

## Data Sheet

### DE45 | Digital differential pressure switch / transmitter with 4-digit colour change LCD

The DE45 is a multi-functional switching unit with an optional transmitter output. It is suitable for measuring overpressure, underpressure and differential pressure in gaseous media.

Fields of application include

- Air-conditioning technology
- Ventilation technology
- Environmental technology application

#### Design and mode of operation

This switching device is based on a piezo-resistive sensor element that is suitable for measuring overpressure, underpressure and differential pressure. The pressures to be measured directly act on a silicon diaphragm equipped with piezo-resistive resistors. Changes in pressure generate changes in 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.

#### Important features

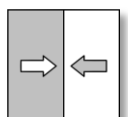
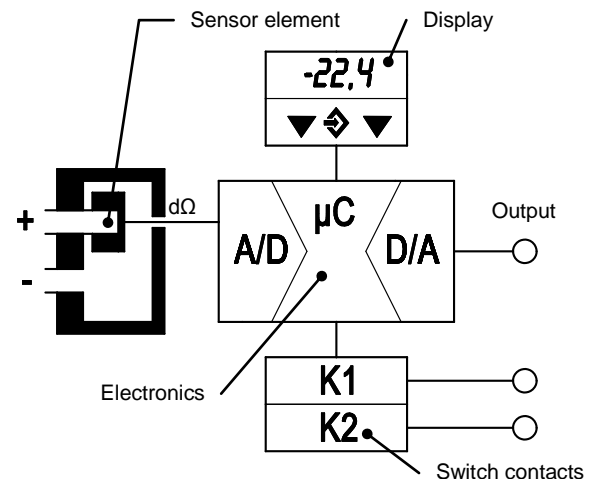
- Robust, resistant to overpressure and maintenance-free
- Optional signal output with possibility of characteristic curve spread and reversal with any offset
- 4-digit colour change display
- Characteristic curve implementation via table with max. 30 measuring points

#### Typical applications

- Monitoring of automatic roll filters, extraction systems etc.
- Draft measurement in chimneys
- Flow and control pressure measurements
- Surface coating systems



#### Function diagram



**Technical data**

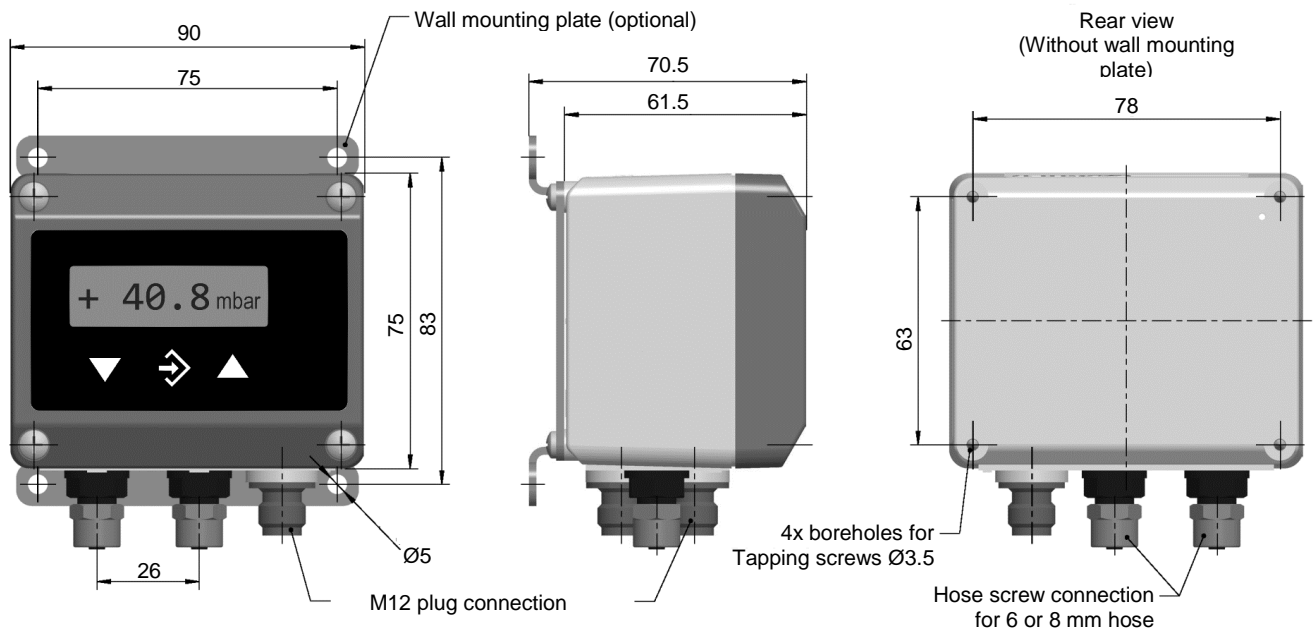
Basic measuring ranges	mbar	0-4	0-6	0-10	0-16	0-25	0-40	0-60	0-100	0-160	0-250	±2.5	±4	±6	±10	±16	±25	±40	±60
	Pa	0-400	0-600	0-1000	0-1600							±250	±400	±600	±1000	±1600			
Stat. operating pressure max.	kPa	0-0,4	0-0,6	0-1,0	0-1,6	0-2,5	0-4,0	0-6,0	0-10,0	0-16,0	0-25,0	±0.25	±0.4	±0.6	±1.0	±1.6	±2.5	±4.0	±6.0
Bursting pressure	mbar	50	100	250	500	1500	50	100	250	500	1500	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.

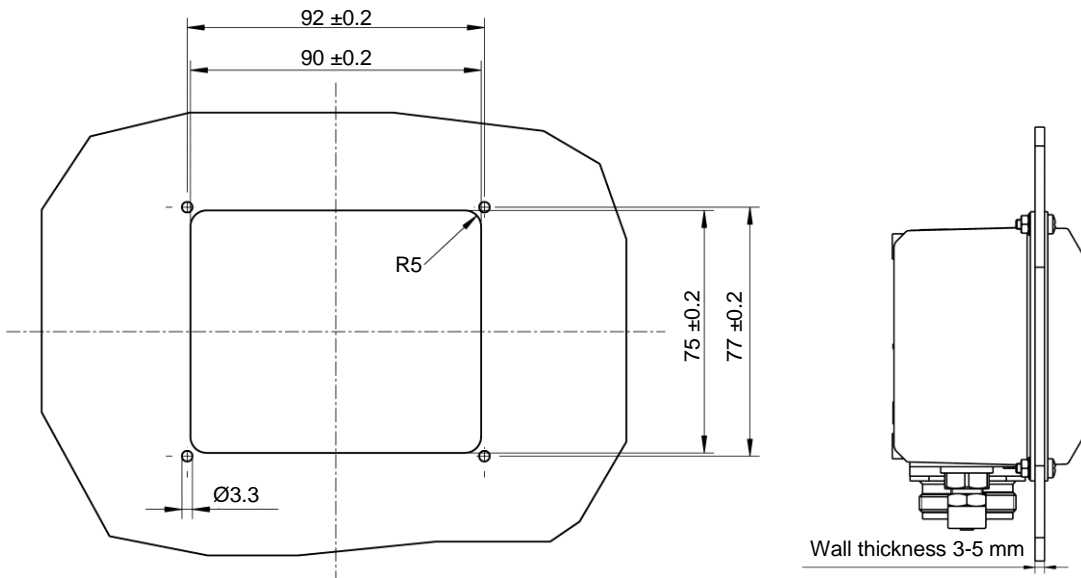
	<b>General</b>	
Admissible ambient temperature	-10 ... 70°C	
Admissible media temperature	-10 ... 70°C	
Admissible storage temperature	-20 ... 70°C	
Enclosure protection class	IP 65 acc. to DIN EN 60529	
	<b>Electrical data</b>	
Nominal voltage	24 V DC / AC	
Admissible operating voltage U <sub>b</sub>	12 ... 32 V DC / AC	
electrical connection type	Three-wire	
Output signal	0 ... 20 mA 4 ... 20 mA	0 ... 10 V DC
Admissible apparent ohmic resistance	U <sub>b</sub> ≤ 26V : R <sub>L</sub> ≤ (U <sub>b</sub> - 4V)/0,02A U <sub>b</sub> > 26V : R <sub>L</sub> ≤ 1100Ω	R <sub>L</sub> ≥ 2 kΩ
Power consumption	approx. 2 W / VA	
Display	4-digit LCD, full graphic, colour backlighting	
	<b>Switch contacts</b>	
Progr. switching function	2 potential-free relay contacts Open contact (NO) / break contact (NC)	2 potential-free semiconductor switch (MOSFET) SPST-NO/NC
Switching voltage	max. 32 V DC/AC	3 ... 32 V DC/AC
Max. switching current	2A	0.25 A
max. switching output	64 W/VA	8 W/VA (R <sub>on</sub> ≤ 4Ω)
	<b>Connections</b>	
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)	
	<b>Materials</b>	
Casing	Polyamide PA 6.6	
Media-contacting material	Silicon, PVC, aluminium, brass	
	<b>Assembly</b>	
	boreholes on rear side for attachment to mounting panels Panel mounting set Wall structure using assembly plate	

**Dimensional drawings**

(All dimensions in mm unless otherwise specified)



**Cut-out for panel mounting**



**Order Codes**

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

Type DE45 

		0	0			K	W	M	
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**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

