

# DIFFUSED SEMICONDUCTOR PRESSURE TRANSDUCER

## STANDARD AND METRIC MODELS

**mV/V 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

## Applications

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

OMEGA's PX6000/PXM6000 Series pressure transducers fit easily into your application. These low-cost transducers are 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 2.54 cm (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 30 mV full range output is compatible with most amplifiers 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. The

sensor is less sensitive to vibration and more dependable in high-shock environments. Corrosion resistance is outstanding, and the isolation will remain effective because there is no gel or oil column to deteriorate.

## SPECIFICATIONS

### ELECTRICAL

**Excitation:** 10 Vdc

**Output:** 3 mV/V  $\pm$  10%

**Input Resistance:** 2000  $\Omega$  minimum

**Output Resistance:** 1000  $\Omega$  minimum, 1500  $\Omega$  maximum

**Zero Balance:** 0 mV  $\pm$  5% FSO

**Dielectric Isolation Resistance:** 100 M $\Omega$  minimum at 50 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% minimum, 10% maximum per 55.5°C (100°F)

### PERFORMANCE

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

### ENVIRONMENTAL

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

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

### Thermal Effects:

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

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

**Vibration Sensitivity:** At 35g peak sinusoidal vibration from 10 Hz 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

**Natural Frequency:** Greater than 35 kHz for 100 psi and above

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



PX6000L1-100GV  
MS33656-4 pressure  
ports standard,  
shown actual size.

## PRESSURE

**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

## MECHANICAL

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

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

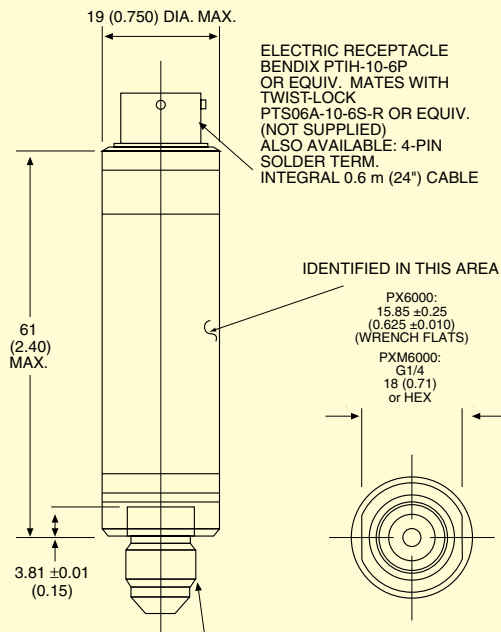
**Pressure Port:** See custom configurations

**Weight:** 4 oz max, excluding pressure fitting and electrical connection

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

## Dimensions: mm (inch)

PX6000L1



PRESSURE PORT PER MS33656-4 (1/4 TUBE)  
ALSO AVAILABLE: MS33649-4 (FEMALE)  
1/4-18 NPT (MALE OR FEMALE)  
1/8-27 NPT (MALE OR FEMALE)  
G1/8 B (MALE OR FEMALE)  
G1/4 B (MALE)

**Pin Wire**  
A = + Input (Red)  
B = + Output (Green)  
C = - Output (Blue)  
D = - Input (White)  
E = Temp. Sensor (Black)  
F = Temp. Sensor (Orange)  
Shield = N/C

# DIFFUSED SEMICONDUCTOR PRESSURE TRANSDUCER



MILLIVOLT OUTPUT  
PRESSURE TRANSDUCERS  
**B**

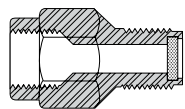
## STANDARD CUSTOM CONFIGURATIONS

PX6000 SERIES	PRESSURE PORT [ 1 ]	ELECTRICAL CONNECTION [ 2 ]	RANGE (psi) [ 3 ]	UNITS [ 4 ]	OUTPUT [ 5 ]	CALIBRATION OPTION [ 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 G,A	V = mV/V output	CA11 = 11-point NIST calibration additional cost  [ 7 ] CABLE LENGTH -XXXFT ** available when selection [ 2 ] = 0 **
0 = 0.6 m (2') cable (std) additional cost/ft over 0.6 m (2') 1 = PTIH-10-6P connector or equal (no charge). Mating connector (not included), order PTS06A-10-6S-R. 3 = 4-pin eyelet header (no charge). Temp sensor not available 6 = mini DIN connector (no charge). Temp sensor not available.			* Referenced to atmospheric pressure, 30 Vac range is 30 to 0 inHg vacuum, all other ranges are psi			
			<b>Note: All mV/V models meet CE requirements.</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 7. Select extra length cable			

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

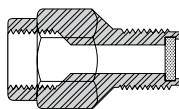
PX6000A0-30VACV-25FT, 30 to 0 inHg vacuum transducer with a 1/8-27 NPT male pressure connection, a reverse-acting (30 inHg vacuum = full scale output) mV/V output, and a 7.6 m (25') cable.

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-R, mating connector (sold separately).



### 1/4 NPT Pressure Snubbers:

PS-4G = Gas  
PS-4E = Lt Oil  
PS-4D = Dense Lq



### 3/4 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 ]	CALIBRATION OPTION [ 6 ]
MA = G1/8B Male additional cost MB = G1/8B Female no charge MC = G1/4B Male additional cost			1.0 1.6 4.0 6.0 10 16	A, G A, G A, G A, G A, G A, G	V = mV/V	CAL11 = 11-point NIST calibration additional cost  [ 7 ] CABLE LENGTH -XXXM ** available when selection [ 2 ] = 0 **
0 = 0.6 m (2') cable (std) additional cost/ft over 0.6 m (2') 1 = PTIH-10-6P connector (or equal, no charge) 3 = 4-pin eyelet* *no shunt cal (no charge) 6 = mini DIN connector* *no shunt cal (no charge)			<b>Note: All mV/V models meet CE requirements.</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 – absolute, gage 5. Select output 6. Select options and agency approvals 7. Select extra length cable			

**Ordering Examples:** PXM6000MB0-010BARAV, 10 bar absolute pressure transducer with G1/8 B female connection and 0.6 m (2') cable termination.

PXM6000MD1-010BARAV, 10 bar absolute pressure transducer with G1/4 B female connection and twist-lock connector PTS06A-10-6S-R mating connector (sold separately).



**STANDARD**  
PX6000C0-015AV,  
with 1/4 NPT male port,  
shown actual size.



**METRIC**  
PXM6000MC6-004BARAV,  
shown installed,  
smaller than actual size.

## STANDARD MODELS

### To Order

Models with MS33656-4 Pressure Connection, Integral Connector & mV/V Output

RANGE		MODEL NO.	COMPATIBLE METERS*
psi	bar		
VACUUM			
30 to 0 (inHg)	-1 to 0	PX6000L1-30VACV	DP41-S, DP25B-S
ABSOLUTE PRESSURE			
0 to 15	0 to 1.0	PX6000L1-015AV	DP41-S, DP25B-S
0 to 20	0 to 1.4	PX6000L1-020AV	DP41-S, DP25B-S
0 to 50	0 to 3.4	PX6000L1-050AV	DP41-S, DP25B-S
0 to 100	0 to 6.9	PX6000L1-100AV	DP41-S, DP25B-S
0 to 200	0 to 13.8	PX6000L1-200AV	DP41-S, DP25B-S
0 to 300	0 to 20.7	PX6000L1-300AV	DP41-S, DP25B-S
GAGE PRESSURE			
0 to 15	0 to 1.0	PX6000L1-015GV	DP41-S, DP25B-S
0 to 20	0 to 1.4	PX6000L1-020GV	DP41-S, DP25B-S
0 to 50	0 to 3.4	PX6000L1-050GV	DP41-S, DP25B-S
0 to 100	0 to 6.9	PX6000L1-100GV	DP41-S, DP25B-S
0 to 200	0 to 13.8	PX6000L1-200GV	DP41-S, DP25B-S
0 to 300	0 to 20.7	PX6000L1-300GV	DP41-S, DP25B-S

Comes complete with 5-point NIST traceable calibration.

\* Visit us online for compatible meters.

**Ordering Example:** PX6000L1-050GV, 50 psi gage pressure transducer with PTIH-10-6P electrical connection and MS33656-4 male pressure port. PTS06A-10-6S-R, mating connector (sold separately).

### ACCESSORY

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

## 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*
ABSOLUTE PRESSURE			
0 to 1 bar	0 to 15 psi	PXM6000MC[*]-001BARAV	DP41-S, DP25B-S
0 to 1.60 bar	0 to 23 psi	PXM6000MC[*]-1.60BARAV	DP41-S, DP25B-S
0 to 4 bar	0 to 58 psi	PXM6000MC[*]-004BARAV	DP41-S, DP25B-S
0 to 6 bar	0 to 87 psi	PXM6000MC[*]-006BARAV	DP41-S, DP25B-S
0 to 10 bar	0 to 145 psi	PXM6000MC[*]-010BARAV	DP41-S, DP25B-S
0 to 16 bar	0 to 232 psi	PXM6000MC[*]-016BARAV	DP41-S, DP25B-S
GAGE PRESSURE			
0 to 1 bar	0 to 15 psi	PXM6000MC[*]-001BARGV	DP41-S, DP25B-S
0 to 1.60 bar	0 to 23 psi	PXM6000MC[*]-1.60BARGV	DP41-S, DP25B-S
0 to 4 bar	0 to 58 psi	PXM6000MC[*]-004BARGV	DP41-S, DP25B-S
0 to 6 bar	0 to 87 psi	PXM6000MC[*]-006BARGV	DP41-S, DP25B-S
0 to 10 bar	0 to 145 psi	PXM6000MC[*]-010BARGV	DP41-S, DP25B-S
0 to 16 bar	0 to 232 psi	PXM6000MC[*]-016BARGV	DP41-S, DP25B-S
0 to 25 bar	0 to 319 psi	PXM6000MC[*]-025BARGV	DP41-S, DP25B-S

Comes complete with 5-point calibration.

\* Visit us online for compatible meters.

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

**Ordering Example:** PXM6000MC0-004BARGV, 4 bar gage pressure transducer with 0.6 m (2') cable and G 1/4 male pressure port.