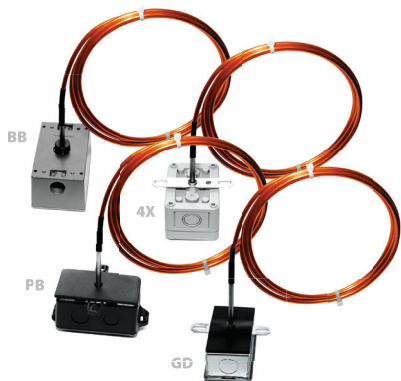**Automation Components, Inc.**

COPPER AVERAGING
Bendable Copper, Nickel RTD

The ACI Nickel Copper Averaging Series features a bendable copper sensing element with two colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured with multiple sensing points determined by the length of the sensing element. Averaging sensors provide a more accurate average temperature of the air inside large ducts when compared to that of a single point sensor. Each of the elements is hermetically sealed to prevent moisture intrusion and includes an integrated foam pad to seal the duct and dampen vibrations. The benefits of copper sensing elements are that they have improved thermal conductivity and higher corrosion resistance when compared to similar aluminum style sensors. Copper has also been proven to provide an additional antibacterial effect to many of the airborne contaminants, molds and bacteria found in duct systems. Sensor lengths should be selected based upon the dimensional area of your duct. ACI's standard enclosures include the "-GD" Galvanized or "-PB" plastic box with hinged cover. Each unit includes nylon wire ties and mounts for mounting. Optional copper capillary and universal mounting clips, NEMA/IP rated weather proof enclosures and NIST Certificates are also available.

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

The ACI Nickel 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 web site, workaci.com.

PRODUCT SPECIFICATIONS

**Sensor Type	Sensor Curve:**	Nickel RTD **|** PTC (Positive Temperature Coefficient)
Number Sensing Points:	**8' & 12' Lengths:** Four **|** **24' Length:** Nine
Number Wires:	Two (Non-Polarity Sensitive)
**Sensor Output @ 21.1°C (70°F)	Lead Wire Colors:**	1000 Ohms nominal **|** Red/Red
Sensor Accuracy:	**8' & 12' Lengths:** +/- 0.31°C (+/- 0.56°F) @ 21.1°C (70°F) ; +/- 0.71°C (+/- 1.28°F) @ 54.4°C (130°F) — **24' Lengths:** +/- 0.41°C (+/- 0.74°F) @ 21.1°C (70°F) ; +/- 0.87°C (+/- 1.56°F) @ 54.4°C (130°F)
**Din Standard	Temperature Coefficient (0-100°C):**	Din 43760 **|** 6370 ppm/°C
Sensor Stability:	+/- 0.05% after 1000 Hours @ 150°C (302°F)
**Self-Heating	Maximum Operating Current:**	0.3°C/mW (Still Air) **|** 5 mA
Response Time (63% Step Change):	8 Seconds nominal
Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings):	**"-GD" Enclosure:** Galvanized Steel, -40°C to 115°C (-40°F to 239°F), NEMA 1 (IP10) ; **"-PB" Enclosure:** ABS Plastic, -30°C to 90°C (-22°F to 194°F), UL94-HB, Plenum Rated ; **"-BB" Enclosure:** Aluminum, -40°C to 115°C (-40°F to 239°F), NEMA 3R ; **"-4X" Enclosure:** Polystyrene Plastic, -40°C to 70°C (-40°F to 158°F), UL94-V2, NEMA 4X (IP 66)
Storage Temperature Range:	-40 to 85°C (-40 to 185°F)
Sensor Operating Temperature Range:	-40 to 250°F (-40 to 121°C)
Operating Humidity Range:	10 to 95% RH, non-condensing
**Sensing Element Material	Element Diameter:**	Copper **|** 0.210" (5.34mm) nominal
**Fitting Material	Flammability Rating:**	Polyamide 66 (High Performance Nylon) **|** UL94-HB
**Foam Pad Material	Flammability Ratings:**	Neoprene/EPDM/SBR Polymer **|** UL94-HBF; FMVSS-302; MIL-R-6130C
**Lead Length	Conductor Size:**	12" (30.5cm) **|** 22 AWG (0.65mm)
**Lead Wire Insulation	Wire Ratings:**	Etched Teflon (PTFE) Colored Leads **|** MIL-W-16878/4 (Type E)
Conductor Material:	Silver Plated Copper
**Product Dimensions	Product Weight:**	See table on back of Product Data sheet
Agency Approvals:	RoHS2, WEEE

DIMENSIONAL DRAWING, WEIGHTS

Plastic Box Enclosure [PB]

3.60" (91.44mm)
2.25" (57.15mm)
4.79" (121.55mm)
2.23" (56.63mm)
Averaging Available in 8', 12' & 24' Lengths

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)	
A/xx-A-yy-PB	1.70 LBS. (0.771 KG)	

Galvanized Enclosure [GD]

4.20" (106.68mm)
3.88" (98.60mm)
2.33" (59.06mm)
1.70" (43.22mm)
Averaging Available in 8', 12' & 24' Lengths

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)	
A/xx-A-yy-GD	2.20 LBS. (0.998 KG)	

Bell Box Enclosure [BB]

4.70" (119.50mm)
2.95" (75mm)
2.34" (59.38mm)
Averaging Available in 8', 12' & 24' Lengths

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)	
A/xx-A-yy-BB	2.18 LBS. (0.988 KG)	

NEMA 4X Enclosure [4X]

3.88" (98.60mm)
3.70" (93.98mm)
2.55" (64.77mm)
2.30" (58.33mm)
Averaging Available in 8', 12' & 24' Lengths

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)	
A/xx-A-yy-4X	1.80 LBS. (0.816 KG)	

Standard View	Product Weights

xx = Sensor Type | **yy** = Insertion Length

CUSTOM ORDERING

Model # Example: A/ 1K-NI A 24' GD NIST
A. B. C. D. E. F.

		MODEL #
A. Sensor Series No Selection Required	A/ →	A/
B. Model Series No Selection Required	1K-NI →	1K-NI
C. Configuration No Selection Required	A = Bendable Copper Averaging →	A
D. Probe Length Select One (1)	8' = 8' Sensor	12' = 12' Sensor	24' = 24' Sensor	
E. Enclosure Select One (1)	GD = Galvanized	PB = Plastic	BB = Aluminum, NEMA 3R	4X = NEMA 4X	
F. NIST[3] Select One (1)	---- = No NIST Certificate	NIST = NIST Certificate (3 Points)	

ACCESSORIES ORDERING

Model # Example: A/CAPILLARY CLIP QTY:1 -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