Pneumatic Flanged Transmitter for Pressure

Type 814

Application

Pneumatic transmitter to measure pressure and liquid levels, with a flange for attachment to tanks or pipes, for operating pressures from 0 to 6 bar.

The instruments are used to measure pressure or liquid level and convert the measured value into a standardized pneumatic signal from 0.2 to 1 bar or 3 to15 psi. The transmitter is suitable for liquids, gases and vapors with measuring spans between 0.016 and 6 bar. They are particularly suitable for:

- Liquid level measurement of open tanks
- Pressure measurement of media which readily crystallize or contain suspended matter, and particularly corrosive or highly viscous fluids
- Pressure measurement of food and beverages or pharmaceutical products which do not allow the use of connecting tubes for hygienic reasons.

The instrument is largely identical to the Type 804-1 Transmitter (see Data Sheet T 7540 EN). It has, however, an overloadable diaphragm measuring element (10). The measured pressure p acting on the stainless steel diaphragm (10.1) exerts a force which is converted into a proportional output signal p_A by the transmitter. The supply air pressure p_z is either 1.4 bar or 20 psi.

Special features

- The process medium only comes into contact with the stainless steel parts of the diaphragm measuring element
- Permissible ambient temperature –10 to +120°C
- Permissible operating temperature at the connection for the process medium –10 to +150°C.

Versions

Type 814 · Pneumatic Flanged Transmitter for Pressure with flange PN 10/40, DN 80 (Fig. 2) and measuring spans from 0.016 to 6 bar.

Special versions · with projecting diaphragm · with hygienic coupling DN 50 · with flange DN 50 · with flange DN 25/ PN 40.

Note · Type 804-1 Transmitter with Pressure Transmitting Sealing Element is suitable for pressure or liquid level measurement and measuring spans up to 600 bar. See Data Sheet T 7550 EN for details.

1	Throttle	10.1	Metal diaphragm
2	Feedback bellows	10.2	Housing
4	Span rider with locking screw	14	Flapper
7	Balance beam	15	Nozzle
8	Zero adjustment screw	17	Booster
9	Balance beam	18	Spring for lower range value adjustment
10	Measuring element		

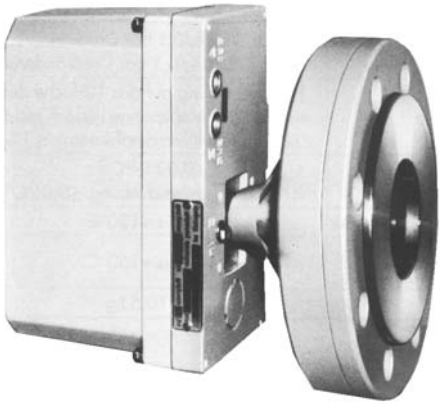


Fig. 1 · Type 814 Pneumatic Transmitter with flange PN 10/40, DN 80

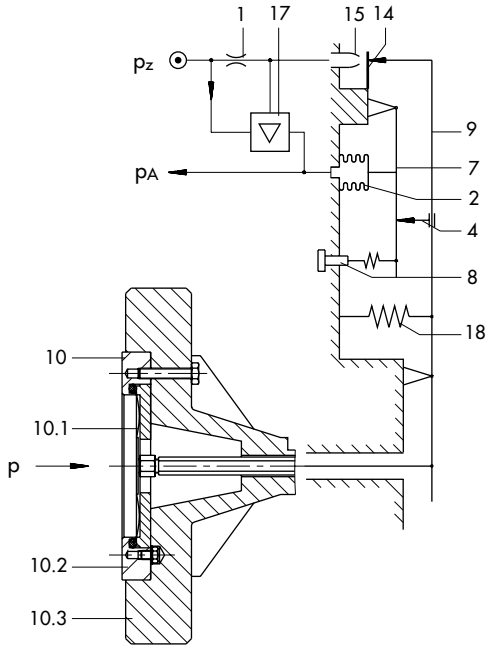


Fig. 2 · Type 814 Pneumatic Transmitter, with flange PN 10 /40, DN 80

Table 1 · **Technical data** · All pressures are pressure values p_e in bar (gauge) unless specified otherwise.

Process medium connection	DN 80		
Flange	PN 10/40		
Measuring span bar	0.016 to 0.16	0.1 to 1	0.6 to 6
Upper range limit bar	0.3	1.9	11.4
Overloadable up to bar	1.5	3	12
Lower range value adjustable from bar	0 to 0.14	0 to 0.9	0 to 5.4
Pressure measuring element	Metal diaphragm		
Supply	1.4 ± 0.1 bar or 20 ± 1.5 psi		
Output	0.2 to 1 bar or 3 to 15 psi		
Air consumption	≤ 0.15 m_n^3/h in steady-state condition		
Max. air delivery	1 m_n^3/h		
Load characteristic	0.3 m_n^3/h per 3% change in output signal		
Deviation from linearity	Terminal based non-conformity ≤ 0.5%		
Hysteresis	≤ 0.3%, with spans ≤ 0.04 bar: 0.4%		
Dead band	≤ 0.1%		
Effects of supply air	With spans marked on scale: 1 to 3: ≤0.4%/0.1 bar pressure change 4 to 8: ≤0.25%/0.1 bar pressure change		
Overload effect	Overloadable up to 10 times the adjusted measuring span (however not exceeding the permissible maximum value): ≤ 1%		
Temperature effect	≤0.03%/°C, w. adjustable lower range value: ≤0.05%/°C		
Perm. ambient temperature	–10 to +120°C		
Perm. operating temperature at process med. connection	–10 to +150°C		
Weight, approx.	10.5 kg		

Table 2 · **Materials** · Measuring element (material number acc. to DIN)

Housing/upper part	1.4571
Metal diaphragm	1.4571 (Hastelloy C on request)
Flange	GGG-40

Further technical data can be found in Data Sheets T 7540 EN and T 7550 EN

Installation

The usual installation position - base and flange vertical - is shown in the dimensional diagrams.

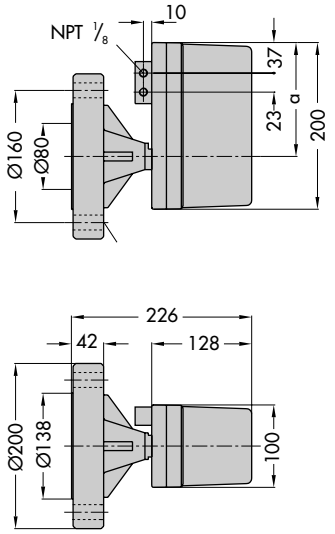
Air connections: Two tapped holes ⅛ NPT (optional: two tapped holes ISO 228 G⅛).

Special versions (only for measuring spans up to 6 bar)

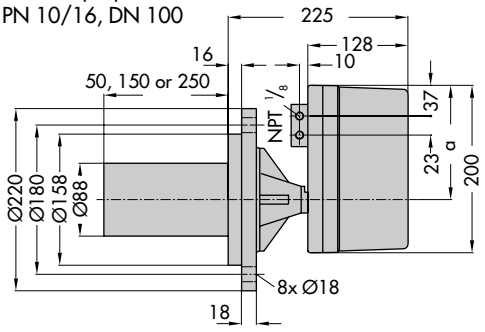
Flanged transmitter with projected diaphragm and flange DN 100 (PN 10/16) and version for hygienic coupling DN 50 (PN 10) according to DIN 1158 correspond in their principle of operation and their technical data with Fig. 2.

Dimensions in mm

Version PN 10/40, DN 80



Special version with projected diaphragm PN 10/16, DN 100



Span in bar	a
0.016 to 0.16	139
0.1 to 1	118
0.6 to 6	112

Fig. 3 · Dimensions

Ordering text

Pneumatic Transmitter Type 814
Without/with adjustable lower range value
Free of non-ferrous metal/free of non-ferrous metal with adjustable lower range value
Measuring span ... to ... bar/adjusted from ... to ... bar
Output 0.2 to 1 bar/3 to 15 psi
Optional special version/accessories

Specifications subject to change without notice.

SAMSON AG · MESS- UND REGELTECHNIK
Weismüllerstraße 3 · 60314 Frankfurt · Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-15 07
Internet: http://www.samson.de