

Capsule pressure gauge with output signal

For the process industry, high overload safety

Models PGT63HP.100 and PGT63HP.160

WIKA data sheet PV 16.06



for further approvals see page 4

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



Capsule pressure gauge, 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 PGT63HP 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 voltage supply is lost.

An additional measuring point for mechanical pressure display can thus be saved.

The robust design of the 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.

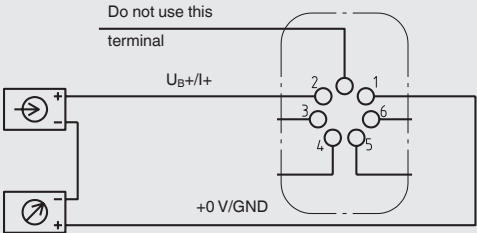
The electronic WIKA sensor, integrated into the high-quality capsule pressure gauge, combines the advantages of electrical signal transmission with the advantages of a local mechanical display. The measuring span (electrical output signal) is adjusted automatically along with the mechanical display, i.e. the scale over the full display range corresponds to 4 ... 20 mA. The electrical zero point can also be set manually.

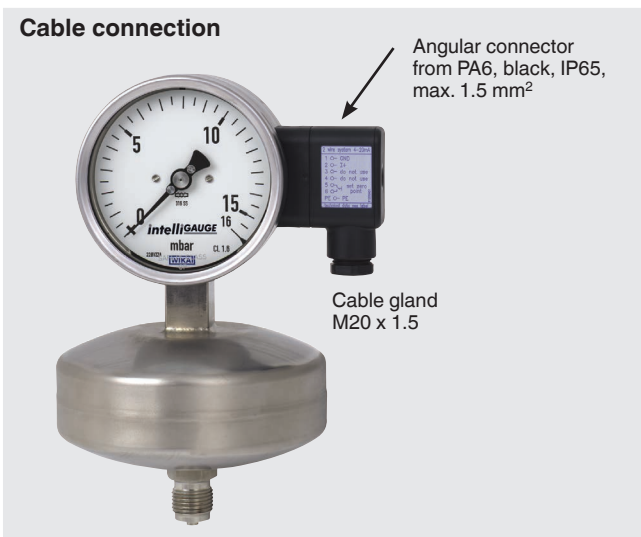
Specifications

Mechanical data	
Mechanical design	Safety pressure gauge S3 with solid baffle wall and blow-out back following EN 837
Nominal size in mm	100, 160
Accuracy (mechanical display)	≤ 1.6 % of measuring span (class 1.6 per EN 837-3)
Scale ranges	0 ... 2.5 mbar to 0 ... 100 mbar or all other equivalent vacuum or combined pressure and vacuum ranges
Operating limits	Overload resistance per EN 837-3
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value Observe the recommendations for the use of mechanical pressure measuring systems in accordance with EN 837-2
Overload safety	50 x full scale value
Process connection (wetted)	Stainless steel 316Ti (1.4571) Lower mount G ½ B, SW 22
Pressure element (wetted)	Stainless steel 316Ti (1.4571)
Sealing (wetted)	PTFE
Movement	Brass
Dial	Aluminium, white, black lettering
Pointer	Adjustable pointer, aluminium, black
Case	Stainless steel, safety version with solid baffle wall (Solidfront) and blow-out back
Window	Laminated safety glass
Ring	Bayonet ring, stainless steel
Permissible temperature range	
Medium	-20... +100 °C
Ambient	-20 ... +60 °C
Temperature effect	max. ±0.6 %/10 K of full scale value (when the temperature deviates from 20 °C reference temperature)
Ingress protection per IEC/EN 60529	IP54







Options

- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Instrument mounting bracket for wall or pipe mounting (model 910.16, see data sheet AC 09.07)
- Higher overload safety (application test required)
- Switch contacts (data sheet AC 08.01)

Electrical data	
Power supply U_B	DC $12\text{ V} < U_B \leq 30\text{ V}$ (variant 1 + 3) DC $14\text{ V} < U_B \leq 30\text{ V}$ (variant 2) DC $15\text{ V} < U_B \leq 30\text{ V}$ (variant 4)
Influence of power supply	$\leq 0.1\%$ of full scale/10 V
Permissible residual ripple of U_B	$\leq 10\%$ ss
Output signal	Variant 1: 4 ... 20 mA, 2-wire, passive, per NAMUR NE 43 Variant 2: 4 ... 20 mA, per ATEX Variant 3: 0 ... 20 mA, 3-wire Variant 4: DC 0 ... 10 V, 3-wire
Permissible max. load R_A	Variant 1, 2, 3: $R_A \leq (U_B - 12\text{ V})/0.02\text{ A}$ with R_A in Ohm und U_B in Volt, however max. 600 Ω Variant 4: $R_A = 100\text{ k}\Omega$
Effect of load (variant 1 - 3)	$\leq 0.1\%$ 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	$\leq 1\%$ of measuring span
Linear error	$\leq 1\%$ of measuring span (terminal method)
Resolution	0.13 % of full scale (10 bit resolution at 360°)
Refresh rate (measuring rate)	600 ms
Maximum values for the power supply circuit (only for Ex version)	
Power supply U_i	DC 30 V
Short-circuit current I_i	100 mA
Power P_i	1 W
Internal capacitance C_i	12 nF
Internal inductance L_i	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 mm ² , temperature resistance up to 60 °C
Designation of connection terminals, 2-wire (variant 1 and 2)	 <p>Do not use this terminal</p> <p>$U_B+/I+$</p> <p>+0 V/GND</p> <p>Terminals 3 and 4: For internal use only Terminals 5 and 6: Reset zero point</p>
Designation of connection terminals, 3-wire (variant 3 and 4), see operating instructions	



Approvals

Logo	Description	Country
	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive ■ ATEX directive (option) 	European Union
	EAC (option) <ul style="list-style-type: none"> ■ 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)

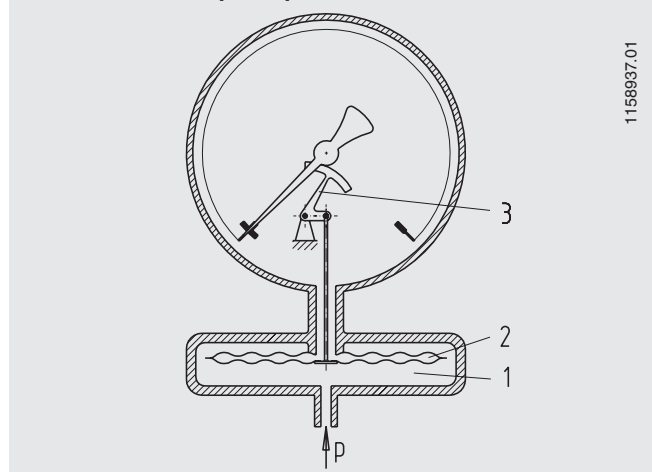
- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. indication accuracy)

Approvals and certificates, see website

Design and operating principle

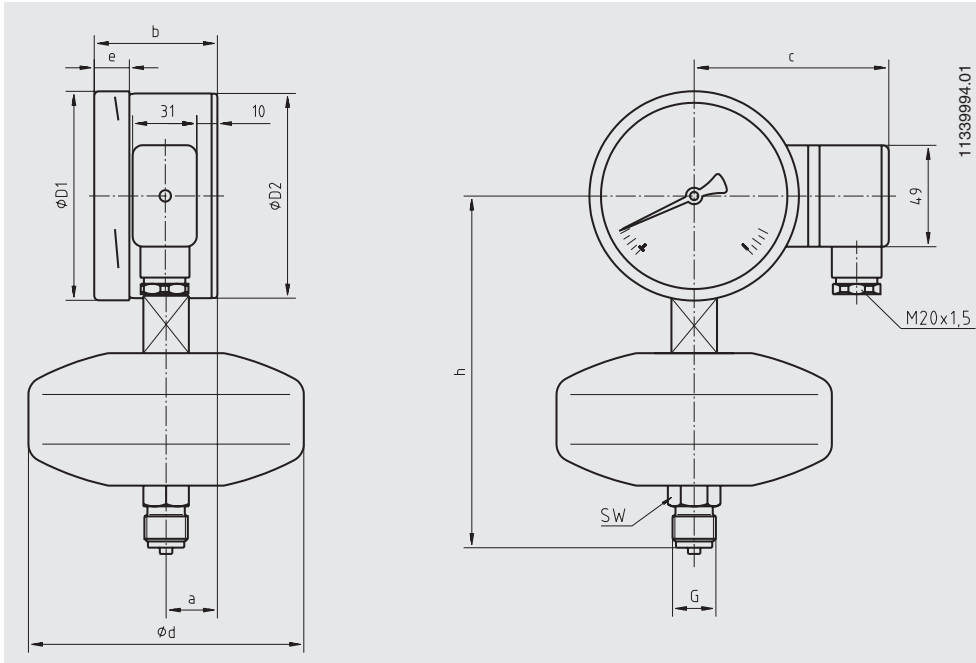
- Pressure-sealed measuring chamber (1) with capsule measuring element
- The capsule element (2) is pressurised from outside and moves in strokes (deflection)
- The deflection is transmitted to the movement (3) and indicated
- The overload safety is achieved through the mutually supporting surfaces of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

Illustration of the principle



Dimensions in mm

Standard version



NS	Dimensions in mm										Weight in kg
	a	b	c	d_1	D_1	D_2	e	G	$h \pm 1$	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 / Options

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