

Bourdon Tube Pressure Gauges with Electrical Output Signal Stainless Steel, Safety Case Version Type PGT23.100

WIKA Datasheet PGT23.100



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

Special features

- "Plug and play" with no configuration necessary
- Signal transmission in accordance with NAMUR
- Scale ranges 0/15 PSI to 0/20,000 PSI
- Easy-to-read, nominal size 4" or 6" analog display
- Solid-front, blow-out back safety design

intelliGAUGE®



intelliGAUGE Type PGT23.100

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 PGT23 intelliGAUGE can be used.

Through the combination of a mechanical measuring system and electronic signal processing, the process pressure can still be read, even if the power supply is lost. The PGT23 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 necessary.

The PGT23 is based on a high-quality, stainless steel pressure gauge with a solid-front case (Type 23x.30) with nominal sizes of 4" or 6". The pressure gauge is manufactured in accordance with ASME B40.100 and EN 837-1.

The durable, fully-welded Bourdon tube 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, 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 837-1

Sizes

4" or 6" (100 or 160 mm)

Accuracy class

± 1% of span (ASME B40.100 Grade 1A)

Ranges

0/15 PSI to 0/20,000 PSI
or other equivalent units of pressure or vacuum

Pressure connection

Material: 316L stainless steel
Lower mount (LM)
1/2" NPT or G 1/2B, 22 mm flats

Bourdon tube

Material: 316L stainless steel
< 1,500 PSI; C-type
≥ 1,500 PSI; helical-type

Movement

Copper alloy

Dial

White aluminum with black lettering

Pointer

Black aluminum

Case

Stainless steel, with solid baffle wall and blow-out back,
scale ranges ≤ 0/200 PSI with compensating valve to vent
case, IP 65 weather protection

Window

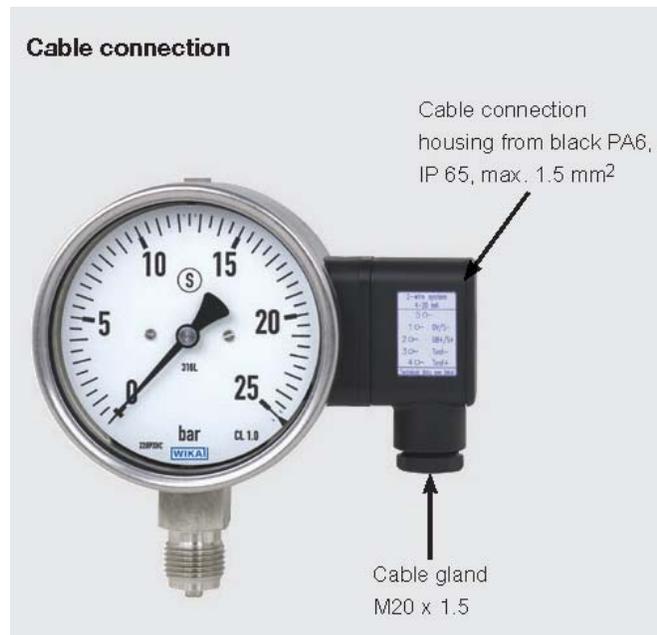
Laminated safety glass

Cover ring

Bayonet ring, stainless steel

Optional extras

- Other pressure connections
- Assembly on diaphragm seals (see Diaphragm Seals Product Review)
- Liquid filling with 50 cSt Silicone oil (only in assembly with plug connector)
- Monel wetted parts
- Surface mounting lugs on case, stainless steel or polished
- Rear mounting flange, stainless steel
- Ambient temperature -40°F (silicone oil filling)
- Polycarbonate window (max. temp 180°F, not for Ex versions)
- Version to ATEX Ex II 2G Ex ia IIC T4 / T5 / T6 or Ex I M2 Ex ia I
- Custom dial layout
- Other pressure scales available
bar, kPa, MPa, kg/cm² and dual scales



Electrical data

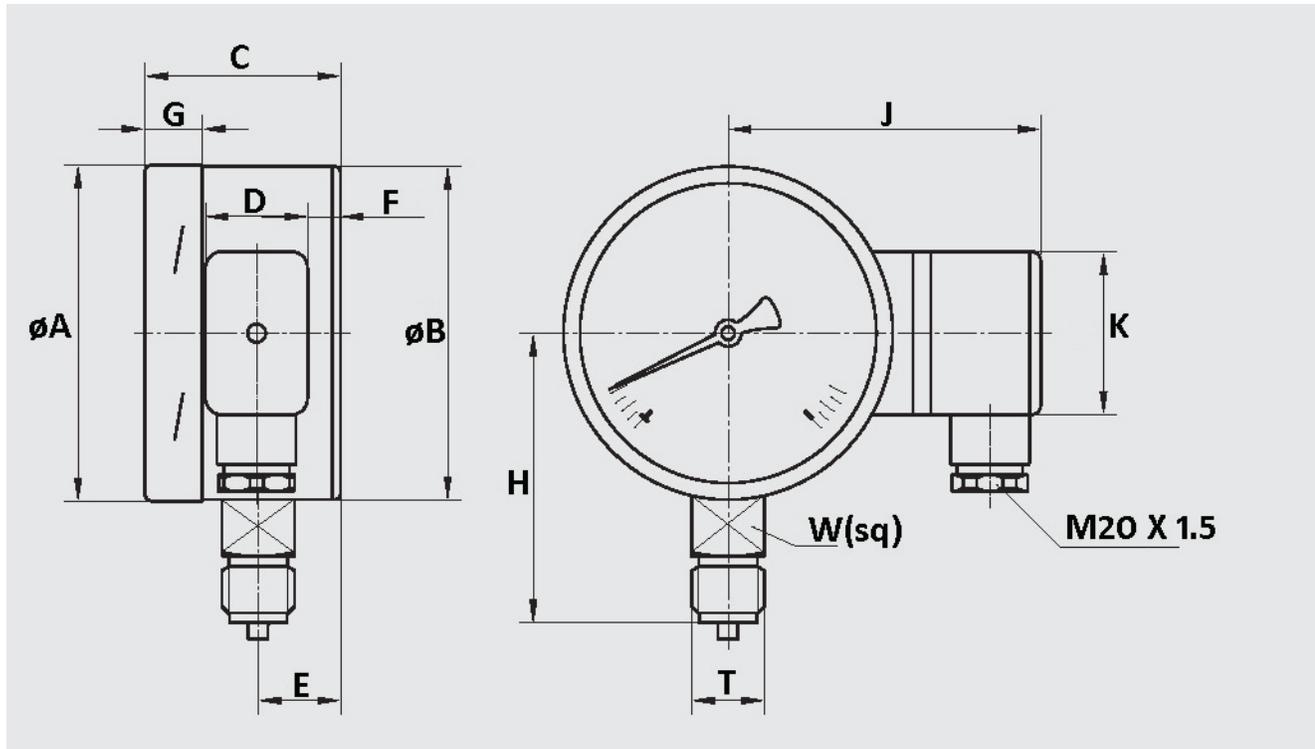
Power supply U_B	DC V	$12 < U_B < 30$
Supply voltage effect	% v. FS/10 V	≤ 0.1
Permissible residual ripple	% ss	≤ 10
Output signal		4 to 20 mA, 2-wire, passive, per NAMUR NE 43
Permissible max. load R_A		$R_A \leq (U_B - 12 \text{ V})/0.02 \text{ A}$ with R_A in Ohm and U_B in Volt, however max. 600Ω
Effect of load	% FS	≤ 0.1
Electrical zero point		through a jumper across terminals 5 and 6 (see Operating Instructions)
<ul style="list-style-type: none"> ■ Long-term stability of electronics 	% FS/a	< 0.3
<ul style="list-style-type: none"> ■ Electrical output signal 		$\leq 1\%$ of measuring span
<ul style="list-style-type: none"> ■ Linearity 	% of span	$\leq 1\%$ (limit point calibration)
Conformity specifications		Ex-Variant
<ul style="list-style-type: none"> ■ Power supply 	DC V	14 to 30
<ul style="list-style-type: none"> ■ Short circuit rating 	mA	100
<ul style="list-style-type: none"> ■ Rating 	mW	1000
<ul style="list-style-type: none"> ■ Internal capacitance 	nF	$C_i \leq 12 \text{ nF}$
<ul style="list-style-type: none"> ■ 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 NEMA 6 / IP 65 to EN 60 529 / IEC 529
Wiring protection		
Connection details		
2-wire		

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

Mechanical data

Mechanical design		Safety pressure gauge with solid-front and blow-out back
Display		Nominal size 4" or 6" (100 or 160 mm)
Measuring ranges	PSI	0/15 to 0/20,000 PSI or other equivalent units of pressure or vacuum
Process connection		1/2" NPT (others available as an option)
Damping options		
<ul style="list-style-type: none"> ■ for dynamic pressure 		restrictor in the pressure channel
<ul style="list-style-type: none"> ■ for vibration 		fluid filling of case
Pressure limitation		
<ul style="list-style-type: none"> ■ Steady 		full scale value
<ul style="list-style-type: none"> ■ Fluctuating 		0.9 x full scale value
<ul style="list-style-type: none"> ■ Short time 		1.3 x full scale value
		The recommendations for the use of mechanical measuring systems in accordance with ASME B40.100 and EN 837-1 must be observed
Accuracy		
<ul style="list-style-type: none"> ■ Mechanical display 		$\leq 1\%$ of measuring span (ASME B40.100 Grade 1A)
Permissible temperature range of		
<ul style="list-style-type: none"> ■ Medium 	°F / (°C)	-40°F to +212°F (-40°C to +100°C)
<ul style="list-style-type: none"> ■ Ambient 	°F / (°C)	-40°F to +140°F (-40°C to +60°C) (max 180°F for safety glass)
Temperature influence		Additional error when temperature changes from reference temperature of 68°F (20°C) $\pm 0.4\%$ for every 18°F (10°C) rising or falling. Percentage of span.
Weather protection (front)		NEMA 6 / IP 65
CE-Conformity		ATEX: 94/4
<ul style="list-style-type: none"> ■ Pressure Equipment Directive 		97/23/EC

Dimensions



Dimensions		A	B	C	D	E	F	G	H	J	K	T	W	Weight
4"	mm	101	100	59.5	31	25	10	17	87	94	49		22	0.80 kg
	in	3.98	3.94	2.34	1.22	0.98	0.39	0.67	3.43	3.70	1.93	1/2"	0.87	1.76 lb
6"	mm	161	159	59.5	31	27	10	17.5	118	123.5	49		22	1.45 kg
	in	6.34	6.26	2.34	1.22	1.06	0.39	0.69	4.65	4.86	1.93	1/2"	0.87	3.20 lb

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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