Diaphragm Pressure Gauges with Electrical Output Signal Stainless Steel, Safety Case Version Type PGT43HP.100 and PGT43HP.160

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intelliGAUGE®

Applications

- Acquisition and display of process values
- Transmission of process value to the control room, 4 to 20 mA; 0 to 20 mA; 0 to 10 V
- For measuring points with high overpressure 600, 1500, or 6000 PSI
- Easy-to-read, local analog display needs no power supply
- Safety-related application

Special features

- "Plug and play" with no configuration necessary
- Scale ranges up to 0/600 PSI
- Wide range of special materials available
- For gaseous, liquid and aggressive media, in corrosive environments, due to stainless steel design
- Solid-front, blow-out back safety design

intelliGAUGE Type PGT43HP.100

Description

Wherever the process pressure has to be indicated locally, and, at the same time, signal transmission to a central controller or remote control room is needed, the PGT43HP intelliGAUGE can be used.

Due to the metallic construction of the measuring elements, these instruments have high overload capability in the ranges of 600, 1500 and 6000 PSI.

Through the combination of a high-quality mechanical measuring system and precise electronic signal processing, the process pressure can still be read, even if the power supply is lost.

The PGT43HP intelliGAUGE fulfills all safety-related requirements of the relevant standards and regulations for the onsite display of the operating pressure of pressure vessels. An additional measuring point for the mechanical pressure indication is no longer needed.

The PGT43HP is based upon a high-quality, stainless steel pressure gauge with a solid-front blow-out back case (Type 43x.36) in nominal sizes of 4" or 6". The pressure gauge is manufactured in accordance with ASME B40.100 and EN 837-3.

The rugged design of diaphragm measuring system produces a pointer rotation proportional to the pressure. An electronic angle encoder, proven in safety-critical automotive applications, determines the position of the pointer shaft. The encoder is a non-contact sensor and therefore completely free from wear and friction. From this, the pressure-proportional, e.g. 4 to 20 mA electrical output signal is produced.

The electronic WIKA transmitter, integrated into the high-quality mechanical pressure gauge, combines the advantages of electrical signal transmission with the advantages of a local mechanical display.

The measuring span (electrical output signal) is set automatically along with the mechanical display, i.e. the scale over the full display range corresponds to 4 to 20 mA. The electrical zero point can also be set manually.

Standard Features

Design
ASME B40.100 & EN 837-3

Sizes
4" or 6" (100 or 160 mm)

Accuracy class
± 2/1/2% of span (ASME B40.100 Grade A)

Ranges
0/6.5 "H_2O up to 0/100 "H_2O (6" flange)
0/150 "H_2O up to 0/600 PSI (4" flange)
or other equivalent units of pressure or vacuum

Overpressure safety
600, 1500 or 6000 PSI (40, 100, 400 bar)

Operating temperature
Ambient: -4°F to +140°F (-20°C to +60°C)
Medium: +212°F (+100°C) maximum

Temperature error
Additional error when temperature changes from reference temperature of 68°F (20°C) ±0.8% for every 18°F (10°C) rising or falling. Percentage of span.

Pressure connection with lower flange
Material: 316L stainless steel
Lower mount (LM)
1/2" NPT male, 22 mm wrench flats

Diaphragm sealing ring
FPM / FKM

Movement
Copper alloy

Dial
White aluminum with black lettering

Pointer
Black aluminum, adjustable

Case with upper flange
Stainless steel, solid-front, blow-out back, scale ranges ≤ 0/200 PSI with compensating valve to vent case

Window
Laminated safety glass

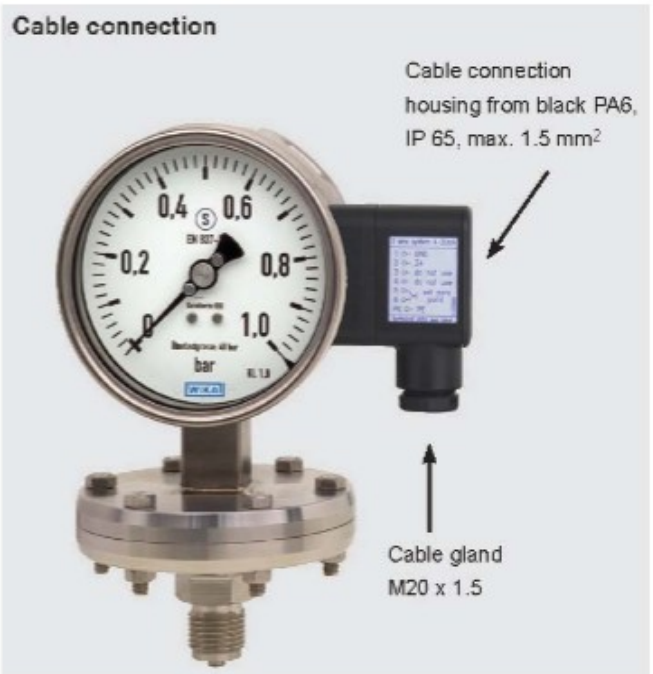
Cover ring
Bayonet ring, stainless steel

Weather protection
NEMA 4X / IP 54 per EN 60 529 / IEC 529
(with liquid filling NEMA 6 / IP 65)

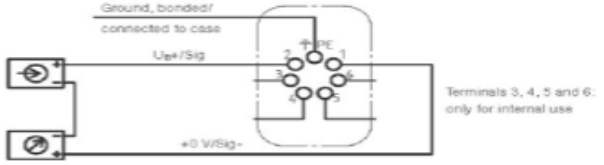
Optional extras

- Other pressure connections
- Overpressure safety to 6,000 PSI
- Vacuum safe to -30 "Hg
- Max. temperature range of medium +400°F (+200°C)
- Accuracy ±1.0% (ASME B40.100 Grade A)
- Output signal 0 to 20 mA, 0 to 10 V
- Open connection flanges to DIN/ASME from DN 15 to DN 80 (Preferred nominal widths DN 25 and 50 or DN 1" and DN 2"; see data sheet IN 00.10
- Wetted parts lined/coated with special materials, overpressure to 160 PSI (6" flange) or 600 PSI (4" flange); PTFE, Hastelloy B2, Hastelloy C4, Monel, Nickel, Tantalum, Silver (accuracy changes to ±2.5% of span
- Liquid filling with 50 cSt Silicone oil
- Version to ATEX Ex II 2G Ex ia IIC T4 / T5 / T6 or Ex I M2 Ex ia I
- Gost Standard approval
- Polycarbonate window (max. ambient temp +180°F)
- Alarm contacts (see data sheet AC 08.01)
- Custom dial layout
- Other pressure scales available
  bar, kPa, MPa, kg/cm² and dual scales

Cable connection



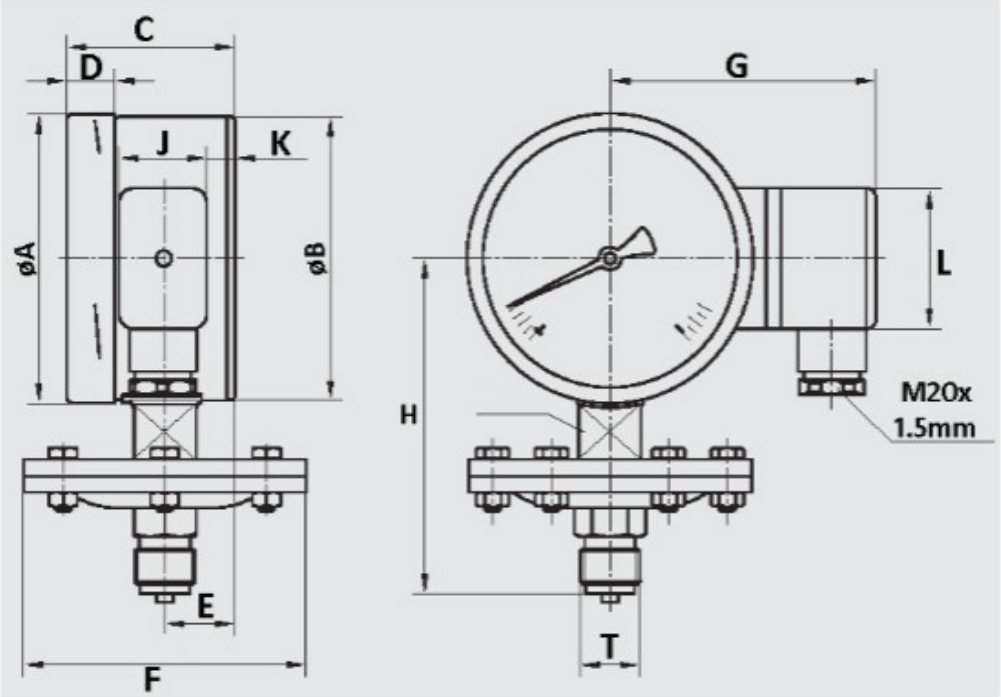
Electrical data

Power supply U_B	DC V	$12 < U_B \leq 30$
Supply voltage effect	% v. FS/10 V	≤ 0.1
Permissible residual ripple	% ss	≤ 10
Output signal	Variant 1 Variant 2 Variant 3 Variant 4	4 to 20 mA, 2-wire, passive, per NAMUR NE 43 4 to 20 mA, per ATEX Ex II 2G Ex ia IIC T4 / T5 / T6 or Ex I M2 Ex ia I 0 to 2 mA, 3-wire 0 to 10 V, 3-wire
Permissible max. load R_A for Variant 1 - 3		$R_A \leq (U_B - 12\ V)/0.02\ A$ with R_A in Ohm and U_B in Volt, however max. 600Ω
Electrical zero point		through a jumper across terminals 5 and 6 (see Operating Instructions)
Effect of load (Variant 1 - 3)	% FS	≤ 0.1
■ Long-term stability of electronics	% FS/a	< 0.3
■ Electrical output signal		≤ 1% of measuring span
■ Linearity	% of span	≤ 1% (limit point calibration)
Conformity specifications		Ex-Variant
■ Power supply	DC V	14 to 30
■ Short circuit rating	mA	100
■ Rating	mW	1000
■ Internal capacitance	nF	Ci ≤ 12 nF
■ Internal inductance	mH	negligible
EMC Directive		2004/108/EC Interference emission (Limit Class B) and immunity to EN 61 326-1
Wiring		L-plug connector, 180° rotatable, max. 1.5 mm², wire protector, Cable gland M20 x 1.5, Ext. cable diameter 7-13 mm, incl strain relief
Wiring protection		NEMA 4X / IP 54 to EN 60 529 / IEC 529, NEMA 6 / IP 65 filled
Connection details 2-wire (Variant 1 and 2)		

Mechanical data

Mechanical design		Safety pressure gauge with solid-front and blow-out back case
Display		Nominal size 4" or 6" (100 or 160 mm)
Measuring ranges		
■ 6" flange		0/6.5 "H_2O up to 0/100 "H_2O
■ 4" flange		0/150 "H_2O up to 0/600 PSI
Process connection		1/2" NPT male (others available as options)
Damping options		
■ for dynamic pressure		restrictor in the pressure channel
■ for vibration		fluid filling of case
Operating limits		overload resistance to EN 837-3
Pressure limitation		
■ Steady		full scale value
■ Fluctuating		0.9 x full scale value
		The recommendations for the use of mechanical measuring systems in accordance with ASME B40.100 and EN 837-3 must be observed
Accuracy		
■ Mechanical display		≤ 2/1/2% of measuring span (ASME B40.100 Grade A)
■ Long term stability of electronics	%FS/a	< 0.3
■ Elec. output signal		≤ 1% of measuring span
Permissible temperature range of		
■ Medium	°F / (°C)	-4°F to +212°F (-20°C to +100°C)
■ Ambient	°F / (°C)	-4°F to +140°F (-40°C to +60°C) (max 180°F for safety glass)
Temperature influence	%/10K	± 0.8 of measuring span (when temperature of the pressure element deviates from 68°F (20°C) reference temperature). Percentage of span.
Weather protection (front)		NEMA 4X / IP 54 per EN 60 529 / IEC 529 (with liquid filling NEMA 6 / IP 65)
CE-Conformity		ATEX: 94/4
■ Pressure Equipment Directive		97/23/EC

Dimensions



Dimensions Size	Range	Over Pressure		A	B	C	D	E	F	G	H	J	K	L	T	W
4"	≤ 100"H2O	600 & 1500PSI	mm	161	159	59.5	17	25	160	94	119	31	10	49		22
			in	6.34	6.26	2.34	0.67	0.98	6.30	3.7	4.69	1.22	0.39	1.93	1/2"	0.87
		6000PSI	mm	161	159	59.5	17	25	190	94	155	31	10	49		22
			in	6.34	6.26	2.34	0.67	0.98	7.48	3.7	6.10	1.22	0.39	1.93	1/2"	0.87
4"	> 100"H2O	600 & 1500PSI	mm	161	159	59.5	17	25	100	94	135	31	10	49		22
			in	6.34	6.26	2.34	0.67	0.98	3.94	3.7	5.32	1.22	0.39	1.93	1/2"	0.87
		6000PSI	mm	161	159	59.5	17	25	120	94	155	31	10	49		22
			in	6.34	6.26	2.34	0.67	0.98	4.72	3.7	6.10	1.22	0.39	1.93	1/2"	0.87
6"	≤ 100"H2O	600 & 1500PSI	mm	161	159	65	17	25	160	124	165	31	10	49		22
			in	6.34	6.26	2.56	0.67	0.98	6.30	4.88	6.5	1.22	0.39	1.93	1/2"	0.87
		6000PSI	mm	161	159	65	17	25	190	124	184	31	10	49		22
			in	6.34	6.26	2.56	0.67	0.98	7.48	4.88	7.24	1.22	0.39	1.93	1/2"	0.87
6"	> 100"H2O	600 & 1500PSI	mm	161	159	65	17	25	100	124	165	31	10	49		22
			in	6.34	6.26	2.56	0.67	0.98	3.94	4.88	6.5	1.22	0.39	1.93	1/2"	0.87
		6000PSI	mm	161	159	65	17	25	120	124	184	31	10	49		22
			in	6.34	6.26	2.56	0.67	0.98	4.72	4.88	7.24	1.22	0.39	1.93	1/2"	0.87

	4"						6"					
	≤ 100"H2O			> 100"H2O			≤ 100"H2O			> 100"H2O		
Weight	600PSI	1500PSI	6000PSI	600PSI	1500PSI	6000PSI	600PSI	1500PSI	6000PSI	600PSI	1500PSI	6000PSI
kg	3.4	4.7	15.7	1.7	1.6	4.0	4.0	5.3	16.3	2.2	2.3	4.6
lb	7.5	10.4	35	3.75	4.0	8.9	8.9	11.7	36.0	4.9	5.1	10.2