

### Description and Application

The KMC SSS-1000 sensors are designed to sense differential pressure in the inlet section of VAV (Variable Air Volume) terminal units and fan terminal units. They can also be used to 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 air flow. Static pressure can also be measured using just one of the ports rotated 90°. (See [Sample Applications on page 4.](#))

Models offer up to four sensing points and sensing lengths of 3-5/32 to 9-29/32 inches to accommodate box size diameters of 4 to 16 inches.

These sensors are typically used in conjunction with the CSC-1000/2000/3000 series, CSP-4000/5000 series, KMD-7000 series, and BAC-7000 series of VAV controllers for individual zone control in HVAC systems.

For using SSS-100x sensors with **CSC-3000** series, **CSP-4000/5000** series, **KMD-7000** series, and **BAC-7000** series controllers, use a 3/8" to 1/4" barb union adapter and appropriate polyethylene tubing to the sensor and controller. For maximum accuracy in the **CSP-5000** series, **KMD-7000** series, and **BAC-7000** series controllers, the 3/8" OD tubing between the sensor and the adapter should be as short as possible, and the 1/4" OD tubing from the adapter to the controller should be 24" long (on both the High and the Low sides). **OR** use the equivalent SSS-101x sensor.

#### To find the appropriate sensor “K” factor:

- For digital VAV controllers needing  $K_{CFM}$  for setup, see [“Cubic Feet Per Minute” K Factors on page 2.](#)
- For CSC-2000 series, CSC-3000 series, and CSP-4000 series controllers (needing  $K_{FPM}$  for setup), see [“Feet Per Minute” K Factors on page 3.](#)
- For CSP-5000, KMD-7000, and BAC-7000 series that operate differently—see their respective installation guides and application guides for more information.



### Models

**SSS-100x (light gray) models have 1/4" connections for 3/8" OD polyethylene tubing**

SSS-1002*	One sensing point, 3-5/32" (80 mm) length
SSS-1003	Two sensing points, 5-13/32" (137 mm) length
SSS-1004	Three sensing points, 7-21/32" (195 mm) length
SSS-1005	Four sensing points, 9-29/32" (252 mm) length

\*NOTE: **KIT-8001** includes an SSS-1002, two barb union adapters, two 1.5" lengths of 1/4" tubing, and two 36" lengths of 3/8" tubing.

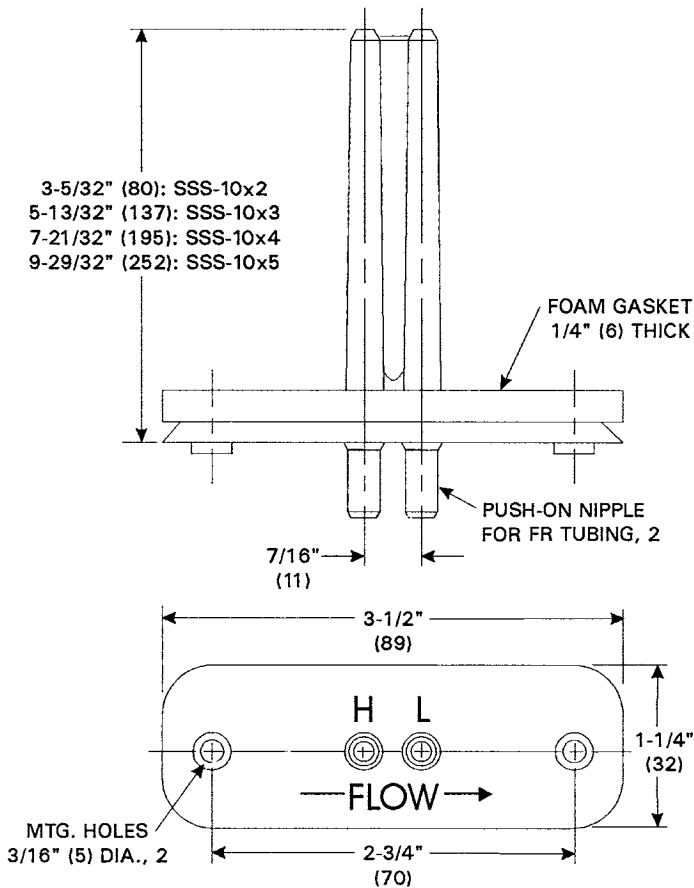
**SSS-101x (light almond) models have 3/16" connections for 1/4" OD polyethylene tubing**

SSS-1012	One sensing point, 3-5/32" (80 mm) length
SSS-1013	Two sensing points, 5-13/32" (137 mm) length
SSS-1014	Three sensing points, 7-21/32" (195 mm) length
SSS-1015	Four sensing points, 9-29/32" (252 mm) length

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

## Dimensions and Details

All dimension are in inches (mm)



## Specifications

### General

**Material** Light gray (SSS-100x) or almond (SSS-101x) ABS/polycarbonate (UL94-5V)

**Mounting** Integral flange with gasket

### Connection

SSS-100x 1/4" (6.4 mm) nipple for 3/8" (9.5 mm) OD polyethylene tubing

SSS-101x 3/16" (4.8 mm) nipple 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

## "Cubic Feet Per Minute" K Factors

**NOTE:** For the appropriate sensor "K" factor:

- For digital VAV controllers needing  $K_{CFM}$  for setup, see the formulas under "*Cubic Feet Per Minute*" K Factors on page 2.
- For CSC-2000 series, CSC-3000 series, and CSP-4000 series controllers (needing  $K_{FPM}$  for setup), see the formulas "*Feet Per Minute*" K Factors on page 3.
- For CSP-5000, KMD-7000, and BAC-7000 series that operate differently — see their respective installation guides and application guides for more information.

For  $K_{FPM}$  see "*Feet Per Minute*" K Factors on page 3.

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

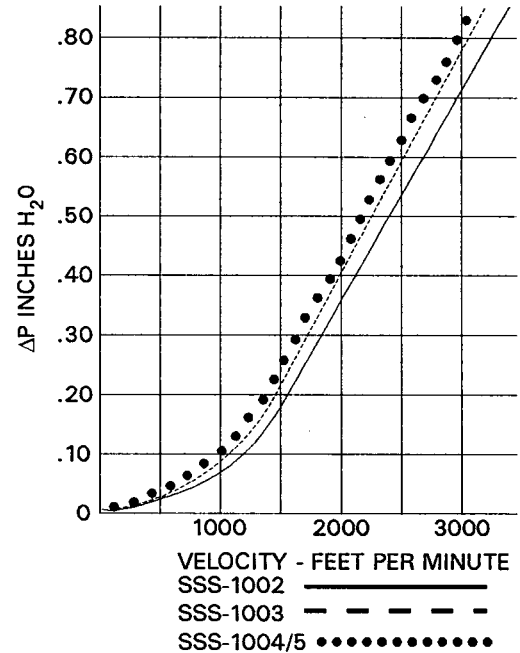
For **rectangular** ducts,  $K_{CFM} = K_{FPM} \times (W \times H / 144)^2$  (with duct cross-section measurements in inches).

For **round** ducts,  $K_{CFM} = K_{FPM} \times (\pi r^2 / 144)^2$  (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 /  $2\pi$ . The  $K_{CFM}$  values for the most common (diameter) sizes of round ducts are listed above. (Diameter =  $2r$ .)

## “Feet Per Minute” K Factors

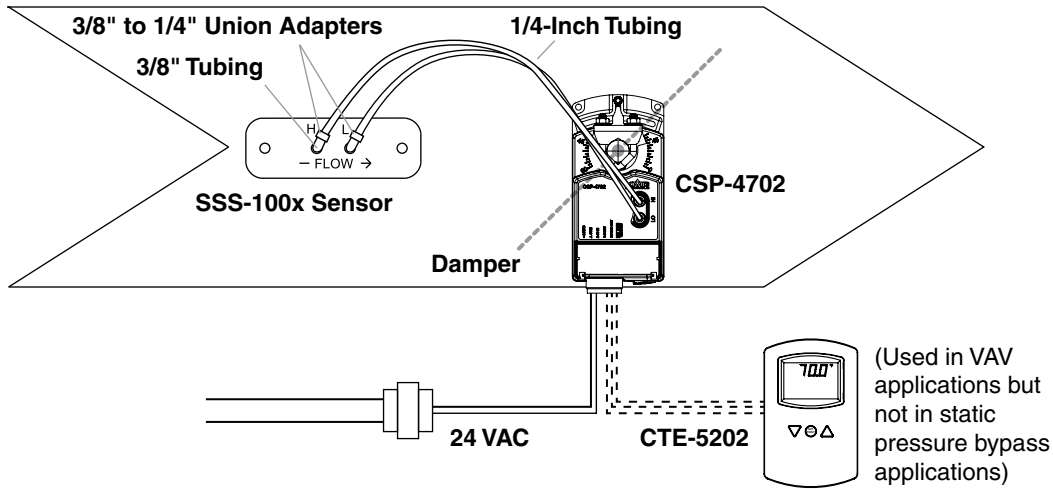
“Feet Per Minute” K Factors	
Sensor Model	K <sub>FPM</sub>
SSS-10x2	3450
SSS-10x3	3300
SSS-10x4	3200
SSS-10x5	3200



Formulas for CSC-2000, CSC-3000, and CSP-4000 Series			
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 sensor 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 CSC-2000 series, CSC-3000 series, and CSP-4000 series controllers with built-in "differential pressure" sensors. The CSP-5000, KMD-7000, and BAC-7000 operate differently—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

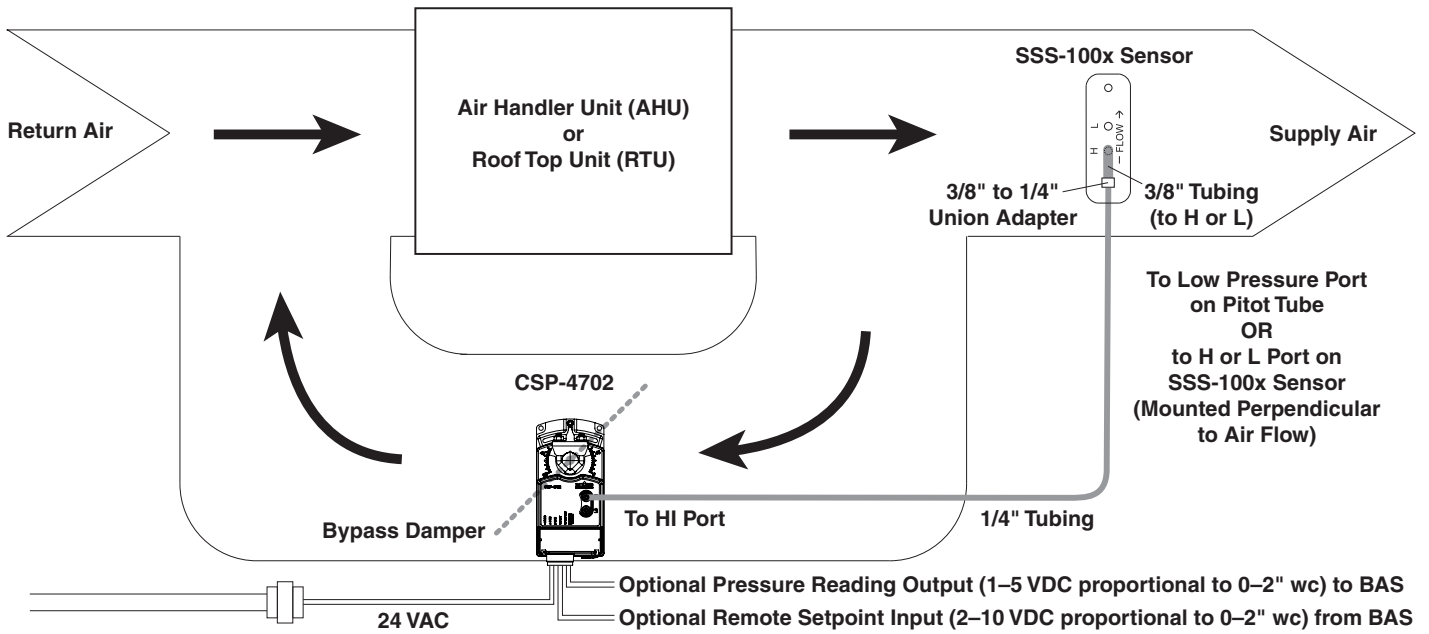
### Differential Pressure Sensor for Pressure Independent VAV



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

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

### Static Pressure Sensor for Static Pressure Bypass Control



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

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