

# HIGH- AND VERY-HIGH-TEMPERATURE PRESSURE TRANSDUCERS

## mV/V Output

0-15 to 0-10,000 psi

0-1 to 0-700 bar

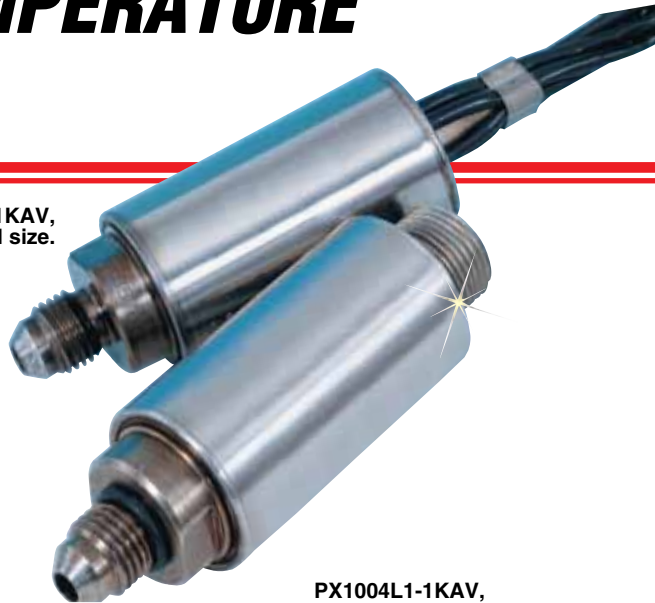
1 bar = 14.5 psi

1 kg/cm<sup>2</sup> = 14.22 psi

1 atmosphere = 14.7 psi = 29.93

inHg = 760.2 mmHg = 1.014 bar

PX1009L0-1KAV,  
shown actual size.



PX1004L1-1KAV,  
shown actual size.

## PX1004/PX1009 Series



- ✓ Two Versions That Operate from -54 to 232°C (-65 to 450°F) (PX1004) or -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 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.

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:

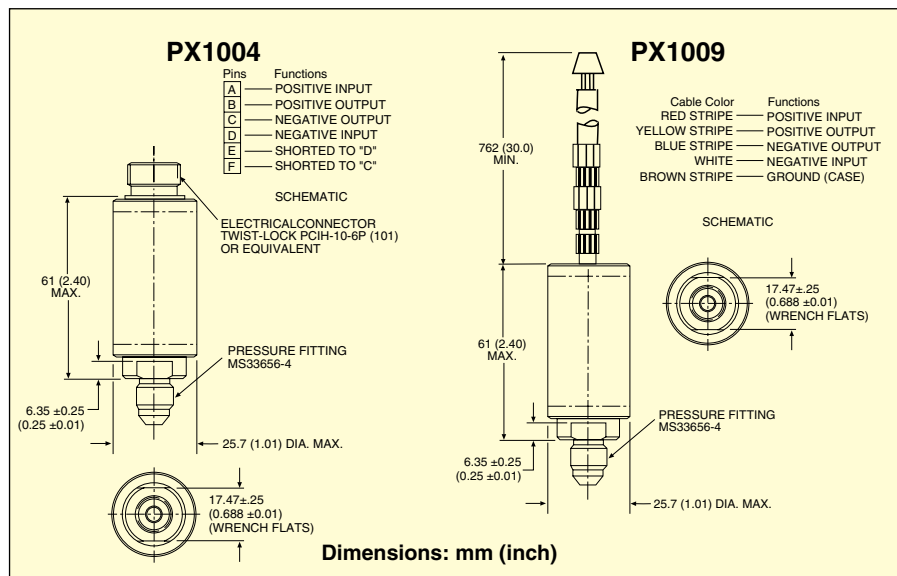
PX1004: -54 to 232°C (-65 to 450°F)

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)



# HIGH AND VERY HIGH TEMPERATURE PRESSURE TRANSDUCERS



MILLIVOLT OUTPUT  
PRESSURE TRANSDUCERS  
**B**

## 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 ½" D.A.), the output shall not exceed:

	PX1004	PX1009
15 psi	0.04% FSO/g	0.15% FSO/g
50 psi	0.02% FSO/g	0.07% FSO/g
100 psi	0.015% FSO/g	0.05% FSO/g
500 psi	0.006% FSO/g	0.02% FSO/g
1000 psi	0.003% FSO/g	0.02% 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:

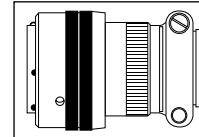
¼"-20 male per MS33656-4

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

## Mating Connector (PX1004):

PCS06E-10-6S(SR) (sold separately)

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



PX1004 Mating Connector  
PCS06E-10-6S(SR)

## To Order

RANGE	MODEL NO. PX1004	MODEL NO. PX1009	COMPATIBLE METERS*	
<b>ABSOLUTE PRESSURE (All Ranges Available in Sealed Gage Pressure)</b>				
0 to 15 psi	0 to 1.0 bar	PX1004L1-015AV	PX1009L0-015AV	DP41-S, DP25B-S
0 to 25 psi	0 to 1.7 bar	PX1004L1-025AV	PX1009L0-025AV	DP41-S, DP25B-S
0 to 50 psi	0 to 3.4 bar	PX1004L1-050AV	PX1009L0-050AV	DP41-S, DP25B-S
0 to 100 psi	0 to 6.9 bar	PX1004L1-100AV	PX1009L0-100AV	DP41-S, DP25B-S
0 to 250 psi	0 to 17.2 bar	PX1004L1-250AV	PX1009L0-250AV	DP41-S, DP25B-S
0 to 500 psi	0 to 34.5 bar	PX1004L1-500AV	PX1009L0-500AV	DP41-S, DP25B-S
0 to 1000 psi	0 to 68.9 bar	PX1004L1-1KAV	PX1009L0-1KAV	DP41-S, DP25B-S
0 to 1500 psi	0 to 103 bar	PX1004L1-1.5KAV	PX1009L0-1.5KAV	DP41-S, DP25B-S
0 to 2000 psi	0 to 138 bar	PX1004L1-2KAV	PX1009L0-2KAV	DP41-S, DP25B-S
0 to 2500 psi	0 to 172 bar	PX1004L1-2.5KAV	PX1009L0-2.5KAV	DP41-S, DP25B-S
0 to 5000 psi	0 to 345 bar	PX1004L1-5KAV	PX1009L0-5KAV	DP41-S, DP25B-S
0 to 10,000 psi	0 to 689 bar	PX1004L1-10KAV	PX1009L0-10KAV	DP41-S, DP25B-S

Comes complete with 5-point calibration.

\* See [omega.com](http://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 PCH10-10-6P electrical connector. PCS06E-10-6S(SR), mating connector (sold separately). PX1009L0-1KSV, 1000 psi sealed gage pressure transducer with MS33656-4 male pressure connection and 0.8 m (30") high-temperature cable.

## ACCESSORY

MODEL NO.	DESCRIPTION
PCS06E-10-6S(SR)	Mating connector for PX1004 transducers

## CUSTOM CONFIGURATIONS

PRESSURE PORT SERIES	ELECTRICAL CONNECTION [ 2 ]	RANGE [ 3 ]	UNITS [ 4 ]	OUTPUT [ 5 ]	OPTIONS [ 6 ]
L = MS33656-4		015 psi	A	V = mV/V Output	CAL11 = 11-point NIST-traceable calibration
		025	A	Base Price PX1004:	extra cost
		050	A	Base Price PX1009:	
		100	A, S		
		250	A, S		
		500	A, S		
	PX1004 only 1 = PCIH0-10-6P Connector (or equal). Mating connector (sold separately), order PCS06E-10-6S(SR)	1K	A, S		
		1.5K	A, S		
		2K	A, S		
		2.5K	A, S		
		5K	A, S		
	PX1009 only 0 = color-coded cable, 0.8 m (30") min.	10K	A, S		

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:** PX1004L1-100AV, MS33656-4 male pressure port, twist-lock connector, 100 psi absolute pressure range and mV/V output. PCS06E-10-6S(SR), 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(SR), 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.