Bourdon tube pressure gauge with electrical output signal
Stainless steel, safety version
Models PGT23.100 and PGT23.160

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

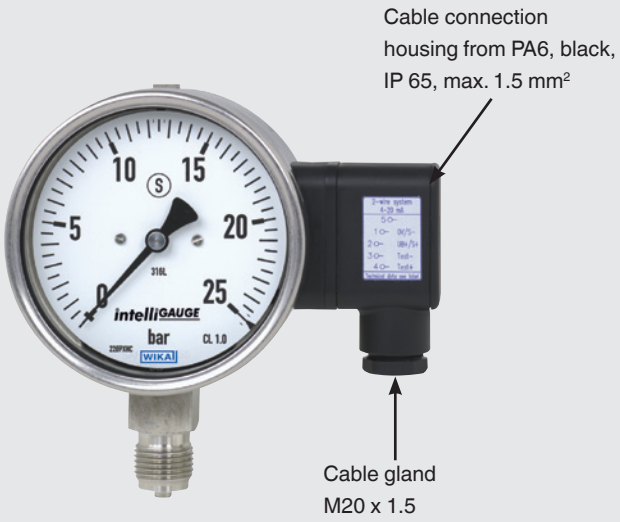
Window
Laminated safety glass

Bezel ring
Cam ring (bayonet type), stainless steel

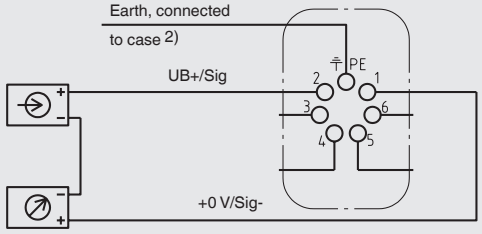
Options

- 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



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		$R_A \leq (U_B - 12\ V)/0.02\ A$ 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 Pi	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 mm², 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]		

1) For 3-wire connnection see operating instruction

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

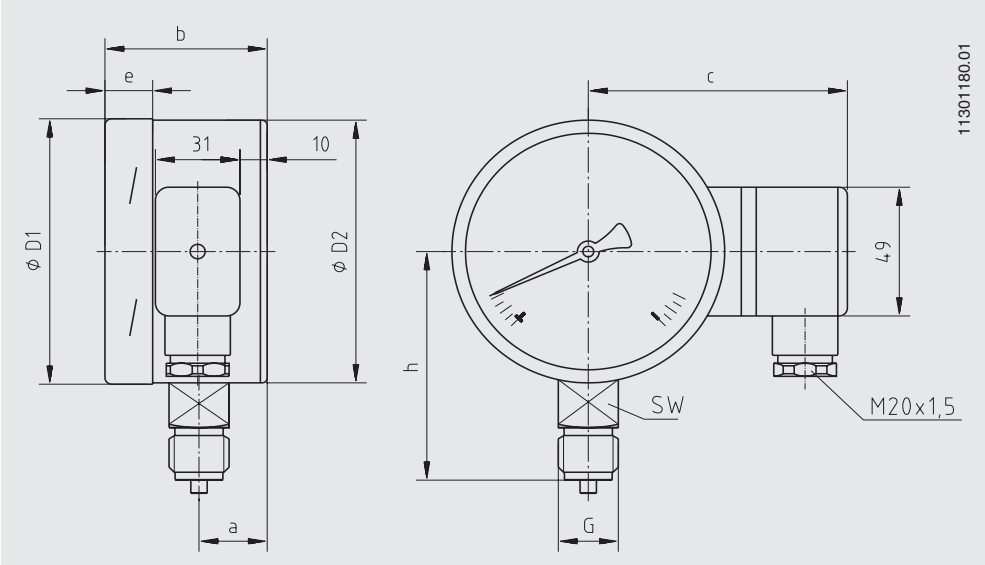
2) This connection must not be used for equipotential bonding. The instrument must be incorporated in the equipotential bonding via the process connection.

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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