


● Characteristics

	Pressure:	relative / absolute / vacuum / ±ranges	
	Range:	0...0,1 bar up to 0...1000 bar / -1...+24 bar	
	Output:	4...20 mA	
	Accuracy:	0,5% of span	(option: 0,25% of span)
	Temperature of medium:	-30...+100 °C	(option: -40...+125°C)
	Material enclosure:	CrNi steel	
	Pressure connection:	G 1/2 / G 1/4 / 1/2 NPT / 1/4 NPT	
	Electrical connection:	M12x1 4-pole, M12x1 8-pole	
Protection:	IP54		

● Technical Data

Pressure Input

Relative pressure:	0...0,1 up to 0...1000 bar / -1...+24 bar
Absolute pressure:	0...0,25 up to 0...16 bar
Vacuum and ±ranges:	-1...0 up to -1...+24 bar
Ranges:	see tables page 3

Analog Output

Analog output A:	Nominal operating range:	8...16 mA
	Valid current range:	4...20 mA
	Zero point:	8 mA (pressure load)
	Load resistance:	max. 500 Ω
Analog output B:	Other:	galvanic isolation from supply voltage and output B
	Nominal operating range:	8...16 mA
	Maximum operating range:	4...20 mA
	Zero point:	8 mA (pressure load)
	Load resistance:	max. 500 Ω

Interface

I2C-bus:	Usage:	Calibration by manufacturer
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Measuring Amplifier Specifications

Accuracy:	Current balance:	±5% current deviation (0,8 mA)
Temperature coefficient:	<50 ppm/K	
Test input 24 VDC:	Current jump analog output channel B: 1 mA, ≤250 Hz	

Response Time

Settling time:	≤ 1 ms
Settling time ratiometric and measurement ranges < 400 mbar:	≤ 2 ms

● Applications

The pressure transmitter SIL is suitable for all application ranges of industrial pressure measurement technology. (Engineering, hydraulics, pneumatics, general industrial applications)



Photos: www.pixelio.de

● Technical Data (Continued)

Accuracy

Non-linearity (IEC 61298-2):		≤ ±0,2% of span (BFSL-method)
Non-repeatability:		≤ ±0,1% of span
Accuracy at reference conditions:	Standard:	≤ ±0,5% of span
	Option:	≤ ±0,2% of span (only for measurement ranges ≥ 0,25 bar)

The values for accuracy at reference conditions are valid including non-linearity, hysteresis, zero and full scale error. This corresponds to error of measurement per IEC 61298-2

Zero point adjustment:	Zero point:	±5% (Setting via potentiometer in device.)
	Span:	±5% (Setting via potentiometer in device.)

Error of measurement at 0...80 °C

Mean temperature coefficient at zero point:		
	Measurement ranges ≤ 0,25 bar:	≤ 0,4% of span / 10 K
	Measurement ranges > 0,25 bar:	≤ 0,2% of span / 10 K

Mean temperature coefficient at span:	≤ 0,2% of span / 10 K
Long-time stability at reference conditions:	≤ 0,2% of span / 10 K / year

Supply

Voltage:	24 VDC, ±10%
Supply current:	max. 100 mA
Sensor supply:	5 VDC
Test pulse:	24 VDC ±20%

Environmental Conditions

Temperature ranges:

Medium:		
Standard:	-30...+100 °C	Option: -40...+125 °C

Attention: Head temperatures above +85 °C can destroy the electronics!

Operating temperature:	-20...+60 °C
Storage:	-25...+85 °C
Humidity:	96% rF without condensation

Mechanics

Dimensions:	see page 7	
Process connection:	EN 837:	G 1/4 B G 1/2 B
	DIN 3852-E:	G 1/4 A (maximum overload limit is 600 bar) G 1/4 internal thread
	ANSI/ASME B1.20.1:	1/4 NPT 1/2 NPT
	SAE J514 E:	7/16-20 UNF with 74° cone M20 x 1,5 G 1/2 external / G 1/4 internal R 1/4
	ISO 7:	
Electrical connection:	see page 4	
Material:		
	parts in contact with medium:	CrNi-steel
	parts not in contact with medium:	Casing: CrNi-steel Holding ring: PA Right angle plug: PA O-ring: NBR Flat seal: VMQ
Transmission fluid:	Synthetic oil	
Vacuum resistance:	available	
Weight:	ca. 300 g	
Equipment protection:	Protection class per IEC 60529:	see „Electrical Connection“

Attention: Protection classes as shown under „Electrical Connection“ are only valid in plugged condition with mating plugs of the corresponding protection class.

● Technical Data (Continued)

Mechanics (continued)

Vacuum resistance:	available
Vibration resistance:	20 g (per IEC 60068-2-6)
Shock resistance:	1000 g (mechanical, per IEC 60068-2-27)
Weight:	ca. 497 g
Equipment protection:	Protection class per IEC 60529: Ip54

Attention: Protection class is only valid in plugged condition with mating plugs of the corresponding protection class.

Safety Specifications

Certificates:	SIL3 (EN 61508, EN 62061) Performance-Level „e“, category 3 (EN 13849-1)
EMC:	EN 61326-1, EN 61326-2-1, EN 61326-3-1
Environment:	EN 60068-2-1, EN 60068-2-2, EN 60068-2-6, EN 60068-2-30, EN 60068-2-31, EN 60592
Evaluation:	The evaluation of both analog signals has to be done using a safety control system (Safety PLC). The programming concept of the safety control system (Safety PLC) is specified by the manufacturer.

Pressure Ranges

Table relative pressure (in bar)

Measurement range	0...0,1	0...0,16	0...0,25	0...0,4	0...0,6	0...1	0...1,6	0...2,5
Overload limit	1	1,5	2	2	4	5	10	10
Measurement range	0...4	0...6	0...10	0...16	0...25	0...40	0...60	0...100
Overload limit	17	35	35	80	50	80	120	200
Measurement range	0...160	0...250	0...400	0...600	0...1000			
Overload limit	320	500	800	1200	1500			

Table absolute pressure (in bar)

Measurement range	0...0,25	0...0,4	0...0,6	0...1	0...1,6	0...2,5	0...4	0...6
Overload limit	2	2	4	5	10	10	17	35
Measurement range	0...10	0...16	0...25	0,8...1,2				
Overload limit	35	80	80	5				

Table vacuum and ±ranges (in bar)

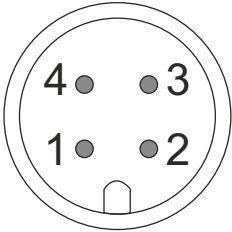
Measurement range	-0,6...0	-0,4...0	-0,25...0	-0,16...0	-0,1...0	-1...0	-1...+0,6	-1...+1,5
Overload limit	4	2	2	1,5	1	5	10	10
Measurement range	-1...+3	-1...+5	-1...+9	-1...+15	-1...+24			
Overload limit	17	35	35	80	50			

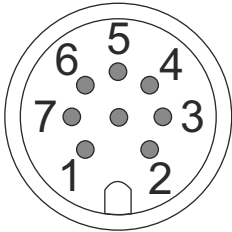
Measurement ranges are also available in psi, kg/cm², kPa and MPa. Bursting pressure ranges can also be requested.

Reference conditions (per IEC 61298-1):

Temperature:	15...25 °C
Air pressure:	0,86...1,06 bar
Humidity:	45...75% relative
Auxiliary energy:	24 VDC
Fitting position:	Gauged at vertical fitting position, with process connection facing down.

● Electrical Connection

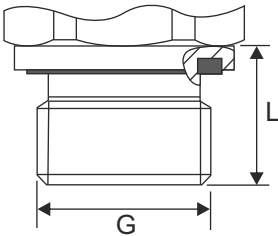
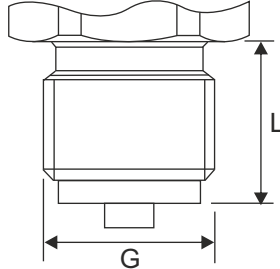
Round plug M12x1, 4-pole				
	PIN	Function	Description	Color
	1	GND	test pulse PLC - ground	brown
	2	+I _{A_out} = 0...20 mA	current output A	white
	3	GND	current output A - ground	blue
	4	+U _{Impuls} = 24 V ±20%	test pulse PLC	black
Protection class:				IP54

Round plug M12x1, 8-pole				
	PIN	Function	Description	Color
	1	U _B = 24 V ±10%	supply voltage	white
	2	+I _{B_out} = 0...20 mA	current output B	brown
	3	GND	supply voltage - GND	green
	4	GND	current output B - GND	yellow
Connections only for factory setting				
Protection class: IP54	5	HVC U = 24 ±10% VDC	protection commands activation of the digital potentiometer	grey
	6	SCL U = 5 V ±5%	Clock pulse, I2C-bus	pink
	7	SDA U = 5 V ±5%	Serial Data I2C-bus	blue
	8	GND	I2C-Bus - GND	red

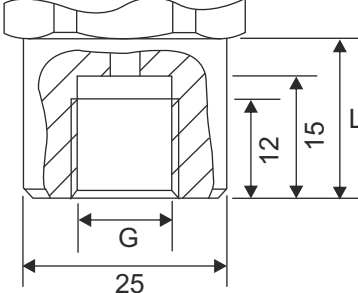


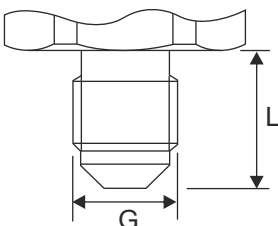
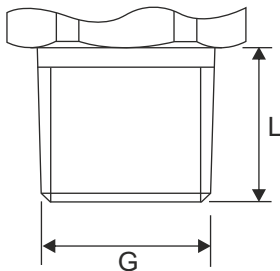
The Assignment of contact pins 5...8 is only for your information. The assignment of contact pins 1...4 is for the connection of the supplied cables during system installation. The user is not allowed to use deviating voltage signals on the contact pins or connection lines.

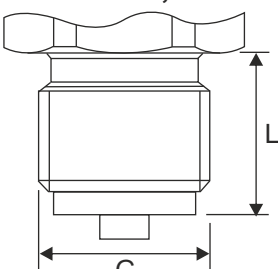
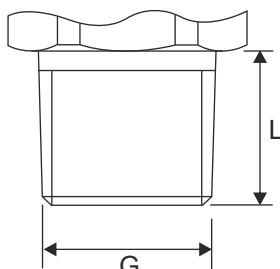
● **Process Connection (in mm)**

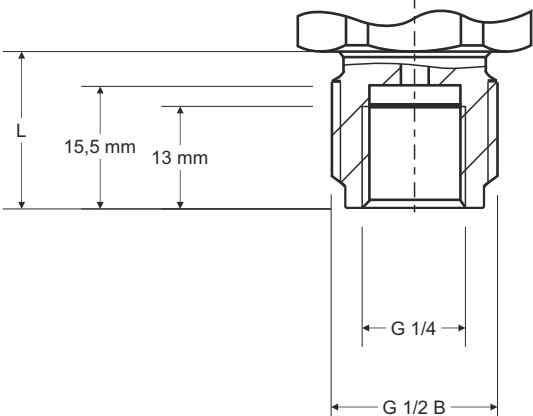
DIN 3852-E		G	L (in mm)	EN 837		G	L (in mm)
	G1/4 A ¹⁾	12		G 1/4 B	13		
				G 1/2 B	20		

1) Overload limit is 600 bar

G1/4 Internal Thread		G	L (in mm)
	G 1/4 Innen	20	

SAE J514 E		G	L (in mm)	ANSI/ASME B1.20.1		G	L (in mm)
	7/16-20 UNF with 74° cone	15		1/4 NPT	13		
				1/2 NPT	19		

M20 x 1,5		G	L (in mm)	ISO 7		G	L (in mm)
	M20 x 1,5	20		R 1/4	13		

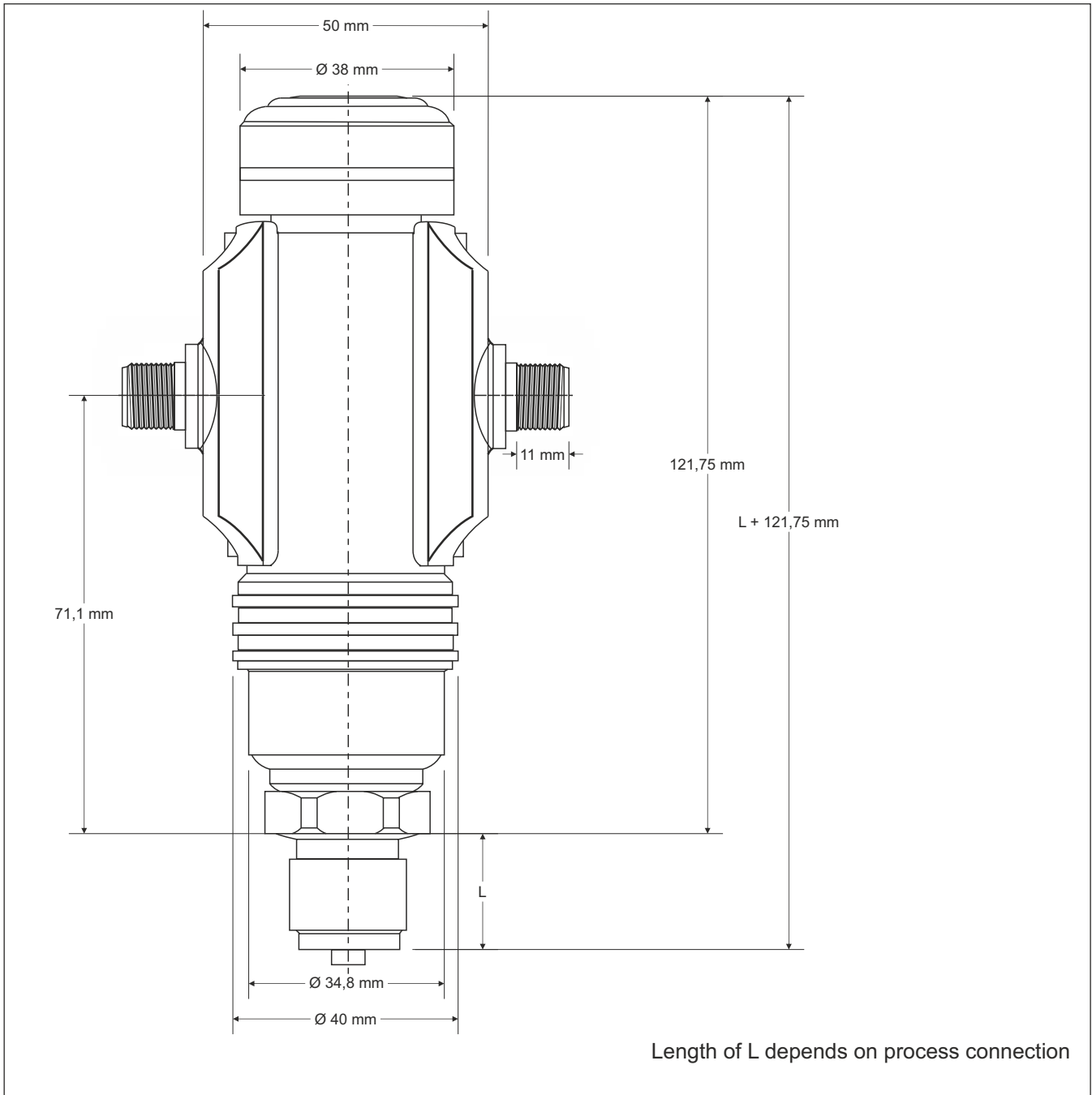
G 1/2 External, G 1/4 Internal		G	L (in mm)
	G 1/2 B external	20	
	G 1/4 internal	20	

● **Accessories**

Seals for process connection

Process connection G 1/4 B EN 837:	Copper CrNi-steel
Process connection G 1/2 B EN 837:	Copper CrNi-steel
Process connection G 1/4 A DIN 3852-E:	NBR FKM
Process connection M20 x 1,5:	Copper CrNi-steel

● **Dimensions (in mm)**



● **Ordering Code**

①	Pressure type:	Relative pressure	0		
		Absolute pressure	1		
		Vacuum, ±ranges	2		
②	Pressure ranges:	0...0,1 bar = A1	0...0,16 bar = A2	0...0,25 bar = A3	
		0...0,4 bar = A4	0...0,6 bar = A5	0...1 bar = B1	
		0...1,6 bar = B2	0...2,5 bar = B3	0...4 bar = B4	
		0...6 bar = B5	0...10 bar = C1	0...16 bar = C2	
		0...25 bar = C3	0...40 bar = C4	0...60 bar = C5	
		0...100 bar = D1	0...160 bar = D2	0...250 bar = D3	
		0...400 bar = D4	0...600 bar = D5	0...1000 bar = E1	
		0,8...1,2 bar = N1	-0,6...0 bar = J5	-0,4...0 bar = J4	
		-0,25...0 bar = J3	-0,16...0 bar = J2	-0,1...0 bar = K1	
		-1...0 bar = J1	-1...+0,6 bar = L2	-1...+1,5 bar = L3	
		-1...+3 bar = L4	-1...+5 bar = L5	-1...+9 bar = L1	
		-1...+15 bar = M2	-1...+24 bar = M3		
		③	Accuracy:	0,5% BFSL (standard)	0
				0,2% BFSL (only for measurement ranges ≥ 0,25 bar)	1
④	Output:	4...20 mA	1		
⑤	Temperature medium:	-30...+100 °C (standard)	1		
		-40...+125 °C	2		
⑥	Process connection:	G 1/4 B (EN 837) = 2	G 1/2 B (EN 837) = 4		
		M 20x1,5 (DIN 16288) = 6	G 1/4 A (DIN 3852-E) ¹ = 7		
		1/4 NPT (ANSI/ASME) = B	1/2 NPT (ANSI/ASME) = C		
		7/16-20 UNF (SAE J514 E), 74° = O	G 1/4 Internal = P		
		G 1/2 external, G 1/4 internal = X	R 1/4 (ISO 7) = U		
			1) maximum overload limit is 600 bar		
⑦	Electr. connection:	M12x1, 4-pole and M12x1, 8-pole	1		
⑧	Cable length:	Without (plug)	0		
		2 m	1		
		5 m	2		
⑨	Special model:	No	0		
		Yes (please specify)	1		
⑩	Accessories:	Without	8		
		Please select accessories from list on page 6	9		

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