**HIGH- AND VERY-HIGH-TEMPERATURE PRESSURE TRANSUDCERS**

**mV/V Output**
- 0-15 to 0-10,000 psi
- 0-1 to 0-700 bar

1 bar = 14.5 psi
1 kg/cm² = 14.22 psi
1 atmosphere = 14.7 psi = 29.93 inHg = 760.2 mmHg = 1.014 bar

**PX1004/PX1009 Series**

- **Two Versions That**
  - **Operate from -54 to 232°C (-65 to 450°F)** (PX1004)
  - **-54 to 343°C (-65 to 650°F)** (PX1009)

- **High Performance**
- **Proven High Reliability**
- **Exceptional Calibration Stability**

**Applications**
- **Engine and Test Stands**
- **High-Temperature Testing**
- **Process Monitoring**
- **Ground Support Equipment**
- **High-Temperature Geothermal Generators**

OMEGA’s thin-film technology makes this premium performance possible. The strain gages are sputter-deposited, forming a molecular bond with the substrate. There is virtually no shift, drift, or creep to cause the transducer’s calibration to change. The all-welded stainless steel pressure cavity and double-isolated case ensure pressure integrity and reliability in adverse environments.

These high-temperature transducers are available in many standard ranges from 15 psi to 10,000 psi. A NIST-traceable calibration record is available for these units.

**SPECIFICATIONS**

- **Excitation:** 10 Vdc
- **Full Range Output:** 30 mV nominal, 26 mV minimum
- **Residual Unbalance:** 0 mV ±5% FSO at zero pressure
- **Input Resistance:** 400 Ω nominal
- **Output Resistance:** 400 Ω nominal

**Insulation Resistance:**
- **PX1004:** 100 MΩ or greater @ 45 Vdc
- **PX1009:** 50 MΩ or greater @ 45 Vdc

**Electrical Connections:**
- **PX1004:** PCIH-10-6P or equivalent
- **PX1009:** Color-coded pigtail leads, 0.8 m (30") long, minimum

**Sensing Element:**
- 4-active-arm bridge using sputter-deposited thin-film elements.

**Accuracy:**
- Combined linearity, hysteresis and repeatability: ±0.25% FSO, BSL (over the compensated temperature range)

**Note:** Performance is determined at 25°C ±1°C (77°F ±2°F), open circuit, rated excitation, unless otherwise specified

**Operating Temp Range:**
- **PX1004:** -54 to 232°C (-65 to 450°F)
- **PX1009:** -54 to 343°C (-65 to 650°F)

**Compensated Temp Range:**
- **PX1004:** 24 to 204°C (75 to 400°F)
- **PX1009:** 24 to 316°C (75 to 600°F)

OMEGA’s PX1004 and PX1009 sputtered thin-film pressure transducers are designed for high-temperature service. These instruments can operate in temperatures from -54 to 232°C or 343°C (-65 to 450°F or 650°F).

Yet even in these extreme temperatures, they provide outstanding accuracy, long-term calibration stability, and reliability. Static accuracy is ±0.25%, and thermal zero and sensitivity shifts over their compensated ranges are less than ±0.01%/°F.
**HIGH AND VERY HIGH TEMPERATURE PRESSURE TRANSDUCERS**

**Thermal Effects:**
- Span: ±0.01% FSO/°F
- Zero: ±0.01% FSO/°F

**Natural Frequency:**
50 kHz at 5000 psi decreasing logarithmically to 5 kHz at 15 psi

**Vibration Sensitivity:** At 35 g peak from 10 Hz to 2000 Hz (limited to 1/2 D.A.), the output shall not exceed:
- PX1004
  - 15 psi: 0.04% FSO/g
  - 50 psi: 0.02% FSO/g
  - 100 psi: 0.015% FSO/g
  - 500 psi: 0.006% FSO/g
  - 1000 psi: 0.003% FSO/g
- PX1009
  - 15 psi: 0.003% FSO/g
  - 50 psi: 0.006% FSO/g
  - 100 psi: 0.02% FSO/g
  - 500 psi: 0.04% FSO/g
  - 1000 psi: 0.05% FSO/g

**Shock:** 100 g, 11 ms half sine wave without calibration shift or damage

**Humidity:** Per MIL-STD-810, Method 507.1
- Standard ranges: 0 to 15, 25, 50, 100, 250, 500, 1000, 1500, 2000, 2500, 5000 and 10,000 psia. Sealed gage available in ranges of 100 psi and above.

**Proof Pressure:**
- PX1004: 200% of rated pressure
- PX1009: 150% of rated pressure

**Burst Pressure:**
- PX1004: 300% of rated pressure
- PX1009: 200% of rated pressure

**Wetted Parts:** 17-4 PH vacuum melt or 15-5 stainless steel

**Pressure Fitting:** ¼-20 male per MS33656-4

**Mounting Isolation:** Case isolation ensures that the sensing element will not be affected by external stresses

| Ordering Example: PX1004L1-1KSV, MS33656-4 male pressure port, twist-lock connector, 0.8 m high-temperature cable, 1000 psi sealed gage pressure range, mV/V output and optional 11-point NIST-traceable calibration. |

**Mating Connector (PX1004):**
- PCS06E-10-6S-R (sold separately)

**Weight:** 145 g (5 oz) maximum

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### To Order

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<tr>
<th>RANGE</th>
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<th>MODEL NO. PX1009</th>
<th>COMPATIBLE METERS*</th>
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<tr>
<td>0 to 15 psi</td>
<td>0 to 1.0 bar</td>
<td>PX1004L1-015AV</td>
<td>PX1009L0-015AV</td>
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<tr>
<td>0 to 25 psi</td>
<td>0 to 1.7 bar</td>
<td>PX1004L1-025AV</td>
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<tr>
<td>0 to 50 psi</td>
<td>0 to 3.4 bar</td>
<td>PX1004L1-050AV</td>
<td>PX1009L0-050AV</td>
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<td>0 to 100 psi</td>
<td>0 to 6.9 bar</td>
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<tr>
<td>0 to 250 psi</td>
<td>0 to 17.2 bar</td>
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<td>PX1009L0-250AV</td>
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<tr>
<td>0 to 500 psi</td>
<td>0 to 34.5 bar</td>
<td>PX1004L1-500AV</td>
<td>PX1009L0-500AV</td>
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<tr>
<td>0 to 1000 psi</td>
<td>0 to 68.9 bar</td>
<td>PX1004L1-1KV</td>
<td>PX1009L0-1KV</td>
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<td>0 to 1500 psi</td>
<td>0 to 103 bar</td>
<td>PX1004L1-1.5KV</td>
<td>PX1009L0-1.5KV</td>
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<td>0 to 2000 psi</td>
<td>0 to 138 bar</td>
<td>PX1004L1-2KV</td>
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<td>0 to 250 psi</td>
<td>0 to 172 bar</td>
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<td>0 to 345 bar</td>
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<td>0 to 10,000 psi</td>
<td>0 to 689 bar</td>
<td>PX1004L1-10KV</td>
<td>PX1009L0-10KV</td>
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</table>

Comes complete with 5-point calibration. * See omega.com for compatible meters. Metric ranges available – Consult Engineering.

To order sealed gage pressure, replace “A” in model number with “S” (no extra charge).

**Ordering Examples:**
- PX1004L1-100AV, 100 psi absolute pressure transducer with male pressure connection per MS33656-4 and PCI0-10-6P electrical connector. PCS06E-10-6S-R, mating connector (sold separately). PX1009L0-1KSV, 1000 psi sealed gage pressure transducer with MS33656-4 male pressure connection and 0.8 m high-temperature cable.

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### CUSTOM CONFIGURATIONS

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<th>PRESSURE PORT SERIES</th>
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<td>015 psi</td>
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<td>V = mV/V Output</td>
<td>CAL11 = 11-point NIST-traceable calibration</td>
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</table>

Metric ranges available – Consult Engineering.

**Ordering Examples:**
- PX1004L1-100AV, MS33656-4 male pressure port, twist-lock connector, 100 psi absolute pressure range and mV/V output. PCS06E-10-6S-R, mating connector (sold separately). PX1004L1-015SV, MS33656-4 male pressure port, twist-lock connector, 15 psi sealed gage pressure range and mV/V output. PCS06E-10-6S-R, mating connector (sold separately).
- PX1009L1-1KSV-CAL11, MS33656-4 male pressure port, 0.8 m (30°) high-temperature cable, 1000 psi sealed gage pressure range, mV/V output and optional 11-point NIST-traceable calibration.