



GENERAL INFORMATION

All ACI thermistors and RTD temperature sensors are both non-polarity and non-position sensitive. All thermistor and RTD type sensors are included with (2) 22 AWG stranded etched Teflon wires for making all of the proper connections. The universal mounting kit includes (1) 3/8-16" Hex Jam Nut, (1) 1" Delrin Spacer/Insulator, and (1) 2" Delrin Spacer/Insulator.

MOUNTING INSTRUCTIONS

This unit is suitable for mounting in many different locations such as in a cabinet, control panel, walls, or in a standard mounting plate. The spacers are to be used to insulate the brass or stainless steel threaded portion of the sensor from any drafts or temperature changes in the wall as well as to mount the sensor into the wall.

Note: If painting the sensor, be sure to coat with as little paint as possible to not affect the accuracy or responsiveness of the sensor.

BRASS AND STAINLESS MOUNTING

Board or Panel Mounting using the 3/8" Hex Nut or 1" or 2" Delrin Spacer

First drill a 3/8" hole in the board or panel and insert the button sensor (2) wires through the hole and thread the hex nut or 1" or 2" spacer onto the button sensor until tight. If the plate or panel is relatively thin, similar to a one gang junction box cover be sure to use the 1" or 2" Delrin spacer depending on the thickness of the box or enclosure. The Delrin spacer will insulate the sensor from any drafts inside the wall. A small piece of foam or insulation may be inserted in the bottom of the Delrin spacer to better insulate the sensor if necessary.

Drywall Mounting using the 1" or 2" Delrin Spacer

First drill a 5/8" hole in the drywall. Next insert the button sensor (2) wires through the top of 1" or 2" Delrin spacer. Now thread the 1" or 2" Delrin spacer onto the back of the button sensor. Now make all of the wire connections using either crimp on

FIGURE 1: BRASS AND STAINLESS BUTTON SENSOR

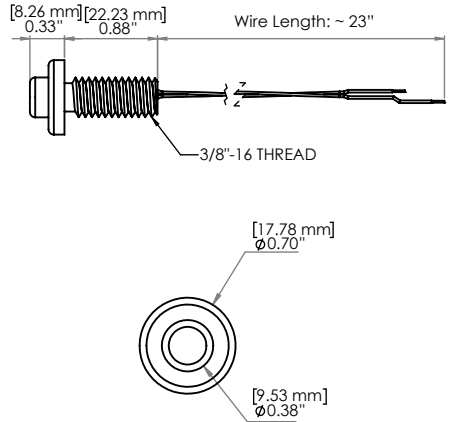
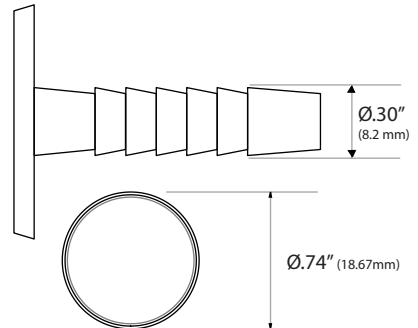


FIGURE 2: PLASTIC BUTTON SENSOR



MOUNTING (Continued)

connectors or wire nuts. A small piece of foam or insulation may be inserted into the bottom of the 1" or 2" Delrin spacer to better insulate the sensor if necessary. Next insert the button sensor assembly into the wall until it is flush to the wall as shown in **FIGURE 1** (above). You may need to gently tap the button sensor assembly with a hammer for it to go into the drywall.

1/2" Conduit Mounting using the 1" or 2" Delrin Spacer

First insert the button sensor (2) wires through the top of 1" or 2" Delrin spacer. Now thread the 1" or 2" Delrin spacer onto the back of the button sensor. Now make all of the wire connections using either crimp on connectors or wire nuts. A small piece of foam or insulation may be inserted into the bottom of the 1" or 2" Delrin spacer to better insulate the sensor if necessary. Next insert the button sensor assembly into the 1/2" conduit until it is flush to the end of the conduit as shown in **FIGURE 2** (right). You may need to tap the button sensor assembly using a 3/8" socket and hammer for it to go into the conduit.

PLASTIC BUTTON MOUNTING

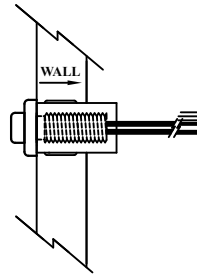
Mounting in sheetrock is done by drilling a 1/2" hole and inserting the threaded insert. Push the plastic button sensor into the threaded insert. Mounting into marble or rock can be done directly in a 1/4" hole without the threaded insert.

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 (24/120/230VAC). 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 5** (below). The number of wires needed depends on the application.

FIGURE 3: DRYWALL MOUNTING

BRASS AND STAINLESS



PLASTIC

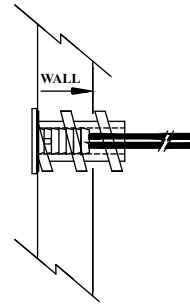


FIGURE 4: BRASS AND STAINLESS CONDUIT MOUNTING

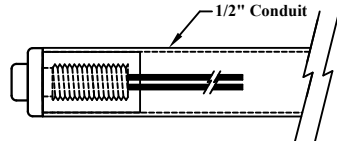
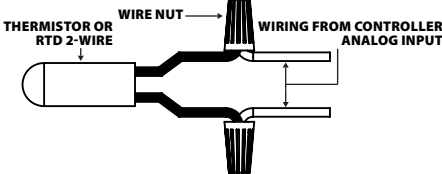
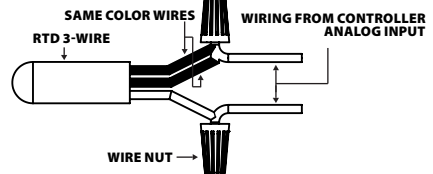


FIGURE 5: TEMPERATURE WIRING

2-WIRE THERMISTOR or RTD WIRING



3-WIRE RTD WIRING



WIRING INSTRUCTIONS *(Continued)*

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. After wiring, attach the cover to the enclosure.

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.

WARRANTY

The ACI Button Sensor is 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.

PRODUCT SPECIFICATIONS

| SENSOR NON-SPECIFIC INFORMATION | | | | | | | | | | | | | |
|--|---|---|---|--|--|--|---|--|---|---|--|---|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | | | | | | | | | | | | |
| Number Sensing Points Number Wires: | One Two (Non-Polarity Sensitive) | | | | | | | | | | | | |
| Button Sensor Enclosure Material: | A/XX-BBS Series: Brass A/XX-SBS Series: 304 Stainless Steel A/XX-PBS Series: ABS | | | | | | | | | | | | |
| Plastic Button Flammability Rating: | UL94-HB | | | | | | | | | | | | |
| Operating Storage Temperature Range: | A/XX-PBS Series: -40 to 70°C (-40 to 158°F) -40 to 85°C (-40 to 185°F) A/XX-BBS & A/XX-SBS Series: -40 to 150°C (-40 to 302°F) -40 to 85°C (-40 to 185°F) | | | | | | | | | | | | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | | | | | | | | | | | | |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) | | | | | | | | | | | | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E) | | | | | | | | | | | | |
| THERMISTOR | | | | | | | | | | | | | |
| Sensor Output @ 25°C (77°F) (Lead Wire Colors): | <table border="0"> <tr> <td>A/1.8K: 1.8KΩ nominal (Red/Yellow)</td> <td>A/CSI: 10KΩ nominal (Green/Yellow)</td> </tr> <tr> <td>A/3K: 3KΩ nominal (White/Brown)</td> <td>A/10KS: 10KΩ nominal (White/Blue)</td> </tr> <tr> <td>A/AN (Type III): 10KΩ nominal (White/White)</td> <td>A/10K-E1: 10KΩ nominal (Gray/Orange)</td> </tr> <tr> <td>A/AN-BC: 5.238KΩ nominal (White/Yellow)</td> <td>A/20K: 20KΩ nominal (Brown/Blue)</td> </tr> <tr> <td>A/CP (Type II): 10KΩ nominal (White/Green)</td> <td>A/100KS: 100KΩ nominal (Black/Yellow)</td> </tr> <tr> <td>A/50K: 50KΩ nominal (Brown/Yellow)</td> <td></td> </tr> </table> | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/CSI: 10KΩ nominal (Green/Yellow) | A/3K: 3KΩ nominal (White/Brown) | A/10KS: 10KΩ nominal (White/Blue) | A/AN (Type III): 10KΩ nominal (White/White) | A/10K-E1: 10KΩ nominal (Gray/Orange) | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/20K: 20KΩ nominal (Brown/Blue) | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) | |
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| A/50K: 50KΩ nominal (Brown/Yellow) | | | | | | | | | | | | | |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F) A/1.8K Series: +/-0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | | | | | | | | | | | | |
| PLATINUM | | | | | | | | | | | | | |
| Number Wires: | A/100-2W-XXX and A/1K-2W-XXX: Two (Non-Polarity Sensitive) A/100-3W-XXX and A/1K-3W-XXX: Three (Polarity Sensitive) | | | | | | | | | | | | |
| Sensor Output @ 0°C (32°F): | A/100-xW-XXX: 100 Ohms nominal A/1K-xW-XXX: 1000 Ohms nominal | | | | | | | | | | | | |
| Sensor 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) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 70°C (158°F): +/- 0.29°C (+/- 0.53°F) 200°C (392°F): +/- 0.55°C (+/- 0.99°F) | | | | | | | | | | | | |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C | | | | | | | | | | | | |
| BALCO | | | | | | | | | | | | | |
| Sensor Output @ 70°F (21°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow | | | | | | | | | | | | |
| Sensor Accuracy: | 70°F (21°C): +/- 1% | | | | | | | | | | | | |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C | | | | | | | | | | | | |
| NICKEL | | | | | | | | | | | | | |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red | | | | | | | | | | | | |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) | | | | | | | | | | | | |

