

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:



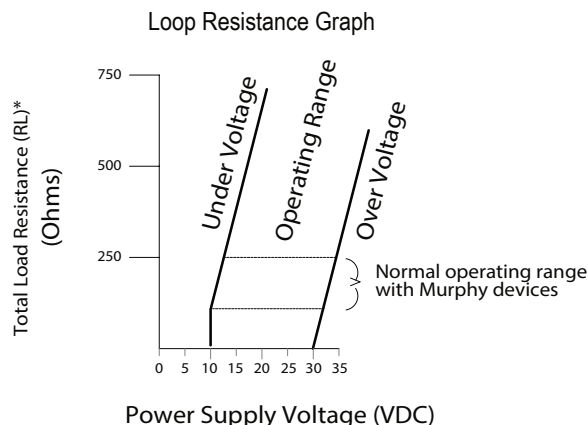
- | |
|--------------------------------------------------------------------------------------------------------------------------|
| 1. Disconnect all electrical power to the machine. |
| 2. Follow the lock out/tag out safety procedures of your company. Ensure the machine cannot operate during installation. |
| 3. Follow the safety warning of the machine manufacturer. |
| 4. Read and follow all installation instructions. |
| 5. Ensure pressure has been relieved or vented. |

PXT-K Series

The PXT-K 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 or Inconel housing and filled with 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 10-30 VDC. The graph below shows the minimum supply voltage (VDC) required for a given load resistance (R).



Minimum Voltage for Common Input Modules		
Model	Input Impedance	Vmin
Centurion C4-1	231 Ω	13.62
MX5	221 Ω	13.42
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 gases 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, PM6203 pulsation snubber for gas pressures or PD2160 snubber for oil/liquid pressures.
 - Visit www.fwmurphy.com for PD8100 details or contact FW Murphy for options.
- 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 ₂ O to +30" H ₂ O	3 X or ±90 in. H ₂ 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	
PXT-K(M)-1000	0-1000 psig	1.5 X PSI
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	
PXT-K(M)-10000	0-10000 psig	1.1 X PSI

Specifications

Operating Pressure Range: See table, Pressure Ranges
Operating Temperature Range: -22 to 212° F (-30 to 100° C)
Certified Temperature Range: -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 below) or
15/16" hex nut (3000 psig and above)

Electrical Connection:

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

Enclosure Rating: IP65

Body: 316L stainless steel / alloy 625 (Inconel)

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: IIBExU 10 ATEX 1124 X

II 1G Ex ia IIC T6-T4

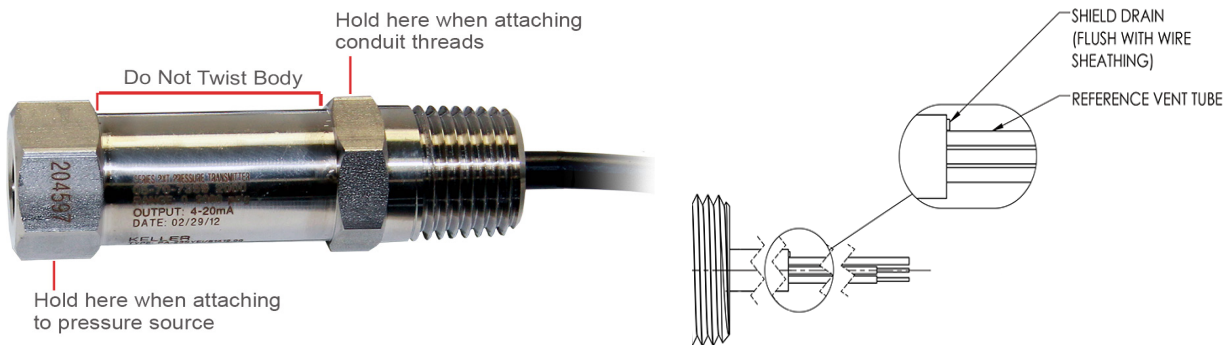
II 3G Ex nA IIC T6

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 control panel.)

Hazardous Area Electrical Installation

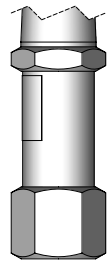
NOTES:

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 E, 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 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.
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

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



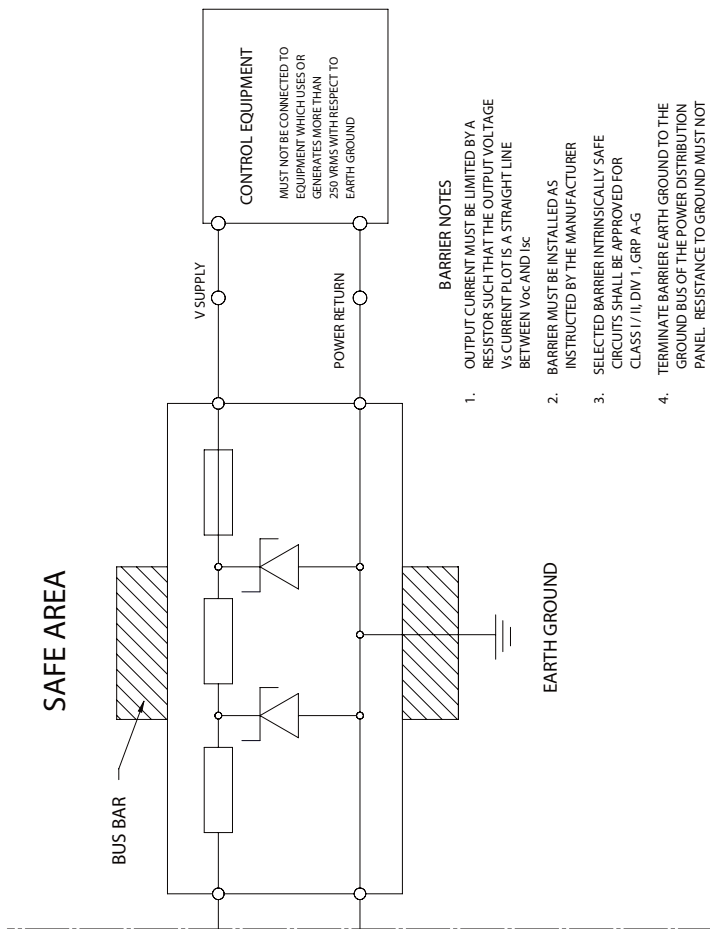
PXT-KM (4-20mA) SERIES PRESSURE TRANSMITTERS



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

HAZARDOUS AREA

SAFE AREA



POWER
GROUND RETURN

TRANSMITTER ENTITY PARAMETERS

VMAX	IMAX	CI	LI	PI
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. Ccable=1000ft x 60 pF/ft=0.06uF)
CABLE INDUCTANCE: 0.2 uH/ft
(EX. Lcable=1000ft x 0.2 uH/ft=0.2mH)

BARRIER NOTES

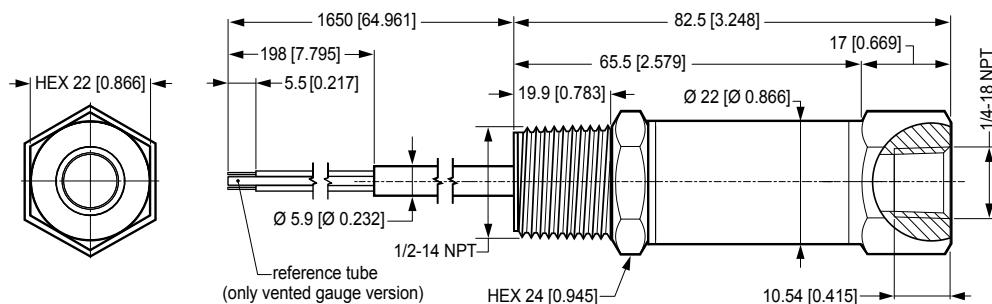
1. OUTPUT CURRENT MUST BE LIMITED BY A RESISTOR SUCH THAT THE OUTPUT VOLTAGE V_o CURRENT IS A STRAIGHT LINE BETWEEN V_{oc} AND I_{sc}
2. BARRIER MUST BE INSTALLED AS INSTRUCTED BY THE MANUFACTURER
3. SELECTED BARRIER INTRINSICALLY SAFE CIRCUITS SHALL BE APPROVED FOR CLASS I / II, DIV 1, GRP A-G
4. TERMINATE 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

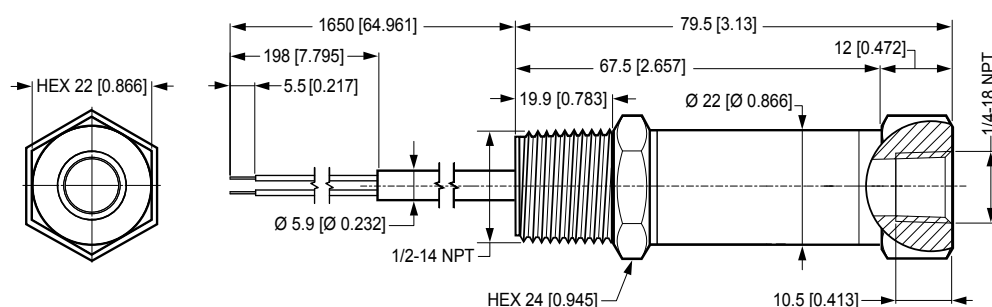
PXT-K Dimension and Connections

Dimension Units: mm [in]

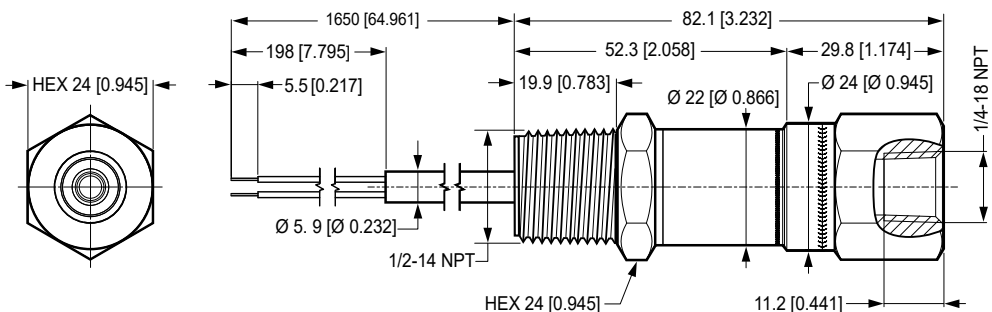
600 psig and below models



1000 and 2000 psig models



3000 psig and above models



Connections for PXT-K Models

PXT-K Connections	
Wire Color	2 Wire, 4-20 mA
Black (BK)	V-/SIG
Red (RD)	+ Vdc

Accuracy Tolerance

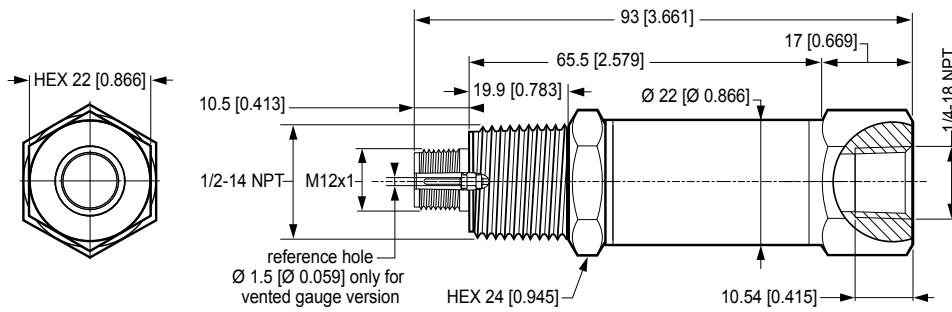
Accuracy PXT-K and PXT-KM:	
% of Span (BFSL)	+/- 0.25% of span*
Zero/Span Setting Tolerance	+/- 2.5% of full scale* max. (30V/30WC only) +/- 0.25% of span* typical, +/- 0.5% of span* max (all other ranges)
Operating Temperature	+/- 2.5% of span T.E.B.
Compensated Temperature	+/- 1.7% of span T.E.B.
Response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

* Accuracy Tolerance to be applied at 25°C

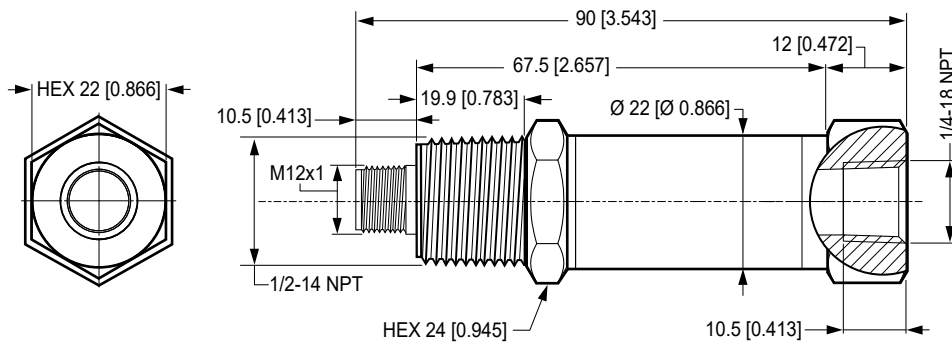
PXT-KM Dimension and Connections

Dimension Units: mm [in]

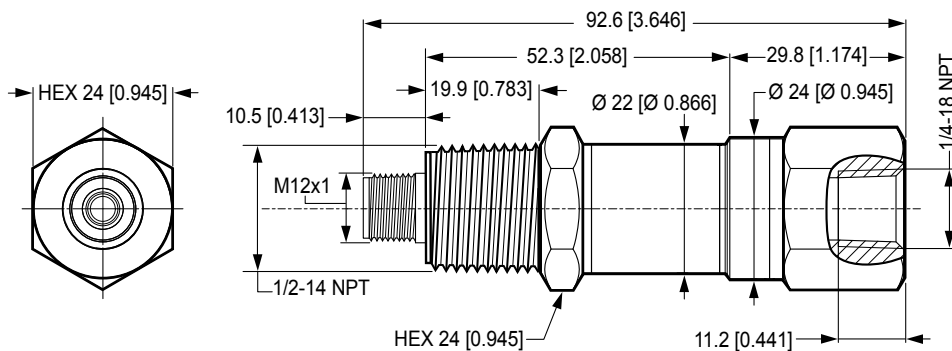
600 psig and below models



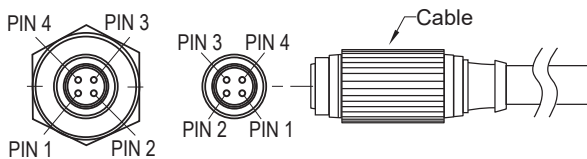
1000 and 2000 psig models



3000 psig and above models



Connections for PXT-KM Models



PXT-KM Pin Assignment	
Pin (Color)	2 Wire, 4-20 mA
Pin 1	N.C.
Pin 2 (Black)	V-/SIG
Pin 3 (Red)	+ Vdc
Pin 4	N.C.

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