Pressure Transmitters for Low Pressures and Differential Pressures
Model DP-10

Applications

- Heating, ventilation and air conditioning technology
- Clean room applications
- Medical industry
- Filtering and dedusting applications

Special Features

- Pressure ranges from 0 ... 0.6 mbar to 0 ... 1000 mbar
  Special pressure range 800 ... 1,200 mbar absolute
  gauge pressure and vacuum, differential pressure
- Various industrial standard signal outputs
- Output signal calculated by root-evolution
- LCD indication
- 1-2 alarm contacts

Pressure Transmitter model DP-10

Description

The WIKA pressure transmitters Model DP-10 have been developed for the measurement of low gauge pressures and vacuum, as well as differential pressures. These transmitters are exclusively suitable for dry, clean and non-aggressive gases.

Measuring principle
The pressure is measured via a sensitive diaphragm, which is adapted to the pressure range, or a capsule element for absolute pressure ranges. An inductive system generates a linear signal which changes in proportion to the prevailing pressure.

Applications
This transmitter has mainly been designed for HVAC, filtering, dedusting and clean room applications as well as for the medical industry.

For applications in which switching functions are additionally required pressure transmitters with 3 and 4-wire systems can be equipped with up to two alarm contacts. For each alarm contact a potential-free change-over contact is available.

For the local indication of the measured values the pressure transmitters can optionally be equipped with a 3 ½-digit LCD display.

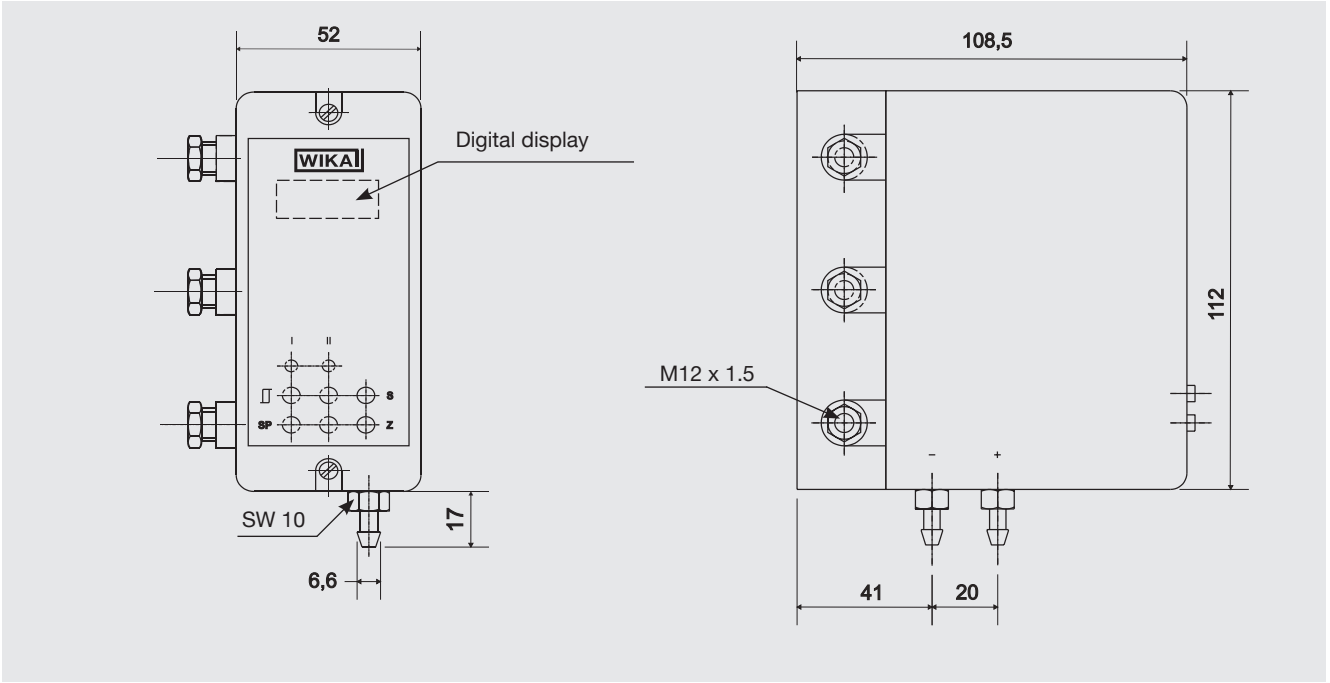
For flow measurements by means of a standard orifice plate a special design with an output signal calculated by root-evolution is available for 3 and 4-wire systems. With this design it is possible to adjust the suppression of creeping quantities by means of potentiometers in the range 0 ... 10 %.

Specifications Model DP-10

Pressure ranges[1]	mbar	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600	1000
Over pressure safety	mbar	3	5	8	12.5	20	30	50	80	125	200	300	500	800	1000	1000	1200	2000
Maximum static pressure	mbar	1000 {2000}																
Pressure reference		relative pressure, differential pressure, {absolute pressure[2] from 500 mbar abs; special pressure range 800 ... 1200 mbar abs}																
Pressure connection	mm	two hose connections Ø 6.6 x 11 for hoses with inside Ø 5 ... 6 {2 x clamping ring connection G ⅛, Ms}																
Materials																		
■ Wetted parts		Ms, CuBe, PU, Ni																
■ Case		bottom part: ABS, glass fibre reinforced, top part: ABS																
Power supply U_B	DC V	19 ... 31 {12 ... 30 with signal output 4 ... 20 mA, 2-wire system}																
	AC V	{24, 115 or 230 (respectively ± 10 %, 50 ... 60 Hz)}																
Signal output and Maximum load R_A		0 ... 10 V, 3-wire system {0 ... 5 V, 3-wire system} {0 (4)... 20 mA, 3-wire system} {4 ... 20 mA, 2-wire system} {other on request}																R_A > 2.0 kOhm R_A ≤ 2.0 kOhm R_A ≤ 500 Ohm R_A ≤ (U_B [V] – 12 V) / 0.02 mA
Power consumption	mA	≤ 10; (3-/4-wire); (AC-/DC-supply)																
Response time (10 ... 90 %)	ms	approx. 20 {attenuation on request}																
Adjustability zero point / span	% of span	± 5																
Accuracy	% of span	≤ 1.0 (limit point calibration) {0.5 or 0.2 for pressure range from 2.5 mbar}																
Hysteresis	% of span	≤ 0.1																
Repeatability	% of span	≤ 0.05																
1-year stability	% of span	≤ 0.5 (at reference conditions)																
Permissible temperature of																		
■ Medium	°C	-10 ... +50																14 ... 122 °F
■ Ambient	°C	-10 ... +50 {-10 ... +60}																14 ... 122 °F (14 ... 140 °F)
■ Storage	°C	-10 ... +70																14 ... 158 °F
Compensated temp. range	°C	+10 ... +50																50 ... 122 °F
Temperature coefficients in compensated temp range:																		
■ Mean TC of zero	% of span/10K	≤ 0.3																
■ Mean TC of range	% of span/10K	≤ 0.3																
Shock resistance	g	10																
Suitable media		clean, non-aggressive, dry gases																
Sensor volume	ml	approx. 5 (approx. 7 for measuring ranges < 2.5 mbar)																
Increase in volume	ml	approx. 1 at nominal pressure																
CE-conformity		Interference emission and immunity see EN 61 326 / A1; declaration of conformity on request european guideline for low voltages EN 610 10																
{integrated digital indicator}		LC display, 3 ½-digits; height of digits 10 mm, pick-up rate 3/sec.																
{Alarm contacts}		only with 3-wire systems																
■ Number		1 or 2																
■ Switching function		standard setting max.-alarm																
■ Adjustability	% of span	1 ... 100																
■ Switching accuracy	% of span	≤ 1																
■ Switching repeatability	% of span	0.2 typical																
■ Switching hysteresis	% of span	0 ... 10, adjustable																
■ Contacts		1 potential-free relay change-over contact per alarm contact																
■ Contact rating	AC	6 A, 230 V with ohmic load																
{Root-evolved output signal}																		
■ Accuracy	% of span	1.0																
■ Calculation		the root is evolved according to the following equations: $U_R = \sqrt{(10 \times U_L)}$ $I_R = \sqrt{(20 \times I_L)}$ $I = 4 + 16 \sqrt{(P/P_{nenn})}$																U_L = linear output 0 ... 10 V I_L = linear output 0 ... 20 mA I = linear output 4 ... 20 mA P = current pressure P_{nenn} = pressure range
Electrical connection		via cable gland PG 7 and internal screw terminals in the bottom part of the case, terminal clamping diameter 1.5 mm²																
Ingress of protection		IP54, per EN 60 529 / IEC 529																
Weight	kg	approx. 0.6 {approx. 0.7 with power supply}																
Dimensions	mm	see drawings																
Mounting		case for wall mounting																

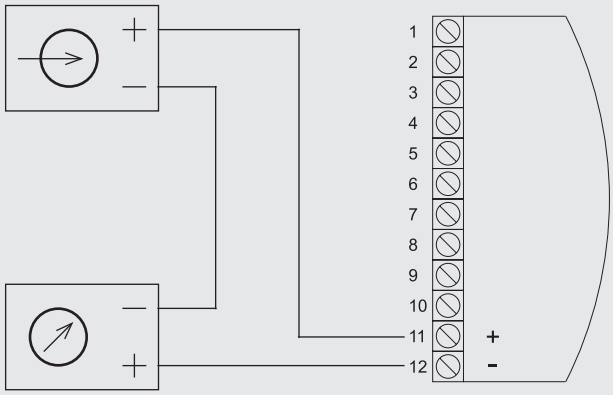
{ } Items in curved brackets are optional extras for additional price.
1) The measuring ranges 0 ... 0.1 mbar; 0 ... 0.25 mbar; 0 ... 0.4 mbar are available on request.
For these measuring ranges a larger measuring cell and consequently also a case with larger dimensions is required.
2) Only with 4 ... 20 mA 2-wire, other output signals on request.

Dimensions in mm

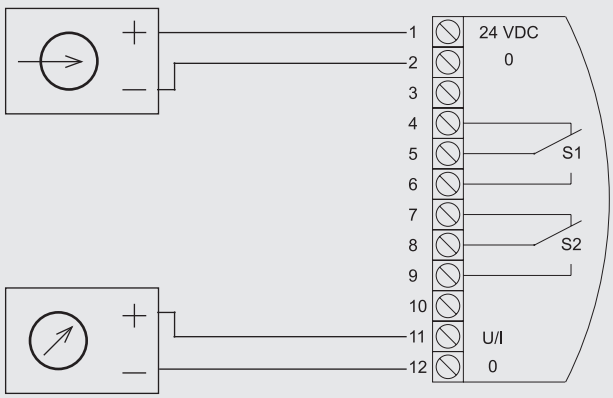


Electrical connection

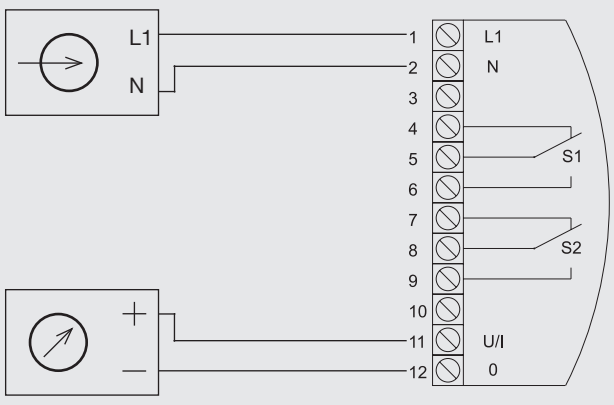
2-wire



3-wire (DC-Supply)



4-wire (AC-Supply)



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