PRECAUTIONS

- **DO NOT RUN THE WIRING IN ANY CONDUIT WITH LINE VOLTAGE (24/120/230 VAC).**
- **THE OPTIONAL ACI/LCD MUST BE POWERED WITH EITHER A 24 VAC OR 9-35 VDC POWER SOURCE.**

MOUNTING INSTRUCTIONS

Separate the cover from the base. The ACI/LCD is shipped as a two-piece unit. The LCD Module must be unplugged from the 10 pin connector before the base of the sensor may be mounted. 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 - see **FIGURE 2** (next page).

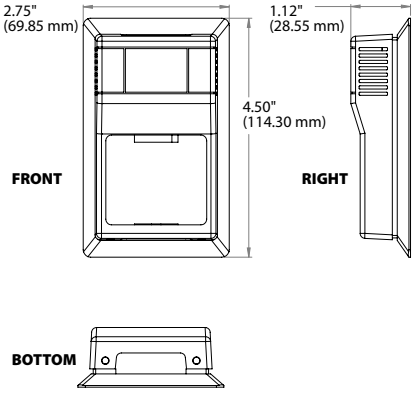
For optimal readings, follow these tips:

- 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.
- Do not install near heat sources, eg: lamps, radiators, direct sunlight, copiers, chimney walls, walls concealing hot-water pipes.
- A thermally-insulated backing should be used when fitting to solid walls (concrete, steel, etc.). *ACI part: A/ROOM-FOAM-PAD*
- Do not install on external walls.
- Avoid air registers, diffusers, vents, and windows.

Refer to the wiring instructions (p. 1-2) to make necessary connections.

FIGURE 1: ROOM DIMENSIONS

ROOM, VERSION 1 [R]



MOUNTING *(Continued)*

LCD Installation

The LCD Module should then be gently inserted into the 10 pin connector. Tighten the cover down, using the (2) 1/16" Allen screws located in the bottom of the housing. Take care to make sure the LCD module lines up with the enclosure LCD window. The LCD module can be bent if adjustments are needed. A 1/16" Hex driver is needed to secure the cover to the base.

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 thermistor type room units are supplied with a two-pole terminal block. The number of wires needed depends on the application.

Automation Components, Inc.
2305 Pleasant View Road | Middleton, WI 53562
Phone: 1-888-967-5224 | **Website:** workaci.com

Version: 5.0
I0000397

WIRING INSTRUCTIONS
(Continued)

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.

The ACI/LCD must be powered with either a 24 VAC or 9-35 VDC power source. The ACI/LCD uses a half-wave bridge rectifier to convert the AC voltage to a useable DC voltage. Two separate cables must be pulled for the ACI/LCD to work properly. One 2 conductor 18 to 22 AWG shielded cable for the supply voltage and a second 18 to 22 AWG 3 to 8 conductor shield cable for the Temperature sensor, Set Point and Override Outputs to the controller.

TABLE 1: TERMINAL BLOCK CONNECTIONS

TERMINALS	CONNECTIONS
COM	Temperature sensor, set point, and override signal common to controller analog input
SEN	Temperature sensor and override signal to controller analog input
SET	Temperature set point signal to controller analog input
- (LCD only)	24VAC or 9-35VDC Ground/Common
+ (LCD only)	24VAC or 9-35VDC

TABLE 2: COMMUNICATION JACK CONNECTIONS

COM. TERM. BLOCKS	CONNECTIONS
1	Internally joined to Communication Jack Pin #1
2	Internally joined to Communication Jack Pin #2
3	Internally joined to Communication Jack Pin #3
4	Internally joined to Communication Jack Pin #4

FIGURE 2: MOUNTING

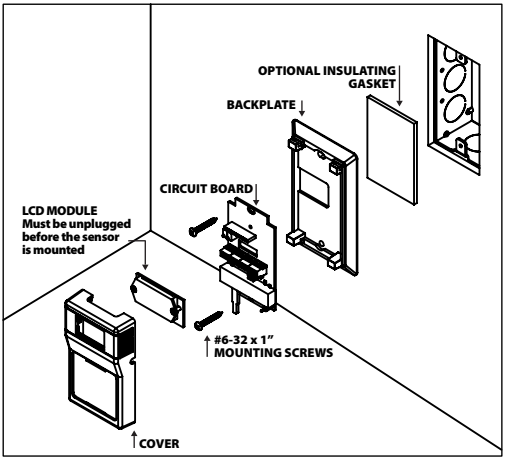
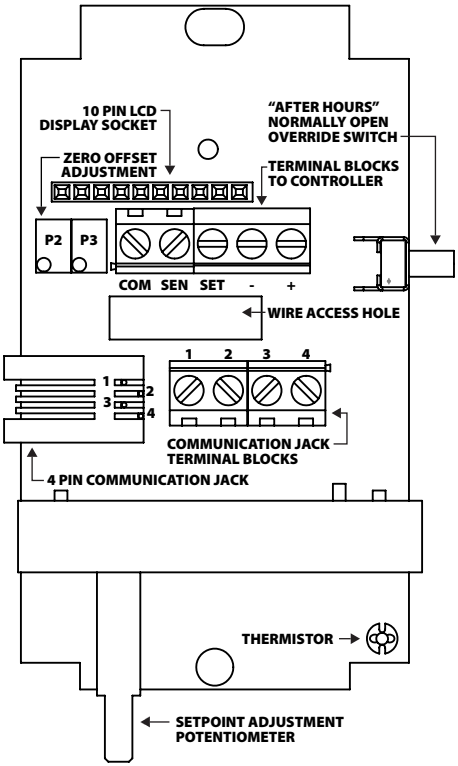


FIGURE 3: LCD RJ11 REV1 LAYOUT



Automation Components, Inc.
2305 Pleasant View Road | Middleton, WI 53562
Phone: 1-888-967-5224 | **Website:** workaci.com

Version: 5.0
I0000397

WIRING INSTRUCTIONS *(Continued)*

Note: ACI's stats are not two-way communicating. Communication jacks allow the user to query and modify operating parameters of the local room terminal unit from the portable operator's terminal (laptop). This feature allows a technician to commission or service the controller via the sensor.

SETPOINT CONTROL

Adjust slider at bottom of housing for set point control. Slide to right to increase set point temperature. Slide to left to decrease temperature control. Units can be setup from factory for Direct Acting (resistance increases when adjusted to right), or Reverse Acting (resistance decreases when adjusted to right).

TEMPERATURE DISPLAY ADJUSTMENTS

The temperature display may be adjusted by adjusting the ZERO or OFFSET potentiometer (P2) as shown on the above diagram. Adjust (P2) until the LCD Display reading matches your controller if necessary.

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
Display not working	• Check the Power Connections

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.

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.

Automation Components, Inc.
2305 Pleasant View Road | Middleton, WI 53562
Phone: 1-888-967-5224 | **Website:** workaci.com

Version: 5.0
I0000397

PRODUCT SPECIFICATIONS

SENSOR 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
Operating Temperature Range	1.5 to 50 °C (35 to 122 °F)
Storage Temperature Range:	-40 to 65 °C (-40 to 149 °F)
Operating Humidity Range:	10 to 95% RH, non-condensing
Connections:	Screw Terminal Blocks (Non-Polarity Sensitive)
Wire Size:	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:	**"R" Enclosure:** ABS Plastic | Beige UL94-HB
Sensor Output @ 25 °C (77 °F):	**A/AN (Type III):** 10 KΩ nominal **A/CP (Type II):** 10 KΩ nominal
Accuracy @ 0-70 °C (32 - 158 °F):	+/- 0.2 °C (+/- 0.36 °F)
SENSOR INFORMATION	
LCD Display Supply Voltage:	+9 to 35 VDC / 24 VAC (50/60 Hz)
LCD Display Supply Current/VA:	< 4 mA / 0.12 VA
LCD Display Accuracy:	+/- 2°F or +/- 2°C @ 71°F (21.5°C) Typical
LCD Display Descriptor:	°F (Fahreinheit) or °C (Celsius)
LCD Display Life Expectancy:	50000 Hours Minimum

Automation Components, Inc.
2305 Pleasant View Road | Middleton, WI 53562
Phone: 1-888-967-5224 | **Website:** workaci.com

Version: 5.0
I0000397