ROOM SERIES
Installation & Operation Instructions
PCB: SENSOR 2

PRECAUTIONS
• **DO NOT RUN THE WIRING IN ANY CONDUIT WITH LINE VOLTAGE (24/120/230 VAC).**

MOUNTING INSTRUCTIONS
Separate the cover from the base. Attach the base directly to the wall or to a standard 2" x 4" junction box using the (2) #6-32 x 1" screws provided.

Take care when mounting. Check local code for mounting height requirements. Typical mounting heights are 48-60" (1.2-1.5 m) off the ground and at least 1.5' (0.5 m) from the adjacent wall. The sensor should be mounted in an area where air circulation is well mixed and not blocked by obstructions.
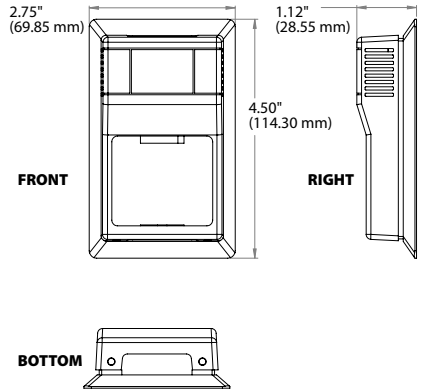***Reference FIGURE 2 (next page)**

For optimal temperature measurement, follow these tips:
• Do not install on external walls.
• Avoid air registers, diffusers, vents, and windows.
• Avoid confined areas such as shelves, closed cabinets, closets, and behind curtains.
• Eliminate and seal all wall and conduit penetrations. Air migration from wall cavities may alter temperature readings.
• A thermally-insulated backing should be used when fitting to solid walls (concrete, steel, etc.). ACI part: A/ROOM-FOAM-PAD
  *Reference FIGURE 3 (next page)
• Do not install near heat sources, eg: lamps, radiators, direct sunlight, copiers, chimney walls, walls concealing hot-water pipes.
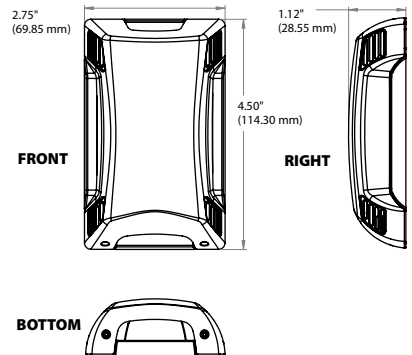
Refer to the wiring instructions (p. 2) to make necessary connections. After wiring, attach the cover to the base by snapping the top of the cover on first and then the bottom. Tighten the cover down, using the (2) 1/16" Allen screws located in the bottom of the housing. A 1/16" Hex driver is needed to secure the cover to the base.

FIGURE 1: ROOM DIMENSIONS

ROOM, VERSION 1
[R]

2.75"
(69.85 mm)

1.12"
(28.55 mm)

4.50"
(114.30 mm)

FRONT

RIGHT

BOTTOM

ROOM, VERSION 2
[R2]

2.75"
(69.85 mm)

1.12"
(28.55 mm)

4.50"
(114.30 mm)

FRONT

RIGHT

BOTTOM

WIRING INSTRUCTIONS

ACI recommends 16 to 26 AWG twisted pair wires or shielded cable for all sensors. Signal wiring must be run separate from low and high voltage wires (24/120/230 VAC). All ACI thermistors and RTD temperature sensors are both non-polarity and non-position sensitive. All 592's and 592-10K's are polarity sensitive. All thermistor type room units are supplied with a two-pole terminal block and all RTD's can be supplied with either a two or three-pole terminal block. All 592's are supplied with a two-pole terminal block and all 592-10K's are supplied with a three-pole terminal block. The number of wires needed depends on the application. All wiring must comply with all local and National Electric Codes.

FIGURE 2: MOUNTING
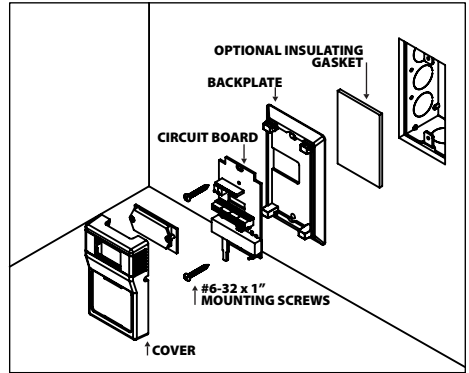
Note: When using a shielded cable, be sure to connect only (1) end of the shield to ground at the controller. Connecting both ends of the shield to ground may cause a ground loop. When removing the shield from the sensor end, make sure to properly trim the shield to prevent any chance of shorting.

FIGURE 3: SENSOR 2 PCBs

2-Wire

3-Wire (592, RTDs)
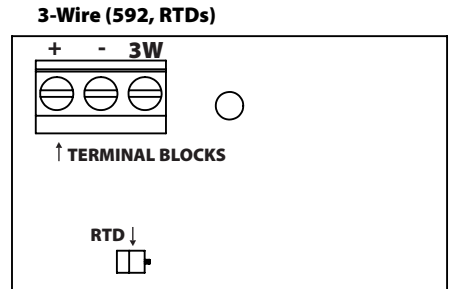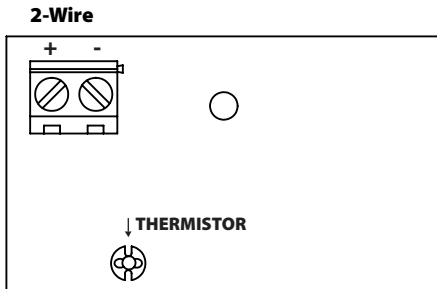
TABLE 1: THERMISTOR/RTD SENSOR CONNECTIONS

TERMINAL BLOCKS	CONNECTIONS
+	Temperature sensor signal to controller analog input
-	Temperature sensor signal common to controller analog input
3W	Temperature sensor signal common to controller *(RTD 3W Only)* analog input

TABLE 2: 592 SENSOR CONNECTIONS

TERMINAL CONNECTIONS BLOCK	
+	+15 VDC Input
-	Sensor Output signal(uA) to controller analog input

TABLE 3: 592-10K SENSOR CONNECTIONS

TERMINAL BLOCKS	CONNECTIONS
+	+15 VDC Input
-	Sensor Output signal(VDC) to controller analog input
3W	Power Supply Common/Ground

TROUBLESHOOTING

PROBLEM	SOLUTION(S)
Sensor reading is incorrect	• Verify sensor wiring to controller is not damaged and has continuity. • Verify sensor or wires are not shorted together. • Verify controller is setup for correct sensor curve. • Disconnect wires from sensor terminal block, tighten terminal block screws down, and take a resistance (ohm) reading with a multimeter. • Compare the resistance reading to the Temperature Vs Resistance Curves online: *http://www.workaci.com/content/thermistor-curves-0* • Verify proper mounting location to confirm no external factors are affecting reading.
Sensor reads infinity/very high resistance	• Sensor or wires are open.
Sensor reads low resistance	• Sensor or wires are shorted together.
Erratic readings	• Condensation on PCB board • Bad wire connections.

W.E.E.E. DIRECTIVE

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with household waste. Do not burn.

WARRANTY

The ACI Room Series temperature sensors are covered by ACI's Five (5) Year Limited Warranty, which is located in the front of ACI'S SENSORS & TRANSMITTERS CATALOG or can be found on ACI's website: www.workaci.com.

PRODUCT SPECIFICATIONS

SENSOR NON-SPECIFIC INFORMATION	
Number Temperature Sensing Points:	One
Housing Screw Size / Drive Size:	1/16" Allen screws (2 qty) / 1/16" Hex Driver
Override Option:	Short Thermistor (Default); Field (Jumper) Selectable "Dry Contact" Closure (Separate Input);
Operating | Storage Temperature Range:	1.5 to 50 °C (35 to 122 °F) | -40 to 65 °C (-40 to 149 °F)
Operating Humidity Range:	10 to 95% RH, non-condensing
Connections / Wire Size:	Screw Terminal Blocks (Non-Polarity Sensitive) 16 (1.31 mm^2) to 26 AWG (0.129 mm^2)
Terminal Block Torque Rating:	0.5 Nm (Minimum); 0.6 Nm (Maximum)
Enclosure Material | Color:	**"R2" Enclosure:** ABS Plastic | White, UL94-HB **"R" Enclosure:** ABS Plastic | Beige UL94-HB

THERMISTOR		
Sensor Output @ 25 °C (77 °F):	**A/1.8K:** 1.8 KΩ nominal **A/3K:** 3 KΩ nominal **A/AN (Type III):** 10 KΩ nominal **A/AN-BC:** 5.238 KΩ nominal **A/CP (Type II):** 10 KΩ nominal	**A/CSI:** 10 KΩ nominal **A/10KS:** 10 KΩ nominal **A/10K-E1:** 10 KΩ nominal **A/20K:** 20 KΩ nominal **A/100KS:** 100 KΩ nominal
Accuracy @ 0-70 °C (32 - 158 °F):	**A/1.8K Series:** +/- 0.5 °C @ 25 °C (77 °F) and (+/-1.0 °C) (+/-1.8 °F)	**A/10K-E1 Series:** +/- 0.3 °C (+/- 0.54 °F) **All Else:** +/- 0.2 °C (+/- 0.36 °F)

PLATINUM		
Sensor Output @ 0 °C (32 °F):	**A/100:** 100 Ω nominal	**A/1K:** 1 KΩ nominal
Accuracy:	+/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15 °C + (0.002 * |t|)) where |t| is the absolute value of Temperature above or below 0 °C in °C)	
	@ 0 °C (32 °F): +/- 0.15 °C (+/- 0.27 °F)	**@ 50 °C (122 °F):** +/- 0.25 °C (+/- 0.45 °F)

BALCO	
Sensor Output @ 21.1 °C (70 °F):	1 KΩ nominal
Accuracy:	**@ 21.1 °C (70 °F):** +/- 1%

NICKEL		
Sensor Output @ 21.1 °C (70 °F):	1 KΩ nominal **@ 0 °C (32 °F):** +/- 0.4 °C (+/- 0.72 °F)	**@ 54.4 °C (130 °F):** +/- 0.56 °C (+/- 1.00°F)
Accuracy:	**@ 21.1 °C (70 °F):** +/- 0.17 °C (+/- 0.34 °F)	

592/592-10K	
Sensor Output:	**A/592:** 248 to 378 uA **A/592-10K:** 2.48 to 3.78 VDC
Accuracy @ 77°F (25°C):	+/- 1.26 °F (+/- 0.70 °C)
Offset:	+/- 4 °F max (+/- 2.2 °C max)

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