

# DIFFUSED SEMICONDUCTOR PRESSURE TRANSMITTER

## STANDARD AND METRIC MODELS

4 to 20 mA Output  
0-15 to 0-300 psi-Standard Models  
0-1 to 0-25 bar-Metric Models

### PX6000/PXM6000 Series



- ✓ High Reliability
- ✓ Long-Term Stability
- ✓ All Stainless Steel Case
- ✓ Vacuum Range Available
- ✓ Built-In Temperature Sensor

### Applications

- ✓ Automotive Testing
- ✓ Research and Development
- ✓ Engineering Testing and Evaluation
- ✓ Production Testing
- ✓ Flight Recorders
- ✓ Engine Monitoring
- ✓ Ground Support Equipment

OMEGA's PX6000/PXM6000 Series pressure transducers fit easily into many applications. These low-cost transducers are small and light, and mounting requires no bulky structures. Users can select from 3 electrical terminations and 6 pressure fittings. The sensor is a small [about 2.54 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 4 to 20 mA output easily interfaces with most control and data acquisition systems. The PX6000/PXM6000 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 pressure medium. These sensors are 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 are no gel or oil columns to deteriorate.

### SPECIFICATIONS

**Excitation:** 12 to 40 Vdc unregulated  
**Output:** 4 to 20 mA adjustable  $\pm 10\%$  FS  
**Load Impedance (Maximum):**  $50 \times (V - 10) \Omega$  where V = supply voltage (40 Vdc maximum)

**Zero Balance:** 4 mA adjustable  $\pm 10\%$  FS

**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

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

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

**Operating Temp Range:** -29 to 85°C (-20 to 185°F)

**Compensated Temp Range:** -29 to 85°C (-20 to 185°F)

**Thermal Effects:**  
**Span:**  $\leq \pm 0.02\%$  of FS/°F  
**Zero:**  $\leq \pm 0.02\%$  of FS/°F

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



STANDARD  
PX6000L1-100GI,  
shown actual size.

**Natural Frequency:** Greater than 35 kHz for 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 200 psi, or 2.5 times rated pressure for pressure ranges above 200 psi, will not cause rupture of the pressure sensor

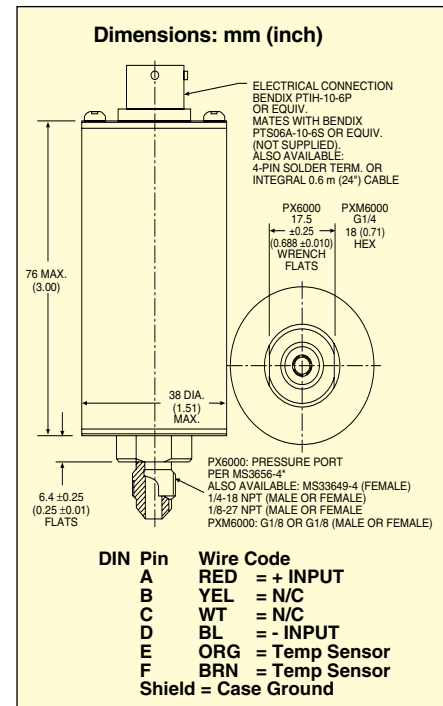
**Wetted Parts:** 316 stainless steel, silicon, Pyrex® glass, epoxy, Kovar®

**Electrical Connection:** PTIH-10-6P (standard), 0.6 m (2') cable or 4-pin solder terminal header (optional)

**Pressure Port:** See dimensional drawing below

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

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



CURRENT OUTPUT  
PRESSURE TRANSDUCERS

B

# DIFFUSED SEMICONDUCTOR PRESSURE TRANSMITTER

## 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			30*	VAC	I = 4 to 20 mA output	<b>CAL11</b> = 11-point NIST calibration <b>additional cost</b>
B = 1/8-27 NPT female			015	A,G		( )ft = Optional cable length in feet
C = 1/4-18 NPT male			020	A,G		
D = 1/4-18 NPT female			050	A,G		
L = MS33656-4 male			100	A,G		
M = MS33649-4 female			200	A,G		
			300	A,G		
<b>0</b> = 0.6 m (2') PVC cable (std) <b>additional cost/ft</b> over 0.6 m (2')			* Referenced to atmospheric pressure, 30 Vac range is 30 to 0 inHg vacuum, all other ranges are psi			
<b>1</b> = PTIH-10-6P connector (or equal, no charge). Mating connector (sold separately), order <b>PT06A-10-6S(SR)</b>			<b>To order a custom configuration:</b> 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			
<b>3</b> = 4-pin eyelet header (no charge); temp sensor not available on 4-pin connector						
<b>6</b> = mini DIN connector (no charge) no temp sensor						

**Ordering Examples:** *PX6000M1-100GI*, 100 psi vented gage pressure transducer with MS33649-4, female pressure connection, PTIH-10-6P electrical connector, 4 to 20 mA output. *PTS06A-10-6S*, mating connector (sold separately).

*PX6000L1-015AI*, 15 psi absolute pressure transducer with MS33656-4, male pressure connection, PTIH-10-6P, electrical connector and 4 to 20 mA output. *PTS06A-10-6S*, mating connector (sold separately).

## METRIC CUSTOM CONFIGURATIONS

PXM6000 SERIES	PRESSURE PORT [ 1 ]	ELECTRICAL CONNECTION [ 2 ]	RANGE (BAR) [ 3 ]	UNITS [ 4 ]	OUTPUT [ 5 ]	OPTIONS [ 6 ]
MA = G1/8B Male			-1	VAC	I = 4 to 20 mA	<b>CAL11</b> = 11-point calibration certificate <b>additional cost</b>
MB = G1/8B Female			1.0	A,G		( )m = Optional cable length in meters
MC = G1/8B Male			1.6	A,G		
MD = G1/8B Female			4.0	A,G		
			6.0	A,G		
			10	A,G		
			16	A,G		
			25	A,G		
<b>0</b> = 3 m (10') cable (std) <b>additional cost/m</b> over 3 m (10')			<b>To order a custom configuration:</b> 1. Select a pressure port 2. Select electrical connection 3. Select a pressure range 4. Select pressure units – absolute, gage or sealed gage 5. Select output 6. Select options and agency approvals			
<b>1</b> = PTIH-10-6P connector (or equal, no charge) Mating connector (sold separately), order <b>PT06A-10-6S(SR)</b>						
<b>3</b> = 4-pin eyelet (no charge) no temp sensor						
<b>6</b> = mini DIN connector (no charge) no temp sensor						

**Ordering Examples:** *PXM6000MB0-010BARGI*, 10 bar gage pressure transducer with G1/8B female connection and 3 m (10') cable termination.

*PXM6000MD1-010BARAI*, 10 bar absolute pressure transducer with G1/8B female connection and twist-lock connector. *PTS06A-10-6S*, mating connector (sold separately).



**METRIC**  
PXM6000MC1-010BARAI,  
shown actual size.

**STANDARD MODELS**

<b>To Order</b>			
Models with 4 to 20 mA Output, ¼ NPT-M Pressure Connection, Integral Connector			
RANGE		MODEL NO.	COMPATIBLE METERS*
<b>VACUUM</b>			
30 to 0 inHg	102 to 0 kPa	PX6000L[*]-30VACI	DP41-E, DP25B-E, DP24-E
<b>ABSOLUTE PRESSURE</b>			
0 to 15 psi	0 to 1.0 bar	PX6000L[*]-015AI	DP41-E, DP25B-E, DP24-E
0 to 20 psi	0 to 1.4 bar	PX6000L[*]-020AI	DP41-E, DP25B-E, DP24-E
0 to 50 psi	0 to 3.4 bar	PX6000L[*]-050AI	DP41-E, DP25B-E, DP24-E
0 to 100 psi	0 to 6.9 bar	PX6000L[*]-100AI	DP41-E, DP25B-E, DP24-E
0 to 200 psi	0 to 13.8 bar	PX6000L[*]-200AI	DP41-E, DP25B-E, DP24-E
0 to 300 psi	0 to 20.7 bar	PX6000L[*]-300AI	DP41-E, DP25B-E, DP24-E
<b>GAGE PRESSURE</b>			
0 to 15 psi	0 to 1.0 bar	PX6000L[*]-015GI	DP41-E, DP25B-E, DP24-E
0 to 20 psi	0 to 1.4 bar	PX6000L[*]-020GI	DP41-E, DP25B-E, DP24-E
0 to 50 psi	0 to 3.4 bar	PX6000L[*]-050GI	DP41-E, DP25B-E, DP24-E
0 to 100 psi	0 to 6.9 bar	PX6000L[*]-100GI	DP41-E, DP25B-E, DP24-E
0 to 200 psi	0 to 13.8 bar	PX6000L[*]-200GI	DP41-E, DP25B-E, DP24-E
0 to 300 psi	0 to 20.7 bar	PX6000L[*]-300GI	DP41-E, DP25B-E, DP24-E

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, or "6" for mini DIN connector.

**Ordering Examples:** PX6000L1-050GI, 50 psi gage pressure transducer with 4 to 20 mA output, PTIH-10-6P, electrical connector and MS33656-4, male pressure port. PTS06A-10-6S, mating connector (sold separately).

PX6000L1-015AI, 15 psi absolute pressure transducer with 4 to 20 mA output, PTIH-10-6P electrical connector and MS33656-4, male pressure port. PTS06A-10-6S, mating connector (sold separately).

**METRIC MODELS**

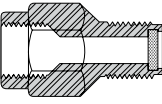
Models with G ¼ Male Pressure Connection, Cable or mini DIN and 4 to 20 mA Output			
RANGE		MODEL NO.	COMPATIBLE METERS*
<b>ABSOLUTE PRESSURE</b>			
0 to 1 bar	0 to 15 psi	PXM6000MC[*]-001BARAI	DP41-S, DP25B-S
0 to 1.60 bar	0 to 23 psi	PXM6000MC[*]-1.60BARAI	DP41-S, DP25B-S
0 to 4 bar	0 to 58 psi	PXM6000MC[*]-004BARAI	DP41-S, DP25B-S
0 to 6 bar	0 to 87 psi	PXM6000MC[*]-006BARAI	DP41-S, DP25B-S
0 to 10 bar	0 to 145 psi	PXM6000MC[*]-010BARAI	DP41-S, DP25B-S
0 to 16 bar	0 to 232 psi	PXM6000MC[*]-016BARAI	DP41-S, DP25B-S
<b>GAGE PRESSURE</b>			
0 to 1 bar	0 to 15 psi	PXM6000MC[*]-001BARGI	DP41-S, DP25B-S
0 to 1.60 bar	0 to 23 psi	PXM6000MC[*]-1.60BARGI	DP41-S, DP25B-S
0 to 4 bar	0 to 58 psi	PXM6000MC[*]-004BARGI	DP41-S, DP25B-S
0 to 6 bar	0 to 87 psi	PXM6000MC[*]-006BARGI	DP41-S, DP25B-S
0 to 10 bar	0 to 145 psi	PXM6000MC[*]-010BARGI	DP41-S, DP25B-S
0 to 16 bar	0 to 232 psi	PXM6000MC[*]-016BARGI	DP41-S, DP25B-S
0 to 25 bar	0 to 363 psi	PXM6000MC[*]-025BARGI	DP41-S, DP25B-S

Comes complete with 5-point calibration.

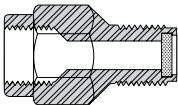
\* Visit us online for compatible meters.

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

**Ordering Example:** PXM6000MC0-004BARGI, 4 bar gage pressure transmitter with 4 to 20 mA output, 0.6 m (2') cable and G ¼ male pressure port.



**¼ NPT Pressure Snubbers:**  
PS-4G = Gas  
PS-4E = Lt Oil  
PS-4D = Dense Lq



**G ¼ Pressure Snubbers:**  
PS-4G-MG = Gas  
PS-4E-MG = Lt Oil  
PS-4D-MG = Dense Liquid

**ACCESSORY**

MODEL NO.	DESCRIPTION
PTS06A-10-6S	Mating connector for PX6000 units with PTIH-10-6P electrical connection