

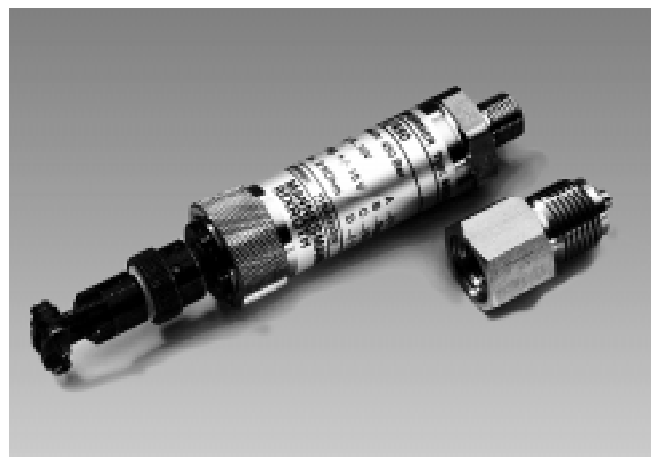
## RE 29 932/12.98

Replaces: 09.93



## Pressure transducer Types HM 14 and HM 15

Series 1X



H/A 3695/93

Type HM 14 with adaptor ZBM01

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### Features

- Suitable for measuring pressures as well as the conversion of the measured values into electrical signals
- Due to the standardised output signal they can be universally applied in hydraulics
- Can be used in closed loop control circuits due to their high temperature stability and high accuracy
- Their EMC characteristics also permit their use in critical applications
- Sensor uses thin film technology
- Evaluation electronics using SMD technology
- Accuracy class < 0.5 %
- Measurement range 10 bar to 600 bar
- Connection thread to DIN 3852
- Parts that come into contact with the medium are made of stainless steel
- Polarity reversal protection, short circuit proof
- Compact design

### Suitable digital pressure indicators (3 position):

- For HM 14: pressure indicator HM 5 (see RE 29 975)
- For HM 15: pressure indicator HM 2 (see RE 29 973) or pressure indicator HM 3 (see RE 29 974)

### Ordering details

HM	- 1X /	*	Further details in clear text
	= 14		<b>Measurement range:</b>
	= 15		
Pressure transducer with a: Voltage output of 0 to 10 V Current output of 4 to 20 mA			
Series 10 to 19 (10 to 19: unchanged technical data and connection dimensions)	= 1X		
		10 =	up to 10 bar
		50 =	up to 50 bar
		100 =	up to 100 bar
		200 =	up to 200 bar
		315 =	up to 315 bar
		450 =	up to 450 bar
		600 =	up to 600 bar

### Options:

Separate order for the ZBM01 adaptor (Material no.: **025420**) for adapting the pressure connection from G 1/4 A to G 1/2 (required when replacing the HM 1 or HM 4 pressure transducers by the type HM 14 or HM 15).

Separate order for the ZBM12 connector (Material no.: **207536**) for adapting the pressure connection from G 1/4 A to G 1/4 A (required when replacing the HM 11 pressure transducer by the type HM 14).

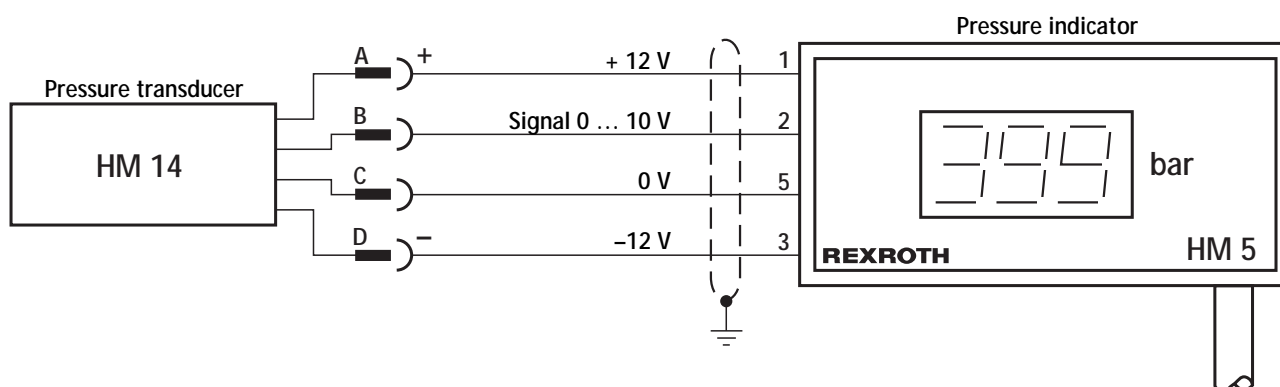
**Technical data** (for applications outside these parameters, please consult us!)

<b>Input values</b>		
Operating voltage: – HM 14 – HM 15	$U_B$ $U_B$	$\pm 12\text{ V to } \pm 15\text{ V}$ $+ 10\text{ V to } + 30\text{ V}$
Current consumption	$I_{\max}$	10 mA
Measuring range (in bar)	$p_{\text{nom}}$	10    50    100    200    315    450    600
Over-load protection (in bar)	$p$	20    200    200    400    600    800    900
Burst pressure (in bar)	$p$	100    500    500    1000    1000    2000    2000
Dead volume	$V$	approx. 450 mm <sup>3</sup>
<b>Output values</b>		
Output signal: – HM 14 – HM 15	$I$ $U$	0 to 10 V (4 conductors) 4 to 20 mA (2 conductors)
Temperature compensation: – Zero point – Range		type $\leq 0.08\%$ / 10 K; max. $\leq 0.15\%$ / 10 K type $\leq 0.08\%$ / 10 K; max. $\leq 0.15\%$ / 10 K
Linearity tolerance		type $\leq 0.1\%$ <sup>1)</sup> ; max. $\leq 0.3\%$ <sup>1)</sup> (from 100 bar max. $\leq 0.2\%$ )
Hysteresis		type $\leq 0.05\%$ <sup>1)</sup> ; max. $\leq 0.1\%$ <sup>1)</sup>
Repeatability		$\leq 0.05\%$ <sup>1)</sup>
Rise time	$t$	$\leq 0.5\text{ ms}$
Long term drift (6 months): – Zero signal – Range		$\leq 0.1\%$ <sup>1)</sup> $\leq 0.1\%$ <sup>1)</sup>
<b>Ambient conditions</b>		
Nominal temperature range	$\vartheta$	$- 25\text{ to } + 85\text{ }^\circ\text{C}$
Operating temperature range	$\vartheta$	$- 40\text{ to } + 85\text{ }^\circ\text{C}$
Storage temperature range	$\vartheta$	$- 40\text{ to } + 100\text{ }^\circ\text{C}$
Medium temperature range	$\vartheta$	$- 40\text{ to } + 100\text{ }^\circ\text{C}$
EMC compatibility to IEC 801-4		severity class 3
Shock		500 g / 1 ms
Vibration resistance to IEC 68-2-6 (at 10 to 500 Hz)		20 g
Protection to DIN 40 050		IP 65
<b>Mechanical data</b>		
Pressure connection	Option Option	G 1/4 A connection thread to DIN 3852; soft seal ring ZBM01 adaptor to convert to G 1/2 (separate order) ZBM12 adaptor as replacement for HM 11 (separate order)
Electrical connections		4-pin MIL plug
Service life		10 Mil. load changes
Weight	m	0.18 kg

<sup>1)</sup> Referring to the full measurement range

## Connection allocation

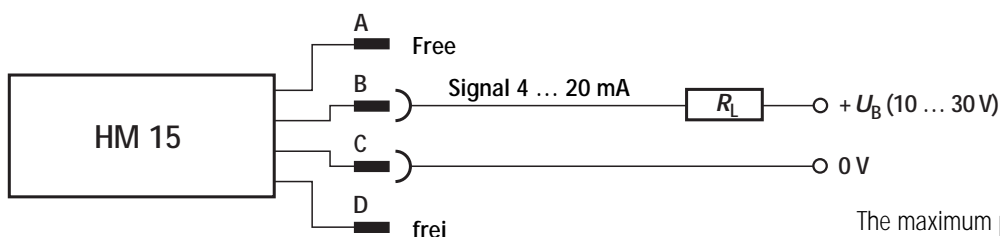
### Connecting the HM 14 with a HM 5 pressure indicator



We recommend the use of connection cable type LiYCY 4 core 0.5 mm<sup>2</sup>.

Approx. 1.5 m connection cable  
with a Euro flat plug  
220 V + 15 % – 10 % / 50 Hz  
110 V + 15 % – 10 % / 60 Hz

### Connections HM 15 in general

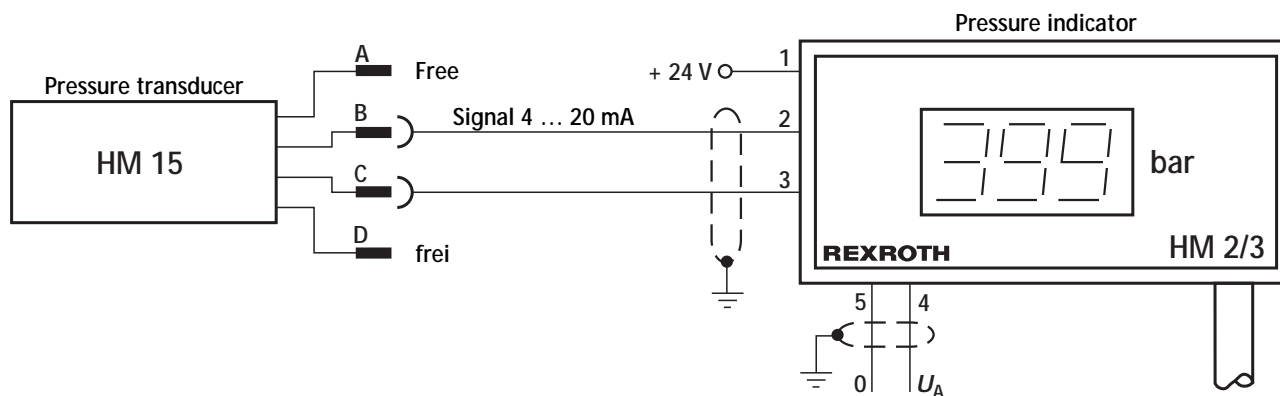


The maximum permissible load resistance  $R_L$  is dependent on the operating voltage  $+U_B$ :

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

$R_L$  can be applied to connection B or C.

### Connecting the HM 15 with a HM 2 or HM 3 pressure indicator



We recommend the use of connection cable type LiYCY 2 core 0.5 mm<sup>2</sup>.

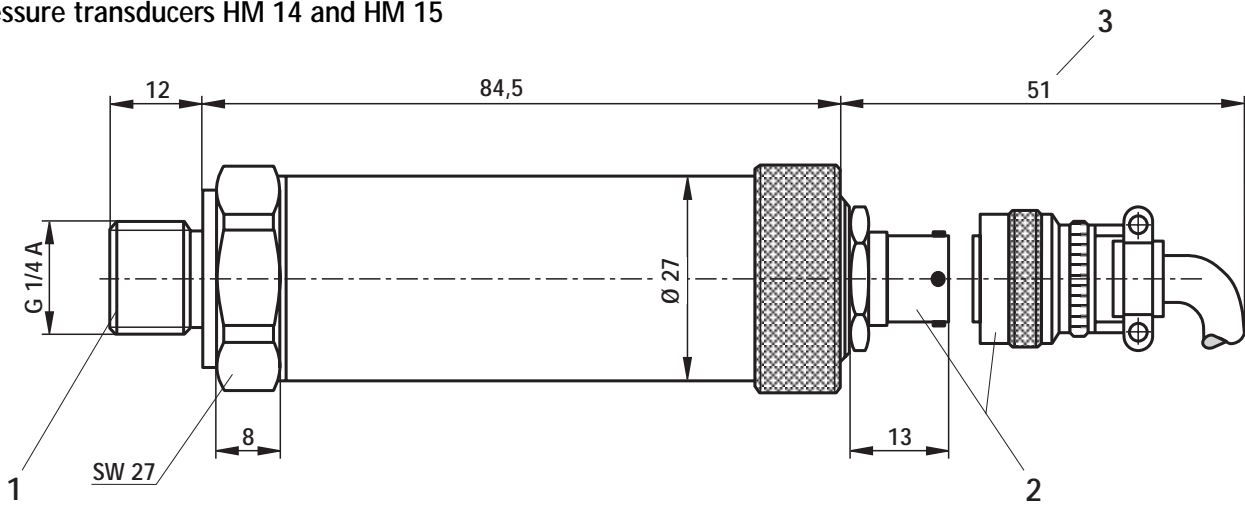
Output voltage  
 $U_A = 0$  to 10 V  
max. 5 mA

Approx. 1.5 m connection  
cable with a Euro flat plug  
220 V + 15 % – 10 % / 50 Hz  
110 V + 15 % – 10 % / 60 Hz

**Unit dimensions**

(Dimensions in mm)

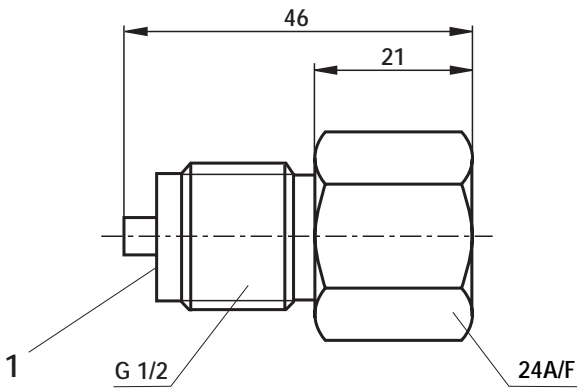
**Pressure transducers HM 14 and HM 15**



- 1 Pressure connection G 1/4 form A to DIN 3852 part 2; with soft seal
- 2 Electrical connections via a 4-pin plug; mating plug is included with the scope of supply (Material no. 062235)
- 3 Minimum installation length

Cable set type VT 17200-1X/3m (mating plug with 3 m of cable) is not included within the scope of supply, can however be separately ordered (Material no. 838800).

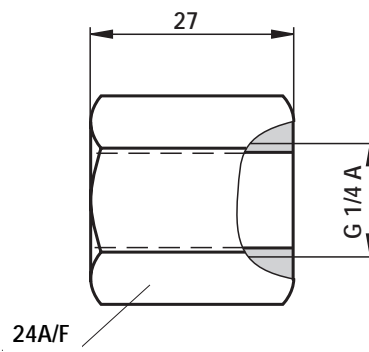
**Adaptor ZBM01**



- 1 Pressure connection G 1/2 to DIN 16 288

**Material no.: 025420**

**Connector ZBM12**



**Material no.: 207536**

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