Capsule pressure gauge with output signal
For the process industry, high overload safety
Models PGT63HP.100 and PGT63HP.160

for further approvals see page 5

intelliGAUGE®

Applications

- For gaseous, aggressive media, also in aggressive environments
- Measurements of very low pressures from 2.5 mbar
- Output signals 4 ... 20 mA, 0 ... 20 mA, DC 0 ... 10 V for the transmission of process values to the control room

Special features

- No configuration necessary due to “plug-and-play”
- High overload safety up to 50 x full scale value
- Easy-to-read analogue display with nominal sizes 100 and 160
- Low measuring error and influence on function from medium pollution
- Measuring chamber protected against unauthorised intervention

intelliGAUGE® model PGT63HP.100

Description

Wherever very low pressures have to be indicated locally and, at the same time, a signal transmission to the central control or remote centre is desired, the model DPGT43 intelliGAUGE® (patent, property right: e.g. DE 202007019025) can be used.

The robust capsule measuring system has an overload safety of up to 50 times the full scale value.

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 capsule 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.

Specifications

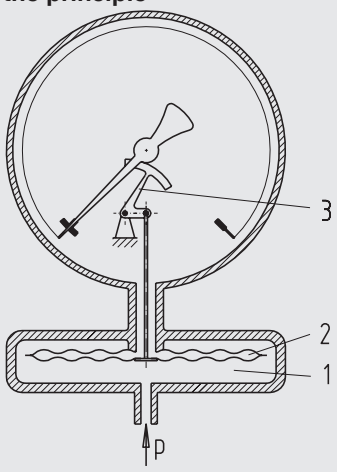
Models PGT63HP.100 and PGT63HP.160	
Nominal size in mm	■ 100 ■ 160
Accuracy class	1.6 Option: ■ 1.0 [1)] ■ 0.6 [1)]
Scale ranges	0 ... 2.5 mbar to 0 ... 100 mbar other units e.g. psi, kPa available or all other equivalent vacuum or combined pressure and vacuum ranges
Scale	Single scale Option: Dual scale
Zero point setting	By means of adjustment appliance
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value
Overload safety	50 x full scale value Higher overload safety on request [1)]
Process connection with lower measuring flange	■ G ½ B ■ ½ NPT ■ M20 x 1.5 others on request
Permissible temperature [2)]	
Medium	+100 °C [+212 °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. ±0.6 %/10 K of full scale value
Case	Version S1 per EN 837: With blow-out device in case back
Case filling	Without
Wetted materials	
Process connection, media chamber, capsule element (pressure element)	Stainless steel 316Ti
Sealing	PTFE
Non-wetted materials	
Case, 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
Mounting	Rigid measuring line Option: ■ Instrument mounting bracket for wall or pipe mounting ■ Mounting flange

1) Application test required
2) 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.

Design and operating principle

- Pressure-sealed measuring chamber (1) with capsule measuring element
- The capsule element (2) is pressurised from outside and moves in strokes (deflection)
- The deflection is transmitted to the movement (3) and indicated
- The overload safety is achieved through the mutually supporting surfaces of both halves of the capsule element

Illustration of the principle



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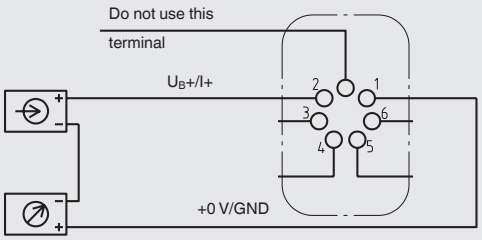
Models PGT63HP.100 and PGT63HP.160	
Output signal	Variant 1: 4 … 20 mA, 2-wire, passive, per NAMUR NE 43 Variant 2: 4 ... 20 mA, 2-wire, for hazardous areas Variant 3: 0 ... 20 mA, 3-wire Variant 4: 0 ... 10 V, 3-wire
Supply voltage U_B	DC 12 V < U_B ≤ 30 V (variant 1 and 3) DC 14 V < U_B ≤ 30 V (variant 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 Ex	**EU declaration of conformity** ■ EMC directive ■ Pressure equipment directive ■ RoHS directive ■ ATEX directive (option) Hazardous areas - Ex ia Gas [II 2G Ex ia IIC T6/T5/T4 Gb] Dust [II 2D Ex ia IIIB T85°C/T100°C/T135°C Db]	European Union
IEC IECEx	**IECEx (option)** Hazardous areas - Ex ia Gas [Ex ia IIC T6/T5/T4 Gb] Dust [Ex ia IIIB T85°C/T100°C/T135°C Db]	International
EAC Ex	**EAC (option)** ■ EMC directive ■ Pressure equipment directive ■ Low voltage directive ■ Hazardous areas	Eurasian Economic Community
	GOST (option) Metrology, measurement technology	Russia
-	**MTSCHS (option)** Permission for commissioning	Kazakhstan
	UkrSEPRO (option) Metrology, measurement technology	Ukraine
	DNOP (MakNII) (option) Hazardous areas	Ukraine
	Uzstandard (option) Metrology, measurement technology	Uzbekistan
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada

Certificates (option)

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. indication accuracy)

Patents, property rights

Pointer measuring instrument with output signal 4 ... 20 mA (patent, property right: e.g. DE 202007019025, US 2010045366, CN 101438333)

Approvals and certificates, see website

Accessories

- Sealings (model 910.17, see data sheet AC 09.08)
- Valves (models IV20/IV21, see data sheet AC 09.19, and models IV10/IV11, see data sheet AC 09.22)
- Syphons (model 910.15, see data sheet AC 09.06)
- Overpressure protector (model 910.13; see data sheet AC 09.04)
- Cooling element (model 910.32, see data sheet AC 09.21)
- Switch contacts (see data sheet AC 08.01)

Dimensions in mm

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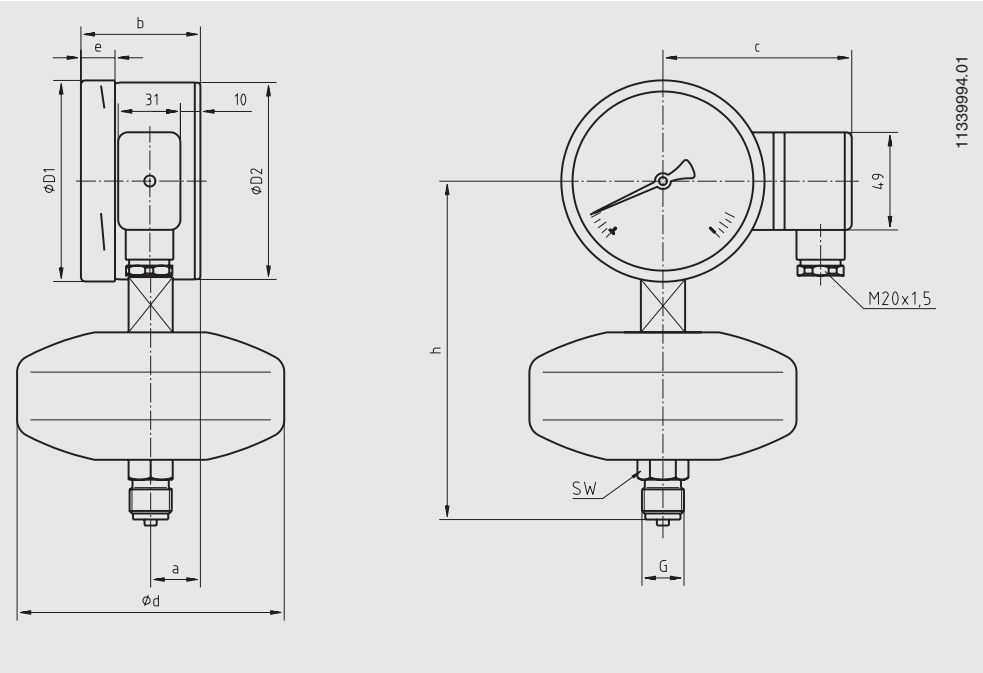

NS	Dimensions in mm										Weight in kg
	a	b	c	d_1	D_1	D_2	e	G	h ±1	SW	
100	25	59.5	94	133	101	99	17	G ½ B	170	22	1.6
160	25	65	124	133	161	159	17	G ½ B	200	22	2.1

Ordering information

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

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