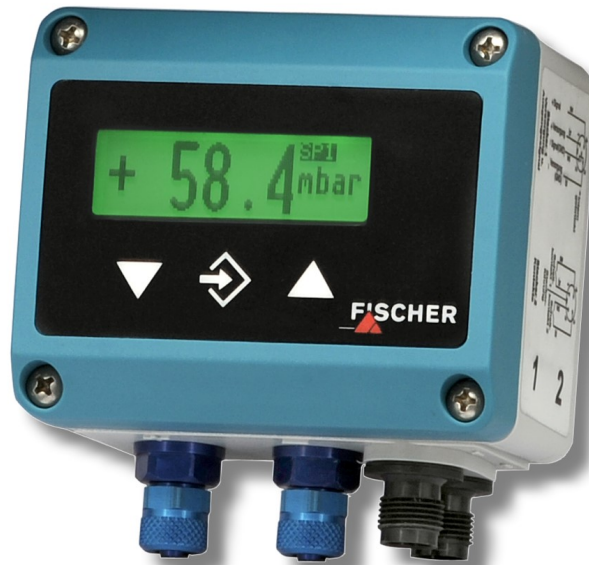


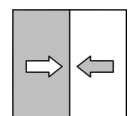
CE
RoHS III
COMPLIANT
UK
CA
EAC



Datasheet

DE46

Digital differential pressure switch / transmitter
with colour-change LCD



1 Product and functional description

1.1 Use as intended

The DE46 is a multi-functional switching unit with an optional transmitter output. It is suitable for measuring overpressure, under-pressure and differential pressure in gaseous media. The device is to be exclusively used for the applications agreed between the manufacturer and the user.

Typical applications

- Filter equipment
- Precision air channel measurements
- Clean room pressure equalisation
- Burner under-pressure measurement
- Furnace circulating air control

Important features

- Long-term stable measurement of low pressure
- Robust, resistant to overpressure and maintenance-free
- Optional signal output with possibility of characteristic curve spread and reversal with any offset
- Characteristic curve implementation via table with max. 30 measuring points
- 4...6-digit LCD, full graphic, colour backlighting
- Complete adjustment of all parameters and measuring point protocol possible through optional PC adaptor EU03

1.2 Part designations

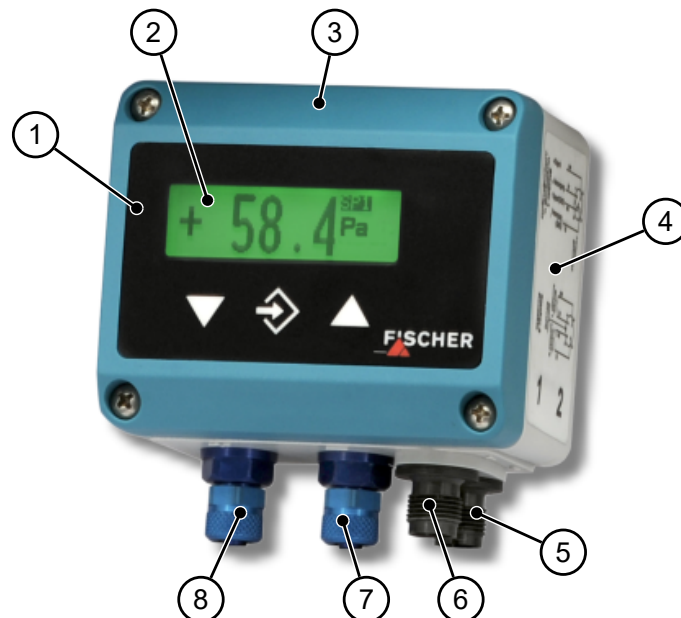


Fig. 1: DE46 with LCD

1	Membrane keyboard	2	LC display
3	Casing lid	4	Lower part of casing
5	M12 plug connector (connector 2)	6	M12 plug connector (connector 1)
7	Process connection (-)	8	Process connection (+)

1.3 Function diagram

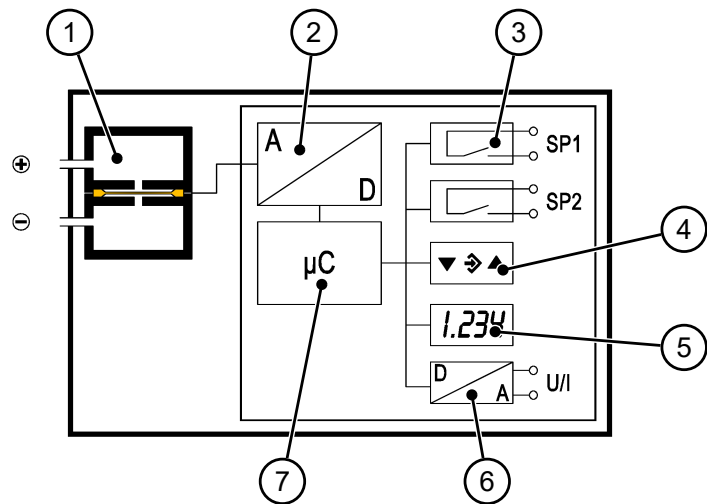


Fig. 2: Function diagram [DE46_LCD]

1	Sensor element	2	Signal processing
3	Switching outputs	4	Membrane keyboard
5	LC display	6	Analogue output
7	Microcontroller		

1.4 Design and mode of operation

This switching device is based on a capacitive sensor element that is suitable for measuring overpressure, underpressure and differential pressure.

The measured pressure acts on the sensor element with a micromechanically produced differential condenser in silicon-glass technology.

Changes in pressure generate changes in capacity, which is evaluated by the device's electronics and transformed into signals on the display, switch contacts and an output signal.

2 Technical data

Please also observe the order code here.

2.1 Input variables

Measuring variable	: Differential pressure for gas-like media
Static operating pressure	: Max. 100 kPa
Bursting pressure	: Max. 170 kPa
Measurement range [Pa]	0...25
	0...50
	0...100
	0...250
	0...500
	0...1000
	-25...+25
	-50...+50
	-20...+80
	-100...+100

2.2 Output parameters

Output signal	Signal range	Load
0 ... 20 mA	0,0 ... 21,0 mA	$U_b \leq 26 \text{ V}: R_L \leq (U_b - 4 \text{ V}) / 0,02 \text{ A}$
4 ... 20 mA		$U_b > 26 \text{ V}: R_L \leq 1100 \Omega$
0 ... 10V	0,0 ... 11,0 V	$R_L > 2000 \Omega$

Switching outputs:

2 potential-free relay contacts

2 potential-free semiconductor switches (MOSFET)

	Relay	MOSFET
Progr. switching function	Open contact (NO) Break contact (NC)	Single-pole on switch (NO) Single-pole off switch (NO)
Max. switching voltage	32 V AC/DC	3...32 V AC/DC
Max. switching current	2 A	0,25 A
Max. switching capacity	64 W / VA	8 W / VA $R_{ON} \leq 4 \Omega$

2.3 Measurement accuracy

Characteristic curve deviation: (Non-linearity and hysteresis)

Maximum	1,0 % FS
Typical	0,5 % FS
Reproducibility	0,1 % FS

FS (Full Scale) refers to the basic measuring range.

The specifications refer to a linear, non-spread characteristic curve at 25 °C and apply to all measuring ranges.

Temperature coefficient: max. 0,6 % FS / 10K

in zero and span referred to the basic measuring range (not spread), compensation range 4...50 °C.

2.4 Auxiliary energy

Rated voltage	24 V AC/DC
Permissible operating voltage U_b	20 ... 32 V AC/DC
Power consumption	Typ. 2.2 W / Max. 3.5 W

2.5 Application conditions

Ambient temperature	-10 ... +70 °C
Medientemperatur	-10 ... +70 °C
Storage temperature	-20 ... +70 °C
Enclosure protection class	IP65 according to EN 60529
EMV	EN 61326-1:2013 EN 61326-2-3:2013
RoHS	EN IEC 63000:2018

2.6 Construction design

Process connection

2x aluminium hose fitting for 6/4 mm or 8/6 mm hose.

2x pneumatic plug-in connection for 6/4 mm or 8/6 mm hose.

Materials

Housing	Polyamide (PA) 6.6
Contact with the media	Silicon, PVC, aluminium, brass

Assembly

Attachment boreholes on the rear for mounting on level mounting plates.

Wall mounting using the wall mounting plate.

Panel installation using the panel mounting set.

Assembly of the mounting rails using an adapter.

2.6.1 Dimensional drawings

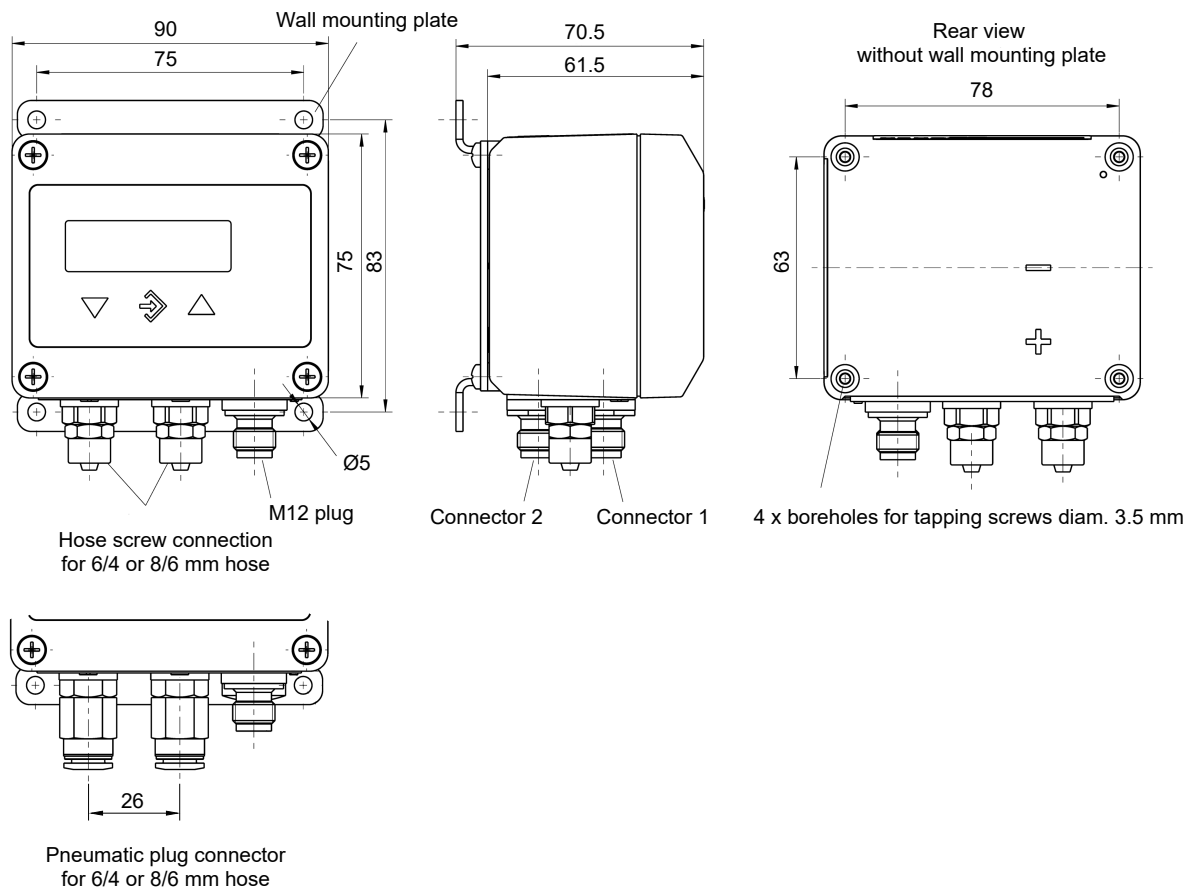


Fig. 3: Wall mounting

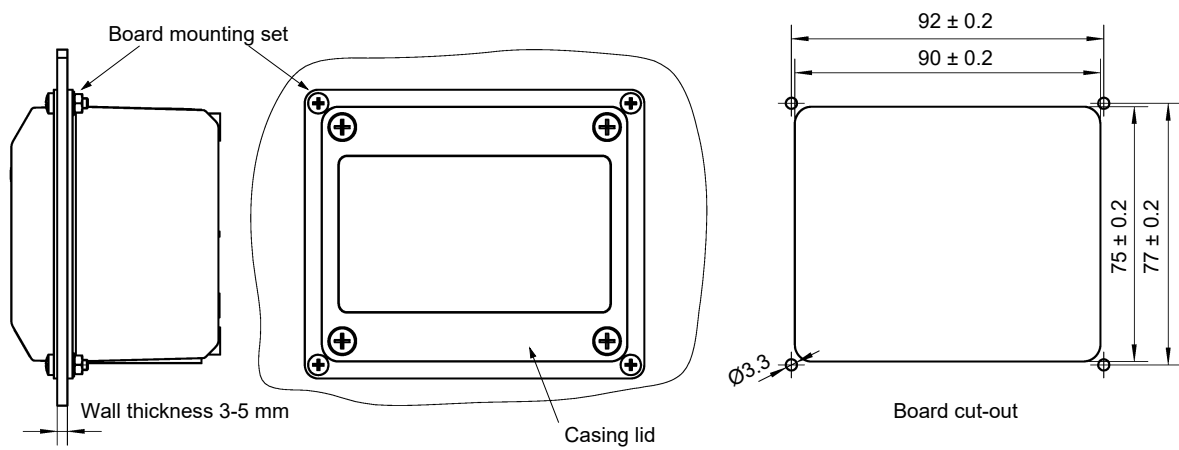
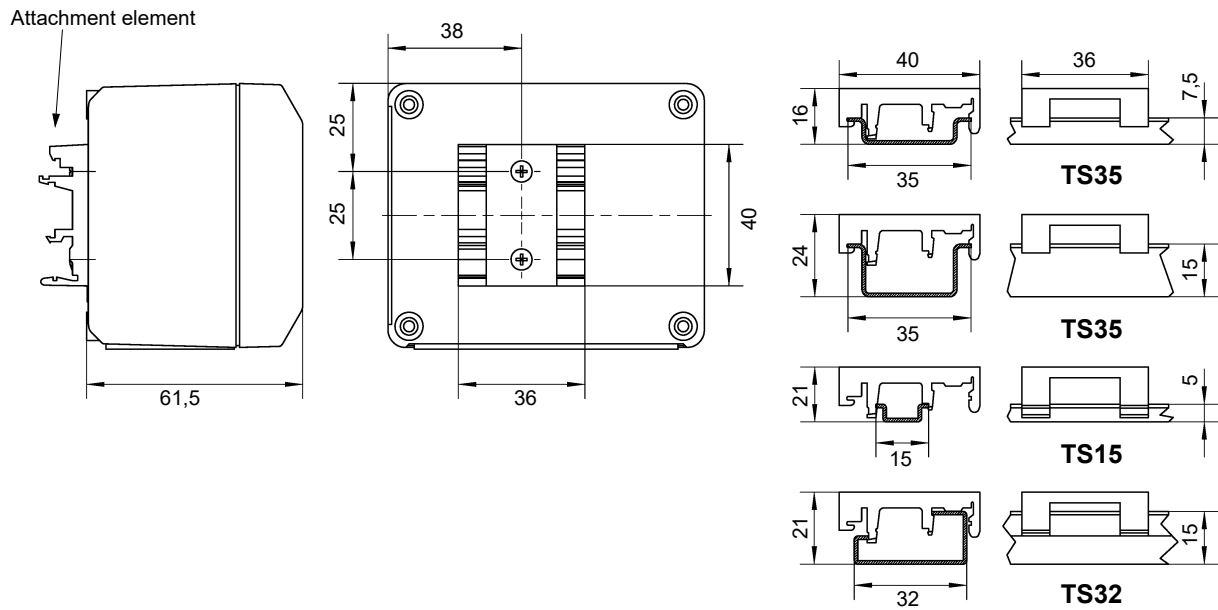


Fig. 4: Front panel mounting



Panel installation

The DE46 is suitable for flush mounting in a FISCHER RT series panel. The installation is carried out ex works.

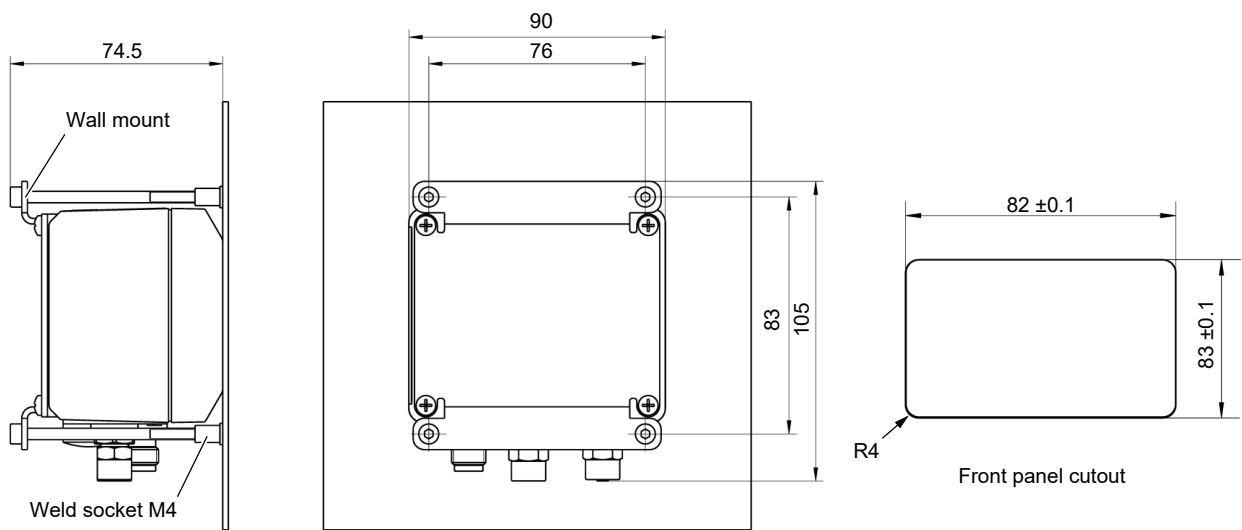


Fig. 5: Panel installation

2.7 Display and operating interface

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

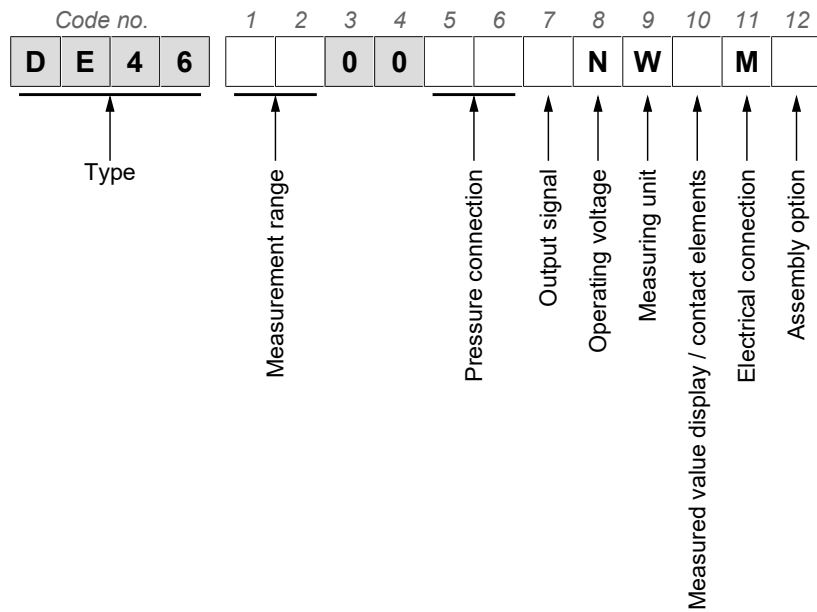
Programming	
Attenuation	0.0...100.0s (jump response 10/90%)
Switch output	Switch-off point, switch-on point, response time (0...1800s), function (NC / NO contact)
Measuring range unit	m / Pa / "free unit", starting value, end value and decimal point for "free unit"
Output signal	User-definable within the basic measuring range ⁽¹⁾
Zero-point stabilising	0...1/3 of the basic measuring range ⁽²⁾
Zero point correction	±1/3 of the basic measuring range ⁽³⁾
Implementation of characteristic curve	linear, square rooted, table with 3...30 support points
Password	001 ... 999 (000 = no password protection)

(1) Max. effective spread 4:1

(2) measured values around zero are set to zero.

(3) To compensate different installation positions.

3 Order Codes



[1,2] Measuring range	
D1	0 ... 25 Pa
J6	0 ... 50 Pa
D4	0 ... 100 Pa
D6	0 ... 250 Pa
J7	0 ... 500 Pa
D9	0 ... 1000 Pa
L5	-25 ... +25 Pa
L2	-50 ... +50 Pa
L0	-20 ... +80 Pa
L7	-100 ... +100 Pa

[5,6] Pressure connection	
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

[7] Output signal	
0	without analogue output signal
A	0 ... 20 mA (3-wire)
P	4 ... 20 mA (3-wire)
C	0 ... 10 V (3-wire)

[8] Operating voltage	
N	24 V AC/DC

[9] Measuring unit
W Selectable pressure units
[10] Measured value display /contact elements
C Colour change LCD - 2 relay contacts
D Colour change LCD - 2 semiconductor switches
[11] Electrical connection
M M12 plug connection
[12] Assembly option
0 Attachment boreholes on rear side (standard)
P Panel assembly (flush front-mounted into a FISCHER panel)
S Assembly on mounting rails
T Panel mounting set
W Wall-mounting

3.1 Accessories

Order no.	Planned measures	No. of Poles	Length
06401993	M12 Connection cable for switching outputs	4-pin	2 m
06401994	M12 Connection cable for switching outputs	4-pin	5 m
06401563	M12 Connection cable for switching outputs	4-pin	7 m
06401572	M12 Connection cable for switching outputs	4-pin	10 m
06401995	M12 Connection cable for supply/signal	5-pin	2 m
06401996	M12 Connection cable for supply/signal	5-pin	5 m
06401564	M12 Connection cable for supply/signal	5-pin	7 m
06401573	M12 Connection cable for supply/signal	5-pin	10 m

Remote configuration

Order no.		
EU05 0000	Transmitter PC interface incl. PC software	without battery
EU05 0001	Transmitter PC interface incl. PC software	With battery

A data sheet is available on our website www.fischermesstechnik.de or on request.

3.2 Information about the document

This document contains all technical data about the device. Great care was taken when compiling the texts and illustrations. nevertheless, errors cannot be ruled out.

Subject to technical amendments.

Notes



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