

THIN-FILM CRYOGENIC PRESSURE TRANSDUCER

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

PX1005 Series All Ranges



Shown larger than actual size.

PX1005L1-1KAV, shown actual size.

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

OMEGA's 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.

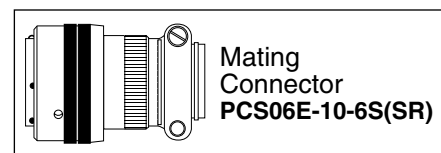
Static accuracy is ±0.25%, and thermal zero and sensitivity shifts over the compensated range of -196 to 27°C (-320 to 80°F) are less than ±0.01%/°F. The all-welded stainless steel pressure cavity and double-isolated case ensure reliability in the inherently tough environments of cryogenic service.

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.

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.



| To Order | | | |
|--|---------------|----------------|--------------------|
| Models with mV/V Output and Bendix Connector | | | |
| RANGE | | MODEL NO. | COMPATIBLE METERS* |
| Absolute Pressure (All Ranges Available in Sealed Gauge Pressure) | | | |
| 0 to 15 psi | 0 to 1.0 bar | PX1005L1-015AV | DP41-S, DP25B-S |
| 0 to 25 psi | 0 to 1.7 bar | PX1005L1-025AV | DP41-S, DP25B-S |
| 0 to 50 psi | 0 to 3.4 bar | PX1005L1-050AV | DP41-S, DP25B-S |
| 0 to 100 psi | 0 to 6.9 bar | PX1005L1-100AV | DP41-S, DP25B-S |
| 0 to 250 psi | 0 to 17.2 bar | PX1005L1-250AV | DP41-S, DP25B-S |
| 0 to 500 psi | 0 to 34.5 bar | PX1005L1-500AV | DP41-S, DP25B-S |
| 0 to 1000 psi | 0 to 68.9 bar | PX1005L1-1KAV | DP41-S, DP25B-S |

Comes complete with 5-point calibration.

* Visit us online 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.

PCS06E-10-6S(SR), mating connector (sold separately).

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

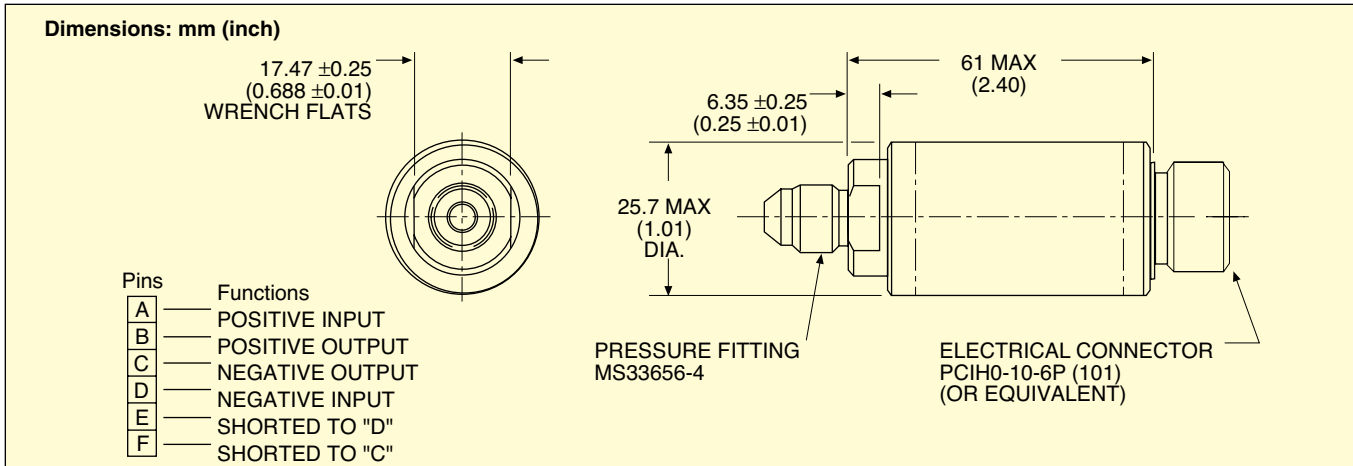
ACCESSORY

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

THIN-FILM CRYOGENIC PRESSURE TRANSDUCER



MILLIVOLT OUTPUT
PRESSURE TRANSDUCERS
B



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:

¼"-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 | | |
| | | | 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) | | | | | |

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

Metric ranges available – Consult Engineering.

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

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

PX1005L1-1KSV, MS33656-4 male pressure port, PCIH0-10-6P connector, 1000 psi sealed gage pressure range and mV/V output.

PCS06E-10-6S(SR), mating connector (sold separately).