

Bourdon Tube Pressure Gauges with Electrical Output Signal Safety Case Version Type PGT23.063

WIKA Datasheet PGT23.063



Applications

- Acquisition and display of process values
- Transmission of process value to the control room, 4 to 20 mA
- Easy-to-read, local analog display needs no power supply
- Safety-related application

Special features

- "Plug and play" with no configuration necessary
- Scale ranges 0/15 PSI to 0/8,000 PSI
- Easy-to-read, nominal size 2½" analog display
- Solid-front, blow-out back safety design

intelliGAUGE®



intelliGAUGE Type PGT23.063

Description

In any application with limited space, where the process pressure has to be indicated locally, and, at the same time, a signal needs to be transmitted to a central controller or remote control room, the model PGT23.063 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 model PGT23.063 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 model PGT23.063 is based on a high-quality, stainless steel pressure gauge with a solid-front and blow-out back (Type 23x.30) with nominal size of 2½". The pressure gauge is manufactured in accordance with ASME B40.1 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 WIKAI 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.

Standard Features

Design

ASME B40.100 & EN 837-1

Size

2½" (63 mm)

Accuracy class

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

Ranges

0/15 PSI to 0/8,000 PSI

or other equivalent units of pressure or vacuum

Pressure connection

Material: 316L stainless steel

Lower mount (LM)

1/4" NPT or G 1/4B, 14 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, NEMA 4X / IP 54 weather protection

Window

Polycarbonate

Cover ring

Stainless steel, bayonet-type

Connection

Cable with flying leads, 1 meter length

Optional extras

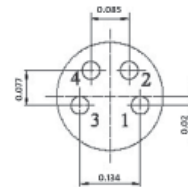
- Other pressure connections
- Inverted electrical output signal
- Electrical connection via miniature plug connector M8 x 1, 4-pin (cable plug with 5 meter length)
- Other cable lengths, bare wire ends with 2 or 5 meter length. Others on request
- Assembly on diaphragm seals (see Diaphragm Seals Product Review)
- Liquid filling with 50 cSt Silicone oil (only in assembly with plug connector)
- Panel mounting flange, stainless steel or polished
- Rear mounting flange, stainless steel
- Custom dial layout
- Laminated safety glass window (max. ambient temperature 140°F (60°C))
- 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		4 to 20 mA, 2-wire															
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															
Accuracy																	
■ Long-term stability of electronics	% FS/a	< 0.5															
■ Electrical output signal		$\leq 1.6\%$ of measuring span															
■ Linearity	% of span	$\leq 1.6\%$ (limit point calibration) ¹															
EMC directive		2007/108/EC Interface emission (Limit Class B) and immunity to EN 61 326-1															
Wiring		Flying leads with optional miniature plug connector M8 x 1, 4-pin															
Wiring protection		NEMA 4x / IP 54 per EN 60 529 / IEC 529, filled NEMA 6															
Connection details		<table border="0"> <tr> <td>Cable</td> <td>Plug Connector</td> <td>Meaning</td> </tr> <tr> <td>red</td> <td>Pin 1</td> <td>$U_B +/\text{Sig} +$</td> </tr> <tr> <td>black</td> <td>Pin 4</td> <td>$0 \text{ V}/\text{Sig} -$</td> </tr> <tr> <td>brown</td> <td>Pin 2</td> <td>n.c.</td> </tr> <tr> <td>- - -</td> <td>Pin 3</td> <td>n.c.</td> </tr> </table>	Cable	Plug Connector	Meaning	red	Pin 1	$U_B +/\text{Sig} +$	black	Pin 4	$0 \text{ V}/\text{Sig} -$	brown	Pin 2	n.c.	- - -	Pin 3	n.c.
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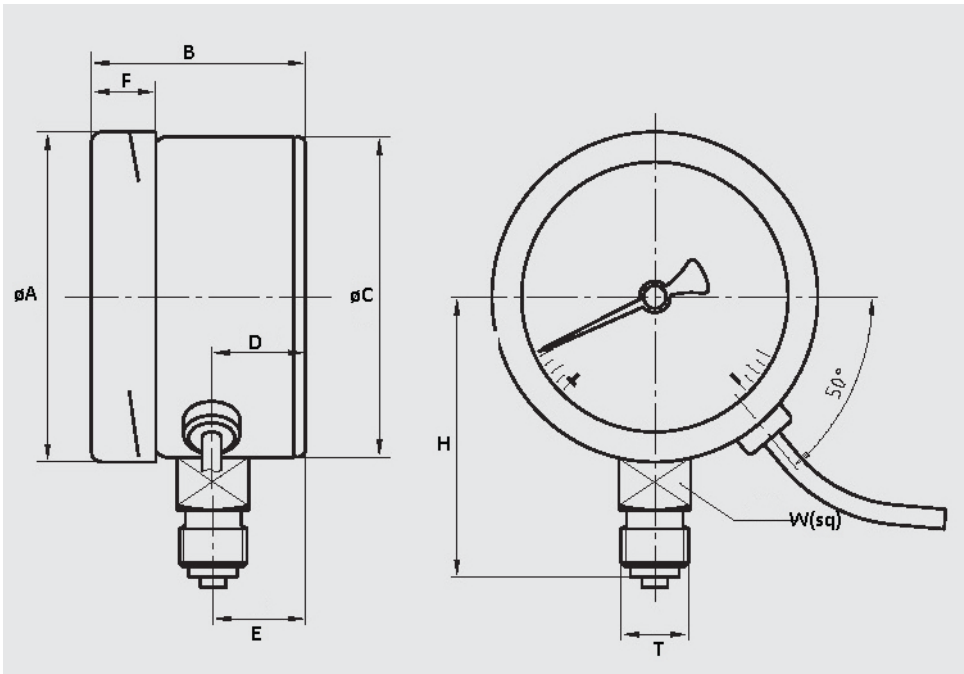


Mechanical data

Mechanical design		Safety pressure gauge with solid front, blow out back design
Display		Nominal size 2½" (63 mm)
Measuring ranges	PSI	0/15 to 0/8,000 PSI or other equivalent units of pressure or vacuum
Process connection		1/4" NPT (others available as an option)
Damping options		
■ for dynamic pressure		restrictor in the pressure channel
■ for vibration		fluid filling of case
Pressure limitation		
■ Steady		3/4 x full scale value
■ Fluctuating		2/3 x full scale value
■ Short time		full scale value
		The recommendations for the use of mechanical measuring systems in accordance with ASME B40.1 and EN 837-1 must be observed
Accuracy		
■ Mechanical display		$\leq 2/1/2\%$ of measuring span (ASME B40.1 Grade A)
Permissible temperature range of		
■ Medium	°F / (°C)	-40°F to +212°F (-40°C to +100°C)
■ Ambient	°F / (°C)	-40°F to +175°F (-40°C to +80°C) (max 140°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 4X / IP 54, filled NEMA 6 / IP 65
■ Pressure Equipment Directive		97/23/EC

1) Readings in the area between zero and the first scale marking may fall outside of the stated accuracy due to metallurgical properties of the measuring system.

Dimensions



Dimensions		A	B	C	D	E	F	H	T	W	Weight
2½"	mm	63	42	62	18.5	18	14.5	54		14	0.25 kg
	in	2.48	1.65	2.44	0.73	0.71	0.57	2.13	1/4"	0.55	0.44 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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