

Electric Drives  
and Controls

Hydraulics

Linear Motion and  
Assembly Technologies

Pneumatics

Service

**Rexroth**  
Bosch Group

## Pressure transducer for hydraulic applications

**RE 30270/01.12**  
Replaces: 09.11

1/4

**Type HM 20**

Component series 1X  
CE, UL



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### Features

Page	Features
	– Measuring pressures in hydraulic systems
1	– Conversion of the measured pressure into a standardized electric analog signal
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3	– Sensor with thick-film measuring cell
4	– Components that are in contact with the media are of stainless steel
4	– Operational reliability due to high bursting pressure, reverse polarity, overvoltage and short-circuit protection
	– Compact design
	– Very good temperature behavior
	– Accuracy class 0.5
	– 4-pin M12 connector at the housing
	– Hydraulic port G1/4A
	– Protection class IP65/IP67
	– UL approval for the US and Canadian market

## Ordering code

<b>HM 20 -1X/ - K35</b>	
Pressure transducer	
Component series 10 to 19 (10 to 19: Identical technical data and pinout)	= 1X
<b>Pressure measuring ranges</b>	
up to 100 bar	= 100
up to 250 bar	= 250
up to 400 bar	= 400
	<b>K35 =</b> Connector, 4-pin, M12x1
	<b>C =</b> Current output 4 to 20 mA
	<b>H =</b> Voltage output 0.1 to 10 V

## Replacement seal ring

Denomination	Material no.
Seal ring NBR	R900012467

Cable sets or mating connectors are not included in the scope of delivery; please order separately

## Accessories: Cable sets and mating connectors

Technical data	Unit dimensions (in mm)	Denomination	Material no.
<b>general</b> Current carrying capacity 4 A Temperature range -25 ... 85 °C Protection class IP 67 according to EN 60529		4PM12 (L = 2 m)	R900773031
		4PM12 (L = 5 m)	R900779498
<b>Cable sets, shielded</b> Cable diameter 5.9 mm Jacket material PUR-OB Line cross-section 4 x 0.34 mm <sup>2</sup>		4PM12 (L = 2 m)	R900779504
		4PM12 (L = 5 m)	R900779503
<b>Mating connectors</b> Cable diameter 4 to 6 mm Line cross-section 4 x 0.75 mm <sup>2</sup> Type of connection Screw connection		4PE11508	R900773042
		4PE11509	R900779509
Connection diagram cable set Socket contacts, viewed to socket side 			

## Technical data

### Input variables

Operating voltage	$U_S$	16 to 36 VDC		
Residual ripple	$U_{PP}$	2.5 V (40 to 400 Hz)		
Current consumption	$I_{max}$	6 mA (with voltage output)		
Measurement range	$p_N$ [bar]	100	250	400
Overload protection	$p_{max}$ [bar]	200	500	800
Bursting pressure	$p$ [bar]	800	1000	1600

### Output variables

Output signal and admissible load $R_A$	$I_{Sig}$	4 to 20 mA, two-wire, $R_A = (U_S - 8.5 \text{ V}) / 0.02 \text{ A}$ with $R_A$ in $\Omega$ and $U_S$ in V		
	$U_{Sig}$	0.1 to 10 V, three-wire, $R_A > 20 \text{ k}\Omega$		
	Resolution	11 bit		
Accuracy		< 0.5 % Related to the complete measurement range, including non-linearity, hysteresis, zero point and end value deviation (corresponds to the measuring deviation according to IEC 61298-2)		
Temperature coefficient (TK) in the nominal temperature range for zero point and range		< 0.1 % / 10 K <sup>1)</sup>		
Hysteresis		< 0.15 % <sup>1)</sup>		
Non-repeatability		< 0.10 % <sup>1)</sup>		
Setting time (10 to 90 %)	$t$	< 1 ms		
Long-term drift (1 year) with reference conditions		< 0.1 % <sup>1)</sup>		

### Environmental conditions

Nominal temperature range	$\vartheta$	-20 ... +80 °C
Limit temperature range	$\vartheta$	-40 ... +85 °C
Storage temperature range	$\vartheta$	-40 ... +100 °C
Hydraulic fluid temperature range	$\vartheta$	-40 ... +90 °C

### Further characteristics

Pressure port		G1/4 male thread (pressure channel with throttle $\varnothing$ 0.6 mm), seal ring according to DIN 3869
Materials:		
– Measuring cell, hydraulic port, housing		CrNi steel 1.4404
– Throttle		CrNi steel 1.4305
– Seal		NBR
Hydraulic fluids		HL, HLP, HFC, other media upon request
Tightening torque	$M_A$	20 to 25 Nm
Electrical connection		4-pin M12 connector at the housing <sup>2)</sup>
Protection class according to EN 60529		IP65/IP67 with mating connector correctly mounted and locked
Weight	$m$	0.07 kg
Service life		40 million load cycles or 40000 h
Shock resistance, mechanical		15 g according to IEC 60068-2-27
Vibration resistance in case of resonance		10 g according to IEC 60068-2-6
Electromagnetic compatibility (EMC)		DIN EN 61326-2-3

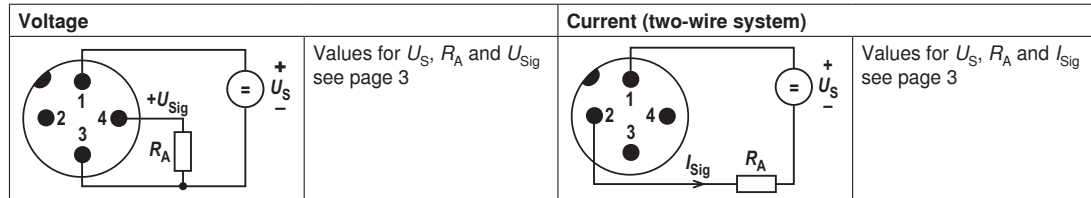
<sup>1)</sup> Related to the complete measurement range

<sup>2)</sup> Recommendation:

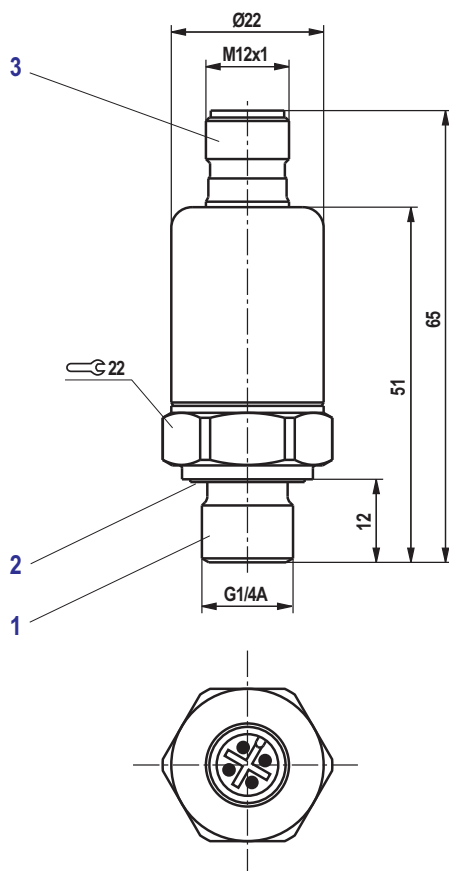
Use of shielded connection cable, see cable set on page 2

## Electrical connection

### 4-pin M12 connector, view to connection side



### Unit dimensions (dimensions in mm)



- 1 Pressure port G1/4 male thread
- 2 Seal ring
- 3 4-pin M12 connector

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