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

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

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

<table>
<thead>
<tr>
<th>Specified Parameter</th>
<th>100</th>
<th>160</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal size in mm</td>
<td>100</td>
<td>160</td>
</tr>
<tr>
<td>Accuracy class</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Option:</td>
<td>1.0 ¹⁾</td>
<td>0.6 ¹⁾</td>
</tr>
<tr>
<td>Scale ranges</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Scale way</td>
<td>Single scale</td>
<td></td>
</tr>
<tr>
<td>Option:</td>
<td>Dual scale</td>
<td></td>
</tr>
<tr>
<td>Zero point setting</td>
<td>By means of adjustment appliance</td>
<td></td>
</tr>
<tr>
<td>Pressure limitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steady</td>
<td>Full scale value</td>
<td></td>
</tr>
<tr>
<td>Fluctuating</td>
<td>0.9 x full scale value</td>
<td></td>
</tr>
<tr>
<td>Overload safety</td>
<td>50 x full scale value Higher overload safety on request ¹⁾</td>
<td></td>
</tr>
<tr>
<td>Process connection with lower measuring flange</td>
<td>G ½ B</td>
<td></td>
</tr>
<tr>
<td></td>
<td>½ NPT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M20 x 1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>others on request</td>
<td></td>
</tr>
<tr>
<td>Permissible temperature 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>+100 °C [+212 °F] maximum</td>
<td></td>
</tr>
<tr>
<td>Ambient</td>
<td>-20 ... +60 °C [-4 ... 140 °F]</td>
<td></td>
</tr>
<tr>
<td>Temperature effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. ±0.6 %/10 K of full scale value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case</td>
<td>Version S1 per EN 837: With blow-out device in case back</td>
<td></td>
</tr>
<tr>
<td>Case filling</td>
<td>Without</td>
<td></td>
</tr>
<tr>
<td>Wetted materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process connection, media chamber, capsule element (pressure element)</td>
<td>Stainless steel 316Ti</td>
<td></td>
</tr>
<tr>
<td>Sealing</td>
<td>PTFE</td>
<td></td>
</tr>
<tr>
<td>Non-wetted materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case, movement, bayonet ring</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>Dial</td>
<td>Aluminium, white, black lettering</td>
<td></td>
</tr>
<tr>
<td>Instrument pointer</td>
<td>Aluminium, black</td>
<td></td>
</tr>
<tr>
<td>Set pointer</td>
<td>Aluminium, red</td>
<td></td>
</tr>
<tr>
<td>Window</td>
<td>Laminated safety glass</td>
<td></td>
</tr>
<tr>
<td>Ingress protection per IEC/EN 60529</td>
<td>IP54</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>Rigid measuring line Option: Instrument mounting bracket for wall or pipe mounting Mounting flange</td>
<td></td>
</tr>
</tbody>
</table>

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
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 $12 \, \text{V} < U_B \leq 30 \, \text{V}$ (variant 1 and 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 supply voltage
- $\leq 0.1 \, \%$ of full scale

Permissible residual ripple of $U_B$
- $\leq 0.1 \, \%$ of full scale

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 $\Omega$ and $U_B$ in V, however max. $600 \, \Omega$
- Variant 4: $R_A = 100 \, \text{kΩ}$

Effect of load (variant 1, 2, 3)
- $\leq 0.1 \, \%$ of full scale

Impedance at voltage output
- 0.5 $\Omega$

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

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)
- Do not use this terminal

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)

<table>
<thead>
<tr>
<th>$U_i$</th>
<th>$I_i$</th>
<th>$P_i$</th>
<th>$C_i$</th>
<th>$L_i$</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC 30 V</td>
<td>100 mA</td>
<td>720 mW</td>
<td>11 nF</td>
<td>negligible</td>
</tr>
</tbody>
</table>

Permissible temperature ranges (variant 2)

<table>
<thead>
<tr>
<th>$T_6$</th>
<th>$T_5$</th>
<th>$T_4 \ldots T_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20 ... +45 °C</td>
<td>-20 ... +60 °C</td>
<td>-20 ... +70 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$T_{85^\circ C}$</th>
<th>$T_{100^\circ C}$</th>
<th>$T_{135^\circ C}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20 ... +45 °C</td>
<td>-20 ... +60 °C</td>
<td>-20 ... +70 °C</td>
</tr>
</tbody>
</table>

For further information on hazardous areas, see operating instructions.
Approvals

<table>
<thead>
<tr>
<th>Logo</th>
<th>Description</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>![CE]</td>
<td>EU declaration of conformity</td>
<td>European Union</td>
</tr>
</tbody>
</table>
| ![EMC] | - 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] | |
| ![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] | EAC (option)  
- EMC directive  
- Pressure equipment directive  
- Low voltage directive  
- Hazardous areas | Eurasian Economic Community |
| ![GOST] | GOST (option)  
- Metrology, measurement technology | Russia |
| ![MTSCHS] | MTSCHS (option)  
- Permission for commissioning | Kazakhstan |
| ![UkrSEPRO] | UkrSEPRO (option)  
- Metrology, measurement technology | Ukraine |
| ![DNOP] | DNOP (MakNII) (option)  
- Hazardous areas | Ukraine |
| ![Uzstandard] | Uzstandard (option)  
- Metrology, measurement technology | Uzbekistan |
| ![CRN] | 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

**intelliGAUGE® models PGT63HP.100 and PGT63HP.160**

<table>
<thead>
<tr>
<th>NS</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>b</td>
<td>c</td>
</tr>
<tr>
<td>100</td>
<td>25</td>
<td>59.5</td>
</tr>
<tr>
<td>160</td>
<td>25</td>
<td>65</td>
</tr>
</tbody>
</table>

### Ordering information

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

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