UNIK 5000
Pressure Sensing Platform

The new UNIK 5000 is a high performance configurable solution to pressure measurement. The use of micromachined silicon technology and analogue circuitry enables best in class performance for stability, low power and frequency response. The new platform enables you to easily build up your own sensor to match your own precise needs. This high performance, configurable solution to pressure measurement employs modular design and lean manufacturing techniques to offer:

High Quality
The combination of a high technology sensor, together with advanced signal conditioning and packaging techniques, provides an ideal long term solution for reliable, accurate and economical measurements

Bespoke as Standard
Custom-built from standard components, manufacturing sensors to your requirement is fast and simple; each UNIK 5000 is a “bespoke” pressure sensing solution, but with the short lead times and competitive pricing you would expect from standard products.

Expertise
We have the people and the knowledge to support your needs for accurate and reliable product performance; our team of experts can help you make the right sensor selection, guiding you and providing the help and tools you need. It is important to ensure that the sensor material and performance selected are suitable for your application.

Features
• Ranges from 70 mbar (1 psi) to 700 bar (10000 psi)
• Accuracy to ±0.04% Full Scale (FS) Best Straight Line (BSL)
• Stainless Steel construction
• Frequency response to 3.5 kHz
• High over pressure capability
• Hazardous Area certifications
• mV, mA, voltage and configurable voltage outputs
• Multiple electrical & pressure connector options
• Operating temperature ranges from -55 to 125°C (-67 to 257°F)

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### Measurement

#### Operating Pressure Ranges

**Gauge ranges**
- Any zero based range 70 mbar to 70 bar
  (1 to 1000 psi) (values in psi are approximate)

**Sealed Gauge Ranges**
- Any zero based range 10 to 700 bar
  (145 to 10000 psi)

**Absolute Ranges**
- Any zero based range 100 mbar to 700 bar
  (1.5 to 10000 psi)

#### Differential Ranges

**Wet/Dry**
- Uni-directional or bi-directional 70 mbar to 35 bar
  (1 to 500 psi)
- Uni-directional or bi-directional 350 mbar to 35 bar
  (5 to 500 psi)
- Line pressure: 70 bar max (1000 psi)

#### Barometric Ranges

Barometric ranges are available with a minimum span of 350 mbar (5 psi).

#### Non Zero Based Ranges

Non zero based ranges are available. For non zero based gauge ranges, please contact Druck to discuss your requirements.

#### Over Pressure

- 10 x FS for ranges up to 150 mbar (2 psi)
- 6 x FS for ranges up to 700 mbar (10 psi)
- 2 x FS for barometric ranges
- 4 x FS for all other ranges up to 200 bar for ranges >70 bar and up to 1200 bar for ranges >70 bar

For differential versions the negative side must not exceed the positive side by more than:
- 6 x FS for ranges up to 150 mbar (2 psi)
- 4 x FS for ranges up to 700 mbar (10 psi)
- 2 x FS for all other ranges up to a maximum of 15 bar (200 psi)

#### Containment Pressure

Ranges up to 150 mbar (2 psi) gauge 10 x FS
- Ranges up to 70 bar (1000 psi) gauge 6 x FS
- 200 bar (2900 psi) max
- Ranges up to 70 bar (1000 psi) absolute
- 200 bar (2900 psi)
- Ranges above 70 bar (1000 psi)
- 1200 bar (17400 psi)

Differential i-ve port must not exceed positive port by more than 6 x FS (15 bar (200 psi) maximum)

### Supply and Outputs

<table>
<thead>
<tr>
<th>Electronics Option</th>
<th>Description</th>
<th>Supply Voltage (V)</th>
<th>Output</th>
<th>Current Consumption (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>mV Pressure</td>
<td>2.5 to 12</td>
<td>10 mV/°V</td>
<td>&lt;2 at 10 V</td>
</tr>
<tr>
<td>1</td>
<td>±3 mV Lineraised</td>
<td>7 to 12</td>
<td>10 mV/°V</td>
<td>&lt;2 at 10 V</td>
</tr>
<tr>
<td>2</td>
<td>mA</td>
<td>7 to 28**</td>
<td>4-20 mA</td>
<td>&lt;50</td>
</tr>
<tr>
<td>3</td>
<td>0 to 5 V 4-wire</td>
<td>7 to 16**</td>
<td>0 to 5 V</td>
<td>&lt;5</td>
</tr>
<tr>
<td>4</td>
<td>0 to 5 V 5-wire</td>
<td>7 to 16**</td>
<td>0 to 5 V</td>
<td>&lt;5</td>
</tr>
<tr>
<td>5</td>
<td>Basic Configurable (4-wire)</td>
<td>See below~</td>
<td>See below</td>
<td>See below</td>
</tr>
<tr>
<td>6</td>
<td>0 to 10 V 4-wire</td>
<td>12 to 16**</td>
<td>0 to 10 V</td>
<td>&lt;5</td>
</tr>
<tr>
<td>7</td>
<td>±0.5 V to 4.5 V Ratiometric</td>
<td>5 ±0.5 to 4.5 V</td>
<td>±0.5 to 4.5 V</td>
<td>&lt;5</td>
</tr>
<tr>
<td>8</td>
<td>Configurable (4-wire)</td>
<td>7 to 36</td>
<td>See below</td>
<td>See below</td>
</tr>
<tr>
<td>9</td>
<td>Configurable (3-wire)</td>
<td>7 to 36</td>
<td>See below</td>
<td>See below</td>
</tr>
</tbody>
</table>

* with a 10 V supply, output signal gives 100 mV over the full scale pressure
- Output is ratiometric to the supply voltage
- Output reduces pro-rata for pressure ranges below 350 mbar (5 psi)
- To 5 V 5 wire output is not true zero: All pressures below 1% of span the output will be fixed at approximately 50 mA
- **50 mA in non-hazardous area operation
- Output voltage range can be specified to a resolution of 0.1 V

### Power-Up Time

- mV, Voltage and current versions: 10 ms
- Configurable 3-wire and 4-wire versions: 500 ms

### Insulation

- 500 Vdc: 100 MΩ
- 500 Vac: ≤ 5 mA leakage current (mV and mA versions only)

### Shunt Calibration

Shunt Calibration provides a customer accessible service connection which, when applied, causes a shift in output of 80% FS in order to simulate applied pressure. It is fitted to the mV, Configurable 4-wire and Configurable 3-wire versions as standard. It is not available with DTM, M12 x 1 or M20 x 1.5 electrical connectors (options 7, D, G and R)

### Long Term Stability

- ±0.05% FS typical (±0.1% FS maximum) per year increasing pro-rata for pressure ranges below 350 mbar

#### Temperature Effects

Four compensated temperature ranges can be chosen:
- Industrial Accuracy performance:
  - -10 to +50°C (14 to +122°F): ±0.75% FS
  - Temperature error band (TEB)
  - ±1.5% FS TEB
  - -10 to +70°C (14 to +158°F): ±1.5% FS
  - ±2.5% FS TEB
  - ±3.5% FS TEB
  - ±5% FS TEB

#### Temperature effects increase pro-rata for pressure ranges below 350 mbar (5 psi) and are doubled for barometric ranges.

#### Barometric Ranges

- Barometric ranges are available with a minimum span of 350 mbar (5 psi).
- Non zero based ranges are available. For non zero based gauge ranges, please contact Druck to discuss your requirements.

#### Over Pressure

- 10 x FS for ranges up to 150 mbar (2 psi)
- 6 x FS for ranges up to 700 mbar (10 psi)
- 2 x FS for barometric ranges
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For differential versions the negative side must not exceed the positive side by more than:
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#### Containment Pressure

Ranges up to 150 mbar (2 psi) gauge 10 x FS
- Ranges up to 70 bar (1000 psi) gauge 6 x FS
- 200 bar (2900 psi) max
- Ranges up to 70 bar (1000 psi) absolute
- 200 bar (2900 psi)
- Ranges above 70 bar (1000 psi)
- 1200 bar (17400 psi)

Differential i-ve port must not exceed positive port by more than 6 x FS (15 bar (200 psi) maximum)

### Performance Specifications

There are three grades of performance specification: Industrial, Improved and Premium.

#### Accuracy

**Voltage, Current and mV Linearised**

Combined effects of non-linearity, hysteresis and repeatability:
- Industrial: ±0.2% FS
- Improved: ±0.2% FS
- Premium: ±0.04% FS

**mV Passive**

- ≤ 70 bar Industrial/Improved: ±0.25% FS
- Premium not available
- > 70 bar Industrial/Improved: ±0.5% FS
- Premium not available

#### Pressure Media

Fluids compatible with stainless steel 316L and Hastelloy C276.

For the weekly differential version, negative pressure port fluids compatible with stainless steel 316L, stainless steel 304, Pyrex, silicon and structural adhesive.
Enclosure Materials
Stainless steel body, nitrile- or silicone-rubber (o-rings, gaskets), EPDM gasket, PVDF (depth cone), PTFE (vent filter), Nickel plated brass (lock rings), glass filled nylon (electrical connector assemblies), delrin (weath cone). Cable sheaths as specified (see Electrical Connector).

Pressure Connector
Available options are
• G1/4 Male*  
• G1/4 Male Flat  
• G1/4 Male 60° Internal Cone  
• G1/4 Male Flat Long  
• G1/4 Male Flat with Snubber  
• G1/4 Male Flat with Cross Bore Protection  
• G1/4 Male with Nipple  
• G1/4 Quick Connect  
• G1/8 Male 60° Internal Cone  
• G1/2 Male via Adaptor*  
• 1/4 NPT Female*  
• 1/4 NPT Male  
• 1/8 NPT Male  
• 1/2 NPT Male via Adaptor  
• 7/16-20 UNF Female  
• 7/16-20 UNF Male Short Flat  
• 7/16 UNF Long 37° Flare Tip  
• 7/16-20 UNIF Female  
• 3/8-24 UNJF  
• 1/4 Swage Lok Bulkhead  
• M10 x 1 80° Internal Cone  
• M12 x 1 60° Internal Cone  
• M14 x 1.5 60° Internal Cone  
• M20 x 1.5 Male  
• Depth Cone IG1/4 Female Open Face  
• M12 x 1.0 74° External Cone  
• Quick Release Male  
• VCR Female*  
• VCR Male*  
• NW16 Flange  
• R3/8 Male  
• R1/4 Male  
Choose connectors marked * for pressure ranges over 70 bar. Other pressure connectors may be available, contact Druck to discuss your requirement.

General Certifications
RoHS 2002/95/EC  
CRN Certified 013650.517809/YTN AD01/RUV1, 013829.2 (sensor types K and O) and CSA 0F13650.56 AD01 for pressure ranges up to and including 350 bar (5000 psi)

Electrical Connector
Various electrical connector options are available offering different features:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Max Operating temp range</th>
<th>IP rating</th>
<th>Zero span adjust</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Nix Connector</td>
<td>-55 to +125</td>
<td>67 to +257</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>Cable Stand</td>
<td>-40 to +80</td>
<td>-40 to +175</td>
<td>85 N</td>
</tr>
<tr>
<td>2</td>
<td>Raychem Cable</td>
<td>-55 to +125</td>
<td>-67 to +257</td>
<td>65 N</td>
</tr>
<tr>
<td>3</td>
<td>Polyurethane Depth</td>
<td>-40 to +80</td>
<td>-40 to +175</td>
<td>68 N</td>
</tr>
<tr>
<td>4</td>
<td>Hytrel Depth</td>
<td>-40 to +80</td>
<td>-40 to +175</td>
<td>68 N</td>
</tr>
<tr>
<td>6/l</td>
<td>Bayonet MIL-C-25482</td>
<td>-55 to +125</td>
<td>-67 to +257</td>
<td>67 N</td>
</tr>
<tr>
<td>7</td>
<td>DIN 06650 Form A Demountable</td>
<td>-60 to +80</td>
<td>-60 to +175</td>
<td>65 Y</td>
</tr>
<tr>
<td>A/F</td>
<td>Bayonet MIL-C-25482 Demountable</td>
<td>-55 to +125</td>
<td>-67 to +257</td>
<td>65 Y</td>
</tr>
<tr>
<td>C</td>
<td>1/2 NPT Conduit</td>
<td>-40 to +80</td>
<td>-40 to +175</td>
<td>65 N</td>
</tr>
<tr>
<td>D</td>
<td>Micro DIN (9.9 mm pitch)</td>
<td>-40 to +80</td>
<td>-40 to +175</td>
<td>65 N</td>
</tr>
<tr>
<td>G</td>
<td>M12x4g 6ep</td>
<td>-55 to +125</td>
<td>-67 to +257</td>
<td>67 N</td>
</tr>
<tr>
<td>K</td>
<td>Zero Halogen Cable Demountable</td>
<td>-40 to +80</td>
<td>-40 to +175</td>
<td>65 Y</td>
</tr>
<tr>
<td>M</td>
<td>Tuyaux RIS-RDF</td>
<td>-25 to +85</td>
<td>-13 to +185</td>
<td>65 N</td>
</tr>
<tr>
<td>R</td>
<td>M20 x 1.5 Inline</td>
<td>-40 to +80</td>
<td>-40 to +175</td>
<td>65 Y</td>
</tr>
</tbody>
</table>

Note: Electronics output options 8 and 9 are restricted to a maximum operating temperature of 80°C (176°F).

Pressure Transducers
General applications
• IECEx/ATEX Intrinsically Safe ‘ia’ Group IIC  
• INMETRO Intrinsically Safe ‘ia’ Group IIC  
• NEPSI Intrinsically Safe ‘ia’ Group IIC  
• FM Approved (Conrados & US) Intrinsically Safe Exia Class I, Division 1, Groups A, B, C & D and Class I, Zone 0 (Ex ia Ga Group IIC, Single Seal)  
• IECEx/ATEX Intrinsically Safe ‘ia’ Group I  
• INMETRO Intrinsically Safe ‘ia’ Group I  
For full certification details, refer to the type-examination certificates (for approval listings) and supplied hazardous area installation instructions.
## Ordering Information

### Main Product Variant
- PTX: Amplified Pressure Transducer
- PSCR: mV Pressure Transducer
- PX: 20A Pressure Transmitter

### Product Series
- UNIK 5000

#### Diameter and Material
- 25mm Stainless Steel

#### Electrical Connector
- Note 1: Select model number

##### Options
- Cable (Polyurethane Cable)
- Polyurethane Cable (Depth)
- Cable (Multipurpose Cable)

#### Pressure Connector
- Note 2: Please ensure that the electrical connector selected is option 0, 2, A, E, F or G.

##### Options
- 7/16-20 UNF Long 37° Flare Tip
- G1/4 Male Flat with Snubber
- NW16 Flange
- Depth Cone (G1/4 Female Open Face)

### Accessories

### Typical Model Number

<table>
<thead>
<tr>
<th>PTX</th>
<th>5</th>
<th>0</th>
<th>7</th>
<th>2</th>
<th>TA</th>
<th>A2</th>
<th>CB</th>
<th>CH</th>
<th>PA</th>
</tr>
</thead>
</table>

#### Pressure Ranges
- Note 3: Select one of these pressure connectors for pressure ranges over 70 bar.

#### Temperature Ranges
- Note 5: Hazardous area certifications not available

### Electrical Connector
- Note 4: Max operating temperature is 80°C (176°F)

#### Connector

<table>
<thead>
<tr>
<th>Connector</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTX5012-TB-A2-CA-H0-PA</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>FMP5028-TD-A3-CC-H0-PE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

### Pressure Range and Units
- Note 1: Available with component certification, use of which requires incorporation into certified equipment with an IP rated enclosure appropriate to the certification type supplied.

#### Unit Options
- Torr, Torr, Pascal

### Pressure
- Note 3: Select one of these pressure connectors for pressure ranges over 70 bar

### Electrical Connector
- Note 8: Electronics option 2 only.

### Hazardous Area
- Note 5: Hazardous area certifications not available

### Temperature
- Note 1: Max operating temperature is 80°C (176°F)

### Electrical Connector
- Note 4: Max operating temperature is 80°C (176°F)

### Pressure Range and Units
- Integer values only, e.g. 1 m cable, 8 ft. Minimum length 1 m (3 ft) cable
Mechanical Drawings

NOTES:

1. DIMENSIONS SHOWN ARE FOR STANDARD LENGTH PRODUCTS WITH THE FOLLOWING ELECTRICAL OUTPUT OPTIONS:
   - mV LINEARISED (PDCR)
   - 4 TO 20 mA (PTX)
   - STANDARD VOLTAGE OPTIONS (PMP)
   - BASIC CONFIGURABLE (PMP)

   FOR mV PASSIVE (PDCR) - SUBTRACT 10 mm (0.39 in)
   FOR CONFIGURABLE 4-WIRE AND CONFIGURABLE 3-WIRE (PMP) - ADD 15 mm (0.59 in)

2. REFER TO PAGE 4 FOR LIST OF PRESSURE CONNECTION OPTIONS
   (ORIENTATION NOT CRITICAL)

3. ALL DIMENSIONS ARE IN MILLIMETRES (INCHES IN PARENTHESES)

4. HIGH PRESSURE IS >70 BAR
   MEDIUM PRESSURE
   - INDUSTRIAL ACCURACY +1 BAR TO +50 BAR
   - IMPROVED/PREMIUM ACCURACY +70 BAR
   LOW/MEDIUM PRESSURE
   - INDUSTRIAL ACCURACY < 1 BAR, > 50 BAR TO < 70 BAR
   - IMPROVED/PREMIUM ACCURACY < 70 BAR

5. HIGH PRESSURE 15 TO 70 BAR
   MEDIUM PRESSURE
   - INDUSTRIAL ACCURACY +1 BAR TO +50 BAR
   LOW/MEDIUM PRESSURE
   - INDUSTRIAL ACCURACY < 1 BAR, > 50 BAR TO < 70 BAR
   - IMPROVED/PREMIUM ACCURACY < 70 BAR

6. ZERO HALOGEN CABLE DEMOUNTABLE

7. MALE PRESSURE CONNECTION

8. HIGH PRESSURE CONSTRUCTION

9. CABLE GLAND WITH POLYURETHANE CABLE

10. MEDIUM PRESSURE CONSTRUCTION

11. DEPTH CONE PRESSURE ADAPTOR

12. DEPTH CABLE

13. LOW/MEDIUM PRESSURE CONSTRUCTION

14. OPTIONAL PRESSURE ADAPTOR

15. WET/WET & WET/DRY DIFFERENTIAL CONSTRUCTION

16. BAYONET MIL-C-26482

17. BAYONET MIL-C-26482 NON-DEMOUNTABLE

18. MICRO DIN (9.4 mm)

19. CONDUIT WITH POLYURETHANE CABLE

20. M20 x 1.5 INLINE FEMALE CONDUIT DEMOUNTABLE

21. TAURUS RED-MFP

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