

Pressure transducers

RE 29933/08.06
Replaces: 04.06

1/4

Types HM 12 and HM 13

Series 1X



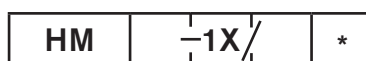
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3	– Standardised output signals for universal applications in hydraulics
4	– EMC characteristics permit use in critical applications
	– „Low cost“ version
	– Sensor in thin film technology
	– Accuracy class 0.5 %
	– Measuring range up to 250, 315 or 400 bar
	– Connection thread to DIN 3852
	– Parts that are in contact with the fluid are made of stainless steel
	– Polarity safeguard, short circuit-proof
	– Compact design

Ordering code



Pressure transducer with

Current output 4 to 20 mA

= 12

Voltage output 0 to 10 V

= 13

Series 10 to 19

(10 to 19: unchanged technical data and connection allocation) = 1X

Further details in clear text

Measuring range

250 =

Up to 250 bar

315 =

Up to 315 bar

400 =

Up to 400 bar

Information/instructions/function

General

The task of pressure sensors is to convert pressure – a mechanical variable – into voltage or current, an electrical variable.

The pressure sensors contained in the Rexroth hydraulic range are suitable for the monitoring and closed-loop control of pressure in machine construction, plastic injection moulding, presses and many other fields.

The most important features of these sensors are:

- Pressure sensor element consisting of stainless steel diaphragm (spring material) with thin-layer strain gauge sensor and incorporating full bridge circuitry
- On-board electronics
- Signal output proportional to pressure
- Precise balance adjustment for zero and sensitivity carried out by manufacturer.

Instructions for use

- The sensor has a vertical installation position; the connector points downward.
- The sensor must be installed in the hydraulic system in such away as to ensure that no air cushion can build up between the sensor diaphragm and the pressure medium.
- Pressure medium: Hydraulic oil; other liquids and gases only following consultation

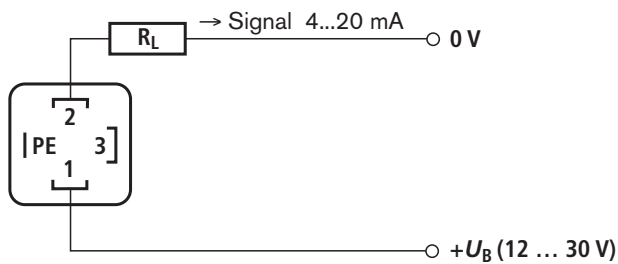
Technical Data (For applications outside these parameters, please consult us!)

Input values		
Operating voltage	U_B	12 to 30 V (ripple < 5 %)
Measuring range	p_{nom}	Up to 250 bar
	or p_{nom}	Up to 315 bar
	or p_{nom}	Up to 400 bar
Overload protection		150 % ¹⁾
Burst pressure	p	300 % ¹⁾ ; max. 1500 bar
Dead volume	V	Approx. 450 mm ³
Output values		
Output signal:		
– HM 12	I	4 to 20 mA (2-cores)
– HM 13	U	0 to 10 V (3-cores)
Temperature compensation:		
– Zero point		Typical ≤ 0.15 %/ 10 K; max. ≤ 0.3 %/ 10 K
– Range		Typical ≤ 0.15 %/ 10 K; max. ≤ 0.3 %/ 10 K
Linearity tolerance		Typical ≤ 0.15 %/ ¹⁾ ; max. ≤ 0.3 %/ ¹⁾
Hysteresis		Typical ≤ 0.05 %/ ¹⁾ ; max. ≤ 0.1 %/ ¹⁾
Repeatability accuracy		≤ 0.05 % ¹⁾
Rise time	t	≤ 0.5 ms
Long term drift (6 months):		
– Zero Signal		≤ 0.1 % ¹⁾
– Range		≤ 0.1 % ¹⁾
Ambient conditions		
Nominal temperature range	ϑ	–25 to +85 °C
Operating temperature range	ϑ	–40 to +85 °C
Storage temperature range	ϑ	–40 to +100 °C
Fluid temperature range	ϑ	–40 to +100 °C
EMC compatibility to IEC 801-4		Class 3
Shock		500 g / 1 ms
Vibration resistance to IEC 68-2-6 (at 10 to 500 Hz)		20 g
Protection to EN 60529		IP 65
Mechanical technical data		
Pressure connection		G1/4 A external thread to DIN 3852; soft seal ring
Electrical connection		4-pin component plug to EN 175301-803
Weight	m	0.16 kg

¹⁾ Relating to the full measurement range

Connection allocation

HM12

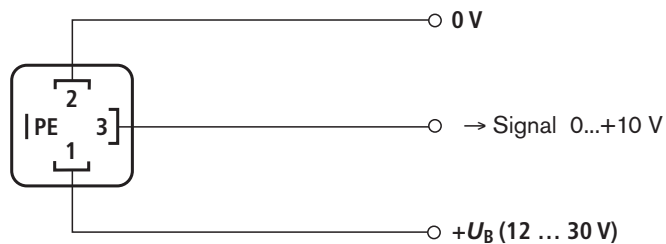


The maximal permissible load resistance R_L is dependent on the voltage $+U_B$:

$$R_{L\max} = \frac{+U_B - 10 \text{ V}}{20 \text{ mA}} \quad (\text{in k}\Omega)$$

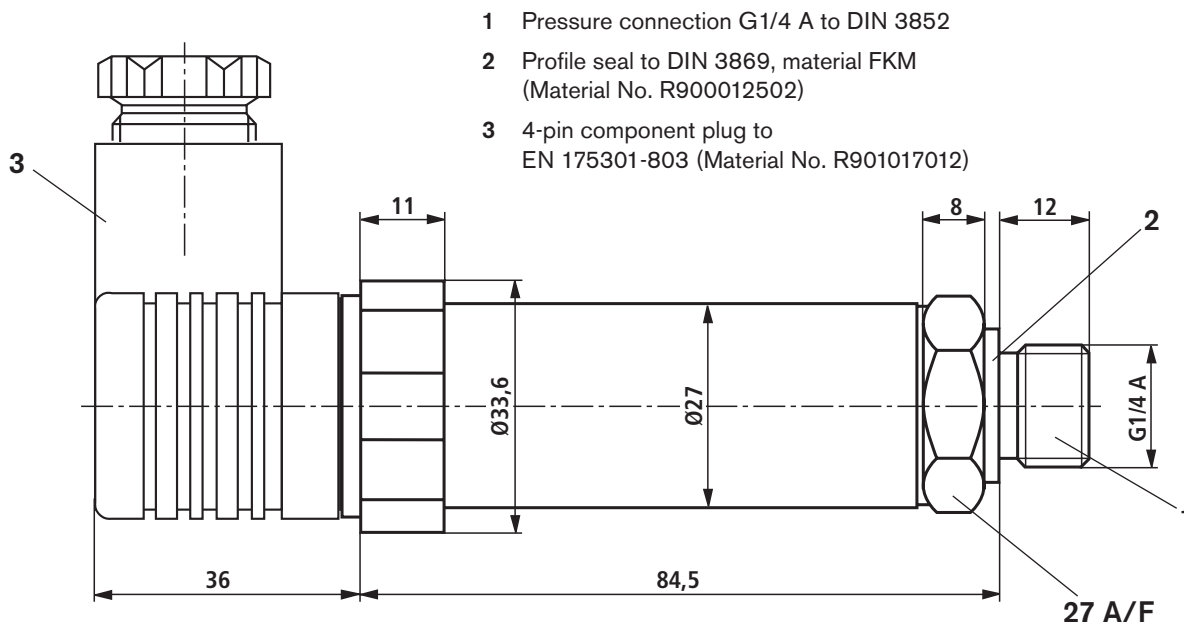
R_L can be applied to connection 1 or 2.

HM13



We recommend a 2-core or 3-core connection cable type LiYCY, 0.5 mm².

Unit dimensions (Dimensions in mm)



- 1 Pressure connection G1/4 A to DIN 3852
- 2 Profile seal to DIN 3869, material FKM (Material No. R900012502)
- 3 4-pin component plug to EN 175301-803 (Material No. R901017012)