# THIN-FILM CRYOGENIC PRESSURE TRANSDUCER

## PX1005 Series

***mV/V Output***
***0-15 to 0-1000 psi***
***0-1 to 0-70 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*

**All Ranges**
**$1500**

Shown larger than actual size.

PX1005L1-1KAV, $1500, shown actual size.

MADE IN USA NIST CE RoHS

Standard

- **High Performance**
- **High Reliability**
- **0.1% Stability for 18 Months**
- **Operates From -196 to 149°C (-320 to 300°F)**
- **Exceptional Calibration Stability**

PX1005 sputtered thin-film pressure transducer was designed for cryogenic service; it can operate in temperatures from -196 to 149°C (-320 to 300°F). Yet, even in these extreme temperatures, it provides outstanding accuracy, long-term calibration stability, and reliability.

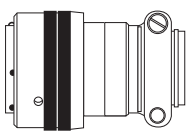
Static accuracy is ±0.25%, and thermal zero and sensitivity shifts over the compensated range of -196 to 27°C (-320 to 80°F) are less than ±0.01%/°F. The all-welded stainless steel pressure cavity and double-isolated case ensure reliability in the inherently tough environments of cryogenic service.

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.

## Applications

- **Liquid-Fuel Engines and Test Stands**
- **Launch System Ground Support Equipment**
- **Space Systems**
- **Cryogenic Process Instrumentation Tested to -196°C (-320°F)**

OMEGA's PX1005 is available in many standard ranges from 15 psi to 1000 psi. A calibration record is supplied with every unit.



Mating Connector
**PCS06E-10-6S(SR)**
**$135**

***MOST POPULAR MODELS HIGHLIGHTED!***

**To Order *(Specify Model Number)***

**Models with mV/V Output and Bendix Connector**

| RANGE | | MODEL NO. | PRICE | COMPATIBLE METERS* |
|---|---|---|---|---|
| **Absolute Pressure *(All Ranges Available in Sealed Gage Pressure)*** | | | | |
| 0 to 15 psi | 0 to 1.0 bar | **PX1005L1-015AV** | **$1500** | DP41-S, DP25B-S |
| 0 to 25 psi | 0 to 1.7 bar | **PX1005L1-025AV** | **1500** | DP41-S, DP25B-S |
| 0 to 50 psi | 0 to 3.4 bar | **PX1005L1-050AV** | **1500** | DP41-S, DP25B-S |
| 0 to 100 psi | 0 to 6.9 bar | **PX1005L1-100AV** | **1500** | DP41-S, DP25B-S |
| 0 to 250 psi | 0 to 17.2 bar | **PX1005L1-250AV** | **1500** | DP41-S, DP25B-S |
| 0 to 500 psi | 0 to 34.5 bar | **PX1005L1-500AV** | **1500** | DP41-S, DP25B-S |
| 0 to 1000 psi | 0 to 68.9 bar | **PX1005L1-1KAV** | **1500** | DP41-S, DP25B-S |

*Comes complete with 5-point calibration.*

** See section D 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: PX1005L1-100AV,** 100 psi absolute pressure transducer, with MS33656-4 male pressure connection and integral electrical connector, **$1500.** **PCS06E-10-6S(SR),** mating connector (sold separately), **$135.***

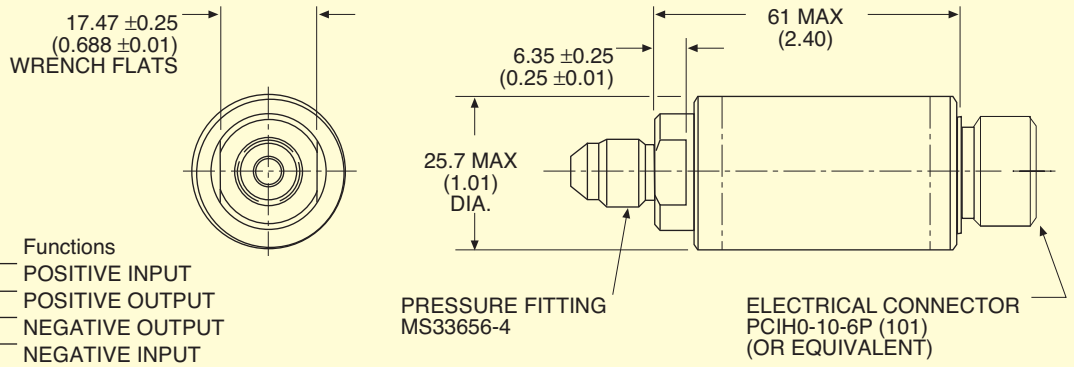
***PX1005L1-1KSV,** 1000 psi sealed gage pressure transducer with MS33656-4 male pressure connection and integral electrical connector, **$1500.** **PCS06E-10-6S(SR),** mating connector (sold separately), **$135.***

**ACCESSORY**

| MODEL NO. | PRICE | DESCRIPTION |
|---|---|---|
| **PCS06E-10-6S(SR)** | **$135** | Mating connector for PX1005 transducers |

# THIN-FILM CRYOGENIC PRESSURE TRANSDUCER

**Dimensions: mm (in)**




| Pins | Functions |
|---|---|
| A | POSITIVE INPUT |
| B | POSITIVE OUTPUT |
| C | NEGATIVE OUTPUT |
| D | NEGATIVE INPUT |
| E | SHORTED TO "D" |
| F | SHORTED TO "C" |

## 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:**
100 MΩ or greater @ 45 Vdc

**Shunt Calibration:** Provisions for single-arm, external shunt calibration

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

**Accuracy:** Combined linearity, hysteresis and repeatability: ±0.25% FSO, BSL [Note: Performance is determined at 25°C ±1°C (77°F ±2°F), open circuit, rated excitation, unless otherwise specified]

**Operating Temp Range:**
-196 to 149°C (-320 to 300°F)

**Compensated Temp Range:**
-196 to 27°C (-320 to 80°F)

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

**Vibration Sensitivity:** At 35 g peak from 10 Hz to 2000 Hz (½" D.A.), the output shall not exceed 0.04% FSO/g for 15 psi units decreasing logarithmically to 0.003% FSO/g for 1000 psi units

**Natural Frequency:** 35 kHz at 1000 psi decreasing logarithmically 5 kHz at 15 psi

**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 and 1000 psia

**Proof Pressure:** 200% of rated pressure will not cause changes in performance beyond the specified tolerances

**Burst Pressure:** 3 times rated pressure

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

**Pressure Fitting:**
⅞-20 male per MS33656-4

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

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

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

## CUSTOM CONFIGURATIONS

| PX1005 SERIES | PRESSURE PORT [ 1 ] | ELECTRICAL CONNECTION [ 2 ] | RANGE [ 3 ] | UNITS [ 4 ] | OUTPUT [ 5 ] | OPTIONS [ 6 ] |
|---|---|---|---|---|---|---|
| | **L** = MS33656-4 | | 015 psi | A, S | **V** = mV/V Output | |
| | | | 025 | A, S | Base Price: **$1500** | |
| | | | 050 | A, S | | |
| | | | 100 | A, S | | |
| | | | 250 | A, S | | |
| | | | 500 | A, S | | |
| | | | 1K | A, S | | |
| | | **1** = **PCIH0-10-6P** connector (or equal). Mating connector (sold separately), order **PCS06E-10-6S(SR) $135.** | | | | |

*Metric ranges available – Consult Engineering.*

**To order a custom configuration:**
**1.** Select a pressure port
**2.** Select electrical connection
**3.** Select a pressure range
**4.** Select pressure units
**5.** Select output
**6.** Select options and agency approvals

***Ordering Examples: PX1005L1-100AV,*** *MS33656-4 male pressure port, PCIH0-10-6P connector, 100 psi absolute pressure range and mV/V output,* ***$1500. PCS06E-10-6S(SR),*** *mating connector (sold separately),* ***$135.***

***PX1005L1-015SV,*** *MS33656-4 male pressure port, PCIH0-10-6P style connector, 15 psi sealed gage pressure range and mV/V output,* ***$1500. PCS06E-10-6S(SR),*** *mating connector (sold separately),* ***$135.***

***PX1005L1-1KSV,*** *MS33656-4 male pressure port, PCIH0-10-6P connector, 1000 psi sealed gage pressure range and mV/V output,* ***$1650. PCS06E-10-6S(SR),*** *mating connector (sold separately),* ***$135.***