

# Pressure Transmitters Installation Instructions

Models: PXT-K and PXT-KM

Please read the following instructions before installing. A visual inspection of this product for damage during shipping is recommended before mounting. It is your responsibility to have a qualified person install the transmitter.

**This FW Murphy instrument is susceptible to damage when exposed to static electrical changes. To avoid this damage, observe the following:**



- |  |
|--|
| 1. Disconnect all electrical power to the machine.   |
| 2. Follow the lock out/tag out safety procedures of your company. Ensure the machine cannot operate during installation. |
| 3. Follow the safety warning of the machine manufacturer.  |
| 4. Read and follow all installation instructions.  |

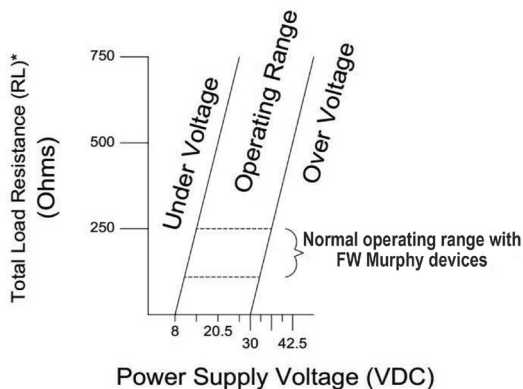
## PXT-K Series

The PXT-K (PA/PR 23SYEi) Series pressure transmitters are state-of-the-art instruments providing 4-20 mA outputs. Each pressure transmitter contains a transducer comprised of a piezoresistive silicon chip mounted on a glass-metal feed-through header welded into a stainless steel housing and filled with silicone oil. The very thin laser-welded stainless steel isolation-diaphragm completes the front side. Media pressure is transferred from the stainless steel isolation-diaphragm via the oil inside the cell to the silicon-measuring chip. This construction, combined with the advanced internal signal conditioning circuitry, results in a rugged instrument with extremely small temperature error and class-leading EMI/RFI resistance.

## Operating Range Chart

Supply voltage for the PXT-K must be within range of 8-30 VDC. The graph below shows the minimum supply voltage (VDC) required for a given load resistance (R).

Loop Resistance Graph



\*Note: Cable resistance effect included in RL.

Minimum Voltage for Common Input Modules		
Model	Input Impedance	Vmin
Centurion C4-1	231 Ω	13.62
MX5	221 Ω	13.42
VRU Pro		
Centurion C5	200 Ω	13.00
MX5-R2		
Third Party PLC (typical)	249 Ω	13.98

## Installation Precautions

### Installation Precautions:

- Pulsating pressure variations caused by liquid or gasses under pressure can destroy any pressure transmitter and should be avoided. To avoid damaging surges and hammers:
  - » Apply pressure slowly and open/close valves gradually.
  - » Install a surge chamber or a pressure snubber. Such as our PD8100 Series Pulsation Dampener as an option. Contact FW Murphy for details or check [www.fwmurphy.com](http://www.fwmurphy.com).
- Symptoms of fluid hammer and surge damage:
  - » Pressure transmitter exhibits an output at zero pressure (large zero offset).
  - » Pressure transmitter output remains constant regardless of pressure.
  - » In severe cases, there will be no output.

## PXT-K and PXT-KM Pressure Ranges

PXT-K and PXT-KM Models (4-20 mA) (Flying lead)		
Model Number	Pressure Range	Overpressure
PXT-K(M)-30V30WC	-30" H <sub>2</sub> O to +30" H <sub>2</sub> O	3 X or ±90 in. H <sub>2</sub> O
PXT-K(M)-30V30	-30" Hg to +30" psig	1 X Vac. 2 X PSI
PXT-K(M)-30V100	-30" Hg to +100" psig	1 X Vac. 3 X PSI
PXT-K(M)-15	0-15 psig	3 X PSI
PXT-K(M)-60	0-60 psig	2 X PSI
PXT-K(M)-100	0-100 psig	
PXT-K(M)-200	0-200 psig	
PXT-K(M)-300	0-300 psig	
PXT-K(M)-400	0-400 psig	
PXT-K(M)-600	0-600 psig	1.5 X PSI
PXT-K(M)-1000	0-1000 psig	
PXT-K(M)-2000	0-2000 psig	
PXT-K(M)-3000	0-3000 psig	
PXT-K(M)-5000	0-5000 psig	
PXT-K(M)-6000	0-6000 psig	1.1 X PSI
PXT-K(M)-10000	0-10000 psig	

# Specifications

**Operating Pressure Range:** See table, Pressure Ranges

**Operating Temperature:** -22 to 176° F (-30 to 80° C)

**Compensated Temp Range:** -20 to 160° F (-29 to 71° C)

**Process Connection:**

1/4"-18 NPT female with 7/8" Hex nut (2000 psig and under) or  
1-3/16" Hex nut (3000 psig and over)

**Electrical Connection:**

PXT-K: 1/2" NPT male conduit connection, 60" long cable, vented  
PXT-KM: M12 connector

**Enclosure:** NEMA 4/IP65 or better

**Body:** 316L stainless steel

**Wetted Parts:** 316L stainless steel

**Environmental Effect (Humidity):**

No effect for 0-95%, non-condensing

**Mounting:** All axis positions, has negligible effect on performance  
as long as it is perpendicular to the flow being monitored

**Shock Resistance:**

800g per IEC 60068-2-27 (Mechanical Shock)

**Vibration Resistance:**

20G per IEC 60068-2-6 (Vibration under resonance)

**Wiring Protection:** Protected against reverse polarity and short  
circuit, 48 VDC Maximum

**Supply Voltage:** 10-30 VDC (Typically 24 VDC)

**Transmitter Output:**

4-20 mA, two wire configurations with load characteristics

**Insulation:** Greater than 10 MΩ @ 300 VDC

**Electromagnetic Compatibility (EMC):** Standards; EN 61000-  
6-2:2005, EN 61000-6-3:2007, EN 61326-2-3:2006

**Voltage Surge/Spike Protection:**

Protection against a 600 volt spike per IEC 60-2

**Accuracy Tolerance:** See page 4

**Applicable Standards**

**CSA (c/us):** Class I / II / III, Div 1, Groups A-F T4  
Class I / II / III, Div 2, Groups A-D,F,G T4

**ATEX:** IBExU 10 ATEX 1124 X

II 1G Ex ia IIC T6-T4

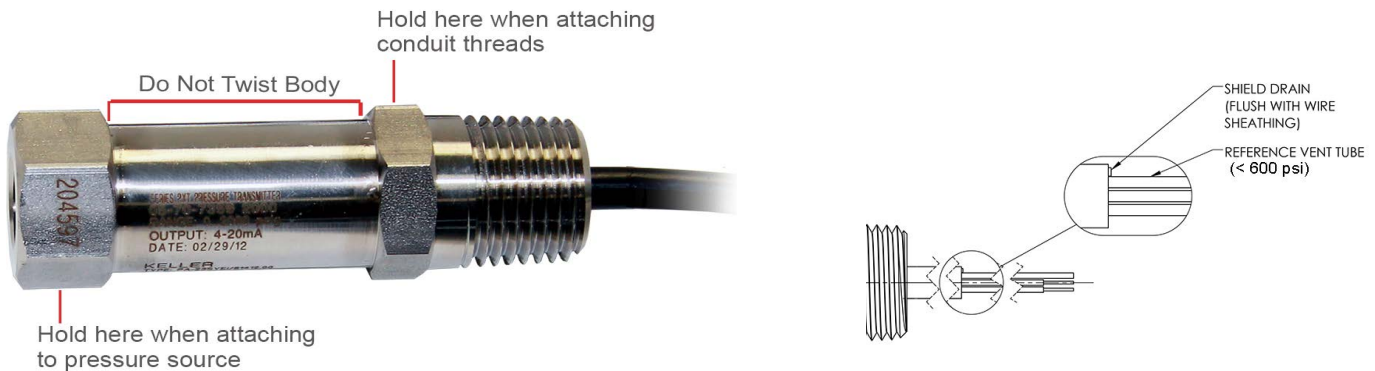
II 3G Ex nA IIC T6

**Canadian Registration Number:** OF15236.2 (all providences  
and territories)

# Mounting

**Caution: Transmitters are precision instruments. Do not install in a manner that causes side stress or is subject to excessive vibration.**

- Transmitters can be mounted on any axis with negligible position error as long as it is perpendicular to the flow being monitored.
- Mount the transmitter where there is minimum vibration.
- Apply Teflon tape/sealant to the pressure-fitting threads before installing.
- When tightening, apply a wrench to the hex wrench flats located just above the pressure fitting. **DO NOT** tighten by using a pipe wrench on the housing.



**Caution: Readings may be incorrect if the vent tube becomes blocked or bent (kinked). Keep reference vent tube unobstructed and free from excessive moisture or liquid ingress (400 psi and below).**

# Noise

Recommendations for minimum noise susceptibility:

- Avoid running the transmitter cabling in a conduit that contains high voltage AC power cables or the ignition loom on an engine.
- Avoid running the cable near inductive equipment, where possible.
- Shielded cable is always recommended.
- **PXT-K Series products are not constructed to be isolated, and the shield/drain should not be grounded in the panel.** (NOTE: A typical shield/drain is isolated from the transmitter body and should be grounded on the panel end only. The PXT-K Series products drain wire should not be grounded in the panel.)

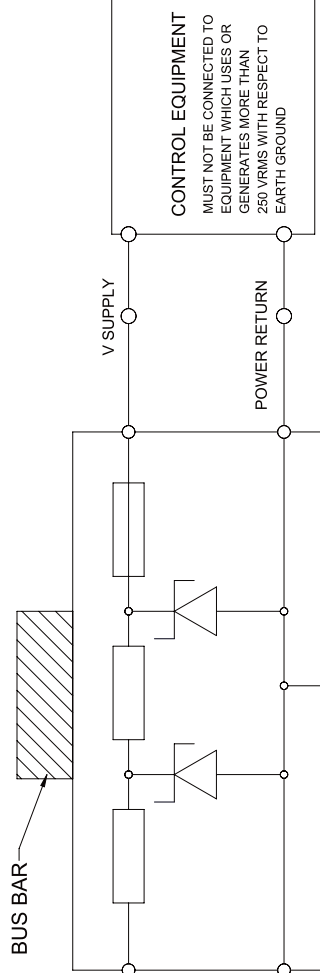
- NOTES:
1. INSTALLATION INSTRUCTIONS FOR CLASS I/II/III, DIVISION 2.
    - CLASS I, DIVISION 2, GROUPS A,B,C,D,T4
    - CLASS II, DIVISION 2, GROUPS F,G,T4
    - CLASS III, DIVISION 2, T4

UNITS MEET CLASS I, DIV 2 / ZONE 2 WHEN INSTALLED IN ACCORDANCE WITH CLASS I, DIV 2 / ZONE 2 METHODS. EITHER BY USING THE CONDUIT CONNECTION AND GROUND CONNECTION PROVIDED OR BY INSTALLING IN A SUITABLE ENCLOSURE ACCEPTABLE TO THE LOCAL AUTHORITY HAVING JURISDICTION. MODELS WITH KM OR KD IN THE MODEL NUMBER CAN BE MOUNTED OUTDOORS WITH A SUITABLE CLASS I, DIVISION 2, OR ZONE 2, RATED CABLE ASSEMBLY AND THE M12 CONNECTOR WITH A TURCK LOKFAST® GUARD OR EQUIVALENT OVER THE M12 CONNECTOR, OR THE DIN 43650 CONNECTOR. NO BARRIER IS REQUIRED.

2. INSTALLATION INSTRUCTIONS FOR CLASS I/II/III, DIVISION 1.
  - CLASS I, DIVISION 1, GROUPS A,B,C,D,T4
  - CLASS II, DIVISION 1, GROUPS E,F,G
  - CLASS III, T4

## HAZARDOUS AREA

## SAFE AREA



TRANSMITTER ENTITY PARAMETERS					
V <sub>MAX</sub>	I <sub>MAX</sub>	C <sub>i</sub>	L <sub>i</sub>	P <sub>i</sub>	
30V	200 mA	2 nF	0 uH	640 mW	

$$V_{max} \geq V_{oc}$$

$$I_{max} \geq I_{sc}$$

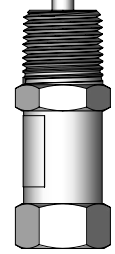
$$C_i + C_{cable} \leq C_a$$

$$L_i + L_{cable} \leq L_a$$

$$P_i \geq P_o$$

USE THE FOLLOWING PARAMETERS IF CABLE PARAMETERS ARE UNKNOWN.  
 CABLE CAPACITANCE: 60 pF/ft  
 (EX. C<sub>cable</sub>=1000ft x 60 pF/ft=0.06uF)  
 CABLE INDUCTANCE: 0.2uH/ft  
 (EX. L<sub>cable</sub>=1000ft x 0.2uH/ft=0.2mH)

PXT-K (4-20mA) SERIES PRESSURE TRANSMITTERS



PXT-KM (4-20mA) SERIES PRESSURE TRANSMITTERS



ALL INTRINSICALLY SAFE WIRING SHALL BE KEPT SEPARATE FROM NON-INTRINSICALLY SAFE WIRING. REFER TO ANS/NFPA 70, NEC ARTICLES 504 & 505, CANADIAN ELECTRIC CODE (CEC) PART 1, SECTION 18

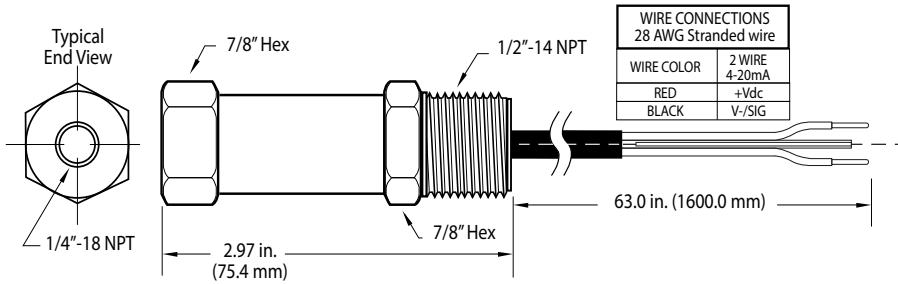
### BARRIER NOTES

1. OUTPUT CURRENT MUST BE LIMITED BY A RESISTOR SUCH THAT THE OUTPUT VOLTAGE V<sub>s</sub> CURRENT FLOW IS A STRAIGHT LINE BETWEEN V<sub>oc</sub> AND I<sub>sc</sub>
2. BARRIER MUST BE INSTALLED AS INSTRUCTED BY THE MANUFACTURER
3. SELECTED BARRIER INTRINSICALLY SAFE CIRCUITS SHALL BE APPROVED FOR CLASS I/II, DIV 1, GRP A-G
4. TERMINATE BARRIER EARTH GROUND TO THE GROUND BUS OF THE POWER DISTRIBUTION PANEL. RESISTANCE TO GROUND MUST NOT BE GREATER THAN 1 OHM

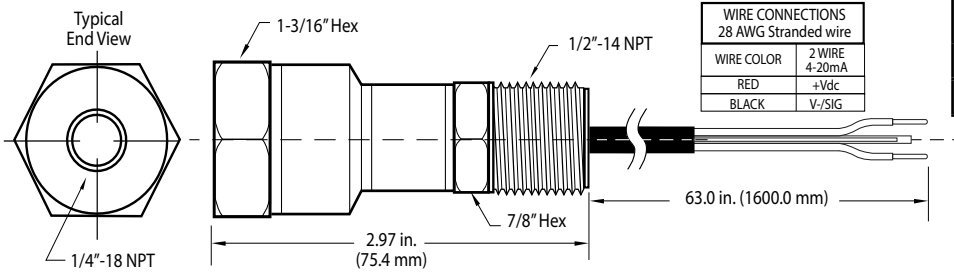
# Dimensions, Connections and Accuracy

## PXT-K Dimension and Connections

2000 psig and below models



3000 psig and above models



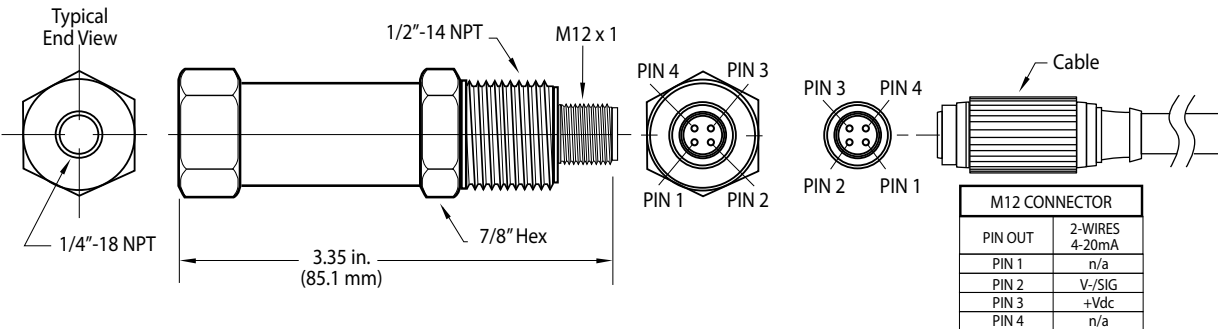
## Accuracy Tolerance

Accuracy PXT-K and PXT-KM:	
% of Span (BFSL)	+/- 0.25% of span*
Zero/Span Setting Tolerance	+/- 2.5% of full scale* max. (30V/30WC only)
	+/- 0.25% of span* typical, +/-0.5% of span* max (all other ranges)
Operating Temperature	+/- 2.5% of span T.E.B.
Compensated Temperature	+/- 1.7% of span T.E.B.
Response Time	<5mS

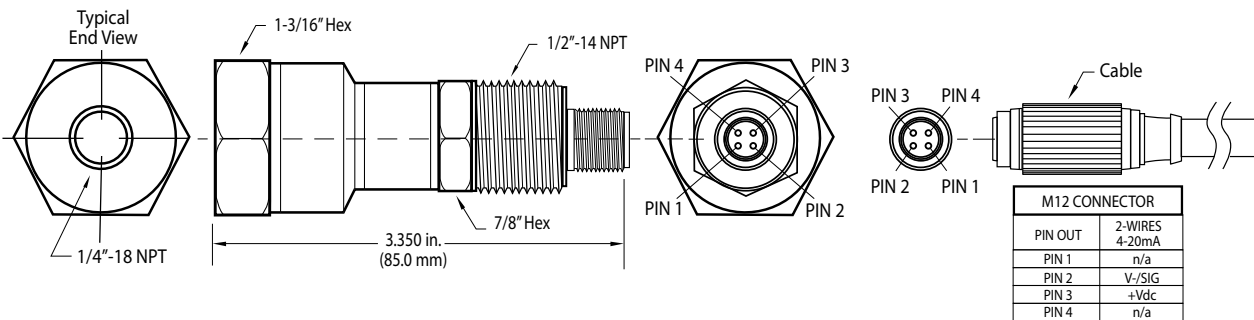
\* Accuracy Tolerance to be applied at 25°C

## PXT-KM Dimension and Connections

2000 psig and below models



3000 psig and above models



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