



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 options: 0-1" WC / 0-3,000 ft/min or 1-10" WC / 3,000-6,000 ft/min with four field-selectable sub-ranges. The universal model comes in one pressure/velocity range: 0-10" 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

PX3

Enclosure

D = Duct
P = Panel

Local Display

L = LCD Display
X = No Display

NIST Certificate

N = NIST
X = None

Range

01 = Pressure: 0 to 1 in. WC / 0 to 250 Pa
Velocity: 0 to 3000 ft/min / 0 to 15 m/s
02 = Pressure: 0 to 10 in. WC / 0 to 2500 Pa
Velocity: 0 to 6000 ft/min / 0 to 30 m/s

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.

Local Display

L = LCD Display
X = No Display

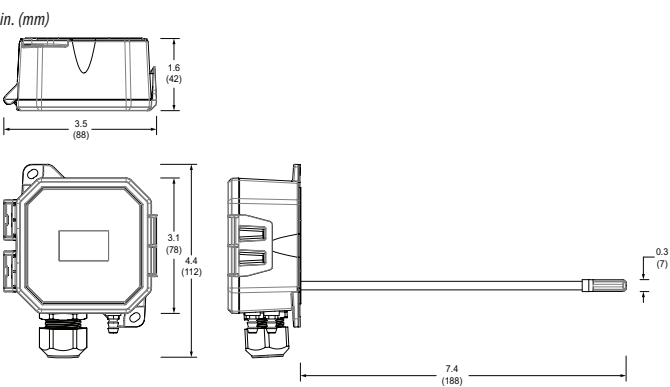
NIST Certificate

N = NIST
X = None

Range

05 = Pressure: 0 to 10 in. WC / 0 to 2500 Pa
Velocity: 0 to 7000 ft/min / 0 to 35 m/s

Dimensions



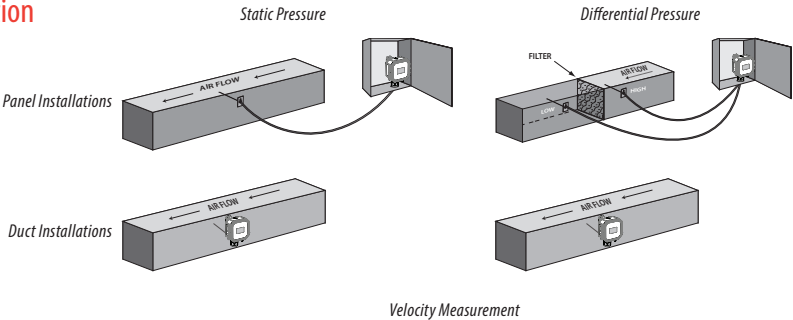
Specifications

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** (DC only, clipped and capped), 24 Vac/dc or 3-wire 0-5V/0-10V***
01 Pressure Range	Pressure Mode	Unidirectional: 0.1/0.25/0.5/1.0 in. WC FS, switch selectable Bidirectional: ±0.1/±0.25/±0.5/±1.0 in. WC FS, switch selectable Unidirectional: 25 Pa/50 Pa/100 Pa/250 Pa, FS, switch selectable Bidirectional: ±25 Pa/±50 Pa/±100 Pa/±250 Pa, FS, switch selectable
	Velocity Mode	500/1,000/2,000/3,000 ft/min 2.5/5/10/15 m/s
02 Pressure Range	Pressure Mode	Unidirectional: 1.0/2.5/5.0/10 in. WC FS, switch selectable Bidirectional: ±1.0/±2.5/±5.0/±10 in. WC FS, switch selectable Unidirectional: 0.250 kPa/0.500 kPa/1.000 kPa/2.500 kPa, FS, switch selectable Bidirectional: ±0.250 kPa/±0.500kPa/±1.000 kPa/±2.500 kPa, FS, switch selectable
	Velocity Mode	3,000/4,000/5,000/6,000 ft/min 15/20/25/30/35 m/s
05 Pressure Range	Pressure Mode	Unidirectional: 0.1/0.25/0.5/1.0/2.5/5/10 in. WC FS, switch selectable Bidirectional: ±0.1/0.25/0.5/1.0/2.5/5/10 in. WC FS, switch selectable Unidirectional: 25Pa/50Pa/100Pa/250Pa/0.5kPa/1kPa/2.5kPa FS, switch selectable Bidirectional: ±25Pa/50Pa/100Pa/250Pa/0.5kPa/1kPa/2.5kPa FS, 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 (20.6 kPa)
Burst Pressure		5 psid (34.5 kPa)
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" (250 Pa) models: 0.05%/°C; 10" (2.5 kPa) models: 0.01%/°C (Relative to 25 °C) 0 to 50 °C (32 to 122 °F)
Zero Drift (1-year)		1" (250 Pa) models: 2.0% max.; 10" (2.5 kPa) models: 0.5% max.
Zero Adjust		Pushbutton auto-zero and digital input (2-pos terminal block)
Operating Environment		0 to 60 °C (32 to 140 °F)
Altitude of Operation		0 to 3000 m
Pollution Degree		2
Humidity Range		100% RH, non-condensing
Mounting Location		For indoor use only.
Fittings		Brass barb; 0.24" (6.1 mm) o.d.
Bluetooth Frequency Range		2.402 to 2.480 GHz (Bluetooth version 4.2)
Maximum Output Power		0 dBm
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.
* Class 2/II power source.
** Minimum input voltage for 4 to 20 mA operation: 250 Ω loop = 12 Vdc; 500 Ω loop = 19 Vdc.
*** Minimum load resistance for Volt operation: 5 kΩ.
**** For measured values between 200 and 7000 ft/min (1 and 35 m/s).

Installation, Wiring
& Configuration

1. Plan the installation. Panel or duct mount?

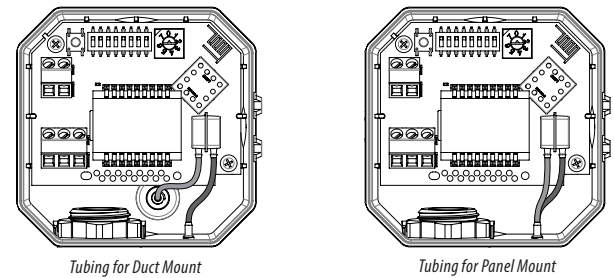


Note: Velocity measurement requires the use of an AA18, AA19 or AA20 pitot tube (sold separately).

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

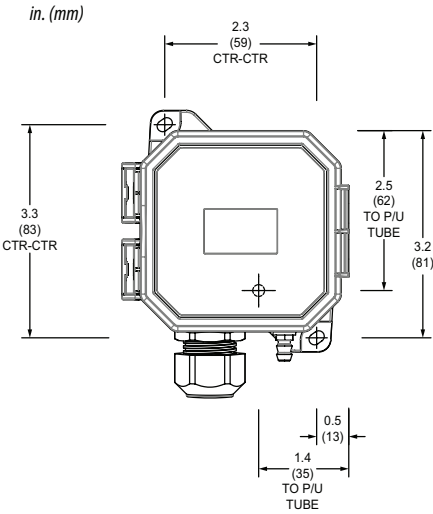
- Duct mount tubing configuration:
- Connect the right-side tube to the rear brass barb marked as “-” on the underside of the device housing.
 - Connect the left-side tube to the probe in the back of the device housing.

- Panel mount tubing configuration:
- Connect the right-side tube to the rear brass barb marked as “-” on the underside of the device housing.
 - Connect the left-side tube to the front brass barb marked as “+” on the underside of the device housing.



Installation, Wiring
& Configuration (cont.)

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



5. Set DIP switches to desired settings.

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

*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

6. 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 01 Model, Field Selectable (WC / ft/min or Pa / m/s)

	WC / ft/min		Pa / m/s
0	0 to 0.1 in. WC	0	0 to 25 Pa
1	0 to 0.25 in. WC	1	0 to 50 Pa
2	0 to 0.5 in. WC	2	0 to 100 Pa
3	0 to 1 in. WC	3	0 to 250 Pa
4	0 to 500 ft/min	4	0 to 2.5 m/s
5	0 to 1000 ft/min	5	0 to 5 m/s
6	0 to 2000 ft/min	6	0 to 10 m/s
7	0 to 3000 ft/min	7	0 to 15 m/s

Range 02 Model, Field Selectable (WC / ft/min or Pa / m/s)

	WC / ft/min		Pa / m/s
0	0 to 1 in. WC	0	0 to 250 Pa
1	0 to 2.5 in. WC	1	0 to 500 Pa
2	0 to 5 in. WC	2	0 to 1000 Pa
3	0 to 10 in. WC	3	0 to 2500 Pa
4	0 to 3000 ft/min	4	0 to 15 m/s
5	0 to 4000 ft/min	5	0 to 20 m/s
6	0 to 5000 ft/min	6	0 to 25 m/s
7	0 to 6000 ft/min	7	0 to 30 m/s

Range 05 Model, Field Selectable (P) Pressure or (V) Velocity Mode,
Field Selectable (WC / ft/min or Pa / m/s)

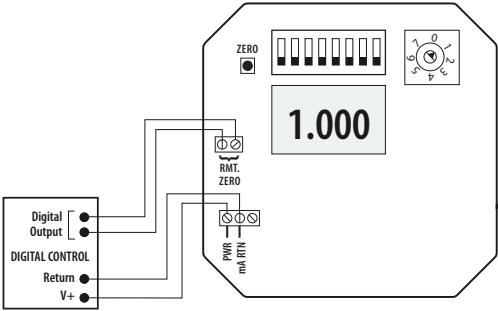
	(P) Pressure Mode		(V) Velocity Mode
0	0 to 0.1 in. WC	0	0 to 500 ft/min
1	0 to 0.25 in. WC	1	0 to 1000 ft/min
2	0 to 0.5 in. WC	2	0 to 2000 ft/min
3	0 to 1 in. WC	3	0 to 3000 ft/min
4	0 to 2.5 in. WC	4	0 to 4000 ft/min
5	0 to 5 in. WC	5	0 to 5000 ft/min
6	0 to 10 in. WC	6	0 to 6000 ft/min
7	0 to 10 in. WC	7	0 to 7000 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 1000 Pa	5	0 to 25 m/s
6	0 to 2500 Pa	6	0 to 30 m/s
7	0 to 2500 Pa	7	0 to 35 m/s

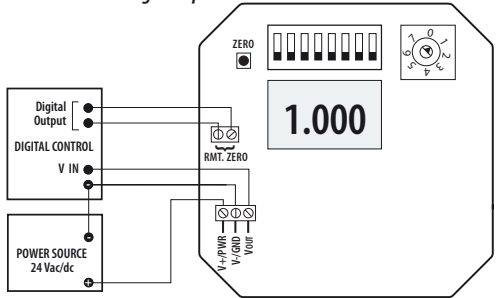
Installation, Wiring
& Configuration (cont.)

7. 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



8. 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 0.1 in. WC (25 Pa) of factory calibration.
9. Connect desired external tubing to the PX3.

Operation

PX3 Series devices employ ceramic capacitive 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 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 'OVER' when the pressure is over range.