ABB Instrumentation

DATUM P881 Pressure Transducer

Specification DataFile

- **Rugged stainless steel construction**
  - leak- and tamper-proof

- **High vibration tolerance**
  - for industrial environments

- **Long-term unattended operation**
  - over 100 million cycles

- **Ranges from 0 to 750mbar g up to 400bar g**
  - suitable for level or pressure measurement

- **Wide temperature range**
  - from -40°C to +125°C (-40°F to 250°F)

- **Sensors calibrated with standard mA outputs**
  - easy to change, without need for recalibration

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A rugged transducer for general purpose industrial measurements
Introduction
The DATUM P881 transducer is a loop-powered pressure sensor giving a 4 to 20mA output.

The transducer operates as a non-submersible level measuring device when used with DATUM L150/L160 Indicators.

As a stand-alone unit it offers low cost, general purpose pressure measurement and can be the primary input for ABB’s range of control and recording products.

Dimensions
Specification

Range
0 to 750 mbar g up to 0 to 400 bar g

Maximum overrange
2 x nominal range for 750 mbar to 250 bar
1.5 x nominal range for 400 bar

Burst pressure
Worst case: 5 x nominal range

Fatigue life
100 million cycles, zero to range pressure

Performance

Base Accuracy
Zero 4mA ± 0.16mA
Span 16mA ± 0.16mA
Typical Error Band ±0.25%

Long-term drift
< ±0.2% span/annum

Electrical
2-wire, loop-powered
4 to 20mA proportional to span
with reverse polarity protection and mini-DIN connector

Supply voltage
7 to 35V d.c.

Maximum load
Ω = 50 x (Supply voltage – 7)

Material of construction
Body tube 316 stainless steel
Process port 17–4pH stainless steel
Diaphragm 17–4pH stainless steel
Bonding Nicrobrase

Mechanical

Dimensions
See Dimensions Fig. – page 2

Process connection
G¼ internal, G¼ external, ¼ – 18 NPT external, G½ pressure gauge,
7/16 – 20 UNF external, G¼ ERMETO, ½ – 27 NPT external,
¼ external, G½ internal.

Weight
100g

Environmental
Operating temperature limit
−40° to +125°C (−40° to 250°F)
Compensated range
−20° to +80°C (−4° to 176°F)
Storage temperature
−45° to +150°C (−49° to 302°F)
Zero temperature coefficient
±0.02% per °C (±0.011% per °F)
Span temperature coefficient
±0.02% per °C (±0.011% per °F)
Vibration
35g – 5 to 2000Hz

Ordering Guide

Pressure Transducer

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>Measurement</th>
<th>G</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 750 mbar</td>
<td>Absolute</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>0 to 1.0 bar</td>
<td></td>
<td>02</td>
<td></td>
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<tr>
<td>0 to 1.6 bar</td>
<td></td>
<td>03</td>
<td></td>
</tr>
<tr>
<td>0 to 2.5 bar</td>
<td></td>
<td>04</td>
<td></td>
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<tr>
<td>0 to 4.0 bar</td>
<td></td>
<td>05</td>
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<tr>
<td>0 to 6.0 bar</td>
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<td>06</td>
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<tr>
<td>0 to 10.0 bar</td>
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<td>07</td>
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<tr>
<td>0 to 16.0 bar</td>
<td></td>
<td>08</td>
<td></td>
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<tr>
<td>0 to 25.0 bar</td>
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<td>09</td>
<td></td>
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<tr>
<td>0 to 40.0 bar</td>
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<td>10</td>
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</tr>
<tr>
<td>0 to 60.0 bar</td>
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<td>11</td>
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<tr>
<td>0 to 100.0 bar</td>
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<tr>
<td>0 to 160.0 bar</td>
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<td>13</td>
<td></td>
</tr>
<tr>
<td>0 to 250.0 bar</td>
<td></td>
<td>14</td>
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<tr>
<td>0 to 400.0 bar</td>
<td></td>
<td>15</td>
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<table>
<thead>
<tr>
<th>Process Connection</th>
<th></th>
<th>A</th>
<th>G</th>
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</thead>
<tbody>
<tr>
<td>G¼ internal thread</td>
<td>00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G¼ external thread</td>
<td>01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>¼ – 18 NPT external thread</td>
<td>02</td>
<td></td>
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</tr>
<tr>
<td>G½ A thread, pressure gauge</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>½ – 20 UNF ? 2A external</td>
<td>04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G¼ ERMETO (soft seal)</td>
<td>05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>½ – 27 NPT external thread</td>
<td>08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>¼ external thread</td>
<td>0A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G¼ internal thread, 19.05 A/F Hex. thread depth 7mm (0.28 in.) Min.</td>
<td>09</td>
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<table>
<thead>
<tr>
<th>Electrical Connection</th>
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<th>A</th>
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<tbody>
<tr>
<td>Mini 4 pole connector</td>
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<tr>
<td>DiN 43650 connector</td>
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