

# HIGH-PERFORMANCE THIN FILM PRESSURE TRANSDUCER

## STANDARD AND METRIC UNITS



PX5500L1-100GV,  
shown actual size.

### mV/V Output

0-15 to 0-10,000 psi-Standard Models

0-1 to 0-600 bar Metric Models

## PX5500/PXM5500 Series



- ✓ High Accuracy: 0.1%
- ✓ Solid State Reliability
- ✓ Sputtered Strain Gage Design
- ✓ High Shock and Vibration Resistance
- ✓ Low Drift
- ✓ 5-Point NIST Calibration Standard

### Applications

- ✓ Testing
- ✓ R&D/Engineering Test Laboratories
- ✓ Functional Test Systems
- ✓ Production Testing
- ✓ Product Quality Assurance
- ✓ Flight Testing
- ✓ Gas Turbine and Engine Test Standards
- ✓ Ground Support Equipment
- ✓ Hydraulic Systems
- ✓ Custody Transfer Measurements

OMEGA's PX5500/PXM5500 Series transducers provide high performance in demanding industrial and research applications in which accuracy, reliability, and price are important. These transducers have a 10-year MTBF rate and are stable to 0.1% of FSO over an 18-month period. This translates into less downtime, fewer test reruns, more time between calibrations, and high confidence in pressure data. When recalibration is impossible, relying

on the high stability of a PX5500/PXM5500 Series transducers may be the only cost-effective way to obtain pressure data over the long term. OMEGA's thin-film technology makes this premium performance possible. The strain gages and associated structures are sputter-deposited directly onto the pressure sensing element, thus eliminating the need for adhesives. The resulting molecular bond between the sensing element and the strain gages ensures virtually no shifting, drifting, or "creep" in the performance of the transducer. The micro-geometry design of the PX5500/PXM5500 sensing elements results in a very small, low-mass sensor that reduces effects of mechanical vibration and shock. The PX5500/PXM5500 gives you accuracy, reliability, and stability at competitive prices.

### SPECIFICATIONS

#### mV/V MODELS

**Excitation:** 10 Vdc

**Output FSO:** 30 mV typ, 26 mV min

**Input Resistance:** 2500 Ω typical, 800 Ω min, 3000 Ω max.

For 350 Ω bridge models see Custom Configurations.

**Output Resistance:** 2500 Ω typical, 800 Ω minimum, 3300 Ω maximum

**Insulation Resistance:** 500 MΩ @ 45 Vdc over the compensated range

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

**Accuracy:** Combined linearity, hysteresis and nonrepeatability: ±0.10% FSO (BFSL) <1000 psi  
±0.15% FSO 1000 psi and above

**Calibration Stability:** ±0.1% for 18 months

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

**Natural Frequency:** 5 kHz for 15 psi, increasing logarithmically to 50 kHz for 5000 psi

**Shock:** Qualification level of 100 g, 11 ms half sine wave without damage

**Electrostatic Discharge (ESD):** Protected to 15 kV

**Operating Temp Range:** -54 to 150°C (-65 to 300°F)

**Compensated Temp Range:** -18 to 82°C (0 to 180°F)

**Thermal Effects:**

**Span:** ±0.0025% FSO/°F

**Zero:** ±0.0025% FSO/°F

**Proof Pressure:**

2 times rated pressure or 15,000 psi, whichever is less, will not cause changes in performance beyond the specified tolerance

**Burst Pressure:** 3 times rated pressure or 20,000 psi, whichever is less, will not cause rupture of the pressure containment cavity

**Wetted Parts:**

17-4 PH or 15-5 PH SS

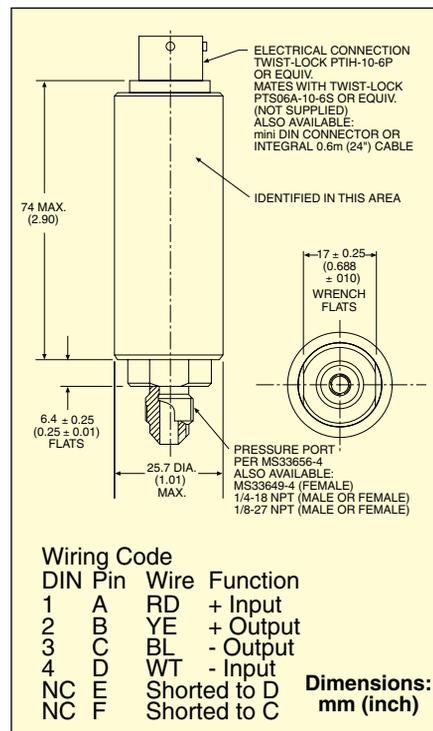
**Electrical Connection:** PTIH-10-6P standard – see custom configurations

**Pressure Port:** See drawing below

**Mating Connector:**

PTS06A-10-6S (sold separately)

**Weight:** 200 g (7 oz) maximum



MILLIVOLT OUTPUT  
PRESSURE TRANSDUCERS

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# HIGH-PERFORMANCE THIN FILM PRESSURE TRANSDUCER

## STANDARD CUSTOM CONFIGURATIONS

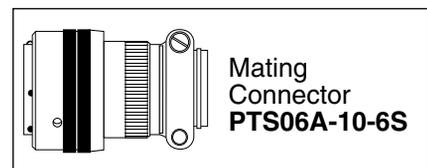
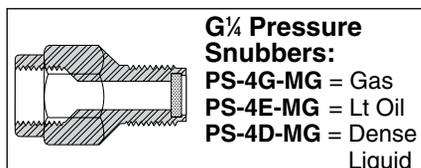
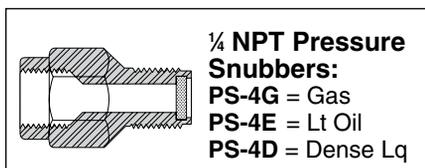
PX5500* SERIES	PRESSURE PORT [ 1 ]	ELECTRICAL CONNECTION [ 2 ]	RANGE [ 3 ]	UNITS [ 4 ]	OUTPUT [ 5 ]	OPTIONS [ 6 ]
	<b>A</b> = 1/8-27 NPT Male <b>B</b> = 1/8-27 NPT Female <b>C</b> = 1/4-18 NPT Male <b>D</b> = 1/4-18 NPT Female <b>L</b> = MS33656-4 <b>M</b> = MS33649-4		015 psi 025 050 100 250 500 1K 1.5K 2.5K 3K 5K 10K	A, G, S A, G, S	<b>Base Price PX5500</b> <b>V</b> = mV/V <b>5T</b> = 0 to 5V <b>I</b> = 4 to 20mA	<b>CAL11</b> = 11-pt cal + cost
<p>*For a 350 Ω bridge change model number to PX5503. No additional charge.</p>		<p><b>0</b> = 0.6 m (2') cable add cost per/ft over 0.6 m (2')</p> <p><b>1</b> = PTIH-10-6P connector (or equal). Mating connector (sold separately), order <b>PTS06A-10-6S</b></p> <p><b>6</b> = DIN connector</p>				<p><b>To order a custom configuration:</b></p> <ol style="list-style-type: none"> <li>1. Select a pressure port</li> <li>2. Select electrical connection</li> <li>3. Select a pressure range</li> <li>4. Select pressure units – Absolute, Gage or Sealed gage</li> <li>5. Select output</li> <li>6. Select options and agency approvals</li> </ol>

Comes complete with 5-point calibration.

**Ordering Examples:** **PX5503A1-015AV**, 350 Ω bridge, 1/8-27 NPT male pressure port, PTIH-10-6P style connector, 15 psi absolute pressure range and mV/V output.

**PTS06A-10-6S**, mating connector (sold separately). **PX5500M1-10KG5T**, MS33649-4 female pressure port, PTIH-10-6P style connector, 10,000 psi gage pressure range and 0 to 5 Vdc output. **PTS06A-10-6S**, mating connector (sold separately).

**PX5500L0-015AI-25FT**, MS33656-4 male pressure port, 8 m (25') lead wire, 15 psi absolute pressure range and 4 to 20 mA output.



## METRIC PSI RANGE CUSTOM CONFIGURATIONS

PXM5500 SERIES	PRESSURE PORT [ 1 ]	ELECTRICAL CONNECTION [ 2 ]	RANGE (BAR) [ 3 ]	UNITS [ 4 ]	OUTPUT [ 5 ]	OPTIONS [ 6 ]
	<b>MA</b> = G1/8B Male cost <b>MB</b> = G1/8B Female no charge <b>MC</b> = G1/4B Male cost <b>MD</b> = G1/4B Female no charge		1.0 1.6 4.0 6.0 10 16 25 40 60 100 160 250 400 600	A, G, S A, G, S	<b>I</b> = 4 to 20 mA Base price PXM5500	<b>CAL11</b> = 11-point calibration certificate ( )m = Optional cable length in meters
<p><b>0</b> = 0.6 m (2') cable (std) add cost per/m over 0.2 m (2')</p> <p><b>1</b> = PTIH-10-6P connector (or equal, no charge)</p> <p><b>6</b> = mini DIN connector</p>						<p><b>To order a custom configuration:</b></p> <ol style="list-style-type: none"> <li>1. Select a pressure port</li> <li>2. Select electrical connection</li> <li>3. Select a pressure range</li> <li>4. Select pressure units – Absolute, Gage or Sealed gage</li> <li>5. Select output</li> <li>6. Select options and agency approvals</li> </ol>
<p>Visit us online for additional options including extended compensated temperatures.</p>						

**Ordering Examples:** **PXM5500MB0-010BARS5T**, 10 bar sealed gage pressure transducer with G1/8B female connection and 0.6 m (2') cable termination.

**PXM5500MD1-010BARA5T**, 10 bar absolute pressure transducer with G1/4B female connection and twist-lock connector.

**PTS06A-10-6S**, mating connector (sold separately).

## STANDARD MODELS

To Order			
Models with mV/V Output, MS33656-4 Connection, Integral Connector			
RANGE		MODEL NO.	COMPATIBLE METERS*
<b>ABSOLUTE PRESSURE (All Ranges Available in Absolute Pressure)</b>			
0 to 15 psi	0 to 1.0 bar	PX5500L1-015AV	DP41-S, DP25B-S
0 to 25 psi	0 to 1.7 bar	PX5500L1-025AV	DP41-S, DP25B-S
0 to 50 psi	0 to 3.4 bar	PX5500L1-050AV	DP41-S, DP25B-S
0 to 100 psi	0 to 6.9 bar	PX5500L1-100AV	DP41-S, DP25B-S
<b>GAGE PRESSURE (All Ranges also Available in Sealed Gage Pressure)</b>			
0 to 15 psi	0 to 1.0 bar	PX5500L1-015GV	DP41-S, DP25B-S
0 to 25 psi	0 to 1.7 bar	PX5500L1-025GV	DP41-S, DP25B-S
0 to 50 psi	0 to 3.4 bar	PX5500L1-050GV	DP41-S, DP25B-S
0 to 100 psi	0 to 6.9 bar	PX5500L1-100GV	DP41-S, DP25B-S
0 to 250 psi	0 to 17.2 bar	PX5500L1-250GV	DP41-S, DP25B-S
0 to 500 psi	0 to 34.5 bar	PX5500L1-500GV	DP41-S, DP25B-S
0 to 1000 psi	0 to 68.9 bar	PX5500L1-1KGV	DP41-S, DP25B-S
0 to 1500 psi	0 to 103 bar	PX5500L1-1.5KGV	DP41-S, DP25B-S
0 to 2500 psi	0 to 172 bar	PX5500L1-2.5KGV	DP41-S, DP25B-S
0 to 3000 psi	0 to 207 bar	PX5500L1-3KGV	DP41-S, DP25B-S
0 to 5000 psi	0 to 345 bar	PX5500L1-5KGV	DP41-S, DP25B-S
0 to 10,000 psi	0 to 689 bar	PX5500L1-10KGV	DP41-S, DP25B-S



Comes complete with 5-point calibration.

\* Visit us online for compatible meters.

To order absolute pressure models, replace "G" in model number with "A". No extra charge.

To order sealed gage models, replace "G" in model number with "S". No extra charge.

Ordering Examples: PX5500L1-1KSV, 1000 psi sealed gage transducer with PTIH-10-6P electrical connection and MS33656-4 male pressure port. PTS06A-10-6S, mating connector (sold separately).

PX5500L1-100AV, 100 psi absolute pressure transducer with PTIH-10-6P electrical connection and MS33656-4 male pressure port. PTS06A-10-6S, mating connector (sold separately).

## METRIC MODELS

To Order			
Models with G 1/4 Male Pressure Connection, Cable or mini DIN and mV/V Output			
RANGE		MODEL NO.	COMPATIBLE METERS*
<b>GAGE PRESSURE</b>			
0 to 1 bar	0 to 15 psi	PXM5500MC[*]-001BARGV	DP41-S, DP25B-S
0 to 1.60 bar	0 to 23 psi	PXM5500MC[*]-1.60BARGV	DP41-S, DP25B-S
0 to 4 bar	0 to 58 psi	PXM5500MC[*]-004BARGV	DP41-S, DP25B-S
0 to 6 bar	0 to 87 psi	PXM5500MC[*]-006BARGV	DP41-S, DP25B-S
0 to 10 bar	0 to 145 psi	PXM5500MC[*]-010BARGV	DP41-S, DP25B-S
0 to 16 bar	0 to 232 psi	PXM5500MC[*]-016BARGV	DP41-S, DP25B-S
0 to 25 bar	0 to 363 psi	PXM5500MC[*]-025BARGV	DP41-S, DP25B-S
0 to 40 bar	0 to 580 psi	PXM5500MC[*]-040BARGV	DP41-S, DP25B-S
0 to 60 bar	0 to 870 psi	PXM5500MC[*]-060BARGV	DP41-S, DP25B-S
0 to 100 bar	0 to 1450 psi	PXM5500MC[*]-100BARGV	DP41-S, DP25B-S
0 to 160 bar	0 to 2321 psi	PXM5500MC[*]-160BARGV	DP41-S, DP25B-S
0 to 250 bar	0 to 3626 psi	PXM5500MC[*]-250BARGV	DP41-S, DP25B-S
0 to 400 bar	0 to 5802 psi	PXM5500MC[*]-400BARGV	DP41-S, DP25B-S
0 to 600 bar	0 to 8702 psi	PXM5500MC[*]-600BARGV	DP41-S, DP25B-S

Comes complete with 5-point NIST-traceable calibration.

\* Visit us online for compatible meters.

[\*] = Insert "0" for 0.6 m (2') cable "1" for twist-lock connector for "6" for mini DIN connector.

To order absolute pressure models, replace "G" in model number with "A" (no extra charge).

To order sealed gage models, replace "G" in model number with "S" (no extra charge).

Ordering Example: PXM5500MC6-60BARSV, mV/V output, 60 bar sealed gage transducer with mini DIN connector and G 1/4 male pressure port. Mating connector included.

## ACCESSORY

MODEL NO.	DESCRIPTION
PTS06A-10-6S	Mating connector for PX5500/PXM5500 units with PTIH-10-6P electrical connection



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