



# COPPER AVERAGING

## Bendable Multipoint Copper, Thermistor

The ACI Thermistor Copper Averaging Series features a copper sensing element with AWG Etched Teflon colored lead wires to differentiate the different sensor types. Each sensor is manufactured with 4 or 9 sensing points determined by the length of the sensing element. The averaging sensors provide a better average temperature of the air inside the duct when compared to a single point duct sensor. Each of the elements is sealed to prevent moisture intrusion and includes a foam pad to seal the duct and dampen vibrations. The benefits of using a copper sensing element is that it has improved thermal conductivity and higher corrosion resistance than similar aluminum style averaging sensors. Additionally, copper has been proven to have an antibacterial effect to many of the airborne contaminants, mold and bacteria found in duct systems. Our standard enclosures include the galvanized “-GD” or plastic duct enclosure with hinged cover “-PB”. Each unit includes nylon wire ties and mounts with

optional copper capillary and universal plastic mounting clips, NEMA/IP Rated Weather Proof enclosures and NIST certificates as referenced on the back of the product data sheet.

**Applications:** Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

**The ACI Thermistor Copper Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, [www.workaci.com](http://www.workaci.com).**

### PRODUCT SPECIFICATIONS

<b>Sensor Type   Sensor Curve:</b>	Thermistor   Non-Linear, NTC (Negative Temperature Coefficient)
<b>Number Sensing Points   Number Wires:</b>	<b>8' and 12' Lengths:</b> Four   <b>24' and 50' Lengths:</b> Nine   Two (Non-Polarity Sensitive)
<b>Sensor Series Output @ 25°C (77°F)</b>	<b>A/1.8K:</b> 1.8KΩ nominal   (Red/Yellow) <b>A/10KS:</b> 10KΩ nominal   (White/Blue)
<b>(Lead Wire Colors):</b>	<b>A/3K:</b> 3KΩ nominal   (White/Brown) <b>A/10K-E1:</b> 10KΩ nominal   (Orange/Gray)
	<b>A/AN (Type III):</b> 10KΩ nominal   (White/White) <b>A/20K:</b> 20KΩ nominal   (Brown/Blue)
	<b>A/AN-BC:</b> 5.238KΩ nominal   (White/Yellow) <b>A/50K:</b> 50KΩ nominal   (Brown/Yellow)
	<b>A/CP (Type II):</b> 10KΩ nominal   (White/Green) <b>A/100KS:</b> 100KΩ nominal   (Black/Yellow)
	<b>A/CSI:</b> 10KΩ nominal   (Green/Yellow)
<b>Accuracy 0-70°C (32-158°F):</b>	<b>8' &amp; 12' Lengths:</b> +/-0.20°C (+/-0.36°F); <b>A/1.8K:</b> +/-1.00°C (+/-1.80°F); <b>A/10KS:</b> +/-0.60°C (+/-1.10°F)
	<b>24' &amp; 50' Lengths:</b> +/-0.20°C (+/-0.36°F); <b>A/1.8K:</b> +/-1.00°C (+/-1.80°F); <b>A/10KS:</b> +/-0.60°C (+/-1.10°F)
<b>Stability:</b>	Sensor Dependent; Contact ACI for more information on specific sensor
<b>Response Time (63% Step Change):</b>	15 Seconds nominal
<b>Power Dissipation Constant:</b>	<b>8' and 12' Lengths:</b> 4 mW/°C except <b>A/1.8K Series</b> = 2 mW/°C   <b>A/100KS Series:</b> 6 mW/°C
	<b>24' &amp; 50' Lengths:</b> 6 mW/°C except <b>A/1.8K Series</b> = 3 mW/°C   <b>A/100KS Series:</b> 9 mW/°C
<b>Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings):</b>	<b>“-GD” Enclosure:</b> Galvanized Steel, -40 to 115°C (-40 to 239°F), NEMA 1 (IP10)
	<b>“-PB” Enclosure:</b> ABS Plastic, -30 to 90°C (-22 to 194°F), UL94-HB, Plenum Rated
	<b>“-BB” Enclosure:</b> Aluminum, -40 to 115°C (-40 to 239°F), NEMA 3R (IP 14);
	<b>“-4X” Enclosure:</b> Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66)
<b>Storage Temperature Range:</b>	-40 to 85°C (-40 to 185°F)
<b>Sensor Operation Temperature Range:</b>	-40 to 302°F (-40 to 150°C)
<b>Operating Humidity Range:</b>	10 to 95% RH, non-condensing
<b>Sensor Material   Sensor Diameter:</b>	Copper   0.210" (5.34 mm) nominal
<b>Fitting Material   Flammability Rating:</b>	Polyamide 66 (High Performance Nylon)   UL94-HB
<b>Foam Pad Material/Flammability Ratings:</b>	Neoprene/EPDM/SBR Polymer   UL94-HBF; FMVSS-302; MIL-R-6130C
<b>Lead Length   Conductor Size:</b>	12" (30.5 cm)   26 AWG (0.40 mm)
<b>Lead Wire Insulation   Wire Ratings:</b>	Etched Teflon (PTFE) Colored Leads   MIL-W-16878/4 (Type E)
<b>Conductor Material:</b>	Silver Plated Copper
<b>Product Dimensions   Product Weight:</b>	See table on back of Product Data sheet
<b>Agency Approvals:</b>	RoHS2, WEEE

# TEMPERATURE | THERMISTORS | COPPER AVERAGING

## DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type | yy = Insertion Length

### Plastic Box Enclosure [PB]

### Plastic Box Enclosure [PB] Weights

ACI Model #	8' (Probe Length)	12' (Probe Length)
A/xx-A-yy-PB	0.72 lbs. (0.327 kg)	0.96 lbs. (0.435 kg)

ACI Model #	24' (Probe Length)	50' (Probe Length)
A/xx-A-yy-PB	1.70 lbs. (0.771 kg)	3.28 lbs. (1.488 kg)

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### Galvanized Enclosure [GD]

### Galvanized Enclosure [GD] Weights

ACI Model #	8' (Probe Length)	12' (Probe Length)
A/xx-A-yy-GD	1.16 lbs. (0.526 kg)	1.40 lbs. (0.635 kg)

ACI Model #	24' (Probe Length)	50' (Probe Length)
A/xx-A-yy-GD	2.20 lbs. (0.998 kg)	3.78 lbs. (1.715 kg)

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### Bell Box Enclosure [BB]

### Bell Box Enclosure [BB] Weights

ACI Model #	8' (Probe Length)	12' (Probe Length)
A/xx-A-yy-BB	1.22 lbs. (0.553 kg)	1.44 lbs. (0.653 kg)

ACI Model #	24' (Probe Length)	50' (Probe Length)
A/xx-A-yy-BB	2.18 lbs. (0.988 kg)	3.74 lbs. (1.696 kg)

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### NEMA 4X Enclosure [4X]

### NEMA 4X Enclosure [4X] Weights

ACI Model #	8' (Probe Length)	12' (Probe Length)
A/xx-A-yy-4X	0.84 lbs. (0.381 kg)	1.06 lbs. (0.481 kg)

ACI Model #	24' (Probe Length)	50' (Probe Length)
A/xx-A-yy-4X	1.80 lbs. (0.816 kg)	3.36 lbs. (1.696 kg)

Standard Views
Product Weights

## CUSTOM ORDERING

Model # Example:		A/	1.8K	A	12'	GD	NIST	MODEL#
		A.	B.	C.	D.	E.	F.	
<b>A. Sensor Series</b> No Selection Required	A/	→						A/
<b>B. Model Series</b> Select One (1)	1.8K   3K   AN   AN-BC   CP   CSI   10KS   10K-E1   20K   50K   100KS							
<b>C. Configuration</b> No Selection Required	A = Bendable Copper Averaging	→						A
<b>D. Probe Length</b> Select One (1)	8' = 8' Sensor   12' = 12' Sensor   24' = 24' Sensor   50' = 50' Sensor							
<b>E. Enclosure</b> Select One (1)	GD = Galvanized   PB = Plastic   BB = Aluminum, NEMA 3R   4X = NEMA 4X							
<b>F. NIST</b> Select One (1)	---- = No NIST Certificate   NIST = NIST Certificate (3 Points)							

## ACCESSORIES ORDERING

Model # Example:		A/CAPILLARY CLIP QTY1	-OR-	130525
Model #	Item #	Description		
A/CAPILLARY CLIP QTY: 1	130525	Capillary Mounting Clip, Copper, Quantity: 1		
UNIVERSAL CLIP 50	145430	Capillary Mounting Clip, Plastic, Quantity: 50/Bag		
UNIVERSAL CLIP 6	145421	Universal Mounting Clip, Plastic, Quantity: 6/Bag		