

# 4000 Series - High Performance, Long Term Stability Pressure Transducers

PRESSURE TRANSDUCERS

SPUTTERED THIN FILM

- ▶ Gauge, sealed, absolute, and differential pressure models
- ▶ Submersible, general purpose and weather proof enclosures
- ▶ High stability achieved by sputtered sensing element

The 4000 series provides exceptional levels of stability and other performance specifications in a wide variety of enclosures from submersible to differential styles. By using a sputtered sensing element, which achieves a molecular fusion of a strain gauge material, an insulating material, and the 17-4 PH ss sensing element, the 4000 series provides the most stable sensor construction possible. These sputtered sensors are packaged for harsh applications requiring long term service where precise laboratory type measurements are required.

Also in the 4000 series is a range of high performance amplified sensors with voltage and current outputs. These laboratory specification sensors utilise the same thin film sensor as 4000.

## Specifications

### Input

|                             |  |
|-----------------------------|--|
| <b>Pressure Range</b>       | 0 to 1 - 0 to 690bar   |
| <b>Proof Pressure</b>       | 2 x Full Scale (FS) (1.5 x FS for Inconel ports)   |
| <b>Burst Pressure</b>       | >35 x Fs <= 10bar (150psi) ranges<br>>15 x FS <= 100bar (1500psi) ranges<br>>8 FS <= 690bar (10,000psi) ranges |
| <b>Fatigue Life</b>         | 3 million FS cycles  |
| <b>Common Line Pressure</b> | Max. 60bar absolute (850 psia) differential units only   |

### Performance

|                            |  |  |
|----------------------------|--|--|
| <b>Output*</b>             | 30mV +/- 1% (certificate supplied)<br>(4010, 25 to 33mV) |  |
| <b>Supply Voltage (Vs)</b> | 10Vdc Regulated (15Vdc max)                              |  |
| <b>Long Term Drift</b>     | 0.06% per year non cumulative                            |  |
| <b>Performance Code</b>    | Accuracy   | Thermal error over any 50°C band between -54°C to +120°C |

|          | Typical     | Typical    |
|----------|-------------|------------|
| <b>J</b> | 0.1 % span  | 1.2 % span |
| <b>K</b> | 0.1 % span  | 0.6 % span |
| <b>L</b> | 0.08 % span | 0.6 % span |
| <b>M</b> | 0.08 % span | 0.3 % span |

**Compensated Temperatures** -54° to 120 °C (-65° to 250°F)  
**Operating Temperatures** -54° to 135°C (-65° to 275°F) for twist lock conn. "C"  
-54° to 120°C (-65° to 250°F) for cable units "D"  
-20° to 50°C (-4° to 122°F) for submersible unit "M"

|                          |  |
|--------------------------|--|
| <b>Zero Tolerance</b>    | 0mV +/- 1mV for performance codes J & K<br>0mV +/- 0.6mV for performance codes L & M |
| <b>Bridge Resistance</b> | 2200 to 5250 ohms  |

### Mechanical Configuration

|                              |   |
|------------------------------|---|
| <b>Pressure Port</b>         | See ordering chart  |
| <b>Wetted Parts</b>          | 17-4 PH ss (optional Inconel)<br>[17-4 PH and 15-7 Mo Stainless Steel <= 1.6bar (30psi)]<br>Differential: dry non corrosive gas only on reference port                                    |
| <b>Electrical Connection</b> | See ordering chart  |
| <b>Enclosure</b>             | 321 ss case<br>IP40 for elec. Code "C" gauge datum<br>IP65 for elec. Code "C" Absolute or Sealed Datum<br>IP66 (weatherproof) for elec. code "D"<br>IP68 (submersible) for elec. code "M" |
| <b>Vibration</b>             | 35g peak sinusoidal, 5 to 2000Hz  |
| <b>Shock</b>                 | Withstands free fall to EIC 68-2-32 proc 1  |
| <b>Approvals</b>             | CE  |
| <b>Weight</b>                | 150grams max (excluding cable)  |

Note: \* Inconel 2.5bar (30psi) range output is 25mV +/- 1%

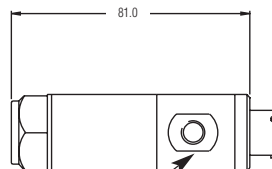
| Electrical connection | Voltage units | Voltage units |      |       |        |            |
|-----------------------|---------------|---------------|------|-------|--------|------------|
|                       |               | IN+           | OUT+ | OUT-  | IN-    | Case Earth |
| C "10-6 Bayonet"      | A             | B             | C/F  | D/E   | Screen |            |
| D Weatherproof cable  | Red           | Yellow        | Blue | White | Screen |            |
| M IP68 cable          | Red           | Yellow        | Blue | White | Screen |            |



## Dimensions (in mm)

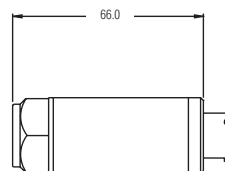
Differential

Code C



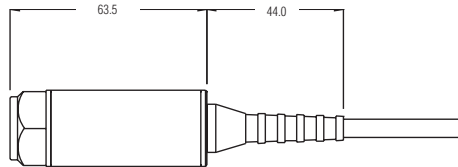
Absolute and Gauge

Code C



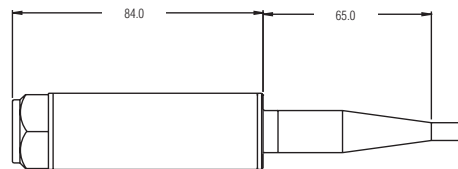
Absolute and Gauge

Code D



Absolute and Gauge

Code M



Maximum diameter 25.7mm

## How to Order

Use the **bold** characters from the chart below to construct a product code

**4000 K G B10 00 D 2 D J**

**Series** \_\_\_\_\_

4000 series for bar ranges, **4010** series for psi ranges

**Bridge Resistance** \_\_\_\_\_

**K** is 3500 ohms

**Pressure Datum** \_\_\_\_\_

**G** - Gauge; **A** - Absolute; **S** - Sealed; **U** - Uni-directional differential \*

**Insert pressure range code from table below** \_\_\_\_\_

**Pressure Port** see chart \_\_\_\_\_

**Electrical Connection** \_\_\_\_\_

**C** - Fixed plug size 10-6, mate sold separately part # 499532-0006  
**D** - Weatherproof Cable IP 66  
**M** - Immersible Cable IP68 to max depth 200 metres

**Approvals/Protection** \_\_\_\_\_

**2** - CE

**Cable Length in metres** (requires electrical connection to be cable codes D or M) \_\_\_\_\_

**U** - no cable **E** - 3 **G** - 10 **J** - 20 **L** - 30 **N** - 50 **Q** - 100 **S** - 150  
**D** - 1 **F** - 5 **H** - 15 **K** - 25 **M** - 40 **P** - 75 **R** - 125

**Static/Thermal Performance** \_\_\_\_\_

**J** - 0.1%/1.2%; **K** - 0.1%/0.6%; **L** - 0.08%/0.6%; **M** - 0.08%/0.3% typical over any 50°C band between -54°C to +120°C

\*Differential datum units are available in electrical code "C" only and performance codes either "L" or "M".

| 4000 Model Bar Ranges | Range Code | Gauge (G)<br>Absolute (A)<br>Sealed (S)<br>Differential (U) |
|-----------------------|------------|---|
| 0 to 1                | <b>A10</b> | <b>G, A, U</b>  |
| 0 to 1.6              | <b>A16</b> | <b>G, A, U</b>  |
| 0 to 2.5              | <b>A25</b> | <b>G, A, U</b>  |
| 0 to 4                | <b>A40</b> | <b>G, A, U</b>  |
| 0 to 6                | <b>A60</b> | <b>G, A, U</b>  |
| 0 to 10               | <b>B10</b> | <b>G, A, U, S</b>   |
| 0 to 16               | <b>B16</b> | <b>G, A, S</b>  |
| 0 to 25               | <b>B25</b> | <b>G, A, S</b>  |
| 0 to 40               | <b>B40</b> | <b>G, A, S</b>  |
| 0 to 60               | <b>B60</b> | <b>G, A, S</b>  |
| 0 to 100              | <b>C10</b> | <b>G, A, S</b>  |
| 0 to 160              | <b>C16</b> | <b>G, A, S</b>  |
| 0 to 250              | <b>C25</b> | <b>G, A, S</b>  |
| 0 to 400              | <b>C40</b> | <b>G, A, S</b>  |
| 0 to 600              | <b>C60</b> | <b>G, A, S</b>  |
| 0 to 690              | <b>C69</b> | <b>G, A, S</b>  |

Diaphragm and internal port Inconel, external adaptors are available in stainless steel or Inconel

### Pressure Ports

| Codes     |                | Description                      |
|-----------|----------------|----------------------------------|
| <b>SS</b> | <b>Inconel</b> |                                  |
| <b>00</b> | <b>OK</b>      | G 1/4 internal                   |
| <b>AO</b> | <b>AK</b>      | G 1/4 AT external                |
| <b>KO</b> | <b>KK</b>      | 7/16-20 UNF-3A external          |
| <b>MO</b> | <b>MK</b>      | M14 x 1.5 external               |
| <b>PO</b> | <b>PK</b>      | G1/2 AT external                 |
| <b>BO</b> | <b>BK</b>      | 1/4-18 NPT external              |
| <b>GO</b> | <b>GK</b>      | 1/2-14 NPT external              |
| <b>SO</b> | <b>SK</b>      | 7/16-20 UNJF-3A, MS 33656F4      |
| <b>10</b> | <b>10</b>      | Plastic nosecone                 |
| <b>20</b> | <b>20</b>      | Plastic nosecone with restrictor |
| <b>30</b> | <b>30</b>      | Sink weight nose cone            |

| Differential Units |   |
|--------------------|---|
| <b>OD</b>          | G1/4 internal ss, G1/8 internal ss      |
| <b>OL</b>          | G1/4 internal Inconel, G1/8 internal ss |