Diaphragm pressure gauge with electrical output signal
For the process industry, high overload safety to 40, 100 or 400 bar
Models PGT43HP.100 and PGT43HP.160

For further approvals see page 5

Applications

- Acquisition and display of processes
- Output signals 4 ... 20 mA, 0 ... 20 mA, 0 ... 10 V for the transmission of process values to the control room
- For measuring points with increased overload of 40, 100 or 400 bar
- Easy-to-read, analogue on-site display needing no external power
- Safety-related applications

Special features

- No configuration necessary due to “plug-and-play”
- Scale ranges from 0 … 16 mbar
- Wide choice of special materials
- For gaseous, liquid and aggressive media, also in aggressive environments, due to all stainless steel construction
- Safety version S3 per EN 837

intelliGAUGE® model PGT43HP

Description

Wherever the process pressure has to be indicated locally and, at the same time, a signal transmission to the central control or remote centre is desired, the model PGT43HP intelliGAUGE® (patent, property right: e.g. DE 202007019025) can be used. Due to the metallic pressure element limit stop, these instruments have a high overload safety in the ranges of 40, 100 and 400 bar.

The intelliGAUGE® model PGT43HP fulfils all safety-related requirements of the relevant standards and regulations for the on-site display of the working pressure of pressure vessels. An additional measuring point for mechanical pressure display can thus be saved.

The model PGT43HP is based upon a model 432.36 high-quality, stainless steel safety pressure gauge with a nominal size of 100 or 160. The pressure measuring instrument is manufactured in accordance with EN 837-3.

The robust 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 measuring span (electrical output signal) is adjusted 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.

The electronic WIKA sensor, integrated into the high-quality pressure gauge, combines the advantages of electrical signal transmission with a local mechanical display that remains readable during a power failure.
An additional measuring point for mechanical pressure display can thus be saved.

Data sheets showing similar products:
Diaphragm pressure gauge with output signal, for the process industry, up to 10-fold overload safety, max. 40 bar; model PGT43.100 and PGT43.160; see data sheet PV 14.03

Specifications

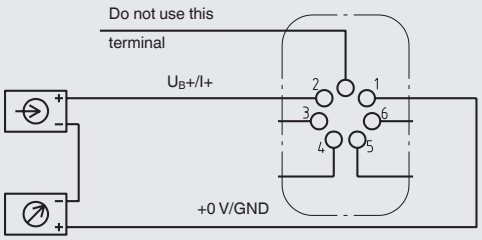
Model PGT43HP.100 and PGT43HP.160	
Nominal size in mm	■ 100 ■ 160
Accuracy class	1.6 Option: 1.0 [1]
Scale ranges [2]	0 ... 16 mbar to 0 ... 250 mbar (flange Ø 160 mm) 0 ... 400 mbar to 0 ... 40 bar (flange Ø 100 mm) other units (e.g. psi, kPa) available or all other equivalent vacuum or combined pressure and vacuum ranges
Scale	Single scale Option: Dual scale
Pressure limitation	
Steady	Full scale value [3]
Fluctuating	0.9 x full scale value
Overload safety [2]	■ 40 bar ■ 100 bar ■ 400 bar (only for scale ranges ≥ 0 ... 400 mbar [4]) Option: Vacuum safety to -1 bar
Process connection with lower measuring flange	■ G ½ B ■ ½ NPT ■ ½ NPT female ■ M20 x 1.5 ■ Open connecting flange DN 25 PN 40 per EN 1092-1, form B ■ Open connecting flange DN 50 PN 40 per EN 1092-1, form B ■ Open connecting flange 1" class 300, RF per ASME B16.5 ■ Open connecting flange 2" class 300, RF per ASME B16.5 and other threaded connections and open connecting flanges per EN/ASME from DN 15 to DN 80 (see data sheet IN 00.10)
Permissible temperature [5]	
Medium	+100 °C [+212 °F] maximum Option: +200 °C [+392 °F] maximum
Ambient	-20 ... +60 °C [-4 ... +140 °F]
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. ±0.8 %/10 K of full scale value
Case	Safety version S3 per EN 837: With solid baffle wall (Solidfront) and blow-out back Instruments with liquid filling with compensating valve to vent case
Case filling	Without Option: With silicone oil M50 case filling, ingress protection IP65

1) Application test required
2) Depending on scale range and overload safety, different flange Ø apply. See dimensions from page 6.
3) PS: max. allowable pressure in accordance with PED 2014/68/EU
4) 400 bar overload safety for scale ranges < 400 mbar on request
5) For hazardous areas, the permissible temperatures of the output signal variant 2 will apply exclusively (see page 4). These must not be exceeded at the instrument either (for details see operating instructions). If necessary, measures for cooling (e.g. syphon, instrumentation valve, etc.) have to be taken.

Model PGT43HP.100 and PGT43HP.160	
Wetted materials	
Diaphragm element (pressure element)	≤ 0.25 bar: Stainless steel 316L > 0.25 bar: NiCr alloy (Inconel) Option: Coated with special materials such as PTFE, Hastelloy, Monel, nickel, tantalum, titanium, silver (instruments with accuracy class 2.5)
Process connection with lower measuring flange	Stainless steel 316L Option: Lined/coated with special materials such as PTFE, Hastelloy, Monel, nickel, tantalum, titanium, silver
Pressure chamber sealing	■ FPM/FKM ■ PTFE
Non-wetted materials	
Case with upper measuring flange and flange connecting screws, movement, bayonet ring	Stainless steel
Dial	Aluminium, white, black lettering
Instrument pointer	Aluminium, black
Set pointer	Aluminium, red
Window	Laminated safety glass
Ingress protection per IEC/EN 60529	IP54 Option: IP65

Accessories

- Sealings (model 910.17, see data sheet AC 09.08)
- Valves (model IV20, see data sheet AC 09.19, and model IV10, see data sheet AC 09.22)
- Syphons (model 910.15, see data sheet AC 09.06)
- Cooling element (model 910.32, see data sheet AC 09.21)
- Switch contacts (see technical information IN 00.48)

Models PGT43HP.100 and PGT43HP.160	
Output signal	Variant 1: 4 … 20 mA, 2-wire, passive, per NAMUR NE 43 Variant 2: 4 ... 20 mA, for hazardous areas Variant 3: 0 ... 20 mA, 3-wire Variant 4: 0 ... 10 V, 3-wire
Supply voltage U_B	DC 12 V < U_B ≤ 30 V (variant 1 and 3) DC 14 V < U_B ≤ 30 V (variant 2) DC 15 V < U_B ≤ 30 V (variant 4)
Influence of supply voltage	≤ 0.1 % of full scale/10 V
Permissible residual ripple of U_B	≤ 10 % ss
Permissible max. load R_A	Variant 1, 2, 3: R_A ≤ (U_B - 12 V)/0.02 A with R_A in Ω and U_B in V, however max. 600 Ω Variant 4: R_A = 100 kΩ
Effect of load (variant 1, 2, 3)	≤ 0.1 % of full scale
Impedance at voltage output	0.5 Ω
Electrical zero point	Through a jumper across terminals 5 and 6 (see operating instructions)
Long-term stability of electronics	< 0.3 % of full scale per year
Electr. output signal	≤ 1 % of measuring span
Linear error	≤ 1 % of measuring span (terminal method)
Resolution	0.13 % of full scale (10 bit resolution at 360°)
Refresh rate (measuring rate)	600 ms
Electrical connection	Cable socket PA 6, black Per VDE 0110 insulation group C/250 V Cable gland M20 x 1.5 Strain relief 6 screw terminals + PE for conductor cross-section 2.5 mm²
Designation of connection terminals, 2-wire (variant 1 and 2) Designation of connection terminals for 3-wire (variant 3 and 4), see operating instructions	 Terminals 3 and 4: For internal use only Terminals 5 and 6: Reset zero point

Safety-related maximum values (variant 2)

Ui	Ii	Pi	Ci	Li
DC 30 V	100 mA	720 mW	11 nF	negligible

Permissible temperature ranges (variant 2)

T6	T5	T4 ... T1
-20 ... +45 °C	-20 ... +60 °C	-20 ... +70 °C

T85°C	T100°C	T135°C
-20 ... +45 °C	-20 ... +60 °C	-20 ... +70 °C

For further information on hazardous areas, see operating instructions.

Approvals

Logo	Description	Country
CE	**EU declaration of conformity**	European Union
	EMC directive	
	RoHS directive	

Optional approvals

Logo	Description	Country
Ex	**EU declaration of conformity**	European Union
	ATEX directive (option) Hazardous areas - Ex ia Gas [II 2G Ex ia IIC T6/T5/T4 Gb] 1) Dust [II 2D Ex ia IIIB T85°C/T100°C/T135°C Db] 2)	
IEC IECEx	**IECEx (option)** Hazardous areas - Ex ia Gas [Ex ia IIC T6/T5/T4 Gb] 1) Dust [Ex ia IIIB T85°C/T100°C/T135°C Db] 2)	International
EAC Ex	**EAC**	Eurasian Economic Community
	EMC directive	
	Low voltage directive	
	Hazardous areas	
	Ex Ukraine	Ukraine
	Hazardous areas	
	PAC Kazakhstan Metrology, measurement technology	Kazakhstan
-	**MChS** Permission for commissioning	Kazakhstan
-	**PAC Ukraine** Metrology, measurement technology	Ukraine
	PAC Uzbekistan Metrology, measurement technology	Uzbekistan
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada

1) For instruments with PTFE lining, measures must be taken in the lining area, if necessary, in order to exclude electrostatic charging.
2) Only for instruments without PTFE lining

Manufacturer's declaration

Logo	Description
-	Pressure Equipment Directive (PED) for maximum allowable pressure PS ≤ 200 bar

Certificates

Certificates	
Certificates	■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy) ■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy, calibration certificate)

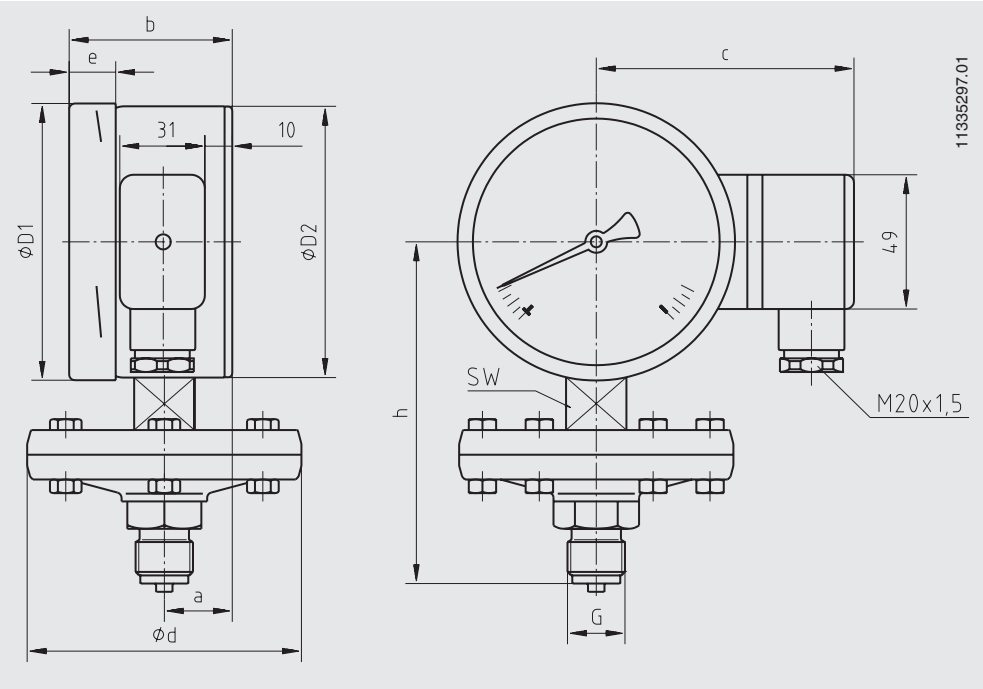
Patents, property rights

Patent number	Description
DE 202007019025 **US 2010045366** **CN 101438333**	Pointer measuring instrument with output signal 4 ... 20 mA

→ Approvals and certificates, see website

Dimensions in mm

intelliGAUGE® models PGT43HP.100 and PGT43HP.160



NS	Scale range	Overload safety	Dimensions in mm										Weight in kg
	in bar	in bar	a	b	c	d	D1	D2	e	G	h ±2	SW	
100	≤ 0.25	40	25	59.5	94	160	101	99	17	G ½ B	135	27	3.4
		100	25	59.5	94	160	101	99	17	G ½ B	143	22	6.3
	> 0.25	40	25	59.5	94	100	101	99	17	G ½ B	135	27	1.7
		100	25	59.5	94	100	101	99	17	G ½ B	135	27	1.8
		400	25	59.5	94	128	101	99	17	G ½ B	169	22	6.3
160	≤ 0.25	40	25	65	124	160	161	159	17	G ½ B	165	27	4.0
		100	25	65	124	160	161	159	17	G ½ B	173	22	6.9
	> 0.25	40	25	65	124	100	161	159	17	G ½ B	165	27	2.2
		100	25	65	124	100	161	159	17	G ½ B	165	27	2.3
		400	25	65	124	128	161	159	17	G ½ B	199	22	6.9

Ordering information

Model / Nominal size / Scale range / Output signal / Connection location / Process connection / Options

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