Diaphragm pressure gauge with electrical output signal
Stainless steel, safety version
Models PGT43.100 and PGT43.160

Applications

- Acquisition and display of process values
- Transmission of process values to the control room, 4 ... 20 mA, 0 ... 20 mA, 0 ... 10 V
- For measuring points with increased overpressure
- 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 from 0 ... 16 mbar
- Easy-to-read analogue display with nominal size 100 or 160
- Safety pressure gauge S3 per EN 837-3

Diaphragm pressure gauge model PGT43.100

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 PGT43 intelliGAUGE (US Patent No. 8,030,990) can be used.

Through the combination of a high-quality 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 PGT43 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 PGT43 is based upon a model 43x.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 837-3.

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 - it is a non-contact sensor and therefore completely free from wear and friction. From this, the electrical output signal proportional to the pressure, e.g. 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
1.6

Scale ranges
0 ... 16 mbar to 0 ... 250 mbar (flange Ø 160 mm)
0 ... 400 mbar to 0 ... 25 bar (flange Ø 100 mm)
or all other equivalent vacuum or combined pressure and vacuum ranges

Process connection with lower measuring flange
Stainless steel 316L
Lower mount (LM)
G ½ B (male), 22 mm flats

Pressure element
≤ 0.25 bar: Stainless steel 316L
> 0.25 bar: NiCr-alloy (Inconel)

Sealing towards the pressure chamber
FPM/FKM

Movement
Brass

Dial
Aluminium, white, black lettering

Pointer
Adjustable pointer, black aluminium

Case with upper measuring flange
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

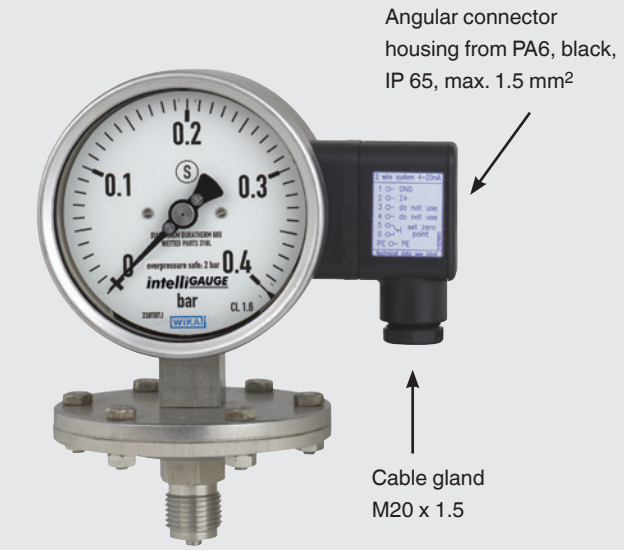
Window
Laminated safety glass

Bezel ring
Cam ring (bayonet type), stainless steel

Options

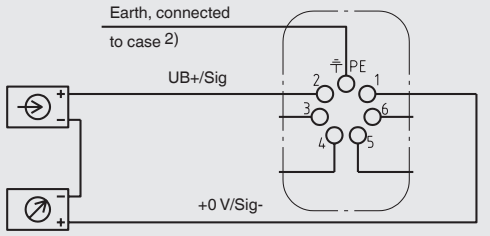
- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Overpressure safety: 10 x full scale value, however max. 40 bar
- Vacuum safe up to -1 bar
- Max. medium temperature +200 °C
- Higher indication accuracy, class 1.0
- Output signal 0 ... 20 mA, 0 ... 10 V
- Open connecting flanges per DIN/ASME from DN 15 to DN 80 (preferred nominal widths DN 25 and 50 or DN 1" and 2"; see data sheet IN 00.10)
- Wetted parts lined/coated with special materials such as PTFE, Hastelloy, Monel, nickel, tantalum, titanium, silver (accuracy class 2.5)
- Filling liquid silicone M50
- Version per ATEX Ex II 2G Ex ia IIC T4 / T5 / T6
- Gost standard approval
- Window in polycarbonate (max. ambient temperature 80 °C)
- Switch contacts (see data sheet AC 08.01)

Cable connection



Specifications intelliGAUGE models PGT43.100, PGT43.160

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	4 … 20 mA, 2-wire, passive, per NAMUR NE 43
	Variant 2	4 ... 20 mA, per ATEX Ex II 2G Ex ia IIC T4 / T5 / T6
	Variant 3	0 ... 20 mA, 3-wire
	Variant 4	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 P_i	W	max. 1
■ Internal capacitance C_i	nF	12
■ Internal inductance L_i	mH	negligible
Electrical connection		via 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		IP 54 per EN 60529 / IEC 529, filled IP 65
Assignment of terminals, 2-wire (variant 1 and 2) [1]		

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.

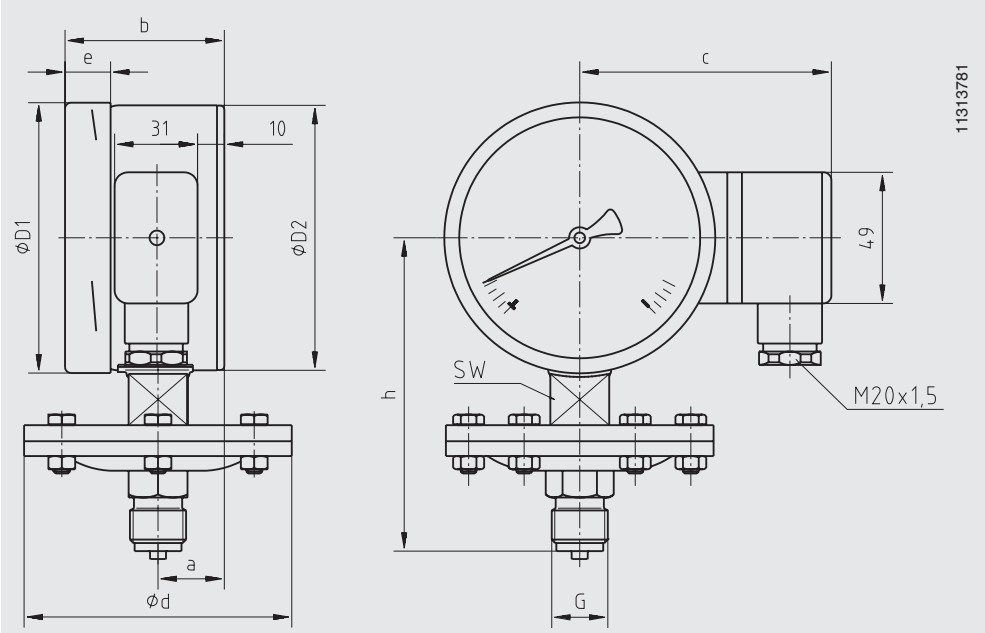
1) For 3-wire connection see operating instructions

Mechanical data

Mechanical design		Safety pressure gauge S3 with solid baffle wall following EN 837-1
Display		Nominal size 100 or 160
Scale ranges		
■ Flange Ø 160 mm		0 ... 16 mbar to 0 ... 250 mbar
■ Flange Ø 100 mm		0 ... 400 mbar to 0 ... 25 bar
Process connection		G ½ B (male) (others as options)
Damping options		
■ For dynam. pressure load		Restrictor in the pressure channel
■ For vibration		Liquid filling of the case
Operating limits		Overload resistance to EN 837-3
Pressure limitation		
■ Steady		Full scale value
■ Fluctuating		0.9 x full scale value
■ Short time		5 x full scale value, however max. 40 bar
		The recommendations for the use of mechanical pressure measuring systems in accordance with EN 837-2 must be observed
Accuracy		
■ Mechanical display		≤ 1.6 % of measuring span (class 1.6 per EN 837-3)
Permissible temperature range		
■ Medium	°C	-20 ... +100
■ Ambient	°C	-20 ... +60 (with window in polycarbonate max. 80 °C)
Temperature effect	%/10 K	max. ±0.8 of full scale value (when the temperature deviates from 20 °C reference temperature)
Case ingress protection		IP 54 per EN 60529 / IEC 529 (with liquid filling IP 65)

Dimensions in mm

Standard version



NS	Scale range	Dimensions in mm										Weight in kg
	in bar	a	b	c	d	D_1	D_2	e	G	h ±1	SW	
100	≤ 0.25	25	59.5	94	160	101	99	17	G ½ B	119	22	2.5
100	> 0.25	25	59.5	94	100	101	99	17	G ½ B	117	22	1.3
160	≤ 0.25	25	65	124	160	161	159	17	G ½ B	149	22	2.9
160	> 0.25	25	65	124	100	161	159	17	G ½ B	149	22	1.7

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
94/4/EC, II 2 G Ex ia IIC

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

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