertepaare
- Tabelle: Wertepaar 1
- ...
- Tabelle: Wertepaar n

Display

- Farbe Auto1:
 - rot-grün Umschaltung
 - grün-rot Umschaltung
- Farbe Auto2:
 - rot-gelb Umschaltung
 - gelb-grün Umschaltung
 - grün-gelb Umschaltung
 - gelb-rot Umschaltung
- Hysterese (bei Farbwechsel)
- Verzögerung (bei Farbwechsel)
- Farbe
- Beleuchtungszeit
- Kontrast
- Bargraf

System

- Software-Info
- Konfig.-Info
- Statistik
- Passwort
- Konfig. laden
- Konfig. sichern

5.5 Menu level Switch points

The two switch outputs are configured by four parameters respectively.

For switch point 1 these are: **SP1 ein**, **SP1 Aus**, **SP1 Verzögerung** and **SP1 Funktion**.

For switch point 2 accordingly: **SP2 ein**, **SP2 Aus**, **SP2 Verzögerung** and **SP2 Funktion**.

SP1 ein defines the activation point, **SP1 Aus** the shutdown point of the switch output 1. The values are displayed and configured in the valid unit.

Together, the two parameters determine the switch function of switch output 1:

If **SP1 Aus** < **SP1 ein**, the output switches on, if the measured value exceeds **SP1 ein**. It is only switched off again if the measured value **SP1 Aus** is undercut (hysteresis function).

If **SP1 ein** = **SP1 Aus**, the output switches on if the measured value exceeds **SP1 ein** and off if the measured value undercuts **SP1 Aus**.

If **SP1 Aus** > **SP1 ein**, the output switches on, if **SP1 ein** < Measured value < **SP1 Aus** applies (window function).

Both parameters can be set independently over the entire range.

SP1 Verzögerung allows the reaction of the switch output 1 to be delayed by between 0 and 100 s. This value applies equally for switching on and off.

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

5.6 Menu level Input

If there are unsteady pressure readings during operation, you can use the parameters **Dämpfung** and **Nullpunktfenster** to stabilise the reading (and the output signal).

The effect of parameter **Dämpfung** (on the reading, output signal and switching points, if available, but not on the measuring cell!) corresponds to that of a capillary throttle. You can set the response time to pressure jumps ranging from 0.0 to 100 seconds. But with maximum damping, it will take more than 2 minutes for the reading to also reach zero after a pressure jump from nominal pressure (100 %) to zero!

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 zero (differential) pressure is expected. In such situations, parameter **Nullpunktfenster** can be applied. Its value defines a range of measurement values around zero, for which the measuring value is set to zero. The reading will not indicate zero any more only if the pres-

sure exceeds these limits. When reaching double the value, the measuring pressure and reading match again. This avoids jumps in the reading.

It makes sense to set the Offset (zero-point displacement) if, without differential pressure (remove measuring line), the display shows a value that is not zero. Before the offset correction, the **Nullpunktfenster** should be set to zero.

Select the **Offsetkorrektur** parameter and correct the reading using the buttons ▲ and ▼ until zero is shown.

5.7 Measurement

The transmitter output signal initially depends on the sensed pressure. However, you have the option of adjusting the output signal to a large extent to suit your requirements.

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

The parameters **Messbereich Anfang** and **Messbereich Ende** initially define the two pressures 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 pressure (in the respective unit). However, the signal values (current / voltage) for **Messbereich Anfang** and **Messbereich Ende** are fixed.

If **Messbereich Anfang** is smaller than **Messbereich Ende**, this is called an increasing characteristic curve; the output signal increases due to the increasing pressure. If **Messbereich Ende** is smaller than **Messbereich Anfang**, this is a decreasing characteristic curve and the output signal decreases due to decreasing pressure.

The difference between the values **Messbereich Anfang** and **Messbereich Ende** 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 **Einheit**. The user should remember however that not every unit is suitable. The conversion is automatic.

5.8 Output

The parameters **min. Ausgang**, **max. Ausgang** and **Fehlersignal** define the limits of the output signal that may not be undercut or exceeded regardless of the pressure. The limit values take priority over the range defined by the **Messbereich Anfang** and **Messbereich Ende**!

These parameters primarily serve to prevent error messages in downstream systems caused by brief overstepping of measuring ranges.

The parameter **min. Ausgang** is usually only sensible for devices with an output signal 4...20 mA because frequently values of below 3.8 mA are

evaluated as error signals. The values **max. Ausgang** can be used for the voltage and current to limit the maximum value.

The value defined by the parameter **Fehlersignal** is issued if the device recognises an internal error and can no longer work correctly. It should be noted here that not all possible errors and faults can be recognised by the device itself.

5.9 Menu level Function

The reading and the output signal can be modified in the **Funktion** menu to meet the special requirements.

The following functions are available:

LINEAR: Linear implementation of the input on 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.

SQUARE ROOT: The square root of the input signal is extracted and issued on the display and output. This is necessary for example for the flow measurement with differential pressure. A "free unit" can be defined for the display. Here the start and end of the display range and the number of decimal points is defined. There is also a possibility of defining the unit with 4 characters.

TABLE: This function allows the input in the display and output to be freely adjusted via a table which has up to 30 support points. Pairs of values comprising the measured value and display value are issued for the support points.



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

The display range is defined with the parameters **Nachkomma MB**, **MB Anfang** and **MB Ende**. The user can configure this freely.

The parameter **Einheit MB** gives the user the possibility of using a completely independent unit. Letters (large, small), digits and some special characters are available. The unit may be max. 4 characters long.

If the function TABLE is selected, the number of pairs needs to be stated. The number of value pairs (support points) that make up a table is defined here. At least 3, maximum 30 support points are allowed.



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

The individual value pairs can be viewed and changed using **Wertepaar 1** to **Wertepaar 30** (maximum). A value pair comprises a measured value

(left side) and a display value (right side). The measured value must lie within the measuring range; the display value must lie within the freely defined "free unit". The respective limits are displayed during the input process. The table must contain the increasing values.

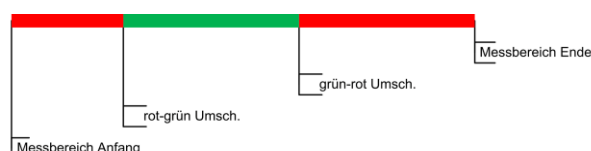
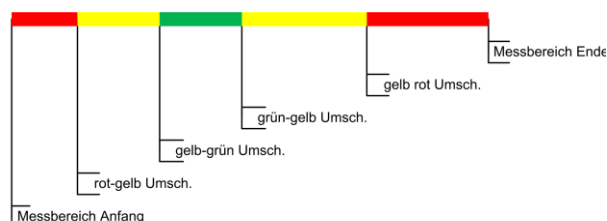
5.10 Display

The parameters for influencing the display are summarised in this menu.

The most important parameter is **Farbe**. A fixed background colour (red, green, yellow, blue, pink, turquoise and white) can be selected. There are also two auto functions for switching colours. One possible colour switch is red-green; the second colour switch is red-yellow-green. Alternatively, the background lighting can be permanently switched off.

In the automatic colour switch mode it is possible to enter the required switching thresholds "red-yellow switching", "yellow-green switching", "green-yellow switching", "yellow-red switching" or "red-green switching" and "green-red switching".

The switching thresholds can be moved within the measuring range. The sequence of switching points cannot be changed.



Note: If a range cannot be used, the associated switch thresholds can be set to the same value. An example is shown in the sketch:

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.



Fast and unwanted changing of the colour can be prevented via the **Hysterese** value. The hysteresis can be set between the range 0.1...10%.



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. Here the colour change can be delayed in the range between 0...100s.

If the lighting should not shine constantly, the parameter **Beleuchtungszeit** can be used to define when it should turn off after the last button is pressed. In addition to constant lighting, automatic shutdown after 10...600 s is also possible. The set time is only valid if the background 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, this can be adjusted using the parameter **Kontrast**. 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.

The display can be switched via the parameter **Bargraf** yes/no: the measured value is either shown in large digits or the display shows small digits and an additional bargraph to display the measured value more clearly.

5.11 System

The menu items **Software - Info** and **Konfig - Info** provide information about the device. This information helps to answer questions about the device quickly.

The **Software - Info** shows the device type, controller ID and the firmware version. The **Konfig - Info** states the basic measuring range, the defined output signal and the existing contacts.

The statistics provide information about the operating time and the relay operations since delivery. The operating time is shown in days (d) and hours (h)

The **Passwort** menu allows a password to be set to prevent unauthorised changes to the menu. The password is a number between 1 and 999. The entry 0 means that no password is active.



Caution: The user is not able to delete a forgotten password!

A configuration saved by the user can be loaded via the menu item **Load config**. For example, a parameter set can be restored after trial settings have been made.



Note: If the user has not yet saved a configuration, the standard values are loaded (defaults settings). In this case, any existing measuring range spreads of switch points can be reset and the device needs to be reconfigured.

Konfig.sichern is used to save the existing parameters in a protected part of the memory. This is helpful if the settings of a functional device are to be optimised. **Konfig.sichern** and **Konfig.laden** can be used to restore the original status quickly.

6 Maintenance

The device does not require maintenance.

In order to ensure reliable operation and a long service life of the device we recommend regular checking of the device as follows:

- Check the function in connection with slave components.
- Check the tightness of the pressure connection lines.
- Check the electrical connections.

The exact test cycles have to be adapted to the operating and environmental conditions. The operating manuals of all other devices are also to be observed if there is an interaction of different device components.

7 Transport

The product must be protected against severe impacts. Therefore transport is to be effected only in the packaging intended for transport.

8 Service

All defective or faulty devices are to be sent directly to our repair department. We would like to ask you to coordinate all device returns with our sales department.



Remaining medium in and on dismantled measuring instruments may cause danger to persons, environment and equipment. Take reasonable precautions! Clean the instrument thoroughly if necessary.

9 Accessories

Cable set with M12 Connector (please enquire)

10 Disposal

Protect your environment...



Kindly help us protecting the environment and dispose of or recycle the used products in accordance with the relevant regulations.

11 Technical data

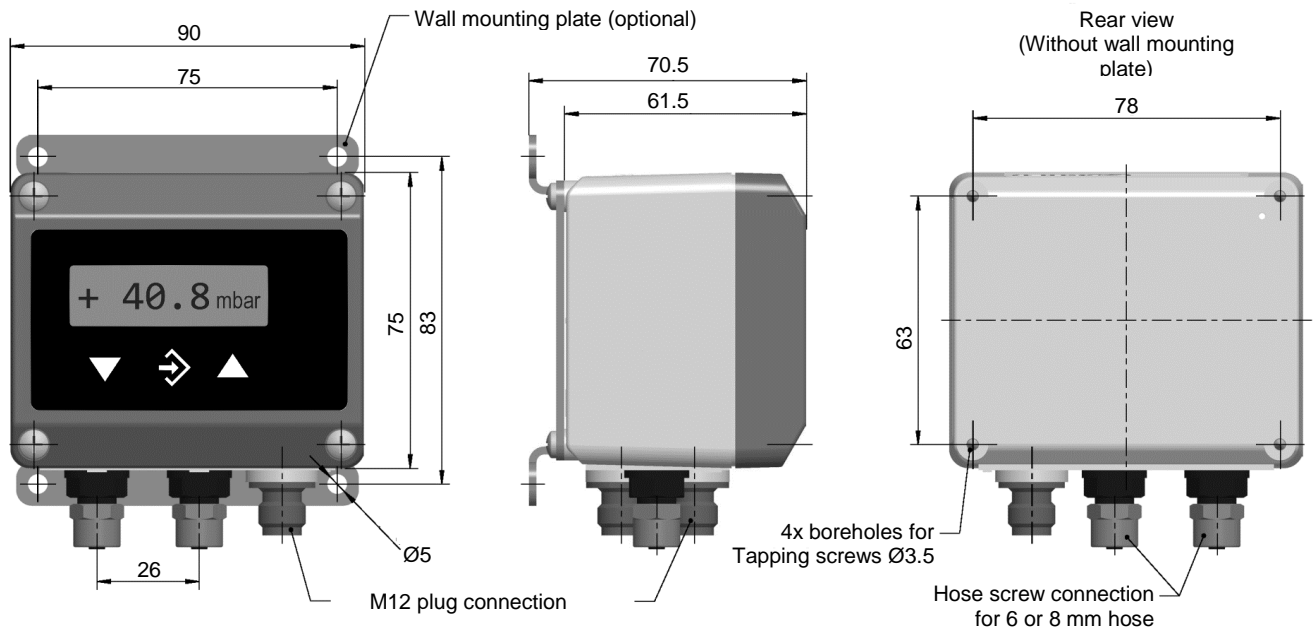
Basic measuring ranges	mbar	0-4	0-6	0-10	0-16	0-25	0-40	0-60	0-100	0-160	0-250	±2.5	±4	±6	±10	±16	±25	±40	±60	
	Pa	0-400	0-600	0-1000	0-1600							±250	±400	±600	±1000	±1600				
	kPa	0-0,4	0-0,6	0-1,0	0-1,6	0-2,5	0-4,0	0-6,0	0-10,0	0-16,0	0-25,0	±0.25	±0.4	±0.6	±1.0	±1.6	±2.5	±4.0	±6.0	
Stat. operating pressure max.	mbar	50	100	250	500	1500	50	100	250	500										
Bursting pressure	mbar	150	300	750	1500	3000	150	300	750	1500										
Typical characteristic curve deviation° max	%FS	1.0																		
Typical characteristic curve deviation° type	%FS	0.5																		
TC span max. °°	%FS /10K	1.0	0.3	0.4	1.0	0.5	0.3													
TC span typ. °°	%FS /10K	0.3																		
TC zero point max. °°	%FS /10K	1.0	0.4	1.0	0.5	0.4														
TC zero point typ. °°	%FS /10K	0.2																		

- ° Characteristic curve deviation (non-linearity and hysteresis) at 25°C, basic measuring range (linear characteristic curve, not spread).
 °° with reference to the basic measuring range (not spread), Compensation range 0...60°C.

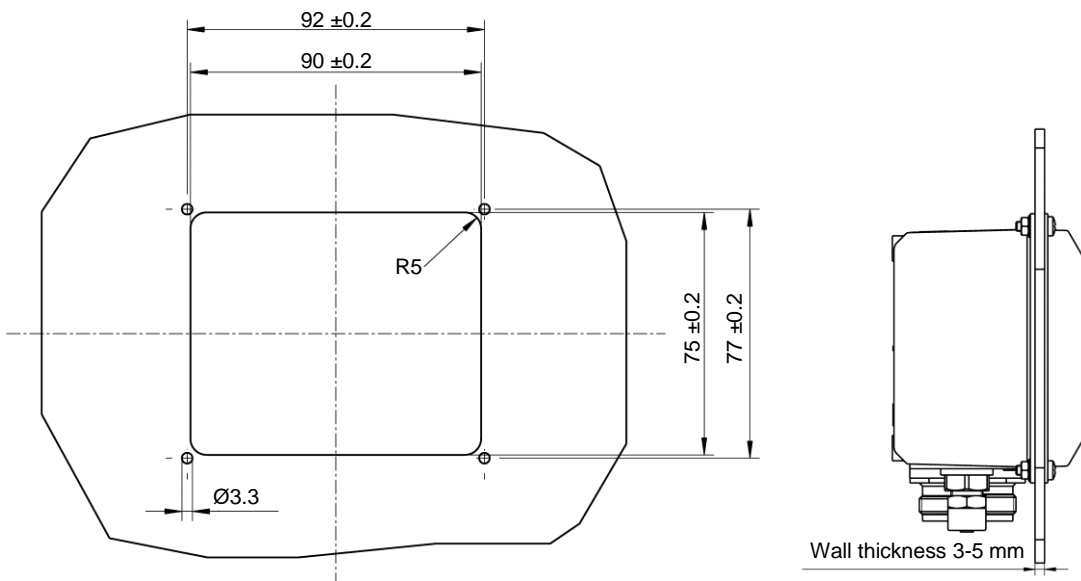
General	
Admissible ambient temperature	-10 ... 70°C
Admissible media temperature	-10 ... 70°C
Admissible storage temperature	-20 ... 70°C
Enclosure protection class	IP 65 acc. to DIN EN 60529
Electrical data	
Nominal voltage	24 V DC / AC
Admissible operating voltage U_b	12 ... 32 V DC / AC
electrical connection type	Three-wire
Output signal	0 ... 20 mA 0 ... 10 V DC
Admissible apparent ohmic resistance	$U_b \leq 26V : R_L \leq (U_b - 4V)/0,02A$ $R_L \geq 2 k\Omega$ $U_b > 26V : R_L \leq 1100\Omega$
Power consumption	approx. 2 W / VA
Display	4-digit LCD, full graphic, colour backlighting
Switch contacts	
Progr. switching function	2 potential-free relay contacts 2 potential-free semiconductor switch (MOSFET)
Switching voltage	Open contact (NO) / break contact (NC) SPST-NO/NC
Max. switching current	max. 32 V DC/AC 3 ... 32 V DC/AC
max. switching output	2A 0.25 A
	64 W/VA 8 W/VA ($R_{on} \leq 4\Omega$)
Connections	
Process connection	Hose screw connections made of Al, 6/4 mm or 8/6 mm
Electr. connection	2 x round connectors M12 Connector 1 for power supply and analogue output signal (5-pin, male) Connector 2 for switch contacts (4-pin, male)
Materials	
Casing	Polyamide PA 6.6
Media-contacting material	Silicon, PVC, aluminium, brass
Assembly	
	boreholes on rear side for attachment to mounting panels Panel mounting set Wall structure using assembly plate

12 Dimensional drawings

(All dimensions in mm unless otherwise specified)



Cut-out for panel mounting



13 Order Codes

**Digital differential pressure switch / transmitter,
with 4-digit colour change LCD**

Type DE45

		0	0			K	W		M	
--	--	---	---	--	--	---	---	--	---	--

Measuring ranges

0 ... 4 mbar.....>	5 2
0 ... 6 mbar.....>	5 3
0 ... 10 mbar.....>	5 4
0 ... 16 mbar.....>	5 5
0 ... 25 mbar.....>	5 6
0 ... 40 mbar.....>	5 7
0 ... 60 mbar.....>	5 8
0 ... 100 mbar.....>	5 9
0 ... 160 mbar.....>	6 0
0 ... 250 mbar.....>	8 2
-2.5 ... +2.5 mbar.....>	A 6
-4 ... +4 mbar.....>	A 7
-6 ... +6 mbar.....>	A 8
-10 ... +10 mbar.....>	A 9
-16 ... +16 mbar.....>	B 1
-25 ... +25 mbar.....>	B 2
-40 ... +40 mbar.....>	C 5
-60 ... +60 mbar.....>	B 3
-100 ... +100 mbar.....>	B 4
0 ... 400 Pa.....>	D 7
0 ... 500 Pa.....>	J 7
0 ... 600 Pa.....>	D 8
0 ... 1000 Pa.....>	D 9
0 ... 1600 Pa.....>	E 1
-250 ... +250 Pa.....>	L 6
0 ... 1 kPa.....>	N 1
0 ... 1,6 kPa.....>	N 2
0 ... 2,5 kPa.....>	N 3
0 ... 4 kPa.....>	N 4
0 ... 6 kPa.....>	N 5
0 ... 10 kPa.....>	E 5
-1 ... +1 kPa.....>	L 8
-1,6 ... +1,6 kPa.....>	L 9
-2,5 ... +2,5 kPa.....>	M 6
-4 ... +4 kPa.....>	M 7
-6 ... +6 kPa.....>	M 8

Pressure connection

Aluminium screw connection for 6 / 4 mm hose.....>	4 0
Aluminium screw connection for 8 / 6 mm hose.....>	4 1

Electrical output signal

without analogue electrical output signal.....>	0
0 – 20 mA 3-wire (STANDARD).....>	A
0 – 10 V DC 3-wire (STANDARD).....>	C
4 – 20 mA 3-wire (STANDARD).....>	P

Operating voltage

24 V DC/AC (12 - 32 V DC/AC).....>	K
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Measuring unit

Selectable pressure units.....>	W
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Measured value display / contact elements

4-digit colour change LCD - 2 relay contacts.....>	C
4-digit colour change LCD - 2 semiconductor switch.....>	D

Electrical connection

M12 plug connection.....>	M
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Assembly option

Standard (attachment boreholes on rear side).....>	0
Assembly of the mounting rails.....>	S
Panel mounting set.....>	T
Wall mounting.....>	W

14 Declaration of conformity

EG-Konformitätserklärung

Wir erklären in alleiniger Verantwortung, dass nachstehend genannte Produkte

EC Declaration of Conformity

We declare under our sole responsibility that the products mentioned below

**Digitaler Differenzdruckschalter / -transmitter
mit 4-stelliger Farbwechsel LCD
Digital Differential Pressure Switch / Transmitter
with 4-digit color changing LCD**

**DE45 ##### C ##
DE45 ##### D ##**

gemäß gültigem Datenblatt DB_DE_DE45_LCD
übereinstimmen mit den

as spec. by the current data sheet DB_EN_DE45_LCD
complies with

EG-Richtlinien

2004/108/EG (EMV)

EC-directives

2004/108/EC (EMC)

Die Produkte wurden entsprechend der folgenden Normen
geprüft (Störfestigkeit für Industriebereich, Störaussendung
für Wohnbereich):

DIN EN 61326-1:2006-10
DIN EN 61326-2-3:2007-05
DIN EN 61010-1:2002-08

The products were tested in compliance with the following
standard (Interference immunity for industrial environ-
ments, interface emission for residential environments)


DIN EN 61326-1:2006-10
DIN EN 61326-2-3:2007-05
DIN EN 61010-1:2002-08

Die Geräte werden gekennzeichnet mit:

The devices bear the following marking:

CE

Bad Salzuflen, 01.07.11
(Ort, Datum / Place, date)


(rechtsverb. Unterschrift / legally binding signature)

