

PP56

Fully welded pressure sensor with flush membrane and touch screen

PP56-2.B#####.D214.####11.#0#0

Preliminary

Overview

- All market typical industrial connections available
- Condensate-proof measuring cell
- IO-Link dual channel output (in parallel to 4 ... 20 mA)
- Space-saving installations
- Absolute pressure, relative pressure and vacuum measurement
- Easy parameterization via display, IO-Link and FlexProgram
- Rotatable display with 28 steps over 315°



Picture similar



Technical data

Performance characteristics

Pressure type	Absolute Relative (gauged)
Measuring range	-1 ... 60 bar Refer to section "Operating conditions"
Max. measuring span	60 bar , with standard configuration
Min. measuring span	0.4 bar , with standard configuration
Max. turndown ratio	5 : 1
Compensated temperature range	-10 ... 65 °C
Max. measuring error	± 0.3 % FSR Including zero-point and span error, non-linearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2) For turndown, multiply this value by the applied turndown ratio
Temperature coefficient	≤ 0.1 % FSR/10 K @ -40 ... -10 °C ≤ 0.1 % FSR/10 K @ > 65 °C Refer to section "Operating conditions"
Long term stability	≤ 0.2 % FSR/a
Standard error of measurement (BFSL)	± 0.15 % FSR Including non-linearity, hysteresis and non-repeatability according BFSL For turndown, multiply this value by the applied turndown ratio
Step response time, T90	≤ 45 ms , 2-wire ≤ 25 ms , 3-wire

Process conditions

Process temperature	-40 ... 100 °C , without cooling neck -40 ... 150 °C , with cooling neck
Process pressure	Refer to section "Operating conditions"

Process connection

Connection variants	Refer to section "Dimensional drawings"
Wetted parts material	AISI 316L (1.4404)
Wetted parts material, membrane	AISI 316L (1.4435)

Surface roughness (in contact with medium)

Membrane	Ra ≤ 0.4 µm
Weld joint	Ra ≤ 0.8 µm

Ambient conditions

Operating temperature range	-30 ... 70 °C , with display -10 ... 70 °C , optimal display readability
Storage temperature range	-40 ... 85 °C
Degree of protection (EN 60529)	IP 67 IP 69 K , with appropriate mating connector
Humidity	< 100 % RH , condensing
Insulation resistance	> 100 MΩ , 500 V DC
Shock and vibration tests (EN 61373:1999, 2010)	300m/s² @ 15ms
Vibration (sinusoidal) (EN 60068-2-6)	1.6 mm (2 ... 25 Hz), 4 g (25 ... 100 Hz), 1 octave / min.

Housing

Style	Compact transmitter, Ø50 mm
Overall size	Refer to section "Dimensional drawings"
Material	AISI 316L (1.4404)

Electrical connection

Connector	M12-A, 4-pin, stainless steel
Interface	IO-Link 1.1 FlexProgram

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Power supply

Voltage supply range	15 ... 35 V DC 18 ... 30 V DC , with IO-Link
Current consumption (no load)	3.5 mA ... 23 mA , 2-wire 35 mA typ., 50 mA max., 3-wire mode
Reverse polarity protection	Yes

Power supply

Power-up time	< 600 ms @ 24 V
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Compliance and approvals

EMC	EN 61326-1 EN 61326-2-3 Deviation during immunity testing ≤ 0.2% FSR
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Output signals

Switching output

Output type	PNP NPN Push-pull
Switching logic	High-Active Low-Active
Voltage drop	PNP: (+Vs -1.0 V) ± 0.4 V, Rload ≥ 10 kΩ NPN: (-Vs +0.6 V) ± 0.3 V, Rload ≥ 10 kΩ
Current rating	100 mA , max.
Off leak current	< 100 µA , max.
Short circuit protection	Yes
Damping	0 ... 60 s , programmable

IO-Link interface

IO-Link version	1.1
Device profile	Smart Sensor Profile
IO-Link port type	Class A
Baud rate	38,4 kbaud (COM2)
Cycle time	≥ 4 ms
Process data length	48 bit
SIO-mode	Yes
Process data (cyclic)	Pressure Switch state State of alert
Diagnostic data (acyclic)	Measuringcell temperature CPU temperature Operation
Adjustable data (acyclic)	Offset settings Switch parameters Current output limit values Display configuration Tags Password for access
Dual Channel	IO-Link / SIO Mode
Dual Channel 2	Analogue / SIO Mode

4 ... 20 mA

Output signal	4 ... 20 mA 20 ... 4 mA , programmable Following accuracy specifications to be added to the values in section "performance characteristics" if sensor is used in analog mode.
Accuracy	± 0.1 % FSR (± 16 µA)
Step response time, T90	≤ 25 ms
Load resistance	Rs ≤ (V DC - 15 V)/23 mA, 2-wire mode Rs ≤ (V DC - 10 V)/23 mA, 3- & 4-wire mode
Temperature drift	0.05 % FSR/10 K
Ripple immunity	< 1 % FSR
Effect of variations in supply voltage	< 0.01 % FSR/V (± 1.6 µA/V)
Damping	0 ... 60 s , programmable

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Display

General information

Panel type	FSTN Graphical LCD
Display range	-9999 ... 99999
Max. digit height	21.8 mm
Material	Polycarbonate

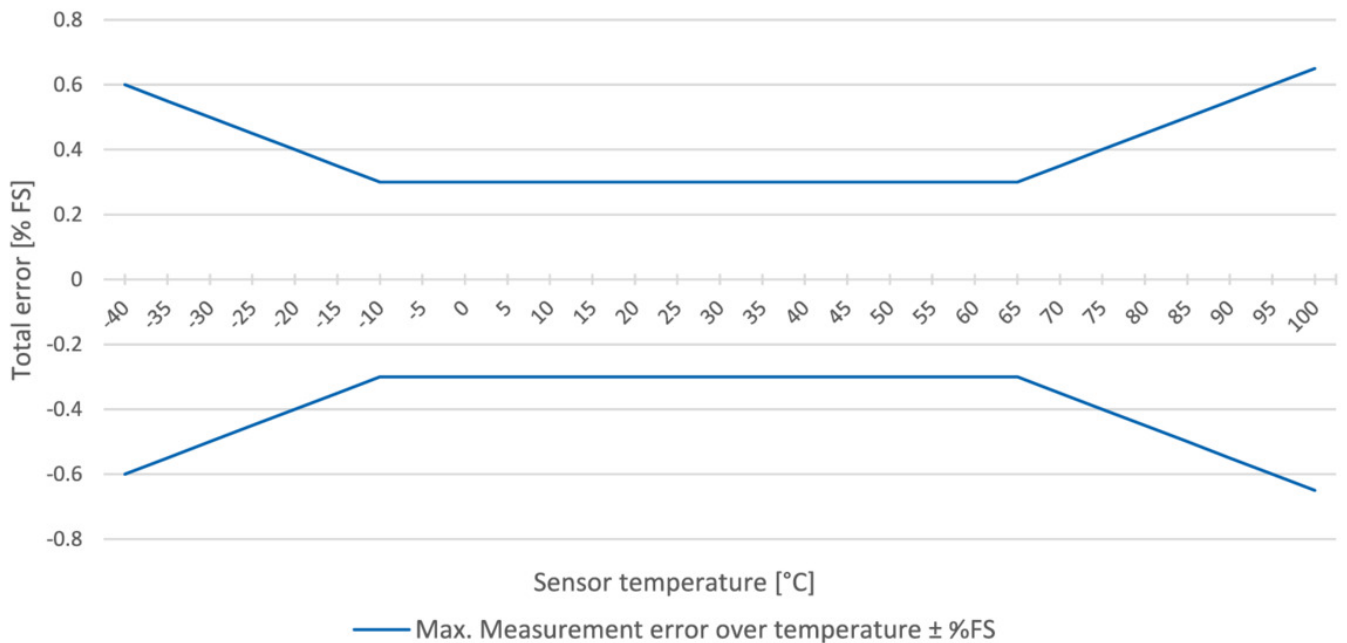
User configurable data

Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Media description	Customer programmable
Measuring unit	bar Psi

Operating conditions

Measuring range (bar)	Proof pressure (bar)	Burst pressure (bar)
0 ... 0,4	1	2
0 ... 1 -1 ... 1	3	6
0 ... 6 -1 ... 5	15	30
0 ... 10 -1 ... 15	60	120
0 ... 20	70	140
0 ... 25	70	140
0 ... 40	135	270
0 ... 60	135	270

Temperature coefficient



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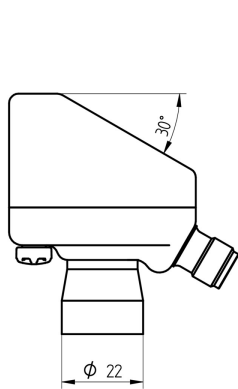
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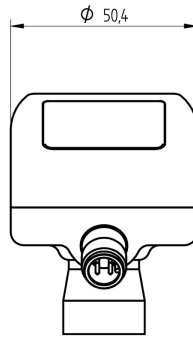
Preliminary

Dimensional drawings (mm)

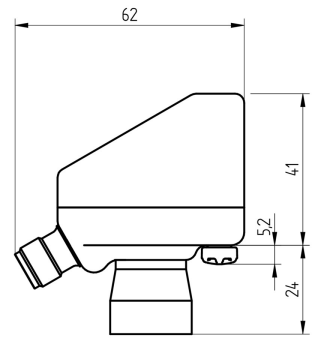
Housing



Display housing left view

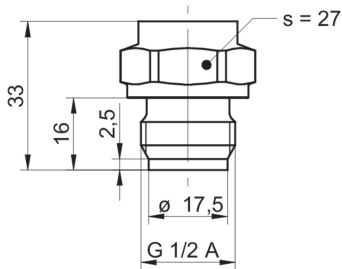


Display housing front view

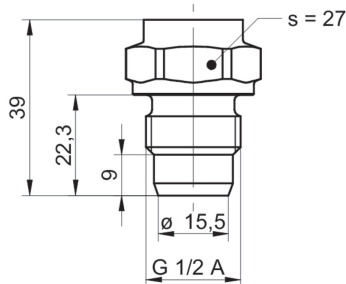


Display housing right view

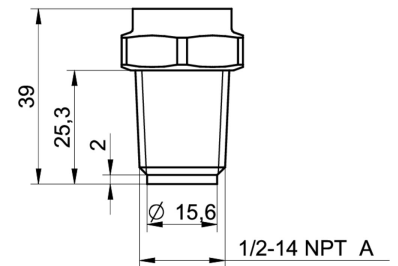
Process connection



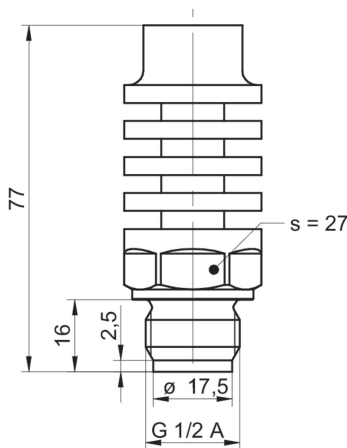
G51-41
G 1/2 A DIN 3852-E (BCID: G51)



G08-42
G 1/2 A ISO 228-1 with cone (BCID: G08)



N02-49
1/2-14 NPT (BCID: N02)



G51-71
G 1/2 A DIN 3852-E with cooling neck (BCID: G51)

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Electrical connection

Equivalent circuit	Function	Pin assignment	Coding	Operating mode	Used pins																
	<table border="1"> <tr><td>+Vs</td><td>1</td></tr> <tr><td>Iout / SW2</td><td>2</td></tr> <tr><td>GND (0 V)</td><td>3</td></tr> <tr><td>IO-Link / SW1</td><td>4</td></tr> <tr><td>Frame Ground</td><td>Plug thread</td></tr> </table>	+Vs	1	Iout / SW2	2	GND (0 V)	3	IO-Link / SW1	4	Frame Ground	Plug thread		<table border="1"> <tr><td>IO-Link / dual channel</td><td>1, 2, 3, 4</td></tr> <tr><td>analog 3-wire</td><td>1, 2, 3</td></tr> <tr><td>analog 2-wire</td><td>1, 2</td></tr> </table>	IO-Link / dual channel	1, 2, 3, 4	analog 3-wire	1, 2, 3	analog 2-wire	1, 2		
+Vs	1																				
Iout / SW2	2																				
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IO-Link / dual channel	1, 2, 3, 4																				
analog 3-wire	1, 2, 3																				
analog 2-wire	1, 2																				

Ordering information

Ordering key - Configuration possibilities see website

	PP56	-	2	.	B	###	#	.	D2	14	.	##	2	#	1	1	.	#	0	0	0	
Product	PP56																					
Housing material	Stainless steel 1.4404 AISI 316L						2															
Accuracy	±0.3 % FS						B															
Measuring range	0 ... 0.4 bar (EN)						B11															
	0...1 bar (EN)						B15															
	-1...1 bar (EN)						B73															
	0 ... 6 bar (EN)						B20															
	-1...5 bar (EN)						B77															
	0 ... 10 bar (EN)						B22															
	-1...15 bar (EN)						B81															
	0...20 bar (EN)						B25															
	0...25 bar (EN)						B26															
	0 ... 40 bar (EN)						B27															
	0 ... 60 bar (EN)						B29															
Kind of pressure	Relative (gauged)						R															
	Absolute						A															
Output signal	IO-Link and 4 ... 20 mA in parallel Extended functionality								D2													
Output Connection	M12-A, 4-pin									14												
Process connection	G 1/2 A DIN 3852-E (G51)																					41
	G 1/2 A ISO 228-1 with cone (G08)																					42
	1/2-14 NPT flush (N02)																					49
	G 1/2 A DIN 3852-E with cooling neck (G51)																					71
Process connection material	Stainless steel 1.4404 AISI 316L																					2
Seal	None																					0
	NBR standard																					1
	EPDM																					2
	FKM																					3
Oil filling	Standard oil																					1

The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

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Ordering key - Configuration possibilities see website

	PP56	-	2	.	B	###	#	.	D2	14	.	##	2	#	1	1	.	#	0	0	0
Display																					
With display																					1
Configuration																					
Factory settings																					0
Customer-specific																					1
Explosion protection																					
Without																					0
Approvals																					
Standard approvals																					0
Technology																					
Silicon																					0

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