

Bourdon tube pressure gauge with electrical output signal

Stainless steel, safety version

Models PGT23.100 and PGT23.160

WIKA data sheet PV 12.04



intelliGAUGE®

Applications

- Acquisition and display of process values
- Transmission of process values to the control room, 4 ... 20 mA, 0 ... 20 mA, 0 ... 10 V
- Easy-to-read, analogue on-site display needing no external power
- Safety-related applications

Special features

- "Plug and play" with no configuration necessary
- Signal transmission per NAMUR
- Measuring ranges 0 ... 0.6 bar to 0 ... 1600 bar
- Easy-to-read analogue display with nominal size 100 or 160
- Safety pressure gauge S3 per EN 837-1



intelliGAUGE model PGT23.100

Description

At any point where the process pressure has to be indicated locally, and, at the same time, a signal is wanted to be transmitted to a central controller or remote control room, the model PGT23 intelliGAUGE (patent applied for, among others European Patent No. EP 06113003) can be used.

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

The intelliGAUGE model PGT23 fulfils 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 mechanical pressure indication can thus be saved.

The model PGT23 is based upon a model 23x.30 high-quality, stainless steel safety pressure gauge with a nominal size of 100 or 160. The pressure gauge is manufactured in accordance with EN 837-1.

The all welded, robust 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 - it is a non-contact sensor and therefore completely free from wear and friction. From this, the electrical output signal proportional to the pressure, 4 ... 20 mA, 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 ... 20 mA. The electrical zero point can also be set manually.

Standard version

Nominal size in mm

100, 160

Accuracy class

1.0

Scale ranges

0 ... 0.6 to 0 ... 1600 bar

or all other equivalent vacuum or combined pressure and vacuum ranges

Process connection

Stainless steel 316L

Lower mount (LM)

G ½ B (male), 22 mm flats

Pressure element

Stainless steel, 316L

< 100 bar: C-type

≥ 100 bar: Helical type

Movement

Brass

Dial

Aluminium, white, black lettering

Pointer

Adjustable pointer, aluminium, black

Case

Stainless steel, with solid baffle wall (Solidfront) and blow-out back, scale ranges ≤ 0 ... 16 bar with compensating valve to vent case, ingress protection IP 54

Window

Laminated safety glass

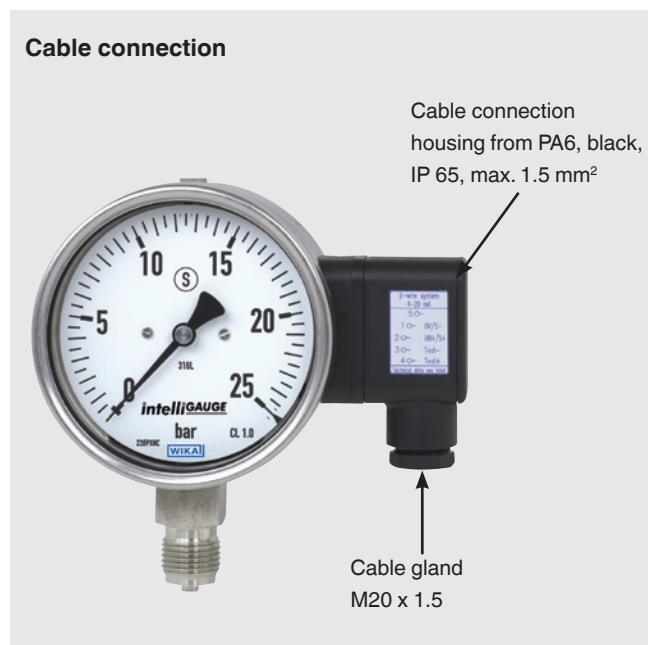
Bezel ring

Cam ring (bayonet type), stainless steel

Options

- Other process connection
- Assembly on diaphragm seals (see product review diaphragm seals)
- Filling liquid (silicone M50, ingress protection IP 65)
- Measuring system Monel or stainless steel 1.4571
- Panel mounting flange, stainless steel or polished stainless steel
- Surface mounting lugs on the back, stainless steel
- Ambient temperature -40 °C (silicone oil filling)
- Window in polycarbonate (max. ambient temperature 80 °C, however not with Ex version)
- Version per ATEX Ex II 2G Ex ia IIC T4 / T5 / T6
- Gost standard approval
- Switch contacts (see data sheet AC 08.01)

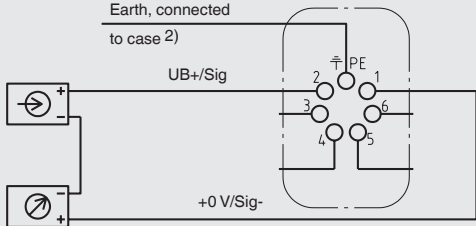
Cable connection



Specifications

intelliGAUGE model PGT23.100 / model PGT23.160

Electrical data

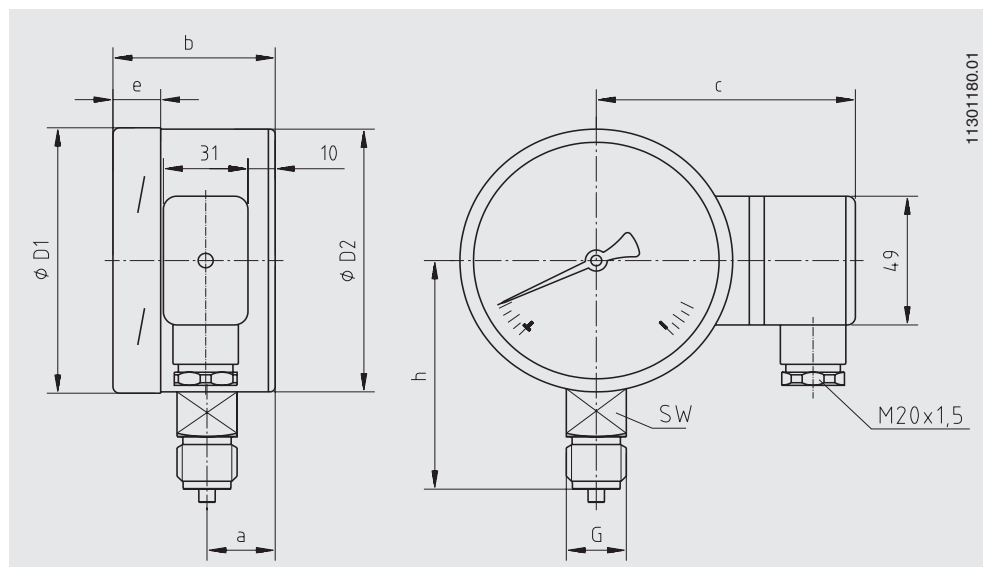
Power supply U_B	DC V	$12 < U_B \leq 30$ (min. 14 with Ex version)
Influence of power supply	% FS/10 V	≤ 0.1
Permissible residual ripple	% ss	≤ 10
Output signal	Variant 1 Variant 2 Variant 3 Variant 4	4 ... 20 mA, 2-wire, passive, per NAMUR NE 43 4 ... 20 mA, per ATEX Ex II 2G Ex ia IIC T4 / T5 / T6 0 ... 20 mA, 3-wire; 0 ... 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. 600 Ω
Effect of load (variant 1 - 3)	% FS	≤ 0.1
Electrical zero point		through a jumper across terminals 5 and 6 (see operating instructions)
■ Long-term stability of electronics	% FS/a	< 0.3
■ Electr. output signal		≤ 1 % of the measuring span
Linearity	% of span	≤ 1.0 % (terminal method)
Safety-related maximum values		Ex version
■ Power supply U_i	DC V	max. 30
■ Short circuit rating I_i	mA	max. 100
■ Power P_i	W	max. 1
■ Internal capacitance C_i	nF	12
■ Internal inductance L_i	mH	negligible
Electrical connection		Angular connector, 180 ° rotatable, wire protection, cable gland M20 x 1.5, incl. strain relief, connection cable: Outer diameter 7 - 13 mm, conductor cross-section 0.14 ... 1.5 mm ² , temperature resistance up to 60 °C
Wiring protection		Angular connector: IP 65 per EN 60529 / IEC 529
Assignment of terminals, 2-wire (variant 1 and 2) ¹⁾		 <p>Earth, connected to case 2)</p> <p>UB+/Sig</p> <p>PE</p> <p>+0 V/Sig-</p> <p>Terminals 3, 4, 5 and 6: Only for internal use</p> <p>2) This connection must not be used for equipotential bonding. The instrument must be incorporated in the equipotential bonding via the process connection.</p>
¹⁾ For 3-wire connection see operating instruction		

Mechanical data

Mechanical design		Safety pressure gauge S3 with solid baffle wall per EN 837-1
Display		Nominal size 100 or 160
Measuring ranges	bar	0 ... 0.6 to 0 ... 1600 bar; -1 ... 0; -1 ... +25 (others as options)
Process connection		G ½ B (male) (others available as options)
Damping options		
■ For dynam. pressure load		Restrictor in the pressure channel
■ For vibration		Liquid filling of the case
Pressure limitation		
■ Steady		Full scale value
■ Fluctuating		0.9 x full scale value
■ Short time		1.3 x full scale value
The recommendations for the use of mechanical pressure measuring systems in accordance with EN 837-1 must be observed		
Accuracy		
■ Mechanical display		≤ 1 % of measuring span (class 1.0 per EN 837-1)
Permissible temperature range		
■ Medium	°C	-40 ... +100
■ Ambient	°C	-40 ... +60 (with window in polycarbonate max. 80 °C)
Temperature effect	%/10 K	max. ± 0.4 of full scale value (when the temperature deviates from 20 °C reference temperature)
Case ingress protection		IP 54, filled IP 65

Dimensions in mm

Standard version



NS	Dimensions in mm									Weight in kg
	a	b	c	D1	D2	e	G	h±1	SW	
100	25	59.5	94	101	100	17	G ½ B	87	22	0.80
160	27	59.5	123.5	161	159	17.5	G ½ B	118	22	1.45

CE conformity

Pressure equipment directive

97/23/EC, PS > 200 bar, module A, pressure accessory

EMC directive

2004/108/EC, EN 61326 emission (group 1, class B)
and interference immunity (industrial application)

ATEX directive

94/9/EC, II 2 G Ex ia IIC

Ordering information

Model / Scale range / Connection size / Connection location / Output signal / Options

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