WALL PLATE SERIES
Installation & Operation Instructions

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

GENERAL INFORMATION
The Wall Plate Series temperature sensor is a single point temperature sensor that is designed for use with electronic controllers in commercial heating and cooling building management systems. It is available with multiple thermistor or RTD options. Custom ordering can include override and communication jack.

For optimal temperature readings, follow these tips:
- Do not install on external walls.
- Avoid air registers, diffusers, vents, and windows.
- Do not install near heat sources. eg: lamps, radiators, direct sunlight, copiers, chimney walls, walls concealing hot-water pipes.
- Eliminate and seal all wall and conduit penetrations. Air migration from wall cavities may alter temperature readings.
- Avoid confined areas such as shelves, closed cabinets, closets, and behind curtains.

MOUNTING INSTRUCTIONS
The ACI Stainless Plate temperature sensors are mounted on the back of a 1 Gang stainless steel plate. The foam pad will insulate the sensor from any drafts in the wall. There are (2) 6-32 x 3/4" machine screws provided for junction box mounting. Remove plastic film off stainless steel cover.

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. Refer to the Wiring Instructions (p. 3) to make necessary connections.
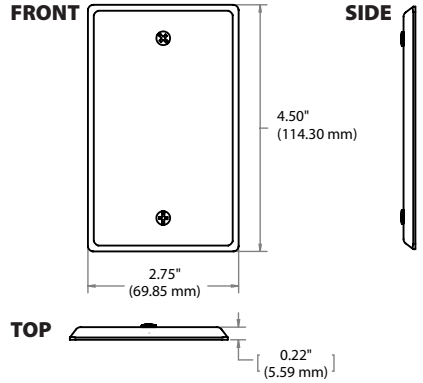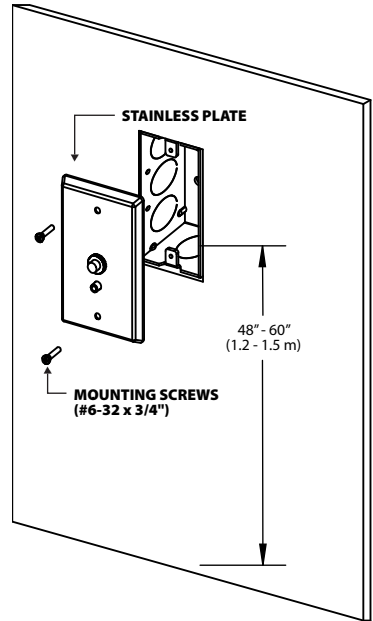
FIGURE 1: PLATE DIMENSIONS

FRONT   SIDE
4.50" (114.30 mm)
2.75" (69.85 mm)
TOP
0.22" (5.59 mm)

FIGURE 2: MOUNTING

STAINLESS PLATE
48" - 60" (1.2 - 1.5 m)
MOUNTING SCREWS (#6-32 x 3/4")

WIRING INSTRUCTIONS

16 to 26 AWG twisted pair wires or shielded cable is recommended for all sensors. Signal wiring must be run separate from low and high voltage wires (24/120/230VAC). All ACI thermistors and RTD temperature sensors are both non-polarity and non-position sensitive. All thermistor type units are supplied with (2) flying lead wires, and all RTD's are supplied with (2) or (3) flying lead wires – see **FIGURE 3** (right). The number of wires needed depends on the application.
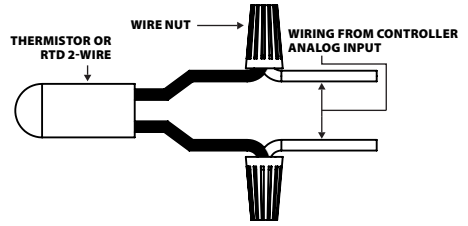
Connect thermistor/RTD wire leads to controller analog input wires using wire nuts, terminal blocks, or crimp style connectors. All wiring must comply with all local and National Electric Codes.

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.
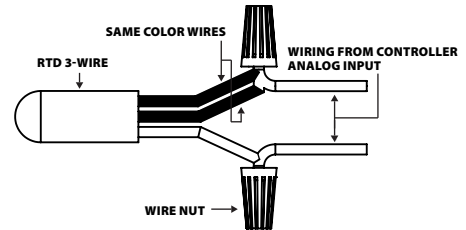
Note: If the controller requires a (2) wire input for a RTD, connect the (2) common wires (same color) together. If the controller requires (3) wires, use (3) individual wires.

FIGURE 3: TEMPERATURE WIRING

2-WIRE THERMISTOR or RTD WIRING

3-WIRE RTD WIRING

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 sensor wires 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	• Bad wire connections.

Version: 3.0
I0000814

PRODUCT SPECIFICATIONS

SENSOR NON-SPECIFIC INFORMATION		
Number Sensing Points:	One	
**Operating	Storage Temperature Range:**	-40 to 71 °C (-40 to 160 °F)	
Operating Humidity Range:	10 to 95% RH, non-condensing	
Plate Material:	**SP Series:** 430 Stainless Steel (Brushed Stainless Steel Finish)	
	AP Series: Aluminum (Smooth Satin Finish, Clear Anodized)	
THERMISTOR		
Sensor Output @ 25 °C (77 °F):	**A/1.8K:** 1.8 KΩ nominal (Red/Yellow)	**A/CSI:** 10 KΩ nominal (Green/Yellow)
(Lead Wire Colors)	**A/3K:** 3 KΩ nominal (White/Brown)	**A/10KS:** 10 KΩ nominal (White/Blue)
*Does not include CL2P	**A/AN (Type III):** 10 KΩ nominal (White/White)	**A/10K-E1:** 10 KΩ nominal (Gray/Orange)
	A/AN-BC: 5.238 KΩ nominal (White/Yellow)	**A/20K:** 20 KΩ nominal (Brown/Blue)
	A/CP (Type II): 10 KΩ nominal (White/Green)	**A/100KS:** 100 KΩ nominal (Black/Yellow)
	A/50K: 50KΩ nominal (Brown/Yellow)	
Accuracy @ 0-70 °C (32 - 158 °F):	**A/1.8K Series:** +/- 0.5 °C @ 25 °C (77 °F)	**A/10K-E1 Series:** +/- 0.3 °C (+/- 0.54 °F)
	and (+/-1.0 °C) (+/-1.8 °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 °C (32 °F)::	+/- 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)	
	@ -40 °C (-40 °F): +/- 0.23°C (+/- 0.414 °F)	**@ 71 °C (160 °F):** +/- 0.292 °C (+/- 0.53 °F)
	@ 0 °C (32 °F): +/- 0.15°C (+/- 0.27 °F)	
BALCO		
Sensor Output @ 21.1 °C (70 °F):	1 KΩ nominal (Orange/Red)	
Accuracy:	**@ 21.1 °C (70 °F):** +/- 1%	
NICKEL		
Sensor Output @ 21.1 °C (70 °F):	1 KΩ nominal (Red/Red)	
Accuracy:	**@ -40 °C (-40 °F):** +/- 1.52 °C (+/- 2.73 °F)	**@ 21.1 °C (70 °F):** +/- 0.17 °C (+/- 0.34 °F)
	@ 0 °C (32 °F): +/- 0.4 °C (+/- 0.72 °F)	**@ 54.4 °C (130 °F):** +/- 0.56 °C (+/- 1.00 °F)

WARRANTY

The ACI Plate 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.

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.