



Description and Application

SSS-10xx models are designed to help sense differential pressure in the inlet section of VAV (Variable Air Volume) terminal units and fan terminal units. These airflow pickup tubes (also known as pitot tubes) are often used in conjunction with VAV controllers for individual zone control in HVAC systems. They can also be used to help sense differential pressure at other locations in the main or branch duct systems. The differential pressure read between the high “H” port and the low “L” port can be used to determine the airflow. Static pressure can also be measured using just one of the ports with the pickup tubes rotated 90°. (See [Sample Applications on page 4.](#))

For using SSS-10xx pickup tubes with CSC-3000 series, CSP-4000/5000 series, KMD-7000 series, and BAC-8000/9000 series controllers, see the Connections section of the [SSS-1000 Series Installation Guide](#) for details and accessories.

SSS-111x models are designed for mounting on the supply fan bell of an AHU, RTU, or UV to help sense supply airflow for a [KMC Airflow Measurement System](#). See the Airflow Measurement System documentation for details.

Models offer up to six pickup points and lengths of 80 to 252 millimeters (about 3 to 18 inches).

NOTE: For maximum measurement accuracy, install the longest pickup tubes that will fit in the duct.

Models

SSS-100x (black) have 1/4” connections for 3/8” OD polyethylene tubing

SSS-1002	One pickup point, 80 mm (about 3”) length tubes
SSS-1003	Two pickup points, 137 mm (about 5.5”) length tubes
SSS-1004	Three pickup points, 195 mm (about 8”) length tubes
SSS-1005	Four pickup points, 252 mm (about 10”) length tubes

SSS-101x (gray flanges, black tubes) have 3/16” fittings for 1/4” OD polyethylene tubing

SSS-1012	One pickup point, 80 mm (about 3”) length tubes
SSS-1013	Two pickup points, 137 mm (about 5.5”) length tubes
SSS-1014	Three pickup points, 195 mm (about 8”) length tubes
SSS-1015	Four pickup points, 252 mm (about 10”) length tubes

SSS-111x (black) have right-angled mounting feet and 3/16” fittings for 1/4” OD tubing

Single mounting foot:

SSS-1112	One pickup point, 80 mm (about 3”) length tubes
SSS-1113	Two pickup points, 137 mm (about 5.5”) length tubes
SSS-1114	Three pickup points, 195 mm (about 8”) length tubes

Dual mounting feet:

SSS-1115	Four pickup points, five sections*, 315 mm (about 13”) length
SSS-1116	Five pickup points, six sections*, 394 mm (about 15.5”) length
SSS-1117	Six pickup points, seven sections*, 457 mm (about 18”) length

*NOTE: The extra section connects the tubes to the second mounting foot.

Specifications

General

Material ABS/polycarbonate (UL94-5V)

Mounting Connection

SSS-100x	Integral flange with gasket, 1/4" (6.4 mm) fitting for 3/8" (9.5 mm) OD polyethylene tubing
SSS-101x	Integral flange with gasket, 3/16" (4.89-9 mm) fitting for 1/4" (6.4 mm) OD polyethylene tubing
SSS-111x	Integral right-angled mount(s) 3/16" (4.8 mm) fitting for 1/4" (6.4 mm) OD polyethylene tubing

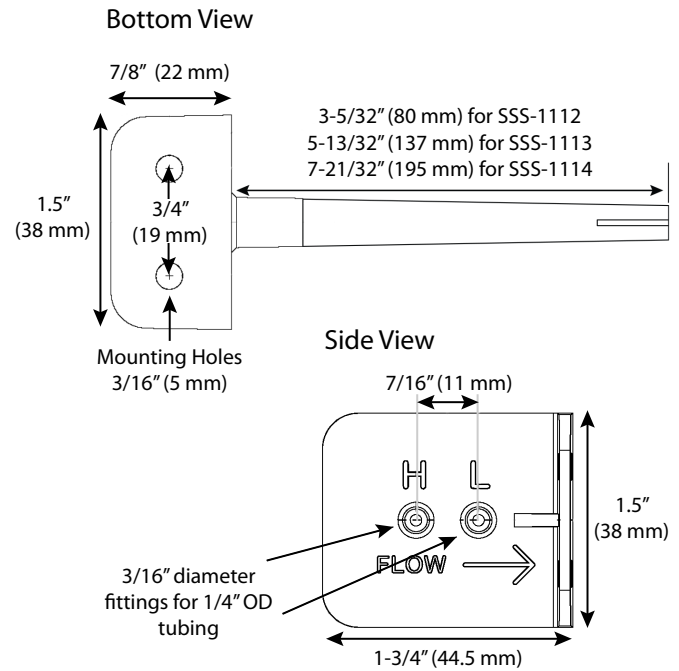
Weight 1 oz. (28 grams)

Temperature Limits

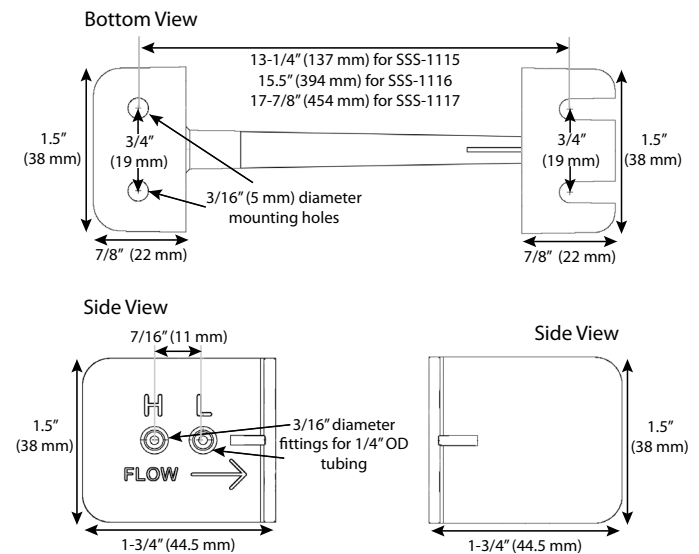
Operating	40 to 120° F (4 to 49° C)
Shipping	-40 to 140° F (-40 to 60° C)

Approvals RoHS compliant

SSS-1112/1113/1114 Models



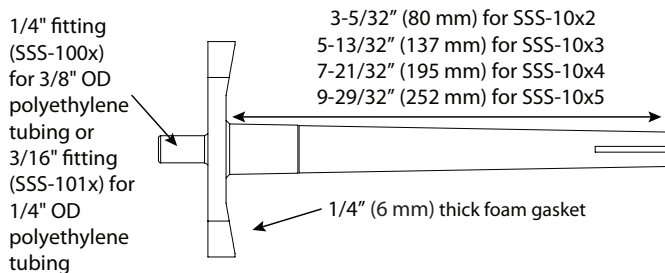
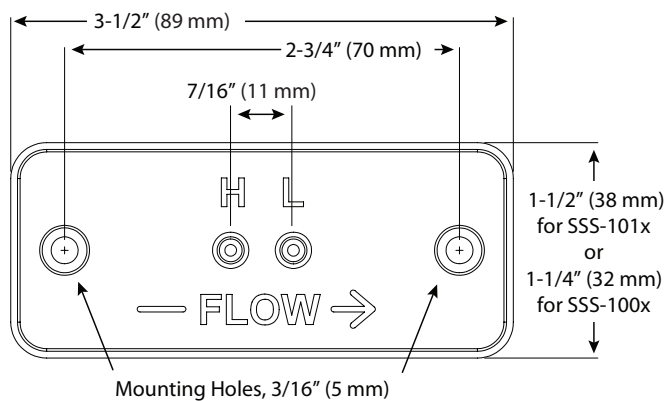
SSS-1115/1116/1117 Models



Dimensions and Details

All dimension are in inches (mm)

SSS-100x and SSS-101x Models



“Cubic Feet Per Minute” K Factors

NOTE: For the pickup tube “K” factor:

- For VAV controllers needing K_{CFM} for setup, see the formulas under “Cubic Feet Per Minute” K Factors on page 3.
- For VAV controllers needing K_{FPM} for setup, see the formulas “Feet Per Minute” K Factors on page 3.

See the controller’s documentation for details.

For Controllers Needing K_{CFM} for Setup				
Round Duct Size (Diameter)	K_{CFM} Factor (CFM)			
	SSS-10x2	SSS-10x3	SSS-10x4	SSS-10x5
4	301	NA	NA	NA
5	470	NA	NA	NA
6	677	648	NA	NA
7	922	882	NA	NA
8	1204	1152	1117	NA
9	1524	1458	1414	NA
10	1882	1800	1745	1745
12	2710	2592	2513	2513
14	3688	3528	3421	3421
16	4817	4608	4468	4468
18	6097	5832	5655	5655
22	9107	8711	8447	8447
24	10838	10367	10053	10053

For K_{FPM} see “Feet Per Minute” K Factors on page 3.

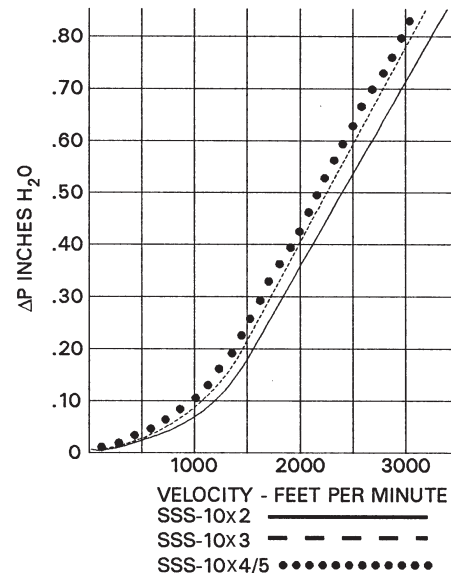
For **rectangular** ducts, $K_{CFM} = K_{FPM} \times (W \times H)/144$ (with duct cross-section measurements in inches).

For **round** ducts, $K_{CFM} = K_{FPM} \times (\pi r^2/144)$ (with duct cross-section measurements in inches).

NOTE: To conveniently determine the radius of an installed round duct, measure the circumference with a string and tape measure and calculate radius = circumference/ 2π . The K_{CFM} values for the most common (diameter) sizes of round ducts are listed above. (Diameter = $2r$.)

“Feet Per Minute” K Factors

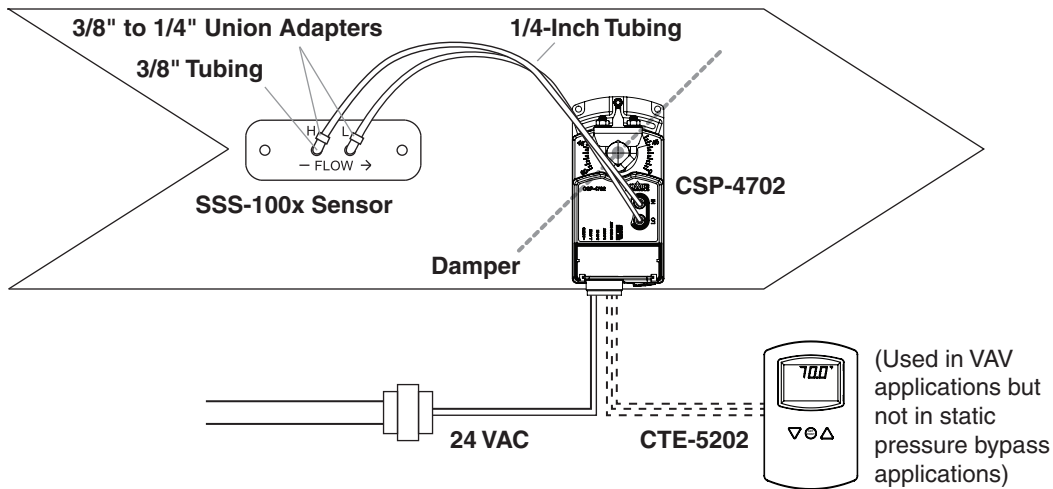
“Feet Per Minute” K Factors	
Pickup Tube Model	K_{FPM}
SSS-10x2	3450
SSS-10x3	3300
SSS-10x4	3200
SSS-10x5	3200



Formulas			
For Flow		For Volume	
$\Delta P = (FPM/K_{FPM})^2$	$FPM = K_{FPM} \times \text{SQRT}(\Delta P)$	$\Delta P = \left(\frac{CFM}{K_{FPM} \times \text{Area}} \right)^2$	$CFM = K_{FPM} \times \text{SQRT}(\Delta P) \times \text{Area}$
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 pickup tube model’s K factor times the square root of the differential pressure (in “wc”) times the cross-section area (in square feet).	
NOTE: These formulas are for VAV controllers with built-in “differential pressure” sensors. The CSP-5000, KMD-7000, and BAC-7000 measure velocity FPM directly—see their respective installation guides and application guides for more information.			
NOTE: CFM (cubic feet per minute) = FPM (feet per minute) times the duct cross-section area (in square feet).			

Sample Applications

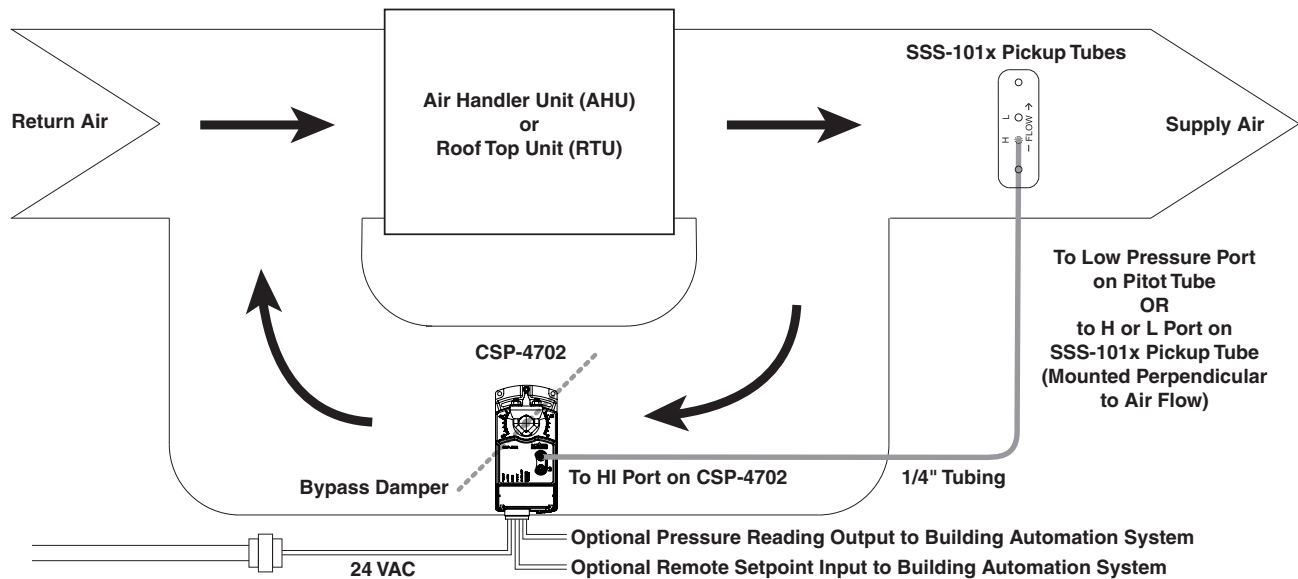
Differential Pressure Pickup Tubes for Pressure Independent VAV



For more information, see the [CTE-5202 Applications Guide](#).

NOTE: Adapters and 3/8" tubing not needed for SSS-101x pickup tubes.

Static Pressure Pickup Tubes for Static Pressure Bypass Control



For more information, see the [CSP-4702 Static Pressure \(Bypass\) Control Application Guide](#).

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