

Data Sheet

DE39 | Digital differential pressure transmitter with 4-digit colour change LCD

Display and switching device for Differential pressure of gaseous and fluid media.

Typical applications

- Differential pressure measurements in heavily soiled media
- Filter monitoring
- simple pump control systems
- Pump, compressor monitoring

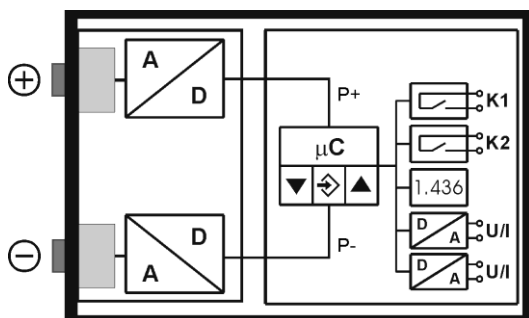
Design and mode of operation

The device is based on an electronic evaluation circuit that analyses the measuring signals P+ and P- of two integrated ceramic pressure transmitters. The signals are digitalised and sent to the analysis unit for further processing. Both signals can be shown separately.

The main feature is the calculation of the differential pressure. The analysis allows two independent switch points to be set and makes two programmable output signals available. The first output signal (channel 1) is proportional to the differential pressure and can be influenced by means of rooting or a table. The second output signal (channel 2) is proportional to the pressure and can be assigned optionally to the signal P+ or P-.

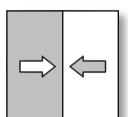
The nominal pressures of the integrated sensors and the differential pressure measuring range are set permanently ex-works and stated on the type plate.

Function diagram



Important features

- 4-digit colour change LCD
- The individual pressures (P+, P-) can be displayed
- Switchable pressure units (bar, mbar, Pa, kPa, MPa, psi, InWc, mmW, mmHg)
- 2 independent switching points with lots of configuration options
- Zero-point correction, signal damping
- 2 programmable output signals current/voltage
- Characteristic curve spread and reverse with freely selectable offset
- Characteristic curve implementation via table with max. 30 measuring points
- Full parameter setting and measuring point protocol possible thanks to optional PC adapter EU03



Technical Data

Measuring ranges			6.0	10.0	16.0	25.0	40.0
Stat. operating pressure max.	max.		6	10	16	25	40
Characteristic curve deviation*	max.	%FS	2.5				
	typ.	%FS	<1.0				
TC span ^{°°}	max.	%FS/10K	<0.3				
	typ.	%FS/10K	<0.1				
TC zero-point ^{°°}	max.	%FS/10K	<0.4				
	typ.	%FS/10K	<0.15				

The effective measuring range is the basic measuring range and the set spread (max. 10:1).

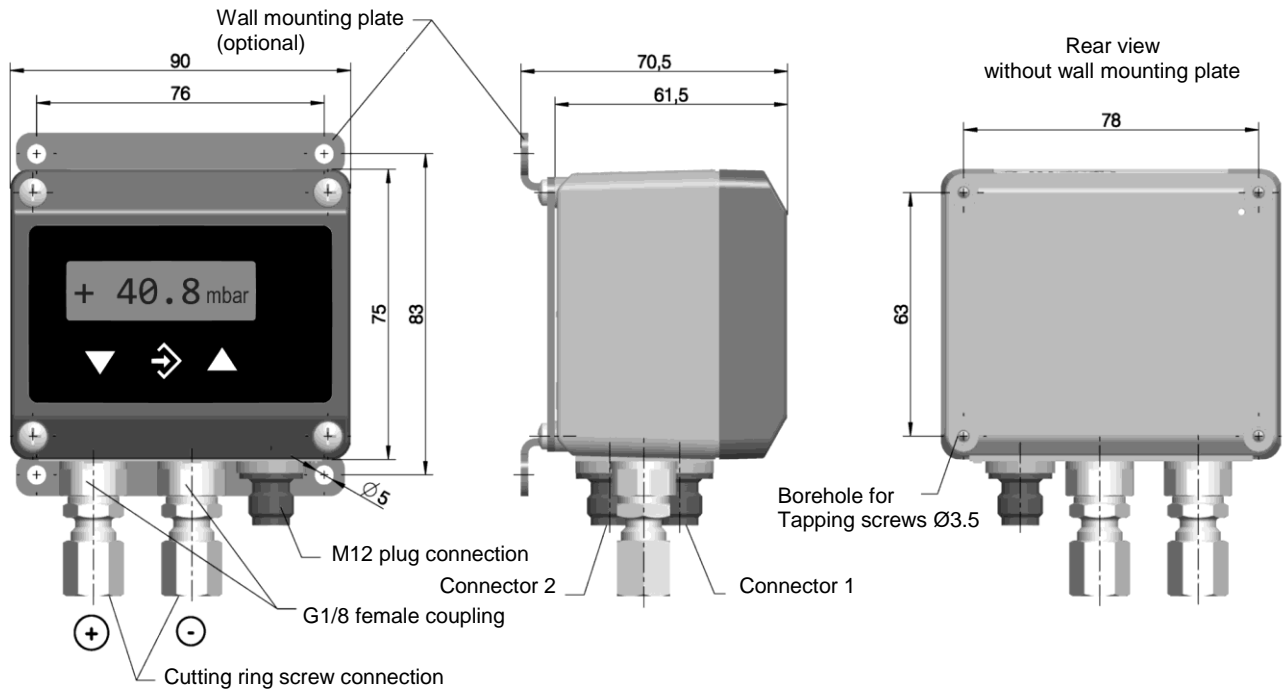
Therefore, the smallest possible measuring range for the 6 bar basic measuring range is: 0 ... 0.6 bar.

°: Characteristic curve deviation (non-linearity and hysteresis) at 25°C and rated voltage, Basic measuring range (linear characteristic curve, not spread)

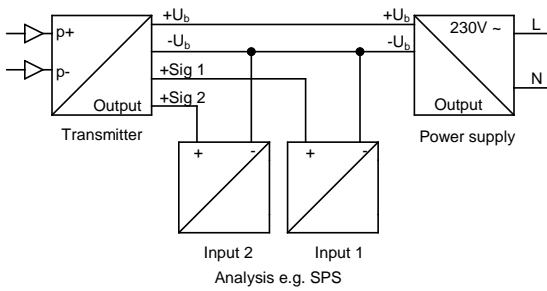
°°: with reference to the basic measuring range (linear characteristic curve, not spread),

General	
Admissible ambient temperature	-10 ... 70°C
Admissible media temperature	-10 ... 80°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 (channel 1 and 2)	0 ... 20 mA 4 ... 20 mA 0 ... 10 V
Admissible apparent ohmic resistance	$R_L \leq (U_b - 4 V) / 0,02 A$ ($U_b \leq 26V$) otherwise $R_L \leq 1100 \Omega$ $R_L \geq 2 K\Omega$ ($U_b \geq 15 V$) $R_L \geq 10 K\Omega$ ($U_b = 12 \dots 15V$)
Characteristic curve channel 1	programmable linear, square rooted, table 3...30 support points
Characteristic curve channel 2	linear
Power consumption	approx. 2 W / VA
Switch contacts can be programmed	2 potential-free relay contacts as NO contact or NC contact 2 potential-free semiconductor switch (MOSFET) SPST-NO/NC
U_{max}	32 V AC/DC 3 ... 32 V AC/DC
I_{max}	2 A 0.25 A
P_{max}	64 W/VA 8 W/VA
R_{ON}	- $\leq 4 \Omega$
Display	4-digit colour change LCD
Connections	
Process connection	Inner thread G 1/8, cutting ring screw connections for 6 or 8 mm pipes
Electr. connection	2 x round plug connector M12 Connector 1 for supply and analogue output signal (5-pin male) Connector 2 for switch contacts (4-pin male)
Materials	
Casing	Polyamide PA 6.6 (GL-version: Lexan Resin 940A)
Media-contacting material	Stainless steel 1.4404, VITON, ceramics (Al ₂ O ₃ , 96%)
Assembly	
	Bore-holes on the reverse side for attachment of the assembly panels or wall mounting by means of assembly plate

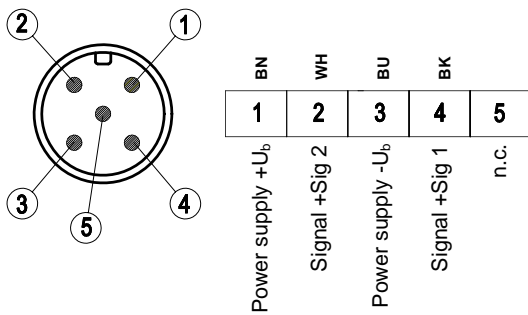
Dimensional drawings



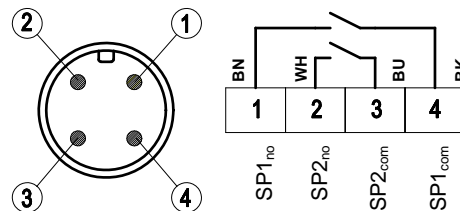
3 conductor circuit



Connector 1: Supply and output



Connector 2: Switching outputs



Order Codes

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

DE39 V 0 K W M

Measuring ranges

0... 6 bar.....>	0 6	↑
0...10 bar.....>	0 7	↑
0...16 bar.....>	0 8	↑
0...25 bar.....>	0 9	↑
0...40 bar.....>	1 0	↑

Design of the measuring system

Chromium nickel steel 1.4404.....> V

Approval variants

Standard model.....> 0

Pressure connection

Inner thread G 1/8.....>	0 0	↑
Cutting ring screw connection made of 1.4571 for 6 mm pipe.....>	2 4	↑
Cutting ring screw connection made of 1.4571 for 8 mm pipe.....>	2 5	↑
Cutting ring screw connection in brass for 6 mm pipe.....>	2 8	↑
Cutting ring screw connection in brass for 8 mm pipe.....>	2 9	↑

Electrical output signal (channel 1 and 2)

without analogue electrical output signal.....>	0	↑
0 - 20 mA 3-LINE.....>	4	↑
0 - 10 V DC 3-LINE.....>	5	↑
4 - 20 mA 3-LINE.....>	6	↑

Operating voltage

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

Measuring unit

Selectable pressure units.....> W

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

Assembly option

Standard (attachment boreholes on rear side).....>	0	↑
Wall mounting.....>	W	↑

Accessories

Order Code	Description	No. of Poles	Application	Length
06401993	Connection cable with M12 connector	4-pole	for switching outputs	2 m
06401994	Connection cable with M12 connector	4-pole	for switching outputs	5 m
06401995	Connection cable with M12 connector	5-pole	for supply / signal	2 m
06401996	Connection cable with M12 connector	5-pole	for supply / signal	5 m
04005144	Wall mounting set			
EU03.F300	Adapter for parameterisation via PC software			

