Baumer
Passion for Sensors

Pressure and continuous level measurement

PP56H

Fully welded pressure sensor with touch screen for hygenic applications

PP56H-2.B####.D214.####21.#0#0

Preliminary

Overview

- All market typical hygienic connections available
- Resistant to all common CIP cleaning media
- Condensate-proof measuring cell
- IO-Link dual channel output (in parallel to 4 ... 20 mA)
- Space-saving installations from DN 25 on
- Absolute pressure, relative pressure and vacuum measurement
- Easy parameterization via display, IO-Link and FlexProgram
- Rotatable display with 28 steps over 315° for threaded pressure connections

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"
SIP/CIP compatibility	< 35 min, in general @ medium temperature up to 150 °C

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
Process connection	Ra ≤ 0.8 µm Ra ≤ 0.4 µm, optional Ra ≤ 0.4 µm, electropolished, optional
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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Technical data

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

Compliance and approvals

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

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

4 ... 20 mA

Output signal	4 … 20 mA 20 … 4 mA , programmable Following accuracy specifications to be added to the values in section "perform-ance 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 sup-ply voltage	< 0.01 % FSR/V (± 1.6 µA/V)
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

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Display

User configurable data

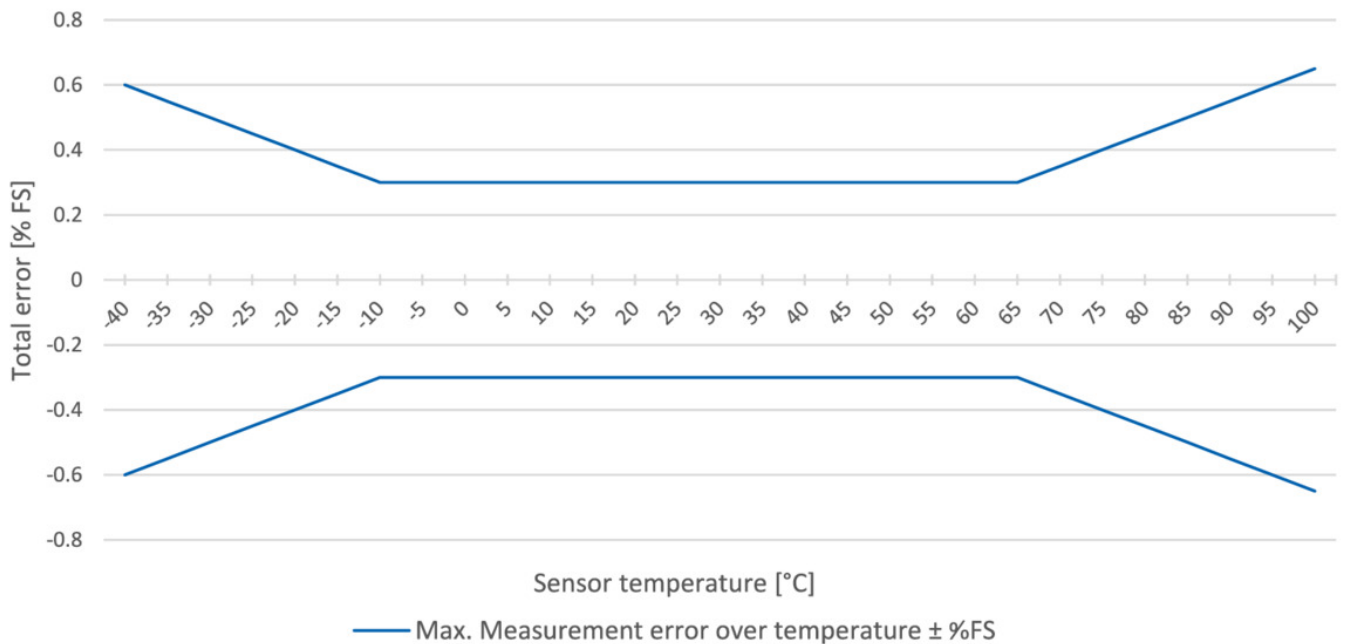|	
Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Media description	Customer programmable
Measuring unit	bar Psi

General information

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

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			
0 … 25		70	140
0 … 40		135	270
0 … 60			

Temperature coefficient

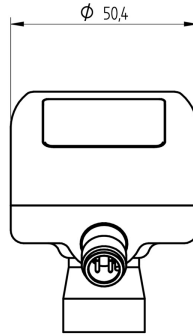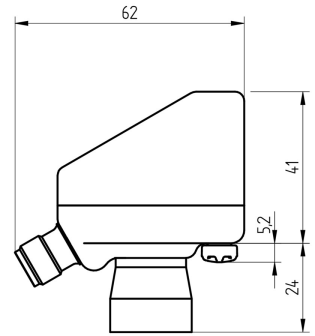## Dimensional drawings (mm)

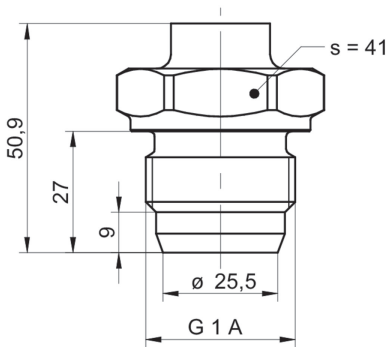### Housing

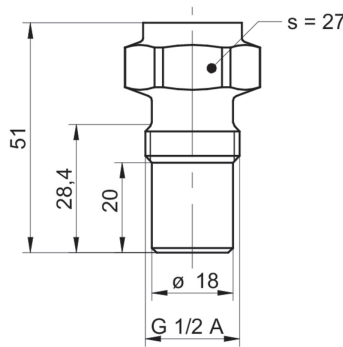Display housing left view

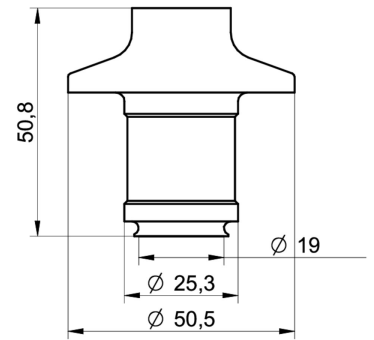Display housing front view

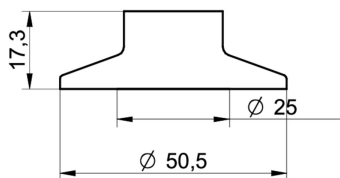Display housing right view

Process connection

A04-44
G 1 A hygienic (BCID: A04)
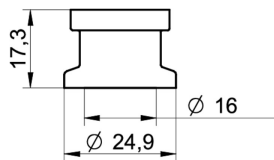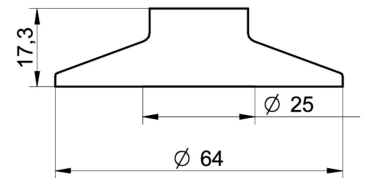
A03-48
G 1/2 A hygienic (BCID: A03)

B01-50
BHC 3A DN 38, membrane Ø 19 mm (BCID: B01)

C04-51
Tri-Clamp Ø 50.5, membrane Ø 25 mm (BCID: C04)

C01-52
Tri-Clamp Ø 24.9, membrane Ø 16 mm (BCID: C01)
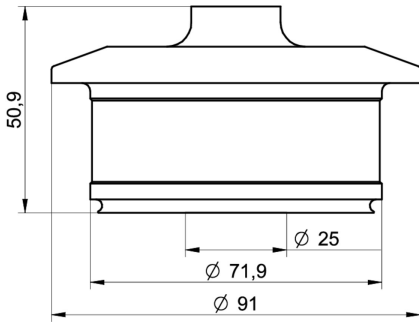
C05-54
Tri-Clamp Ø 64.0, membrane Ø 25 mm (BCID: C05)

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

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Dimensional drawings (mm)

Process connection

B02-56
BHC 3A DN 76, membrane Ø 25 mm (BCID: B02)

V02-61
Varivent® DN 32 … 125; 1 1/2" … 6" (Type N), Ø 68, membrane Ø 25 mm (BCID: V02)

A04-74
G 1 A hygienic with cooling neck (BCID: A04)

C04-81
Tri-Clamp Ø 50.5, membrane Ø 25 mm (BCID: C04) with cooling neck

Electrical connection

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

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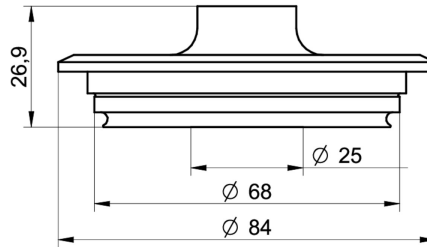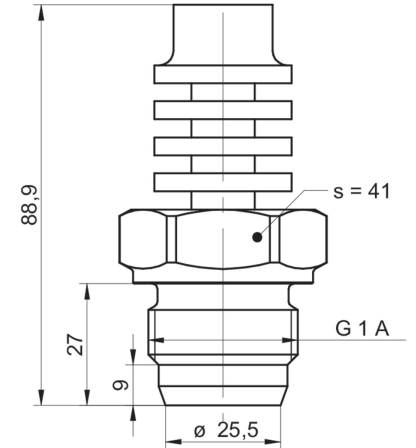## Ordering information

Ordering key - Configuration possibilities see website

	PP56H	-	2	.	B	###	#	.	D2	14	.	##	#	0	2	1	.	#	0	#	0
Product																					
PP56H	PP56H																				
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 functionalitiy									D2												
Output Connection																					
M12-A, 4-pin										14											
Process connection																					
G 1 A hygienic (A04)												44									
G 1/2 A hygienic (A03)												48									
BHC 3A DN 38 (B01)												50									
ISO 2852 (Tri-Clamp), DN 33.7; 38, Ø 50.5 (C04)												51									
Tri-Clamp, DN 3/4, Ø 24.9 (ohne 3-A) (C01)												52									
ISO 2852 (Tri-Clamp), DN 40; 51, Ø 64.0 (C05)												54									
BHC 3A DN 76 (B02)												56									
Varivent® DN 32 … 125; 1 1/2 … 6 (Type N), Ø 68 (V02)												61									
G 1 A hygienic with cooling neck (A04)												74									
ISO 2852 (Tri-Clamp), DN 33.7; 38, Ø 50.5 with cooling neck (C04)												81									
Process connection material																					
Stainless steel 1.4404 AISI 316L													2								
Stainless steel 1.4404 Ra0.4													3								
Stainless steel AISI 316L, 1.4435 electropolished Ra 0.4													F								
Seal																					
None														0							
Oil filling																					
NSF H1 listed (FDA approved)																2					
Display																					
With display																	1				

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Ordering information

Ordering key - Configuration possibilities see website

	PP56H	-	2	.	B	###	#	.	D2	14	.	##	#	0	2	1	.	#	0	#	0
Configuration																					
Factory settings																			0		
Customer-specific																			1		
Explosion protection																					
Without																					0
Approvals																					
Standard approvals																				0	
Hygienic approvals																				1	
Technology																					
Silicon																					0

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