

# AX-TE-AVF-x

Flexible Duct Averaging Temperature Sensor



ABS  
Enclosure



## Product Overview

The AX-TE-AVF-xx range of flexible duct averaging temperature sensors are designed to interface with a wide variety of HVAC control equipment. Units are available with a high quality thermistor element or with an active linear output. The units are available in four lengths of flexible cable incorporating flexible duct cable with several thermistor beads incorporated over the length of the cable

## Features

- IP65 Housing
- Large Range of Sensor Options
- Cross-axis Flow Tip for Maximum Accuracy
- 4 Lengths 1800,3600, 6000,7200 mm
- Flexible FT6 Plenum rated cable
- Housing is Flame Retardant ABS

## Product Specifications

### Output:

Passive: Range of 2 wire thermistor and 3 wire PTC platinum elements providing variable resistance.  
Active - Current: 4-20mA representing -20°C to 120°C (unless specified otherwise)  
Voltage; 0-10Vdc representing -20°C to 120°C (unless specified otherwise)

### Accuracy:

Thermistor: +/- 0.2°C between 0°C and 70°C  
Platinum/Nickel: +/- 0.35°C between 0°C and 100°C (PT100a , PT1000a and Nickel)  
Active: +/- 0.1% of range

### Materials:

Housing: VO Rated Flame Retardant ABS  
Cable: FT6 Plenum Rated (CSA)

**Ambient Temp:** -10°C to 70°C

### Dimensions:

Housing: 115 x 85 x 55mm  
Cable: 1800 , 3600, 6000 , or 7200mm

**Country of Origin:** Canada

## Order Codes

**AX-TE-AVF-xx-zzzz** - Flexible Duct Averaging Temperature Sensor.

**xx** Denotes sensor type, please see table below. (eg. AX-TE-AVF-T-1800)

**zzzz** denotes cable length in mm -1800, -3600 , - 6000 , 7200

<b>-T</b>	10K3A1 NTC Thermistor	<b>-100</b>	PT100a Platinum Element
<b>-A</b>	10K4A1 NTC Thermistor	<b>-1K</b>	PT1000a Platinum Element
<b>-H</b>	20K6A1 NTC Thermistor	<b>-N1K/TCR</b>	Ni1000a Nickel Element TCR curve
<b>-3K</b>	3K3A1 NTC Thermistor	<b>-TAC</b>	1K87A1 NTC Thermistor
<b>-SAT</b>	SAT1 NTC Thermistor	<b>-TXI</b>	Active 4-20mA Linear Output
		<b>-TVI</b>	Active 0-10V dc linear output

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**Installation**

The AX-TE-AVF-xx sensor should be installed by a suitably qualified technician in conjunction with any guidelines for the equipment which it is to be connected to. Field wiring should be installed to satisfy the requirements set out by the manufacturer of the equipment that the sensor is being connected to. As a general rule, screened cable should be used to connect the sensor to a BMS or other controller. Please note that none of the AX-TE-AVF sensors are suitable for use with mains voltage.

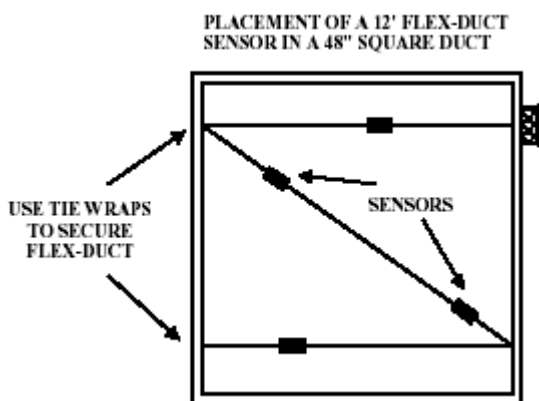
The flexible averaging sensors can be installed onto hangers in the duct using tube clamps or wire ties and should be located in a straight section of duct away from heating, cooling or humidifier elements. The flex duct sensor can be easily shaped to fit any duct size but observe a minimum bend radius of two inches to prevent damage to wires or sensors. Flex duct elements are not recommended for high humidity applications.

**Connection**

**Passive Sensors:**

Passive sensors are polarity independent. Wires should be stripped and screwed into the two way terminal block in the main body of the sensor housing. Do not over-tighten the terminal screws as excessive force can cause damage to the terminal block and housing.

If screened cable is used, the shortest possible section of outer sheath should be removed to effect wiring. As there is no earth connection in the sensor, the screen must be connected to a functional earth elsewhere (often provided at the BMS or HVAC controller) in accordance with the instructions for the equipment that the AX-TE-AVF is to be connected to.



**Wiring & Color codes**

All two-wire sensors are polarity insensitive. The three-wire sensors have the following color code: To connect a three-wire sensor as a two-wire, tie the EXCitation and SENSE lines together. All connections should be made using either buttspllices or soldering. The use of wire nuts is not recommended.

Connection Flex Duct Wire Color

- EXCitation RED
- SENSe GREEN
- NEGative BLACK

**Trend Sensor Scaling**

The following sensor scaling is for the AX-TE-AVF-T passive sensor. If using SET to configure the controller, the AX-TE-AVF-T has the same characteristics as a Trend Thermistor.

Prior to commissioning, ensure that the universal input jumper is set to T to accept a thermistor input.

If the sensor is being scaled manually the following information should be used for IQ2xx controllers with firmwire v2.1 and above and IQ3 series controllers. For scaling on older controllers, please refer to the engineering data in the Axio catalogue.

**Sensor Type Module Settings**

Set the sensor type scaling mode to 5 - characterise

Y=1	I1=2.641	O1=50
E=3	I2=3.47	O2=40
U=50	I3=4.46	O3=30
L=-5	I4=6.66	O4=10
P=6	I5=7.668	O5=0
	I6=8.102	O6=-5

**Typical wire resistance values**

GAUGE WIRE TYPE	18 AWG	22 AWG	24 AWG
STRANDED (OHMS/FOOT)	5.85 mΩ	14.75 mΩ	23.29 mΩ
SOLID (OHMS/)	6.4 mΩ	15.85 mΩ	25.72 mΩ