



PX3 Series

Differential Pressure / Air Velocity Transducer

Product Overview

The PX3 transducer can measure either air pressure or velocity with the flip of a switch. The PX3 is available in three installation configurations: duct, panel or universal. Duct and panel models have two pressure and velocity ranges: 0-1 in. WC / 0-3,000 ft/min or 1-10 in. WC / 3,000-6,000 ft/min with four field-selectable sub-ranges. The universal model comes in one pressure/velocity range: 0-10 in. WC / 0-7,000 ft/min with seven field-selectable sub-ranges for pressure and eight for velocity. All variants are available with and without display. The PX3 has an IP65/NEMA 4 environmental rating and a 5-year limited warranty.

Product Identification

Enclosure	Local Display	NIST Cert*	Accuracy	Range	Wireless Technology
PX3 D = Duct P = Panel	L = LCD Display X = No Display	N = NIST X = None	0 = 1%	1 = Pressure: 0 to 1 in. WC / 0 to 250 Pa Velocity: 0 to 3,000 ft/min / 0 to 15 m/s 2 = Pressure: 1 to 10 in. WC / 250 to 2,500 Pa Velocity: 3,000 to 6,000 ft/min / 15 to 30 m/s	S = Standard, no wireless technology
*8-point calibration					
PX3 U = Universal	L = LCD Display X = No Display	N = NIST* X = None	0 = 1%	5 = Pressure: 0 to 10 in. WC / 0 to 2500 Pa Velocity: 0 to 7000 ft/min / 0 to 35 m/s	S = Standard, no wireless technology
*16-point calibration					

WARNING
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions can result in death, serious injury or equipment damage.

This product is intended for use in HVAC and building environmental control applications. It is not intended for direct medical monitoring of patients.

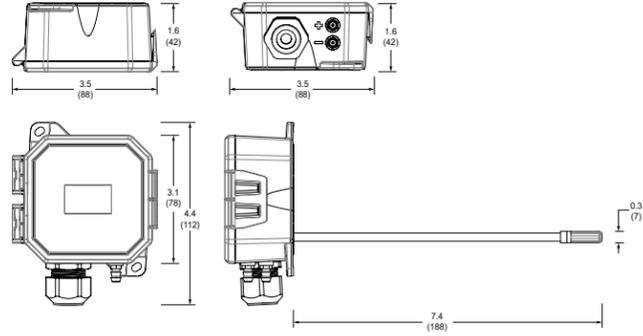
Read and understand these instructions before installing this product.

The installer is responsible for all applicable codes.

If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired. No responsibility is assumed by the manufacturer for any consequences arising out of the use of this material.

Dimensions

in. (mm)



Specifications

Media Compatibility	Dry air or inert gas
Input Power	Three-wire Volt mode: 24 Vac or 12-30 Vdc* Two-wire mA mode: 12-30 Vdc*
Output Power	Field-selectable: 2-wire, loop-powered 4-20 mA Minimum input voltage for 4 to 20 mA operation: 250 Ω loop = 12 Vdc; 500 Ω loop = 19 Vdc (DC only, clipped and capped), 24 Vac/dc or 3-wire 0-5V/0-10V Minimum load resistance for Volt operation: 5 kΩ
Pressure Range 1	Pressure Mode Unidirectional: 0.1/0.25/0.5/1.0 in. WC, switch selectable Bidirectional: ±0.1/±0.25/±0.5/±1.0 in. WC, switch selectable Unidirectional: 25 Pa/50 Pa/100 Pa/250 Pa, switch selectable Bidirectional: ±25 Pa/±50 Pa/±100 Pa/±250 Pa, switch selectable
	Velocity Mode 500/1,000/2,000/3,000 ft/min 2.5/5/10/15 m/s
Pressure Range 2	Pressure Mode Unidirectional: 1.0/2.5/5/10 in. WC, switch selectable Bidirectional: ±1.0/±2.5/±5/±10 in. WC, switch selectable Unidirectional: 250/500/1,000/2,500 Pa, switch selectable Bidirectional: ±250/±500/±1,000/±2,500 Pa, switch selectable
	Velocity Mode 3,000/4,000/5,000/6,000 ft/min 15/20/25/30/35 m/s
Pressure Range 5	Pressure Mode Unidirectional: 0.1/0.25/0.5/1/2.5/5/10 in. WC, switch selectable Bidirectional: ±0.1/±0.25/±0.5/±1/±2.5/±5/±10 in. WC, switch selectable Unidirectional: 25/50/100/250/500/1,000/2,500 Pa, switch selectable Bidirectional: ±25/±50/±100/±250/±500/±1,000/±2,500 Pa, switch selectable
	Velocity Mode 500/1000/2000/3000/4000/5000/6000/7000 ft/min 2.5/5/10/15/20/25/30/35 m/s
Response Time	Standard: T95 in 20 sec, Fast: T95 in 2 sec, DIP switch selectable
Mode	Unidirectional or bidirectional, DIP switch selectable
Display (Option)	Pressure mode: Signed 3-1/2 digit LCD, indicates pressure, overrange indicator Velocity mode: Signed 4-1/2 digit LCD, indicates velocity, overrange indicator
Proof Pressure	3 psid (20, 600 Pa)
Burst Pressure	5 psid (34, 500 Pa)
Pressure Mode Accuracy	±1% FS (combined linearity and hysteresis)
Velocity Mode Accuracy	±90 ft/min (±0.45 m/s) plus 5% of measured value**
Temperature Effect	1 in. WC (250 Pa) models: 0.05%/°C; 10 in. WC (2,500 Pa) models: 0.01%/°C (Relative to 25 °C) 0 to 50 °C (32 to 122 °F)

Specifications (cont.)

Zero Drift (1-year)	1 in. WC (250 Pa) models: 2.5% FS typ.; 10 in. WC (2,500 Pa) models: 0.25% FS typ.
Zero Adjust	Pushbutton auto-zero and digital input (2-pos terminal block)
Operating Environment	-20 to 60 °C (-4 to 140 °F)***
Altitude of Operation	0 to 3000 m
Pollution Degree	2
Humidity Range	100% RH, non-condensing
Mounting Location	For indoor or outdoor use (display will not function below 0 °C (32 °F))
Fittings	Brass barb; 0.24" (6.1 mm) o.d.
Suggested Cable	Shielded: Belden #9939 (22 AWG) 3-wire multi-conductor (or similar) Belden #9940 (22 AWG) 4-wire multi-conductor (or similar) Belden #9939 (22 AWG) 5-wire multi-conductor (or similar) Unshielded: Belden #8443 (22 AWG) 3-wire multi-conductor (or similar) Belden #8444 (22 AWG) 4-wire multi-conductor (or similar) Belden #8445 (22 AWG) 5-wire multi-conductor (or similar)
Limited Warranty	5 years
Environmental Rating	IP65, NEMA 4
Flammability Rating	UL 94 5VA fire retardant ABS, plenum rated

EMC Conformance: EN 61000-6-3 and A1, Class B, EN 61000-6-1, EN61326-1 and EN61326-2-3.

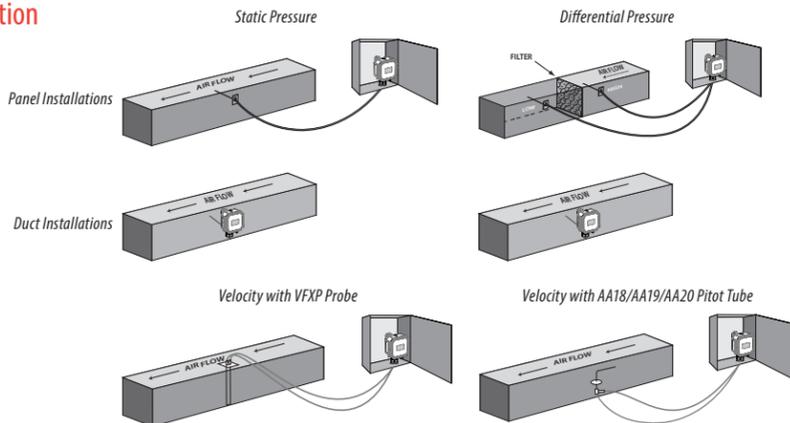
* Class 2/II power source.

** For measured values between 200 and 7000 ft/min (1 and 35 m/s).

*** Display will not function below 0 °C (32 °F).

Installation, Wiring & Configuration

1. Plan the installation. Panel or duct mount?



For velocity applications, use the VFXP Series air velocity/measurement probe or AA18, AA19 or AA20 velocity pitot tubes. For use with the PX3P (panel) and PX3U (universal) models in Velocity mode only. Sold separately.

Installation, Wiring & Configuration (cont.)

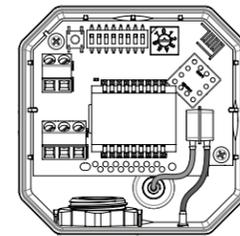
- For duct mount applications, thread the probe into the back of the device housing, as shown in the dimensional drawing.
- Configure the internal tubing for the selected installation method as described below.

Duct mount tubing configuration:

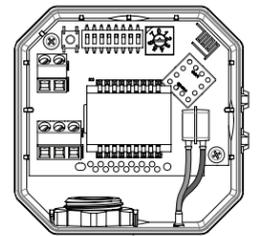
- Connect sensor port A to the rear brass barb marked as "-" on the underside of the device housing.
- Connect sensor port B to the probe in the back of the device housing.

Panel mount tubing configuration:

- Connect sensor port A to the rear brass barb marked as "-" on the underside of the device housing.
- Connect sensor port B to the front brass barb marked as "+" on the underside of the device housing.

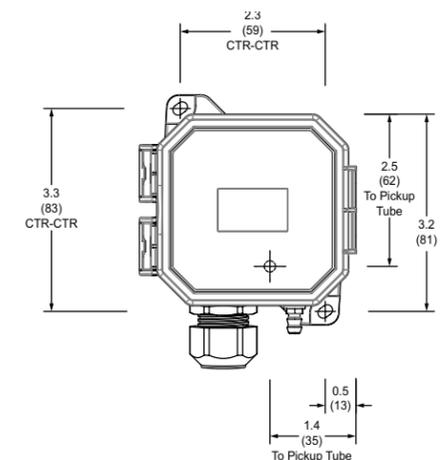


Tubing for Duct Mount



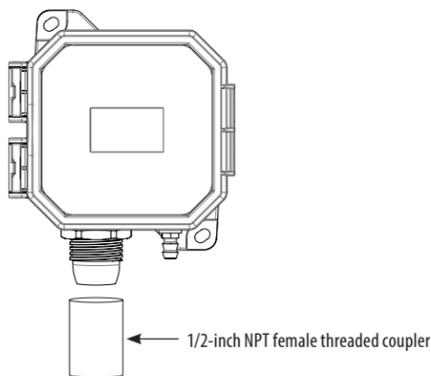
Tubing for Panel Mount

4. Mount the transducer (see the screw hole diagram below).



Installation, Wiring & Configuration (cont.)

- For applications using conduit, remove the cable gland nut on the bottom of the unit. Thread a standard 1/2-inch NPT female threaded coupler onto the body of the cable gland. Connect the opposite end of the coupler to the conduit.



- Set DIP switches to desired settings.*

- | | |
|---|--|
| DIP Switch 1: Scale
ON = Pascal (m/s)
OFF = in. WC (ft/min) | DIP Switch 5: Output
ON = 4-20 mA
OFF = Voltage |
| DIP Switch 2: Mode
ON = Velocity
OFF = Pressure | DIP Switch 6: Volt Scale
ON = 0-5 Vdc
OFF = 0-10 Vdc |
| DIP Switch 3: Direction**
ON = Unidirectional
OFF = Bidirectional | DIP Switch 7: Unused |
| DIP Switch 4: Response
ON = Slow
OFF = Fast | DIP Switch 8: Unused |

*DIP switches are all set to OFF by the factory.
**Velocity mode is unidirectional regardless of DIP switch setting.

DIP Switch Settings

	Scale	Mode	Direction	Response	Output	Volt Scale	Unused	Unused
ON	Pascal/MPS	Velocity	Uni	Slow	mA	5V	Unused	Unused
OFF	in. WC/FPM	Pressure	Bi	Fast	Volt	10V	Unused	Unused
	1	2	3	4	5	6	7	8

- Set rotary switch to the desired setting. Align the arrow (not the slot) on the rotary switch to the desired full-scale range. LCD models momentarily indicate the selected range.

Installation, Wiring & Configuration (cont.)

Rotary Switch Settings

Range 1 Model, Field Selectable (WC / ft/min or Pa / m/s)

	(P) Pressure Mode	(V) Velocity Mode
0	0 to 0.1 in. WC	0 0 to 500 ft/min
1	0 to 0.25 in. WC	1 0 to 1,000 ft/min
2	0 to 0.5 in. WC	2 0 to 2,000 ft/min
3	0 to 1 in. WC	3 0 to 3,000 ft/min
4	0 to 0.1 in. WC	4 0 to 500 ft/min
5	0 to 0.25 in. WC	5 0 to 1,000 ft/min
6	0 to 0.5 in. WC	6 0 to 2,000 ft/min
7	0 to 1 in. WC	7 0 to 3,000 ft/min

	(P) Pressure Mode	(V) Velocity Mode
0	0 to 25 Pa	0 0 to 2.5 m/s
1	0 to 50 Pa	1 0 to 5 m/s
2	0 to 100 Pa	2 0 to 10 m/s
3	0 to 250 Pa	3 0 to 15 m/s
4	0 to 25 Pa	4 0 to 2.5 m/s
5	0 to 50 Pa	5 0 to 5 m/s
6	0 to 100 Pa	6 0 to 10 m/s
7	0 to 250 Pa	7 0 to 15 m/s

Range 2 Model, Field Selectable (WC / ft/min or Pa / m/s)

	(P) Pressure Mode	(V) Velocity Mode
0	0 to 1 in. WC	0 0 to 3,000 ft/min
1	0 to 2.5 in. WC	1 0 to 4,000 ft/min
2	0 to 5 in. WC	2 0 to 5,000 ft/min
3	0 to 10 in. WC	3 0 to 6,000 ft/min
4	0 to 1 in. WC	4 0 to 3,000 ft/min
5	0 to 2.5 in. WC	5 0 to 4,000 ft/min
6	0 to 5 in. WC	6 0 to 5,000 ft/min
7	0 to 10 in. WC	7 0 to 6,000 ft/min

	(P) Pressure Mode	(V) Velocity Mode
0	0 to 250 Pa	0 0 to 15 m/s
1	0 to 500 Pa	1 0 to 20 m/s
2	0 to 1,000 Pa	2 0 to 25 m/s
3	0 to 2,500 Pa	3 0 to 30 m/s
4	0 to 250 Pa	4 0 to 15 m/s
5	0 to 500 Pa	5 0 to 20 m/s
6	0 to 1,000 Pa	6 0 to 25 m/s
7	0 to 2,500 Pa	7 0 to 30 m/s

Installation, Wiring & Configuration (cont.)

Rotary Switch Settings (cont.)

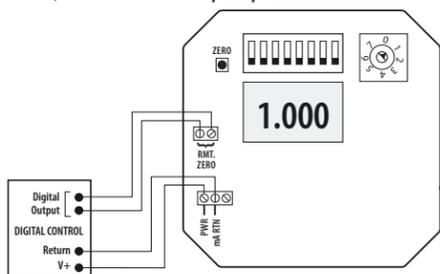
Range 5 Model, Field Selectable (P) Pressure or (V) Velocity Mode, Field Selectable (WC / ft/min or Pa / m/s)

	(P) Pressure Mode	(V) Velocity Mode
0	0 to 0.1 in. WC	0 0 to 500 ft/min
1	0 to 0.25 in. WC	1 0 to 1,000 ft/min
2	0 to 0.5 in. WC	2 0 to 2,000 ft/min
3	0 to 1 in. WC	3 0 to 3,000 ft/min
4	0 to 2.5 in. WC	4 0 to 4,000 ft/min
5	0 to 5 in. WC	5 0 to 5,000 ft/min
6	0 to 10 in. WC	6 0 to 6,000 ft/min
7	0 to 10 in. WC	7 0 to 7,000 ft/min

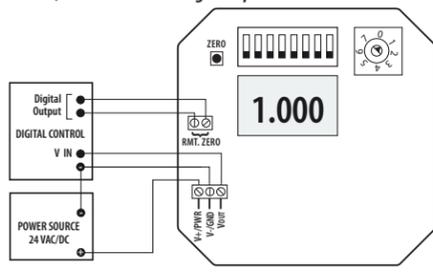
	(P) Pressure Mode	(V) Velocity Mode
0	0 to 25 Pa	0 0 to 2.5 m/s
1	0 to 50 Pa	1 0 to 5 m/s
2	0 to 100 Pa	2 0 to 10 m/s
3	0 to 250 Pa	3 0 to 15 m/s
4	0 to 500 Pa	4 0 to 20 m/s
5	0 to 1,000 Pa	5 0 to 25 m/s
6	0 to 2,500 Pa	6 0 to 30 m/s
7	0 to 2,500 Pa	7 0 to 35 m/s

- Connect the transmitter to the control system and power supply as indicated below. Optional: Connect the ZERO terminals to the digital output (contact closure) of the control system.

2-wire, 4-20 mA Current Loop Output



3-wire, 0-5 V/0-10 V Voltage Output



Installation, Wiring & Configuration (cont.)

- Wait five seconds, then press and hold the ZERO pushbutton for two seconds or provide contact closure on the AUX ZERO terminal. This will reset the output and display to zero pressure. For best accuracy, press the ZERO button while both ports are open to atmospheric pressure. To protect the unit from accidental zero, this feature is enabled only when the detected pressure is within about 0.5 in. WC (125 Pa) of factory calibration.

- Connect desired external tubing to the PX3.

Operation

PX3 Series devices employ high performance sensors and sophisticated temperature compensation circuitry. The sensor achieves its best accuracy after an initial warm-up period. During the first few minutes of operation, readings at zero pressure and the lowest pressure ranges may appear erroneous. Following this initial warm-up period, the PX3 device maintains its specified accuracy and stability.

The LCD momentarily indicates range 'SET' when a selection is made. Pressure is normally indicated on the display. Units are in inches water column (in. WC), Pascals (Pa) or kilopascals (kPa) as indicated on the display. The display shows 'OVR' when the pressure is over range.

China RoHS Compliance Information

Environment-Friendly Use Period (EFUP) Table

部件名称	有害物质 - Hazardous Substances					
Part Name	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电子件 Electronic	X	O	O	O	O	O

本表格依据SJ/T11364的规定编制。
O: 表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
X: 表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。
(企业可在此处, 根据实际情况对上表中打 'X' 的技术原因进行进一步说明。)

This table is made according to SJ/T 11364.
O: indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in GB/T 26572.
X: indicates that concentration of hazardous substance in at least one of the homogeneous materials used for this part is above the limit as stipulated in GB/T 26572

Z000057-0B

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Cet appareil est conforme aux normes d'exemption de licence RSS d'Industry Canada. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.