Diaphragm pressure gauge with electrical output signal
Stainless steel, safety version
Models PGT43HP.100 and PGT43HP.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 of 40, 100 or 400 bar
- Easy-to-read, analogue on-site display needing no external power
- Safety-related applications

Special features

- "Plug and play" with no configuration necessary
- Measuring ranges from 0 ... 16 mbar
- Wide choice of special materials
- For gaseous, liquid and aggressive media, also in aggressive ambience, due to all stainless steel construction
- Safety pressure gauge S3 per EN 837-3

intelliGAUGE model PGT43HP.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 PGT43HP intelliGAUGE (patent applied for, among others European Patent No. EP 06113003) can be used. Due to the metallic construction of the pressure elements, these instruments have a high overpressure safety in the ranges of 40, 100 and 400 bar.

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 PGT43HP 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 PGT43HP is based upon a model 43x.36 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 range
0 ... 16 mbar to 0 ... 250 mbar
0 ... 400 mbar to 0 ... 40 bar
or all other equivalent vacuum or combined pressure and vacuum ranges

Overpressure safety
40, 100 or 400 bar

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: NiCrCo-alloy (Duratherm)

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

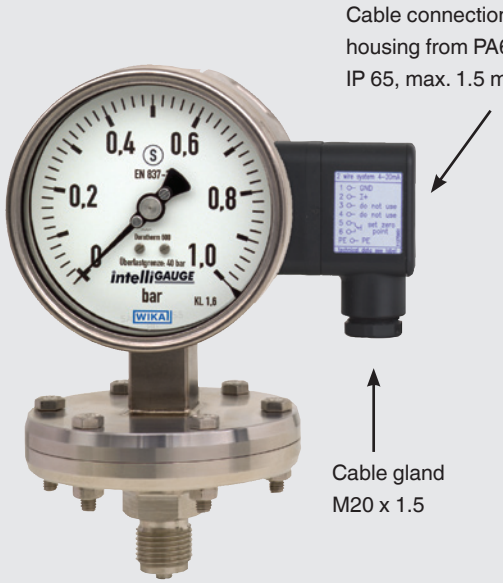
Window
Laminated safety glass

Bezel ring
Cam ring (bayonet type), stainless steel

Options

- Other process connection
- High overpressure safety up to 400 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 made of special materials, high overpressure safety up to 10 bar (flange Ø 160mm) or 40 bar (flange Ø 100 mm) ; PTFE, Hastelloy B2, Hastelloy C4, Monel, nickel, tantalum, titanium
- 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)
- Flange connecting screws: Steel, corrosion-protected

Cable connection



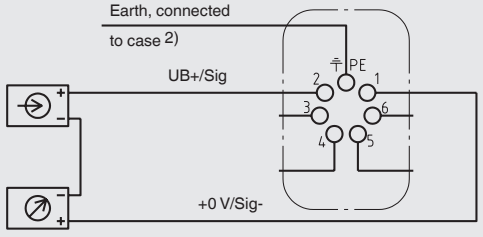
CE conformity

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

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 Ui	DC V	max. 30
■ Short circuit rating Ii	mA	max. 100
■ Power Pi	W	max. 1
■ Internal capacitance Ci	nF	12
■ Internal inductance Li	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		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.

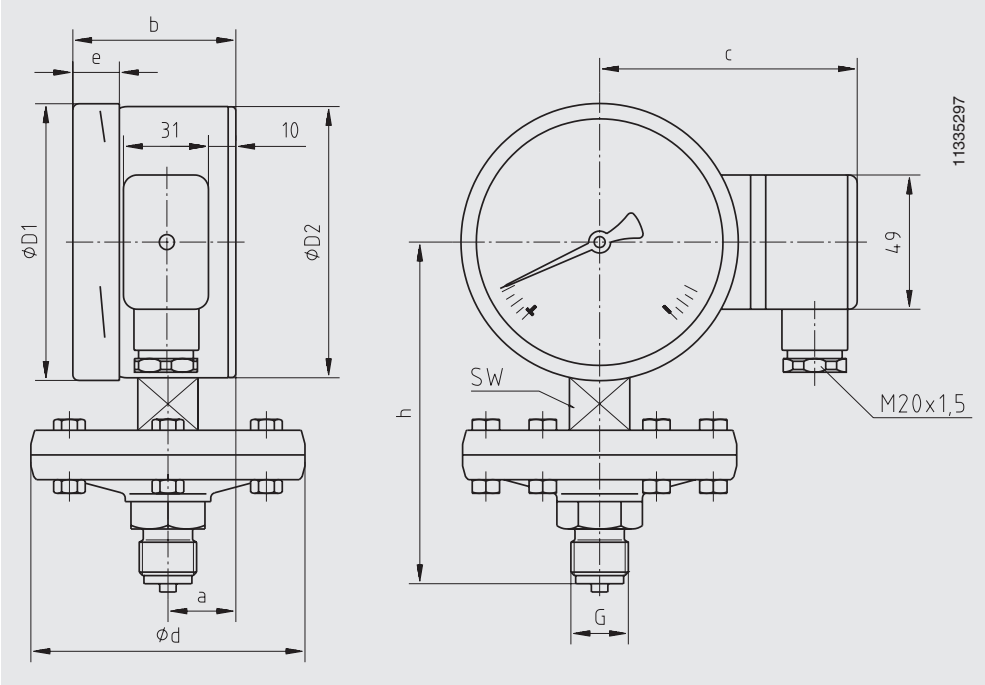
1) For 3-wire connection see operating instructions

Mechanical data

Mechanical design		Safety pressure gauge S3 with solid baffle wall following EN 837-1	
Display		Nominal size 100 or 160	
Scale ranges		0 ... 16 mbar to 0 ... 250 mbar	(overpressure safety up to 40, 100 bar: Flange Ø 160 mm overpressure safety up to 400 bar: Flange Ø 190 mm)
		0 ... 400 mbar to 0 ... 40 bar	(overpressure safety up to 40, 100 bar: Flange Ø 100 mm overpressure safety up to 400 bar: Flange Ø 120 mm)
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	
		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	Overpressure safety up to	Dimensions in mm										Weight in kg
	in bar	in bar	a	b	c	d	D1	D_2	e	G	h ± 2	SW	
100	≤ 0.25	40	25	59.5	94	160	161	159	17	G ½ B	119	22	3.4
		100											4.7
		400				190					155		15.7
	> 0.25	40	25	59.5	94	100	161	159	17	G ½ B	135	22	1.7
		100											1.8
		400				120					155		4.0
160	≤ 0.25	40	25	65	124	160	161	159	17	G ½ B	165	22	4.0
		100											5.3
		400				190					184		16.3
	> 0.25	40	25	65	124	100	161	159	17	G ½ B	165	22	2.2
		100											2.3
		400				120					184		4.6

Ordering information

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

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. (+49) 9372/132-0
Fax (+49) 9372/132-406
E-mail info@wika.de
www.wika.de

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