



AV-ASTNN Series

Thermal Dispersion Probe Airflow Measuring System



Overview

The AV-ASTNN Thermal Dispersion Probe Airflow Measuring System Series averages velocity and temperature from up to four probes and sixteen sensing points in a duct or plenum, providing accurate, dependable airflow measurement from 40 to 4,000 Feet Per Minute (FPM) (12 to 1,219 Meters Per Minute [MPM]) within $\pm 2\%$ accuracy. At each sensing point, a microprocessor calculates flow and temperature, sending this information to an Integral Multiplexing Unit (IMU). The IMU collects data from each sensor circuit and sends a digital output to the control transmitter. The control transmitter provides air temperature and velocity information on an LCD screen and to a Building Automation System (BAS) through analog outputs (2 to 10 VDC or 4 to 20 mA).

Applications

- Uses thermal dispersion technology to measure the airflow in the most demanding applications.

Features & Benefits

- Airfoil-Shaped Aluminum Probes
- Digital Controller Display
- CAT5e Cable with RJ-45 Connectors
- Multiple Microprocessor-Based Circuits
- LCD Screen
- 4 to 20 mA or 2 to 10 VDC Analog Outputs
- Wind Gust Filter
- NIST Traceable Calibration

Accessories

AV-DMPR-KA001	Aluminium Damper Stand-off Mounting Brackets (2)
AV-DMPR-KA002	SS Damper Stand-off Mounting Brackets (2)

Model Selection

AV-ASTNN - www x hhh	
Width ¹	www = width of duct (sets the length of the probe)
Height ^{1,2}	hhh = height of duct (sets the number of probes)
Options ³	C= Clear/Anodized Finish I= Aluminum Internal Duct Mounting Brackets J= SS Internal Duct Mounting Brackets M= Aluminum Damper Stand-off Mounting Bracket N= NEMA 4 Electronic Controller Enclosure O= Shielded CAT5e communications cable, 25 ft (7.6 m) P= Shielded CAT5e communications cable, 30 ft (9.1 m) Q= Shielded CAT5e communications cable, 40 ft (12.2 m) R= Shielded CAT5e communications cable, 50 ft (15.2 m) S= SS Damper Stand-off Mounting Bracket V= Round or Oval Duct (provides additional closed cell foam material to form a seal around the duct)

Notes:

1. Specify width and height of duct, where: www = width of duct (sets the length of the probe) hhh = height of duct (sets the number of probes). The minimum diameter size is 8 inches. Round duct applications smaller than 12 inches use the same number of probes and sensors as the 12 inch size.
2. 8 x 8 inches is the minimum size for rectangular duct applications. Sizes less than 12 x 12 inches use the same number of probes and sensors as the 12 x 12 inches.
3. Enter options required (maximum 2).

- Selection Example 1: AV-ASTNN-020x020 is a thermal dispersion probe airflow measuring system with two standard (insertion-mounted) probes, shielded CAT5e communications cable (10 foot length), and one DMPR-RA002 controller.
- Selection Example 2: AV-ASTNN-020x020V is a thermal dispersion probe airflow measuring system with additional closed cell foam material to form a seal around the duct, two probes fitted with shielded CAT5e communications cable (10 foot length), and one DMPR-RA002 controller.
- Selection Example 3: AV-ASTNN-020x020I is a thermal dispersion probe airflow measuring system with two probes fitted with mounting hardware for inside-duct mounting, shielded CAT5e communications cable (10 foot length), and one DMPR-RA002 controller.
- Selection Example 4: AV-ASTNN-020x020N is a thermal dispersion probe airflow measuring system with two standard (insertion-mounted) probes with NEMA 4 enclosures on the multiplexer ends, shielded CAT5e communications cable (10 foot length), and one DMPR-RA002 controller.

Product Specifications

Environmental

Probe	Airfoil shaped 2 x 3/4 in. 6063T5 aluminum
Thermistor	Bead-in-glass type
Size Range	8 x 8 to 120 x 120 in.
Standard Insertion Brackets	0.080 in. (2.0 mm) aluminum on multiplexer side and 22 gauge galvanized steel on non-multiplexer side
Installed Airflow Accuracy	±2% of reading
Repeatability	±0.25%
Measurement Units	Inch-Pound (I.P.) or International System (S.I.)
Sensor Distribution	Equal Area
Calibrated Range	40 to 4,000 FPM (12 to 1,219 MPM)
Temperature Sensor Accuracy	±0.10° F
Sensor Temperature Range	-25 to 140°F (-32 to 60°C)
Humidity Range	0 to 99% RH, non-condensing
Maximum Number Sensors	16
Power Requirement	Dedicated 24 VAC transformer of appropriate VA rating is required.
Power Consumption	4 probes with 4 sensors: 65 VA; 3 probes with 4 sensors: 48 VA; 2 probes with 4 sensors: 35 VA; 1 probe with 4 sensors: 17 VA
Transmitter Chassis	0.080 Aluminum
Output Signals	4 to 20 mA standard, 2 to 10 VDC requires 499 ohm resistor across output terminals.
Output Signal Adjustments	Field adjustable offset/gain
Display	16 x 2 character LCD (airflow, temperature and diagnostics)
Velocity Requirements	Minimum 40 FPM (12 MPM) Maximum 4,000 FPM (1,219 MPM)
Pressure Drop	Four 48 in. (122 cm) long probes in 48 x 48 in. (122 x 122 cm) Duct: 0.1 in. w.g.
Approximate Weight	Controller: 2.9 lb (1.32 kg) Sensor: 1 lb (0.45 kg)

Note:

Measuring stations are tested at an AMCA Certified Laboratory using instrumentation and procedures in accordance with AMCA Standard No. 610-93.

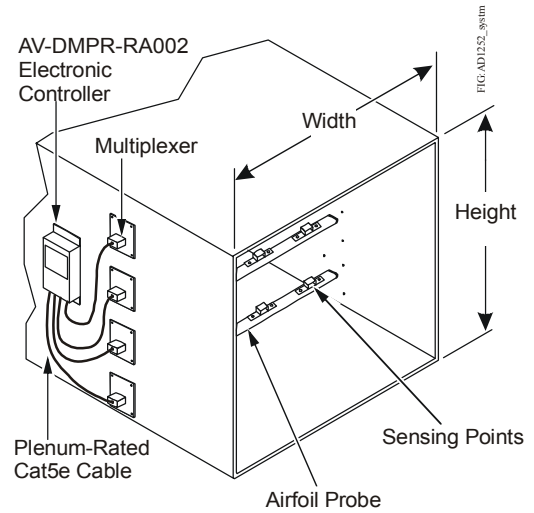
Dimensions

Duct Dimensions

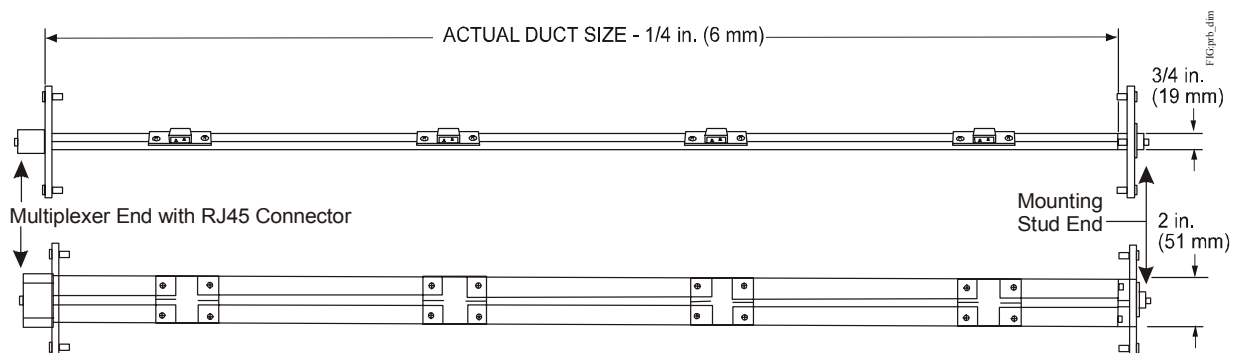
Size Limits	Width x Height, inches (mm) ¹
Minimum	8 x 8 (203 x 203)
Maximum	120 x 120 (3,048 x 3,048)

Note:

1. Actual size is 1/4-inch less than nominal.

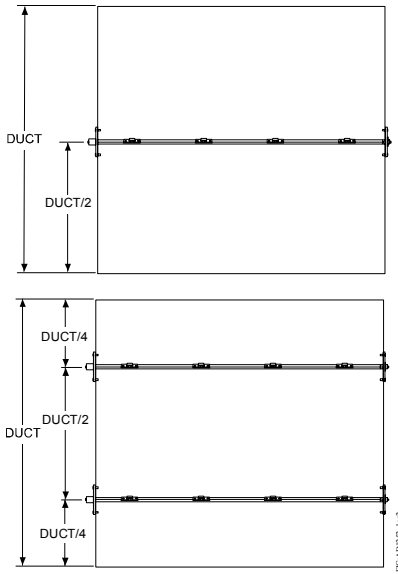


AV-ASTNN Series System (Installed View)

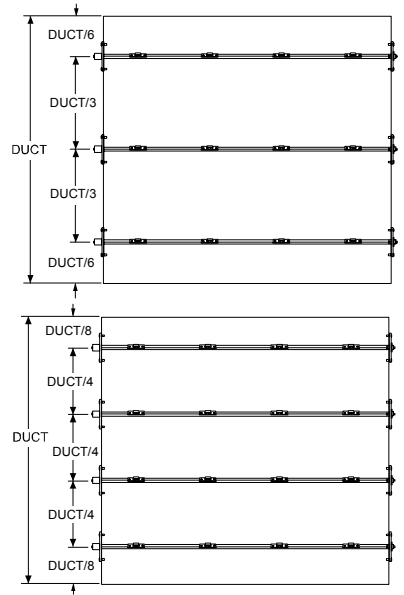


Thermal Dispersion Probe Dimensions, in. (mm)

Dimensions (Square Duct Mounting)



Rectangular Duct Mounting - One and Two Probe Configurations



Rectangular Duct Mounting - Three and Four Probe Configurations

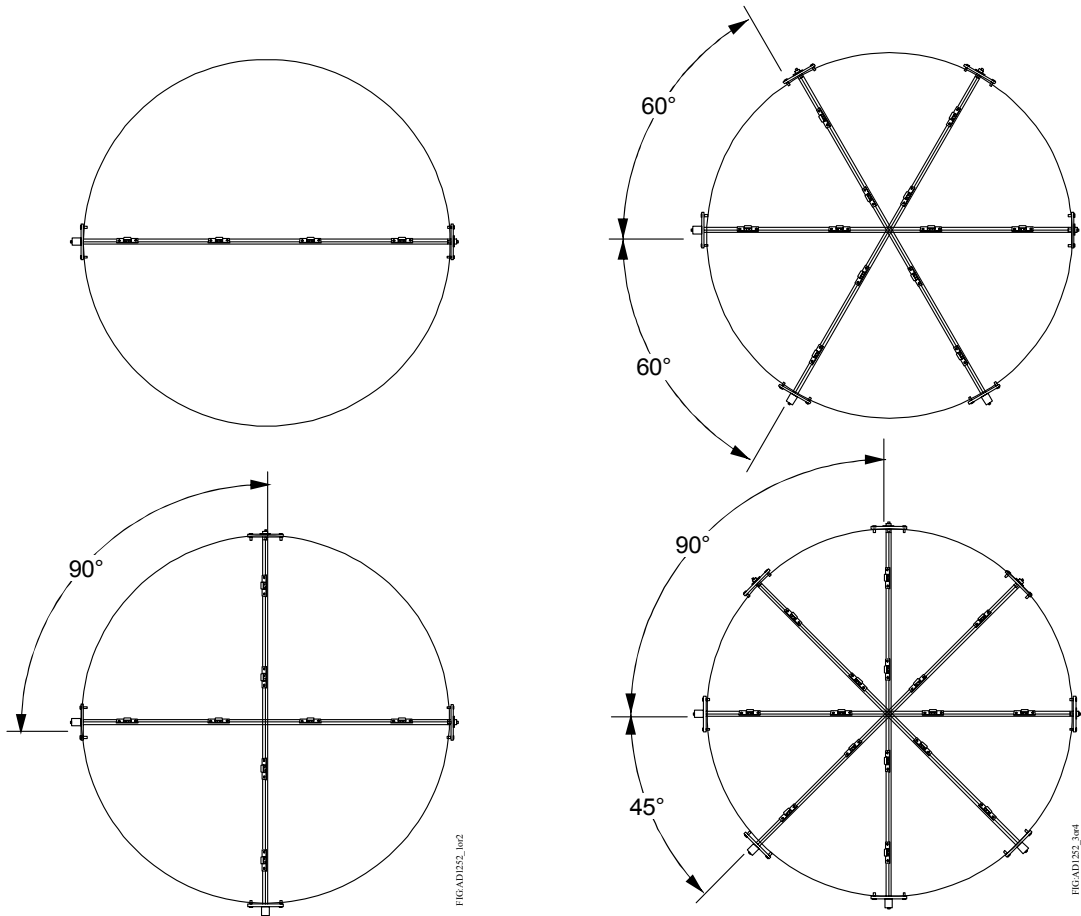
Rectangular Duct Applications - Number of Probes/Sensors per Probe¹

Duct Height, In.	Duct Width, in.									
	12	18	24	36	42	48	60	72	96	120
12	1/2	2/2	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
16	2/2	2/2	2/2	2/3	2/3	2/3	2/3	2/4	2/4	2/4
24	2/2	2/2	2/3	2/3	2/3	2/4	2/4	2/4	2/4	2/4
36	2/2	3/2	3/2	2/4	2/4	2/4	2/4	2/4	2/4	2/4
42	2/2	3/2	3/2	4/2	3/4	3/4	4/4	4/4	4/4	4/4
48	3/2	3/2	4/2	4/3	4/3	4/4	4/4	4/4	4/4	4/4
60	3/2	3/2	4/3	4/3	4/4	4/4	4/4	4/4	4/4	4/4
72	3/2	4/2	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
96	4/2	4/3	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
120	4/2	4/3	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4

Note:

- 8 x 8 inches is the minimum size for rectangular duct applications. Sizes less than 12 x 12 inches use the same number of probes and sensors as the 12 x 12 inches.

Dimensions (Round Duct Mounting)



Round Duct Mounting - One and Two Probe Configurations

Round Duct Mounting - Three and Four Probe Configurations

Rectangular Duct Applications - Number of Probes/Sensors per Probe¹

Duct Diameter, In.	No. of Probes/No. of Sensors per Probe
12	1/2
16	2/2
24	2/2
36	2/4
42	2/4
48	3/4
60	4/4
72	4/4
96	3/4
120	4/4

Note:

1. 8 in. diameter is the minimum size. Round duct applications smaller than 12 in. use the same number of probes and sensors as the 12 in. size.

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