FW MURPHY™
PRODUCTION CONTROLS

PXT-K Series

Pressure Transmitters

00-02-0840
2016-03-01
Section 05

Warranty - A limited warranty on materials and workmanship is given with this FW Murphy product.
A copy of the warranty may be viewed or printed by going to http://www.fwmurphy.com/warranty

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

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

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Introduction

The PXT-K (23SYEi) Series pressure transmitters are state-of-the-art instruments providing 4-20 mA outputs. Each pressure transmitter contains a transducer comprised of a piezo resistive 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.

Installation Warnings

Pulsating pressure variations as those 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.

To avoid damage from pressure hammer and surges, install a surge chamber or a pressure snubber. One such family of products is the Murphy PD-8100 Series pulsation dampener. Contact Enovation Controls for details or check on www.fwmurphy.com/

Symptoms of fluid hammer and surge damage:

a. Pressure transmitter exhibits an output at zero pressure (large zero offset).

b. Pressure transmitter output remains constant regardless of pressure.

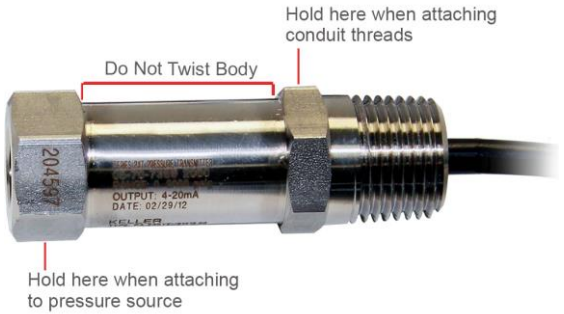
c. In severe cases, there will be no output.

Noise

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. Where possible, avoid running the cable near inductive equipment. Shielded cable is always recommended. Typical shield/drain is isolated from the transmitter body and should be grounded on the panel end only. **However, PXT-K Series products are not constructed to be isolated, and the shield/drain should not be grounded in the panel.**

Mounting

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



Transmitters require no special mounting hardware and can be mounted in any plane with negligible position error.

Although the unit can withstand substantial vibration without damage or significant output effects, it is good practice to 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**.

PXT-K and PXT Series Pressure Transmitter Cabling Identification

The PXT Series Pressure Transmitters have changed. Previous pressure transmitters in this series were identified as ***PXT Pressure Transmitters***. The newest version is the ***PXT-K Series Pressure Transmitters***. Identification of electrical cable color is NOT interchangeable between the two series of pressure transmitters.

The following information will assist you in identifying the pressure transmitter unit you have and the correct electrical cable colors to avoid wiring mistakes.

PXT SERIES	PXT-K SERIES
	

Cable Color	Connection	Cable Color	Connection
RED	POWER	RED	POWER
BLUE	SIGNAL	BLUE	N/A
BLACK	CASE GROUND	BLACK	SIGNAL / GROUND
ORANGE, YELLOW, WHITE	N/A	ORANGE, YELLOW, WHITE	N/A
Installation Instructions	00-02-0475	Installation Manual	00-02-0840
Installation Diagram	05-08-0754	Installation Diagram	05-08-0763

Hazardous Area Electrical Installation

NOTES:

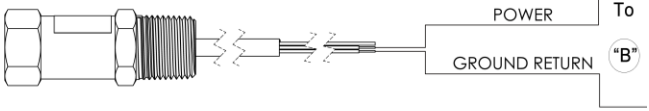
1. INSTALLATION INSTRUCTIONS FOR CLASS I/II/III, DIVISION 2
   - CLASS I, DIVISION 2, GROUPS A,B,C,D T4
   - CLASS II, DIVISION 2, GROUPS F,G T4
   - CLASS III, DIVISION 2, T4

   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. **NO BARRIER IS REQUIRED.**

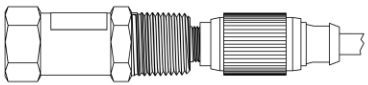
2. INSTALLATION INSTRUCTIONS FOR CLASS I/II/III, DIVISION 1
   - CLASS I, DIVISION 1, GROUPS A,B,C,D T4
   - CLASS II, DIVISION 1, GROUPS E,F,G
   - CLASS III, T4

HAZARDOUS AREA

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



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

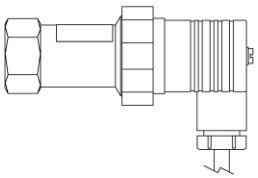


TRANSMITTER ENTITY PARAMETERS

VMAX	IMAX	Ci	Li	Pi
30V	200 mA	0 uF	0 uH	640 mW

Vmax >= Voc
I max >= Isc
Ci + C cable =< Ca
Li + L cable =< La
Pi > Po

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



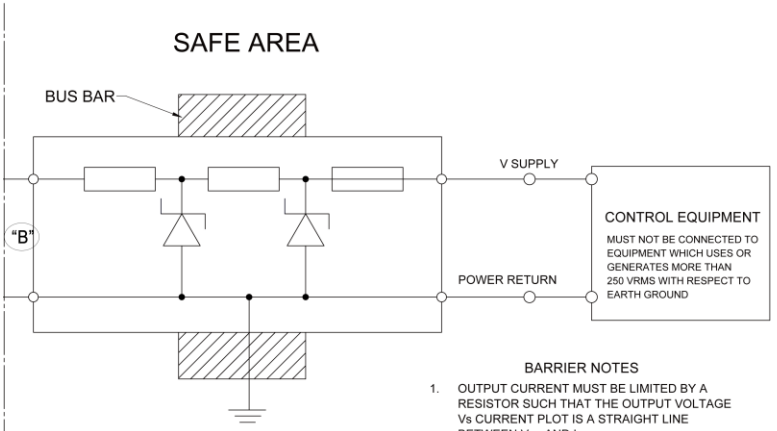
USE THE FOLLOWING PARAMETERS IF CABLE PARAMETERS ARE UNKNOWN.
CABLE CAPACITANCE: 60 pF/ft
(EX. Ccable=1000ft x 60 pF/ft=0.06uF)
CABLE INDUCTANCE: 0.2µH/ft
(EX. Lcable=1000ft x 0.2µH/ft=0.2mH)

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

Printed versions are not controlled.
Please access the current version
at http://www.fwmurphy.com/pxt-k/

Typical Power Barrier Parameters

V_{oc}	I_{sc}	C_o	L_o	P_o
28 Vdc	93 mA	0.12µf	3 mH	640 mW

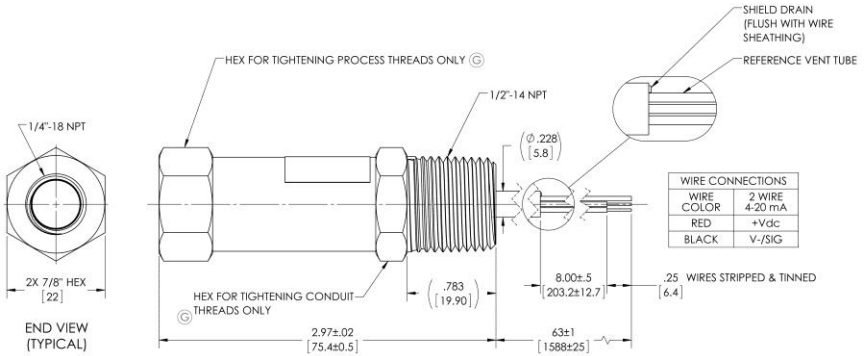


BARRIER NOTES

1. OUTPUT CURRENT MUST BE LIMITED BY A RESISTOR SUCH THAT THE OUTPUT VOLTAGE Vs CURRENT PLOT IS A STRAIGHT LINE BETWEEN Voc AND Isc
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

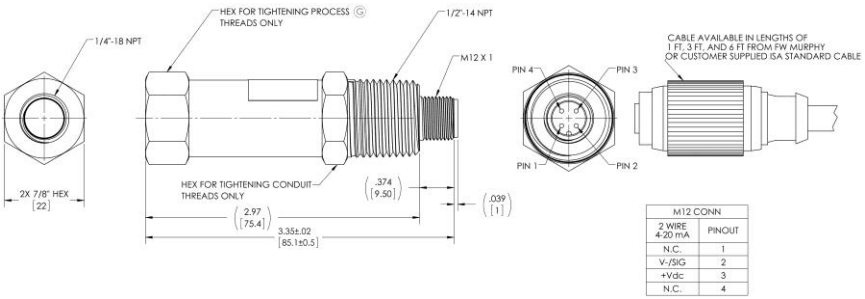
PXT-K Series Physical Dimensions

PXT-K

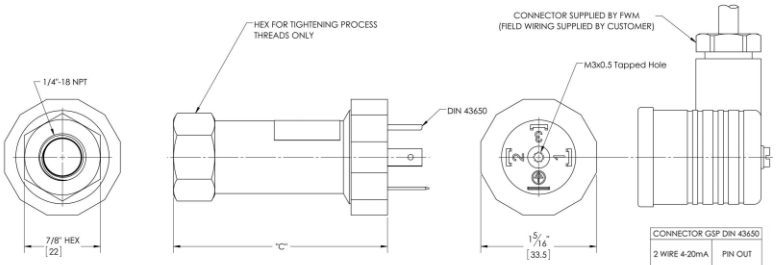


WARNING! Keep reference vent tube unobstructed and free from excessive moisture or liquid ingress. Readings may be incorrect if tube becomes blocked or bent (kinked).

PXT-KM



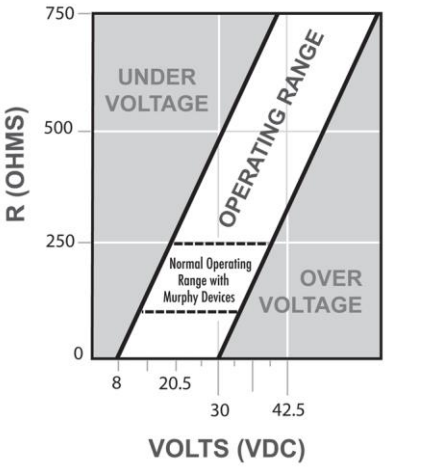
PXT-KD



"C"	PRESSURE RANGE
2.44" ± .02"	30V30WC TO 60 psig
2.44" ± .02"	100 TO 2,000 psig
2.80" ± .02"	3000 TO 10,000 psig

CONNECTOR GSP DIN 43650	
2 WIRE 4-20mA	PIN OUT
N.C.	1
V-/SIG	2
+Vdc	3
	GND (CASE)

PXT-K Operating Range Chart



LOOP RESISTANCE GRAPH

Specifications

Operating Pressure Range: See the Model Number Matrix
Operating Temperature: -30 to 176°F (-30 to 80°C)
Compensated Temperature Range: -20 to 160°F (-29 to 71°C)
Physical Characteristics:

Process Connection: 1/4 NPT female with 7/8" Hex Nut
Electrical Connection:

PXT-K: 1/2" NPT Male Conduit connection with 60" long cable, vented
PXT-KM: M12 Connector
PXT-KD: DIN 43650 Connector

Enclosure: IP65 or better
Body: 316L Stainless Steel complies with NACE MR0175
Wetted Parts: 316L Stainless Steel complies with NACE MR0175

Environmental Effect (Humidity): No effect for 0-95%, Non-condensing
Mounting: Transmitter can be installed in any axis. Transmitter position has negligible effect on performance as long as it is perpendicular to the flow being monitored.
Shock Resistance: 1000g per IEC 60068-2-6 (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: 8 - 30 VDC (Typically 24 VDC)
Insulation: Greater than 10MΩ @ 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
Applicable Standards:

NACE MR0175 Compliant with the requirements
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

Accuracy:

% of Span (BFSL)	+/- 0.25% of span*
Zero/Span Setting Tolerance	+/- 2.5% of full scale* max. (30V30WC 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

Model Number Matrix

PXT-K Series Model Number Matrix

Example: PXT-K-600
Murphy two wire Pressure Transmitter with Flying Lead Connection, 0-600psig range, 4-20 mAdc output. If no digit follows the pressure range, it is automatically a 4-20 mAdc output signal.

MODEL NUMBER:

PXT - □ – □ □ □ – □

OUTPUT SIGNAL	
4-20 mAdc	BLANK

K	PXT (Flying Lead)
KM	PXM (M12 x 1 Connector)
KD	PXD (DIN 43650 Connector)

30V30WC (-30" H_2O to +30" H_2O)
30V30 (-30" Hg to +30 psig)
30V100 (-30" Hg to +100 psig)
15 (psig)
60
100
200
300
400
600
1000
2000
3000
5000
6000
10000

Range Clarification:
30V30WC: -30 WC to +30 WC
30V30: -30”Hg to 30 PSI
30V100: -30”Hg to 100 PSI
All other ranges listed are in PSI

--NOTES--

FW MURPHY PRODUCTION CONTROLS

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