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Pressure Transmitter Type 4341

Application

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

Special advantages are:

- compact construction
- built-in amplifier
- large output signal
- advantageous price/performance ratio
- largely compatible with fluids

Type designation

4341-242	Series 4341
4341	Pressure transmitter with thick-film sensor
-242	output 4 — 20 mA, 2-wire
-106	output 1 — (5) 6 V
-010	output 0 — 10 V

Extra Codes

- / 73 with cable attached
- / 76 wetted parts in stainless steel (only on spans 2.5 bar and above)
- / 93 special ranges

Ordering example

Pressure transmitter Type 4341-242 / 73
range: 0 — 4 bar

Ranges

Gauge pressure

- 1 to 0 bar
- 1 to 1.5 bar
- 1 to 3 bar
- 1 to 5 bar
- 1 to 9 bar
- 1 to 15 bar
- 0 to 0.6 bar*
- 0 to 1 bar
- 0 to 1.6 bar
- 0 to 2.5 bar
- 0 to 4 bar
- 0 to 6 bar
- 0 to 10 bar
- 0 to 16 bar
- 0 to 25 bar
- 0 to 40 bar
- 0 to 60 bar
- 0 to 100 bar

* range 0 — 0.6 bar not available with output 4 — 20 mA

Technical data

Case

stainless steel, Mat.Ref. 1.4301
polycarbonate

Wetted parts

normally: stainless steel Mat.Ref. 1.4762
and brass, Mat.Ref. 2.0401

on spans up to 1.6 bar: alumina ceramic,
brass Mat.Ref. 2.0401 and FPM (Viton)

Code / 76: stainless steel Mat.Ref. 1.4762
and Mat.Ref. 1.4571
(from 2.5 bar span upwards)

Pressure connection

normally 1/4" pipe A to DIN 16 288
other connections to special order

Electrical connection

terminal box to DIN 43 650,
Form AF,
up to 1.5 mm² conductor cross-section.
Code / 73:
attached 3-core screened PVC cable,
length 2 m;
other lengths to special order.

Supply

normally 11.5 to 30 V DC
Residual hum: the voltage peaks must not go
above or below the values specified for the
supply voltage.
Max. current loading: 30 mA approx.

Supply voltage error

0.03 % max. per V
(nominal supply voltage 24 V DC)

Output

1 — (5) 6 V, burden 3 kΩ min.
4 — 20 mA, burden $\frac{U - 11.5V}{0.02A}$ max.
0 — 10 V, burden 3 kΩ min.

Burden error

less than 0.5 %

Characteristic

linear

Deviation from characteristic after range start adjustment

1 % of output span or less, to IEC 770
(zero signal error: ± 0.6 % of output span)

Overload limit

200 % full scale
to VDI/VDE 2184



Hysteresis and reproducibility
0.5 % or better

Permitted ambient temperature
(temperature at case) — 40 to + 85 °C

Permitted temperature of medium
— 40 to + 85 °C

Ambient temperature error
within range — 20 to + 70 °C
zero: 0.05 % / °C or less
span: 0.05 % / °C or less

Electromagnetic compatibility

electrostatic discharge:
IEC 801-2 / severity 4
(test voltage 15 kV)
radiated electromagnetic field:
IEC 801-3 / severity 3
(test field strength 10 V / m)
fast transient / burst:
IEC 801-4 / severity 4
(test voltage on I / O line 2 kV)

Response time

30 msec max.

Mechanical vibration

10 g max. at 15 — 2000 Hz

Mechanical shock

500 g / 1 msec

Operating position

unrestricted

Protection

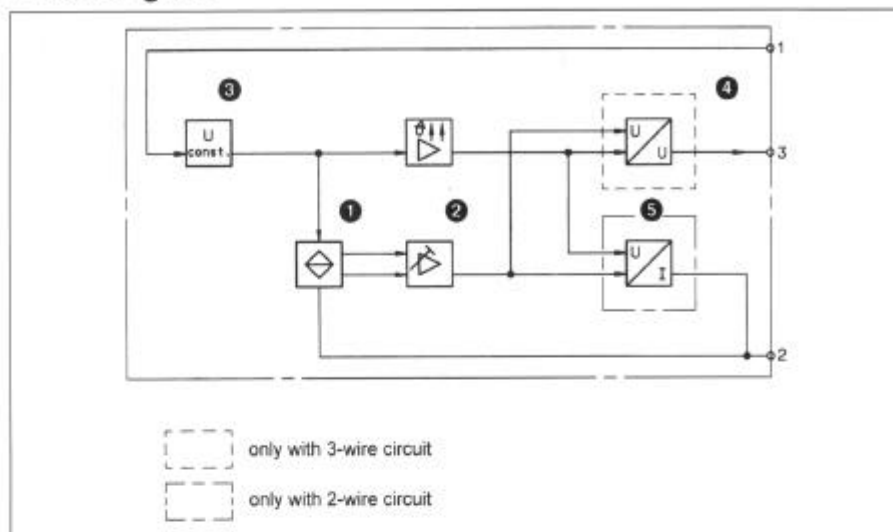
standard version IP65 to EN 60 529
(min. connecting cable dia. 5 — 7 mm)

Code / 73:
IP66 to EN 60 529

Weight

110 g

Block diagram



Operation

The sensing element **1** of the transmitter consists of a ceramic-coated steel diaphragm which deflects under pressure (spans up to 1.6 bar have a ceramic diaphragm). A 4-arm bridge of thick-film resistors is mounted on this ceramic coating so that pairs of opposite resistors are respectively extended and compressed under pressure. This produces a positive or negative resistance change proportional to pressure. The bridge is supplied at constant voltage **3**, resulting in a bridge output voltage proportional to the pressure. This is then amplified in the differential amplifier **2**.

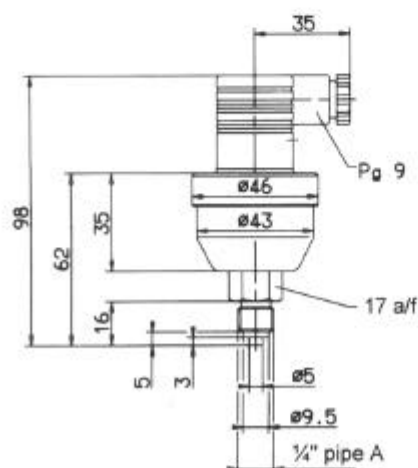
The resulting voltage signal is increased in a further amplifier **4** to the standard voltage signal (1 — 6 V) or is converted in a voltage-controlled current source **5** to the standard current signal (4 — 20 mA).

Connection chart

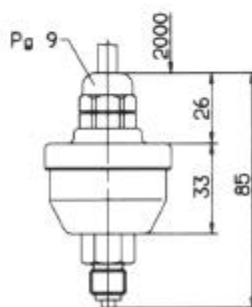
Connection		Termination	
		plug	cable
Supply 11.5 — 30 V DC	+	1	white
	-	2	grey
Output 1 — 6 V	+	2	grey
	-	3	yellow
Output 2-wire	+	1	white
	-	2	grey
		proportional current 4 — 20 mA in the supply line	
Protective conductor			
Screen			black

⚠ Note: the transmitter must be grounded!

Dimensions



Code I73



mm	inch
3	0.12
5	0.20
9.5	0.37
16	0.63
26	1.02
33	1.30
35	1.38
43	1.69
46	1.81
62	2.44
85	3.35
98	3.86
2000	79
2 m	7 ft
1.5 mm ²	0.0025 in ²