PITOT TUBE SERIES

Installation & Operation Instructions

Phone: 1-888-967-5224
Website: workaci.com

GENERAL INFORMATION

The PT Series Pitot tube is designed to sense differential velocity pressure in VAV or other locations in the main or branch duct system.

MOUNTING INSTRUCTIONS

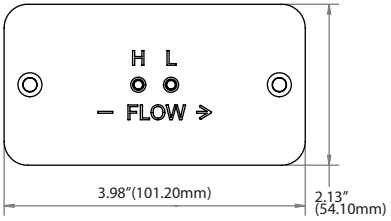
When selecting the proper PT series Pitot Tube, you want to make sure that the insertion length of the pitot tube is long enough to reach the midpoint of the duct and at least 10 straight duct diameters upstream and downstream from any elbows or reducers. Use **TABLE 1** for insertion depth reference based on duct diameter. Note that if monitoring velocity pressure, the Pitot Tube should also be mounted such that the arrow on the pitot tube is facing in the direction of the air flow, see **FIGURE 2** "Velocity Pressure" (p.2). If the PT Pitot Tube is utilized for monitoring static pressure then only the HIGH side connections port ("H") would be used and rotated 90 degrees (see **FIGURE 2** "DUCT STATIC" (p.2)). Confirm that the tube is kept free of dirt and debris. A foam pad is adhered to mounting plate to seal the installation opening and to reduce vibrations.

The PT sensor requires a 7/8" (2.2cm) hole in the duct for mounting, and has a flange with gasket and two 3/16" (4.76mm) holes spaced 3.3" (8.38cm) center-to-center, see drill template **Figure 3**. The flange should then be tightly mounted to the duct using two sheet metal screws or rivets inserted in the mounting holes. The flow performance chart can be used to determine the flow based upon the measured differential pressure. See **Figure 4** (p.3).

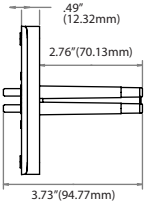
TABLE 1: DIMENSIONS

Model #	"L" Insertion Length	Recommended Duct Size	Number of Sensing Points
PT 3"	3" (7.6 cm)	4" - 6" (10.16cm - 15.24cm)	1
PT 5.2"	5.2" (13.2 cm)	6" - 8" (15.24cm - 20.32cm)	2
PT 7.5"	7.5" (19.0 cm)	8" - 10" (20.32cm - 25.4cm)	3
PT 9.7"	9.7" (24.6 cm)	10" - 18" (25.4cm - 45.72cm)	4

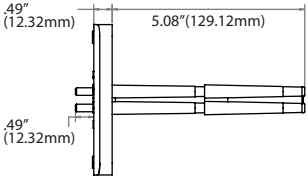
FIGURE1: DIMENSIONS



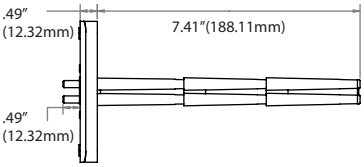
PT 3"



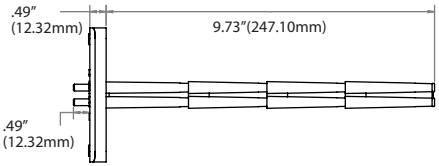
PT 5.2"



PT 7.5"



PT 9.7"



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CONNECTIONS

When connecting the tubing, be extremely careful that no sharp bends are made, this may cause leakage as the tubing ages and stretches. Using 1/4" (6.35 mm) OD poly tubing, connect the "H" port to a differential pressure gauge or transmitter "High" input port, and the "L" port to the gauge or transmitter's "Low" input port.

FIGURE 3: DRILL TEMPLATE

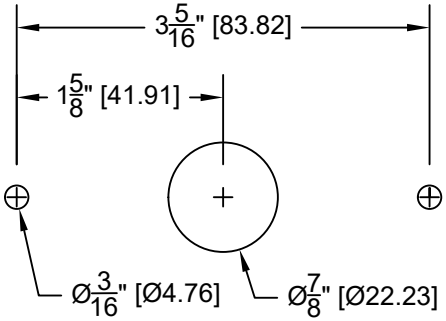
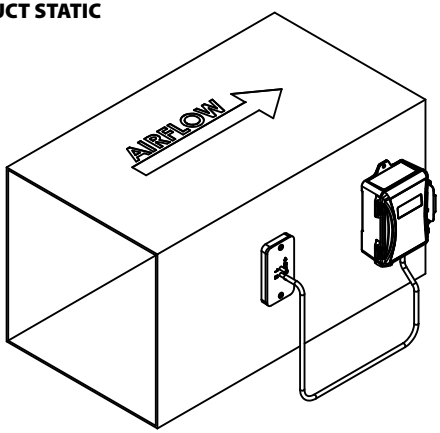
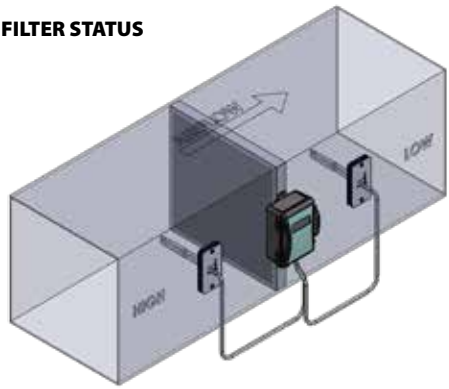


FIGURE 2: MOUNTING

DUCT STATIC



FILTER STATUS



VELOCITY PRESSURE

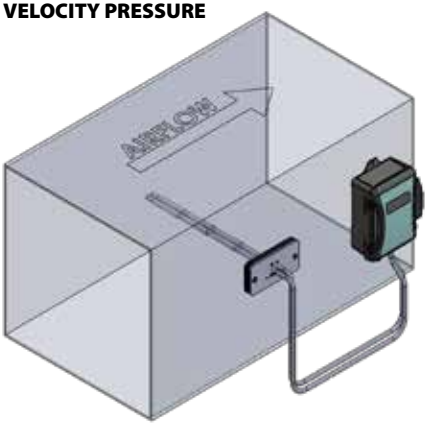


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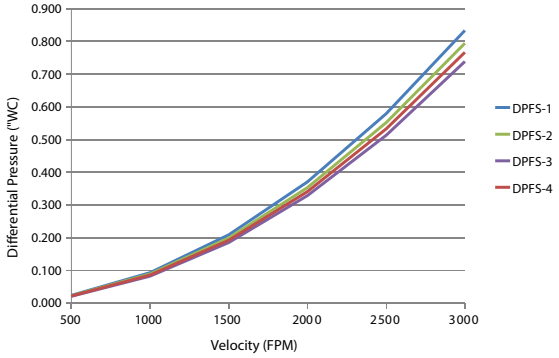
FIGURE 4: FLOW

FLOW PERFORMANCE



DPFS- 1	Velocity = 3285(√ΔP)
DPFS- 2	Velocity = 3365(√ΔP)
DPFS- 3	Velocity = 3490(√ΔP)
DPFS- 4	Velocity = 3425(√ΔP)

Notes: 1. Test data based on round duct sizes 6" (DPFS-1), 8" (DPFS-2), 10" (DPFS-3) and 12" (DPFS-4)
2. Flow coefficients were derived by averaging data for each sensor size.

FORMULAS

For rectangular ducts, KCFM = KFPM x (W" x H"/144)2
(with duct cross-section measurements in inches).

For round ducts, KCFM = KFPM x (πr2/144)2
(with duct cross-section measurements in inches).

For Flow		For Volume	
$\Delta P = (FPM/K_{FPM})^2$	$FPM = K_{FPM} \times SQRT(\Delta P)$	$\Delta P = \left(\frac{CFM}{K_{FPM} \times Area}\right)^2$	$CFM = K_{FPM} \times SQRT(\Delta P) \times Area$
Feet Per Minute in a VAV box equals the (relevant model's) K factor times the square root of the differential pressure (in "wc").		Cubic Feet per Minute in a VAV box equals the relevant sensor model's K factor times the square root of the differential pressure (in "wc") times the cross-section area (in square feet).	

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PRODUCT SPECIFICATIONS

NON-SPECIFIC INFORMATION	
Tubing Connections:	3/16" OD (4.8 mm) connection for ¼" (6.4 mm) OD Poly Tubing
Sensing (Insertion) Length | # Sensing Points:	**PT 3":** 3.0" (7.6 cm) | 1 Set **PT 5.2":** 5.2" (13.2 cm) | 2 Sets **PT 7.5":** 7.5" (19.1 cm) | 3 Sets **PT 9.7":** 9.7" (24.6 cm) | 4 Sets
Recommended Duct Size:	4" (10.2 cm) to 18" (45.7 cm)
Recommended Air Flow:	200 FPM (60.96 MPM) minimum to 3000 FPM (914.4 MPM) maximum
Operating Temperature Range:	40 to 120ºF (4 to 49ºC)
Storage Temperature Range:	-40 to 185ºF (-40 to 85ºC)
Operating Humidity Range:	0 to 90% RH non-condensing
Material Type:	ABS

WARRANTY

The Pitot Tube Series is covered by ACI's Five (5) Year Limited Warranty, which is located in the front of ACI'S SENSORS & TRANSMITTERS CATALOG or can be found on ACI's website: www.workaci.com.

W.E.E.E. DIRECTIVE

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with household waste. Do not burn.

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