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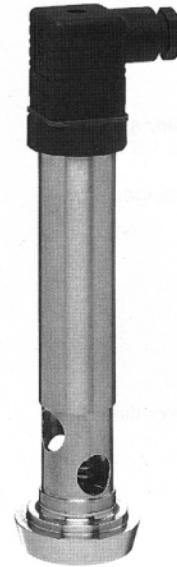
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MEASUREMENT AND CONTROL

Data Sheet 40.4355

Pressure Transmitter for media at elevated temperature Type 4355



Type 4355/42

Application

Piezo-resistive pressure transmitters are used to measure pressures in liquids and gases. The pressure is converted into an electrical signal.

Type designation

4355-010

4355	Series 4355 piezo-resistive pressure transmitter for media at elevated temperature
-010	output 0 - 10 V
-020	output 0 - 20 mA
-420	output 4 - 20 mA
-242	output 4 - 20 mA, 2-wire

Extra Codes

- /42 taper pressure connection with slotted nut
DN 25 to DIN 11 851
- /43 clamp pressure connection DN 25 to ISO 2852
- /44 flange pressure connection with weld-in socket
- /45 miniature flange pressure connection DN 25 to DIN 28 403
- /64 flush diaphragm pressure connection 3/4" pipe
- /73 with cable attached
- /91 absolute pressure
- /93 special ranges

Ordering example

Pressure transmitter for media at elevated temperature
Type 4355-420/42*
range: 0-4 bar

Note:

* the extra Code for the pressure connection required must always be specified (here e.g. /42)

7.93/V 00074945

Pressure ranges

Gauge pressure (bar)	Absolute pressure /91 (bar)
-1 to 0	0 to 1
-1 to 0.6	0 to 1.6
-1 to 1.5	0 to 2.5
-1 to 3	0 to 4
-1 to 5	0 to 6
-1 to 9	0 to 10
0 to 1	0 to 16
0 to 1.6	0 to 25
0 to 2.5	
0 to 4	
0 to 6	
0 to 10	
0 to 16	
0 to 25	

Technical data

Case
stainless steel, Ref. 1.4301

Parts in contact with medium
stainless steel, Ref. 1.4571;
stainless steel diaphragm, Ref. 1.4401

Pressure connection
see under Dimensions

Electrical connection
normally:
terminal box to DIN 43 650, Form AF, up to 1.5 mm² conductor cross-section, Pg 9 cable gland.

Code /73:
attached 4-core screened PVC cable with internal pressure equilibration tubing, length 2 m; other lengths to special order.

Supply U_B
normally 13 to 30 V d.c.,

11.6 to 30 V d.c. without reverse polarity protection to special order.

Residual hum: the voltage peaks must not exceed the values specified for the supply voltage.

Max. current loading: 30 mA.

Supply voltage error
0.2% max. per 10 V

Output
0 - 10 V, burden 2 kΩ min.

0 - 20 mA, burden $\frac{U_B - 12 V}{0.02 A}$ max.

4 - 20 mA, burden $\frac{U_B - 12 V}{0.02 A}$ max.

4 - 20 mA, burden $\frac{U_B - 13 V}{0.02 A}$ max.
(2-wire)

Adjustable by potentiometer:

zero: ±10% approx.
span: ±20% approx.

Burden error
0.15% max.

Characteristic
linear

Deviation from characteristic after starting point calibration
0.6% or less, according to DIN/IEC 770

Overload limit to VDI/VDE 2184
200% full scale

Hysteresis
not exceeding 0.1%

Permitted ambient temperature
(max. case temperature)
-30 to +120°C
-30 to + 90°C for Code /73

Permitted temperature of medium
-30 to +200°C

Technical data

Ambient temperature error

within range 0 - 100°C
 zero: typically less than 0.02%/°C,
 0.04%/°C max.;
 span: typically less than 0.02%/°C,
 0.04%/°C max.

Response time

3 msec max.

Effect of sinusoidal vibrations

less than 0.06%/g on range 1.6 bar
 and 14 g acceleration;
 decreases with increasing range.

Mechanical vibrations

10 g max at 15 - 2000 Hz.

Mechanical shock

100g/4 msec

Nominal position

up to 4 bar: vertical \perp , see outline drawings;
 above 4 bar: unrestricted

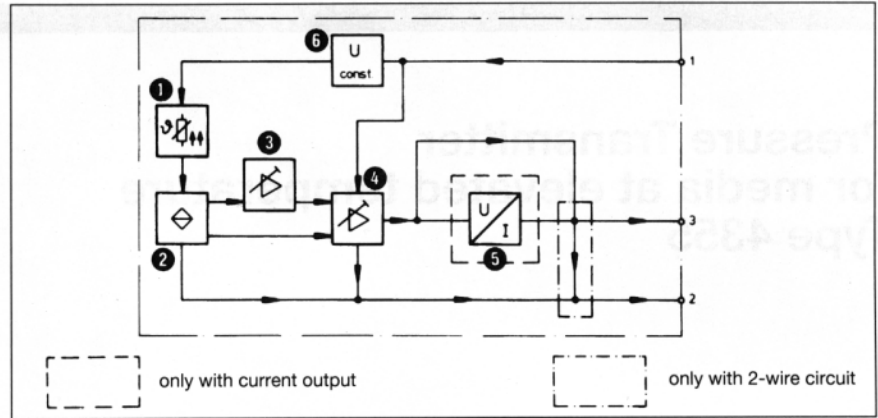
Protection

IP 65 to DIN 40 050

Weight

0.32 kg with Code /43

Block diagram



Operation

The pressure of the medium acts on the separating diaphragm of the piezo-resistive pressure transmitter. The separating diaphragm transmits the pressure through a liquid to the silicon diaphragm with doped resistance bridge (2) which operates on the piezo-resistive principle. The resistance bridge is connected to a constant voltage supply (6) through a temperature compensation circuit (1). The output signal of the resistance bridge is amplified in a differential amplifier (4) with a high input impedance. The span is adjusted with a span trimmer. The amplifier (3) with adjustable gain provides for zero adjustment. With current output 0-20 mA or 4-20 mA the output signal is converted to a proportional current in the U/I converter (5).

Connection chart

Connection		Termination	
		plug	cable
Supply 13-30 V d.c.		1 L+ 2 L-	white grey
Output 0-10 V		2 - 3 +	grey yellow
Output 0-20 mA		2 - 3 +	grey yellow
Output 4-20 mA		2 - 3 +	grey yellow
Output 2-wire		proportional current 4-20mA in supply	
Protective ground			
Screen			black

Dimensions

