

Bourdon Tube Pressure Gauges with Electrical Output Signal Stainless Steel, Safety Case Version Type PGT43.100 and PGT43.160

WIKA Datasheet PGT43.100



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
- Easy-to-read, local analog display needs no power supply
- Safety-related applications

Special features

- "Plug and play" with no configuration necessary
- Signal transmission in accordance with NAMUR
- Scale ranges up to 0/600 PSI
- Easy-to-read, nominal size 4" or 6" analog display
- Solid-front, blow-out back safety design

intelliGAUGE®



intelliGAUGE Type PGT43.100

Description

In any application where 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 model PGT43 intelliGAUGE can be used.

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 model PGT43 intelliGAUGE fulfills all safety-related requirements of the relevant standards and regulations for the on-site display of the operating pressure of pressure vessels. An additional measuring point for the mechanical pressure indication is no longer needed.

The model PGT43 is based on a high-quality, stainless steel pressure gauge with a solid-front, blow-out back case (Type 43x.30) with nominal size of 4" or 6". The pressure gauge is manufactured in accordance with ASME B40.100 and EN 837-3.

The rugged design of the 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 generated.

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 to match 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 "H₂O up to 0/100 "H₂O (6" flange)

0/150 "H₂O up to 0/600 PSI (4" flange)

or other equivalent units of pressure or vacuum

Pressure limitation

5 x full scale value, max. 600 PSI

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

Bourdon tube

≤ 100 "H₂O: 316L stainless steel

> 100 "H₂O: NiCrCo-alloy (Duratherm)

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: 10 x full scale value, max. 600 PSI
- Vacuum safe to -30 "Hg
- Max. temperature range of medium +400°F (+200°C)
- Accuracy ±1.0% (ASME B40.100 Grade 1A)
- 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 such as 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 contact (see data sheet AC 08.01)
- Custom dial layout
- Other pressure scales available
bar, kPa, MPa, kg/cm² and dual scales



Electrical data

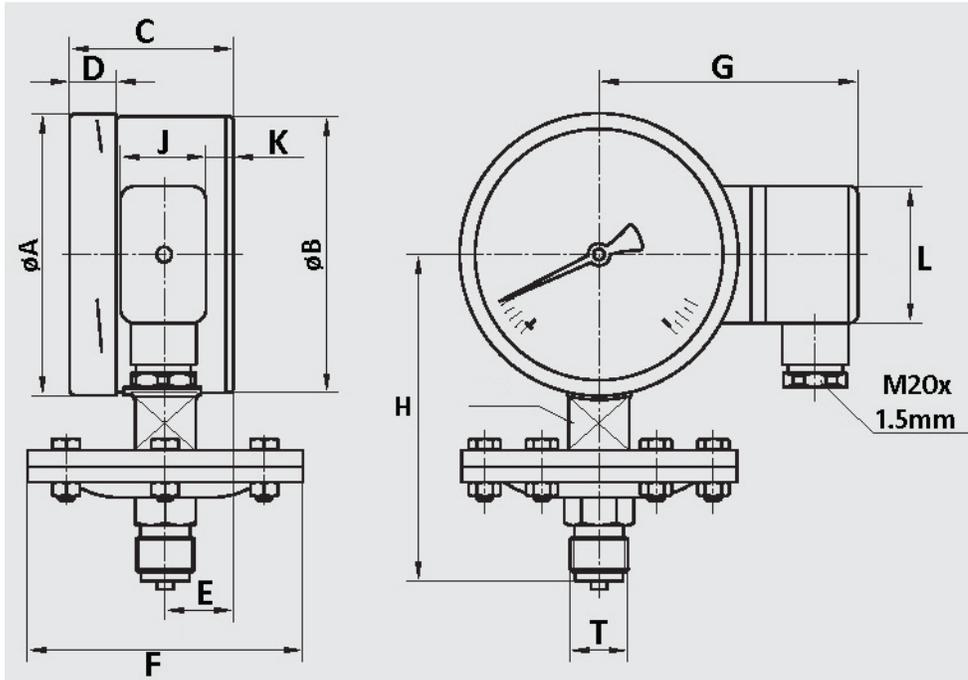
Power supply U_B	DC V	$12 < U_B \leq 30$
Supply voltage effect	% v. FS/10 V	≤ 0.1
Permissible residual ripple	% ss	≤ 10
Output signal	Variant 1 Variant 2 Variant 3 Variant 4	4 to 20 mA, 2-wire, passive, per NAMUR NE 43 4 to 20 mA, per ATEX Ex II 2G Ex ia IIC T4 / T5 / T6 or Ex I M2 Ex ia I 0 to 2 mA, 3-wire 0 to 10 V, 3-wire
Permissible max. load R_A for Variant 1 - 3		$R_A \leq (U_B - 12 \text{ V})/0.02 \text{ A}$ 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		$\leq 1\%$ of measuring span
■ Linearity	% of span	$\leq 1\%$ (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	$C_i \leq 12 \text{ nF}$
■ 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 mm ² , 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
Connection details		
2-wire (Variant 1 and 2)		

Terminals 3, 4, 5 and 6: only for internal use

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 ₂ O up to 0/100 "H ₂ O
■ 4" flange		0/150 "H ₂ O 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		$\leq 1\%$ 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 176°F for safety glass)
Temperature influence	%/10K	max. 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		A	B	C	D	E	F	G	H	J	K	L	T	W	Weight
4"	≤ 100 "H2O	mm	101	99	59.5	17	25	160	94	119	31	10	49	22	2.5 kg
		in	3.98	3.90	2.34	0.67	0.98	6.3	3.7	4.69	1.22	0.39	1.93	1/2"	0.87
	> 100 "H2O	mm	101	99	59.5	17	25	100	94	119	31	10	49	22	1.3 kg
		in	3.98	3.90	2.34	0.67	0.98	3.94	3.7	4.69	1.22	0.39	1.93	1/2"	0.87
6"	≤ 100 "H2O	mm	161	159	65	17	25	160	124	149	31	10	49	22	2.9 kg
		in	6.34	6.26	2.56	0.67	0.98	6.3	4.88	5.87	1.22	0.39	1.93	1/2"	0.87
	> 100 "H2O	mm	161	159	65	17	25	100	124	149	31	10	49	22	1.7 kg
		in	6.34	6.26	2.56	0.67	0.98	3.94	4.88	5.87	1.22	0.39	1.93	1/2"	0.87

Ordering information

Pressure gauge model / Nominal size / Scale range / Size of connection / Optional extras required
 Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.
 Modifications may take place and materials specified may be replaced by others without prior notice.



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