

Pneumatic Transmitter for Pressure Type 804-1 with Pressure-transmitting Sealing Element



Application

Pressure transmitter with pressure-transmitting sealing element for liquids, gases and vapors · Operating pressures from 0 bar to 190 bar · Measuring spans from 1.0 bar to 100 bar

The pressure transmitters are used to measure a pressure and convert the measured value into a standardized pneumatic signal between 0.2 bar and 1.0 bar. The application of transmitters with pressure-transmitting sealing element is advantageous or necessary if the process medium cannot be routed to the measuring element through a tube. Such media include:

- Fluids which readily crystallize, accrete or precipitate, easily segregate or contain suspended particles
- Particularly corrosive or highly viscous fluids
- Food and beverages or pharmaceuticals which do not allow the use of a connecting tube for hygienic reasons

The device consists of a Type 804-1 Transmitter (refer to Data Sheet T 7540 EN for more details) and a pressure-transmitting sealing system with a separating diaphragm, which is coupled with the pressure measuring element of the transmitter over a barrier liquid (silicone oil). Thus, the measured pressure acting on the separating diaphragm is transmitted to the measuring element and converted into a proportional output by the transmitter. The deflection of the force-balanced transmitter is extremely small. Therefore the spring characteristics and the hysteresis of the separating diaphragm hardly influence the measuring characteristics of the instrument.

Special features

- The process medium only comes into contact with the connecting parts of the pressure sealing element and the separating diaphragm connected to the upper part
- Can be used in hazardous areas (Zones 1 and 2) without restrictions nor special requirements

Version

Type 804-1 with pressure-transmitting sealing element

Standard version with lower range value $p_e = 0$ bar · An approx. 2-m-long tube connects the transmitter with the pressure-transmitting sealing element, its measuring connection optionally being a G ½ tapped hole, an open flange in DN 50 or a hygienic coupling in DN 50. The pressure-transmitting sealing element is selected according to the technical data.



Fig. 1 · Type 804-1 with pressure-transmitting sealing element

Special version with adjustable lower range value – with spring for positive adjustment of the lower range value · Version for oxygen (max. 80 bar and 60 °C, higher temperatures on request) with Fluorolube MO 10 as the barrier fluid

Further equipment from the Series 804-1:

Type 814 · Flanged transmitter for pressure with measuring spans from $p_e = 0.016$ bar to 6 bar (refer to Data Sheet T 7554 EN)

Notes

All pressures p_e are given in bar (gauge) unless specified otherwise.

Table 1 · Technical data

The pressures for the measuring span, overloading and ultimate strength are limited by the nominal pressure range of the pressure-transmitting sealing element.

Measuring span	1 to 20 bar	16 to 100 bar
Can be overloaded up to	Ten times the adjusted measuring span, however not exceeding	
	50 bar	200 bar
Ultimate strength up to	100 bar	250 bar
Press. measuring element	Metal bellows	
Supply air	1.4 ± 0.1 bar (20 ± 1.5 psi)	
	Air quality acc. to ISO 8573-1 Edition 2001: particle size and amounts: Class 4, oil content: Class 3, pressure dew point: Class 3 or at least 10 K below the lowest ambient temperature to be expected	
Output	0.2 to 1.0 bar or 3 to 15 psi	
Air consumption	< 0.15 m _n ³ /h in steady state	
Max. air delivery	1 m _n ³ /h	
Load characteristic	0.3 m _n ³ /h per 3 % output signal change	
Deviation from linearity	< 0.5 % with fixed set point	
Hysteresis	< 0.2 %	
Dead band	< 0.05 %	
Overload influence	Overload up to perm. value < 1 %	
Perm. ambient temp.	-20 °C to +70 °C (for transmitter)	
Degree of protection	IP 54	
Transmitter with adjustable lower range value		
Lower range value adjustable between ...	0 and 18 bar	0 and 90 bar
Add. temp. influence	< 0.2 %/10 °C	

For further technical data refer to Data Sheet T 7540 EN

Pressure-transmitting sealing element

Process medium connection	
G ½ tapped hole	PN 100, PN 250
DN 50 DIN flange	PN 40, 63, 100, 160 or 250
Upper part welded to separating diaphragm and capillary tube	
Perm. temperature at separating diaphragm	-40 °C to +150 °C On request up to +300 °C

Table 2 · Materials · Material numbers according to DIN EN

Process connection	1.4571
On request: steel, Hastelloy B or C, Monel, nickel, tantalum lining or PTFE (up to 220 °C and PN 40)	
Separating diaphragm	1.4571
On request: steel, Hastelloy B or C, Monel, nickel or PTFE (up to 220 °C and 40 bar)	
Upper part	1.4571
Clamping flange, nuts, bolts	Steel (zinc-coated) Special version: 1.4571
Hygienic coupling DN 50	DIN 11851, PN 10, made of 1.4300

Installation

The usual mounting position, i.e. with the base in horizontal position, is shown in Fig. 2. The transmitter can also be installed with the base in vertical position, provided the air connections are located above the process connection. Zero must be corrected in this mounting position.

Mounting methods: pipe mounting (with clamp to horizontal or vertical 2" pipe) or wall mounting (with mounting plate to wall)

Note! In versions with measuring spans up to 6 bar, the height difference between the pressure-transmitting sealing element and the transmitter influences the lower range value and must thus be taken into account when calibrating.

Dimensions in mm

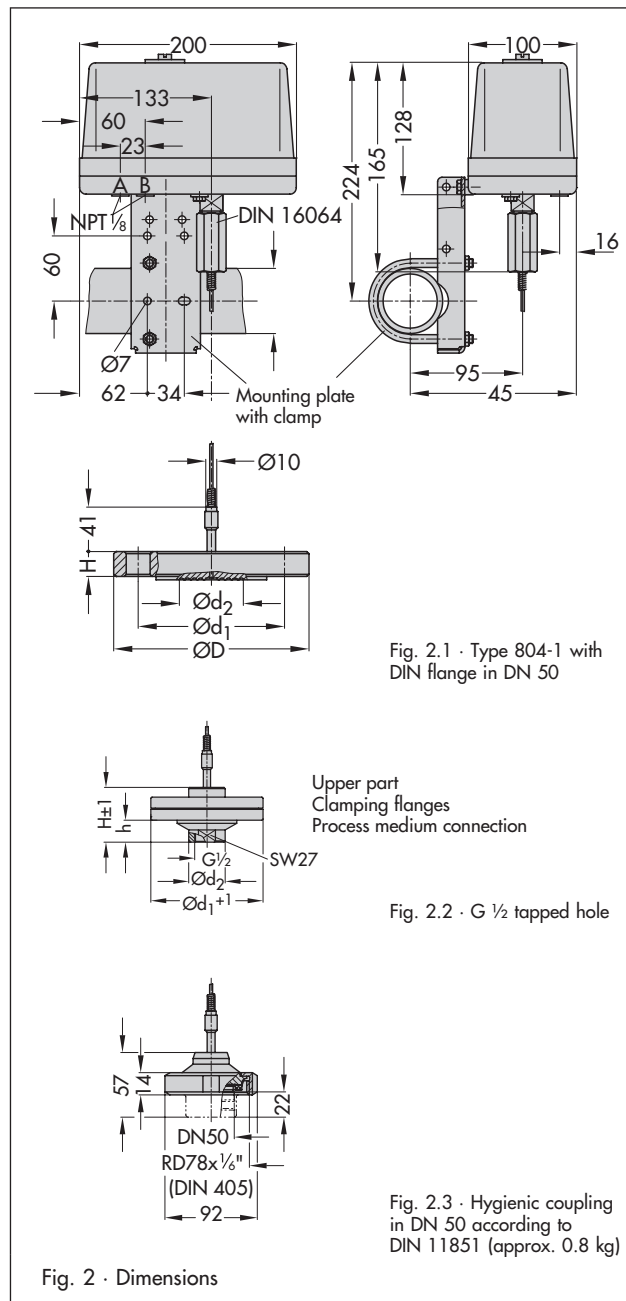


Fig. 2 · Dimensions

Table 3 · Dimensions in mm

Process connection	PN	mm					Weight Approx. kg
		D	d ₁	d ₂	h	H	
G ½ tapped hole	100	-	90	30	8.5	56	4.6
	250	-	108	30	2.5	56	6.2
DIN flange in DN 50	40	165	125	59	-	20	6.5
	63	180	135	59	-	26	8.3
	100	195	145	59	-	28	9.7
	160	195	145	59	-	30	10.2
	250	200	150	59	-	38	12.5

Ordering text

Type 804-1 DM Pneumatic Transmitter for Pressure
 Measuring span ... to ... bar / adjusted to ... to ... bar
 Output 0.2 bar to 1 bar / up to 15 psi
 Process medium connection ...; optionally, special version / accessories

Specifications subject to change without notice

