

# DIFFUSED SEMICONDUCTOR PRESSURE TRANSDUCER

## STANDARD AND METRIC MODELS

### 0-5 Vdc Output

### 0-15 to 0-300 psi-Standard Models

### 0-1 to 0-16 bar-Metric Models

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



PX6000C1-100G5T, shown actual size.



VOLTAGE OUTPUT  
PRESSURE TRANSDUCERS  
**B**

## PX6000/PXM6000 Series



Standard

- ✓ High Reliability
- ✓ Long-Term Stability
- ✓ All Stainless Steel Case
- ✓ Vacuum Range Available

OMEGA's PX6000/PXM6000 pressure transducers fit easily into your applications. This low-cost transducer is small and light, and mounting requires no bulky structures. You select from 3 electrical terminations and 6 pressure fittings. The sensor is a small [about 2.5 mm (0.1")] square silicon chip with 4 diffused strain gages, mounted in the stainless steel case. Laser-trimmed resistors provide temperature compensation and adjust zero balance and span.

The PX6000 Series uses solid state media isolation for improved reliability. Thin films of chemically inert materials are deposited or grown on the chip surface to provide electrical isolation between the sensor and the pressure medium. The sensor is less sensitive to vibration and more dependable in high-shock environments because the films add no significant mass. Corrosion resistance is outstanding, and the isolation will remain effective because there is no gel or oil column to deteriorate.

### SPECIFICATIONS

**Excitation:** 12 to 40 Vdc unregulated

**Output:** 0 to 5 Vdc  $\pm 0.1$ Vdc adjustable  $\pm 10\%$  FSO

**Input Current:** 15 mA maximum with no load

**Output Resistance:** Less than 200  $\Omega$

**Zero Balance:** 0V  $\pm 0.1$  Vdc Adjustable  $\pm 5\%$  FSO

**Dielectric Isolation Resistance:** 100 M $\Omega$  minimum at 45 Vdc applied between the case or a conductive medium and the bridge circuit

**Sensing Element:** 4-active-arm bridge using a micro-machined diffused silicon diaphragm sensor, thin-film media and dielectric isolation barriers

**Temperature Sensor:** Output resistance @ 24°C (75°F) 900 to 1500  $\Omega$

**Temperature Coefficient:** 8% min, 10% maximum per 55.5°C (100°F)

**Accuracy:** Combined linearity, hysteresis and repeatability  $\leq \pm 0.25\%$  FSO for all ranges

**Operational Temp Range:** -54 to 121°C (-65 to 250°F)

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

### Thermal Effects:

**Span:**  $\leq \pm 0.03\%$  FSO/°C (0.054%/°C)

**Zero:**  $\leq \pm 0.03\%$  FSO/°F (0.054%/°C)

**Vibration Sensitivity:** At 20 g peak sinusoidal vibration from 10 Hz to 2000 Hz ( $\frac{1}{2}$ " D.A.), the output shall not exceed 0.04% FSO/g for 15 psi range to 0.005% FSO/g for 100 psi and above

**Natural Frequency:** Greater than 35 kHz for 7 bar (100 psi) and above

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

### Proof Pressure:

2 times rated pressure will not cause changes in performance beyond the specified tolerances

**Burst Pressure:** 3 times rated pressure for pressure ranges below 14 bar (200 psi), or 2.5 times rated pressure for pressure ranges above 200 psi will not cause rupture of the pressure sensor

**Wetted Parts:** 316 stainless steel, silicon, Pyrex® glass, epoxy, Kovar®

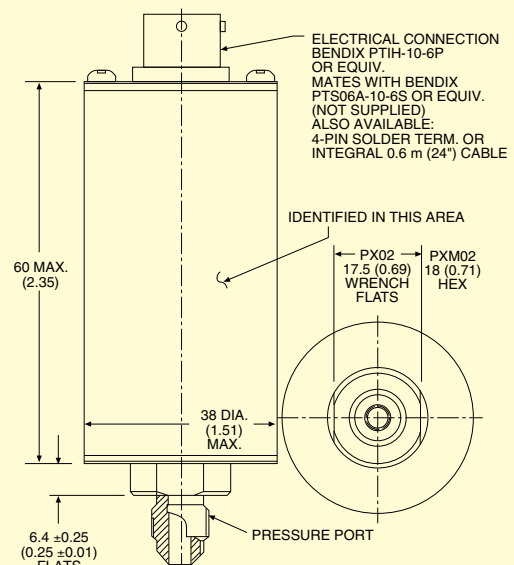
**Electrical Connection:** See Custom Configurations, next page

**Pressure Port:** See Custom Configurations, next page

**Weight:** 170 g (6 oz) typical

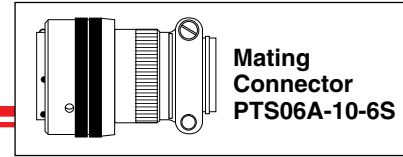
**Mating Connector (Style 1):** PTS06A-10-6S (sold separately)

DIN	Pin	Wire Code
1	A	RED = + Input
3	B	YEL = + Output
	C	BL = Common
2	D	WT = Common
	E	= Temp. Sensor
	F	= Temp. Sensor
		Shield = Case Ground



Dimensions: mm (inch)

# DIFFUSED SEMICONDUCTOR TRANSDUCER

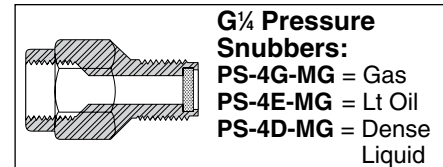


Mating Connector  
PTS06A-10-6S

## STANDARD CUSTOM CONFIGURATIONS

PX6000 SERIES	PRESSURE PORT [ 1 ]	ELECTRICAL CONNECTION [ 2 ]	RANGE (psi) [ 3 ]	UNITS [ 4 ]	OUTPUT [ 5 ]	OPTIONS [ 6 ]
A = 1/8-27 NPT male B = 1/8-27 NPT female C = 1/4-18 NPT male D = 1/4-18 NPT female L = MS33656-4 male M = MS33649-4 female			30* 015 020 050 100 200 300	VAC G,A G,A G,A G,A G,A	5T = 0 to 5 Vdc output	CAL11 = 11-point NIST calibration <b>additional cost</b> ( )FT = Extra length of cable, <b>additional cost/ft</b> over 0.6 m (2')
<p>0 = 0.6 m (2') cable (std) <b>additional cost/ft</b> over 0.6 m (2')</p> <p>1 = PTIH-10-6P connector (or equal, no charge). Mating connector (sold separately), order <b>PTS06A-10-6S</b>.</p> <p>3 = 4-pin eyelet header (no charge); (no temp sensor)</p> <p>6 = mini DIN connector (no charge); (no temp sensor)</p>			<p>* Referenced to atmospheric pressure, 30 Vac range is 30 to 0 inHg vacuum, all other ranges are psi.</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</li> <li>5. Select output</li> <li>6. Select options and agency approvals</li> </ol>	

**Ordering Examples:** *PX6000M1-100G5T*, 100 psi vented gage pressure transducer with MS33649-4, female pressure connection, PTIH-10-6P, electrical connector and 0 to 5 V output. *PTS06A-10-6S*, mating connector (sold separately).  
*PX6000A0-30VAC5T-25FT*, 30 to 0 inHg vacuum transducer with a 1/8-27 NPT male pressure connection, a reverse-acting (30 inHg vacuum = full scale output) 0 to 5 output, and 7.6 m (25') cable. *PX6000L1-015A5T*, 15 psi absolute pressure transducer with MS33656-4, male pressure connection, PTIH-10-6P, electrical connector and 0 to 5 Vdc output.  
*PTS06A-10-6S*, mating connector (sold separately).



**G 1/4 Pressure Snubbers:**  
 PS-4G-MG = Gas  
 PS-4E-MG = Lt Oil  
 PS-4D-MG = Dense Liquid

## METRIC CUSTOM CONFIGURATIONS

PXM6000 SERIES	PRESSURE PORT [ 1 ]	ELECTRICAL CONNECTION [ 2 ]	RANGE (BAR) [ 3 ]	UNITS [ 4 ]	OUTPUT [ 5 ]	OPTIONS [ 6 ]
MA = G 1/8 B Male MB = G 1/8 B Female MC = G 1/8 B Male MD = G 1/8 B Female			1.0 1.6 4.0 6.0 10 16	G,A G,A G,A G,A G,A G,A	5T = 0 to 5 Vdc output	CAL11 = 11-point calibration certificate ( )m = Optional cable length in meters, <b>additional cost/m</b> over 0.6 m (2')
<p>0 = 0.6 m (2') cable (std) <b>additional cost/m</b> over 0.6 m (2')</p> <p>1 = PTIH-10-6P connector (or equal, no charge)</p> <p>3 = 4-pin eyelet (no charge) (no temp sensor)</p> <p>6 = mini DIN connector (no charge) (no temp sensor)</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:** *PXM6000MB0-010BARG5T*, 10 bar gage pressure transducer with G 1/8 B female connection and 0.6 m (2') cable termination, 0 to 5V output.  
*PXM6000MD1-010BARA5T*, 10 bar absolute pressure transducer with G 1/8 B female connection, 0 to 5V output, and twist-lock connector.  
*PTS06A-10-6S*, mating connector (sold separately).



## STANDARD MODELS

### To Order

#### MODELS WITH 0 TO 5 VDC OUTPUT, 1/4NPT-M PRESSURE CONNECTION

RANGE		MODEL NO.	COMPATIBLE METERS**
<b>VACUUM</b>			
30 to 0 inHg	102 to 0 kPa	PX6000C[*]1-30VAC5T	DP41-E, DP25B-E, DP24-E
<b>ABSOLUTE PRESSURE</b>			
0 to 15 psi	0 to 1.0 bar	PX6000C[*]-015A5T	DP41-E, DP25B-E, DP24-E
0 to 20 psi	0 to 1.4 bar	PX6000C[*]-020A5T	DP41-E, DP25B-E, DP24-E
0 to 50 psi	0 to 3.4 bar	PX6000C[*]-050A5T	DP41-E, DP25B-E, DP24-E
0 to 100 psi	0 to 6.9 bar	PX6000C[*]-100A5T	DP41-E, DP25B-E, DP24-E
0 to 200 psi	0 to 13.8 bar	PX6000C[*]-200A5T	DP41-E, DP25B-E, DP24-E
0 to 300 psi	0 to 20.7 bar	PX6000C[*]-300A5T	DP41-E, DP25B-E, DP24-E
<b>GAGE PRESSURE</b>			
0 to 15 psi	0 to 1.0 bar	PX6000C[*]-015G5T	DP41-E, DP25B-E, DP24-E
0 to 20 psi	0 to 1.4 bar	PX6000C[*]-020G5T	DP41-E, DP25B-E, DP24-E
0 to 50 psi	0 to 3.4 bar	PX6000C[*]-050G5T	DP41-E, DP25B-E, DP24-E
0 to 100 psi	0 to 6.9 bar	PX6000C[*]-100G5T	DP41-E, DP25B-E, DP24-E
0 to 200 psi	0 to 13.8 bar	PX6000C[*]-200G5T	DP41-E, DP25B-E, DP24-E
0 to 300 psi	0 to 20.7 bar	PX6000C[*]-300G5T	DP41-E, DP25B-E, DP24-E

Comes complete with 5-point NIST traceable calibration.

[\*] Insert "0" for 0.6 m cable, "1" for twist-lock connector or "6" for mini DIN connector.

\*\* Visit us online for compatible meters.

**Ordering Examples:** PX6000C1-050G5T, 50 psi gage pressure transducer with 0 to 5 Vdc output, PTIH-10-6P electrical connection and MS33656-4 male pressure port. PTS06A-10-6S, mating connector (sold separately).

PX6000C1-015A5T, 15 psi absolute pressure transducer with 0 to 5 Vdc output, PTIH-10-6P electrical connection and MS33656-4 male pressure port. PTS06A-10-6S, mating connector (sold separately).

### ACCESSORY

MODEL NO.	DESCRIPTION
PTS06A-10-6S	Mating connector for PX6000 Series units with twist-lock connector

## METRIC MODELS

#### MODELS WITH G1/4 MALE PRESSURE CONNECTION, CABLE OR CONNECTOR AND 0 TO 5 VDC OUTPUT

RANGE		MODEL NO.	COMPATIBLE METERS**
<b>ABSOLUTE PRESSURE</b>			
0 to 1 bar	0 to 15 psi	PXM6000MC[*]-001BARA5T	DP41-E, DP25B-E
0 to 1.60 bar	0 to 23 psi	PXM6000MC[*]-1.60BARA5T	DP41-E, DP25B-E
0 to 4 bar	0 to 58 psi	PXM6000MC[*]-004BARA5T	DP41-E, DP25B-E
0 to 6 bar	0 to 87 psi	PXM6000MC[*]-006BARA5T	DP41-E, DP25B-E
0 to 10 bar	0 to 145 psi	PXM6000MC[*]-010BARA5T	DP41-E, DP25B-E
0 to 16 bar	0 to 232 psi	PXM6000MC[*]-016BARA5T	DP41-E, DP25B-E
<b>GAGE PRESSURE</b>			
0 to 1 bar	0 to 15 psi	PXM6000MC[*]-001BARG5T	DP41-E, DP25B-E
0 to 1.60 bar	0 to 23 psi	PXM6000MC[*]-1.60BARG5T	DP41-E, DP25B-E
0 to 4 bar	0 to 58 psi	PXM6000MC[*]-004BARG5T	DP41-E, DP25B-E
0 to 6 bar	0 to 87 psi	PXM6000MC[*]-006BARG5T	DP41-E, DP25B-E
0 to 10 bar	0 to 145 psi	PXM6000MC[*]-010BARG5T	DP41-E, DP25B-E
0 to 16 bar	0 to 232 psi	PXM6000MC[*]-016BARG5T	DP41-E, DP25B-E
0 to 25 bar	0 to 363 psi	PXM6000MC[*]-025BARG5T	DP41-E, DP25B-E

Comes complete with 5-point NIST traceable calibration.

[\*] Insert "0" for 0.6 m cable, "1" for twist-lock connector or "6" for mini DIN connector.

\*\* Visit us online for compatible meters.

**Ordering Examples:** PXM6000MC0-010BARG5T, 10 bar gage pressure transducer with 0 to 5 Vdc output, 0.6 m (2') cable and G1/4 male pressure port.

PXM6000MC6-01.6BARA5T, 1.6 bar absolute pressure transducer with 0 to 5 Vdc output, mini DIN electrical connector and G1/4 male pressure port. Mating connector included.