



# ROOM SERIES

Installation & Operation Instructions  
A/LCD-R-4-20MA

Phone: 1-888-967-5224  
Website: workaci.com

## PRECAUTIONS

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

## GENERAL INFORMATION

The A/LCD-R-4-20MA is a low power, high accuracy, 3.5 digit LCD display. The A/LCD-R-4-20MA may be used with any 4 to 20 mA loop powered Temperature, Relative Humidity, Current, and Differential or Gage Pressure transmitter. The display is factory calibrated for a preset range. A great solution for remote monitoring of any 4-20 mA loop powered device.

## 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** (p. 2).

**Note:** If mounting an LCD-RS(with setpoint), you must mount to standard 2" x 4" junction box. It cannot be surface mounted. The set point PCB is located on back of enclosure (see **Figure 3** p.2).

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

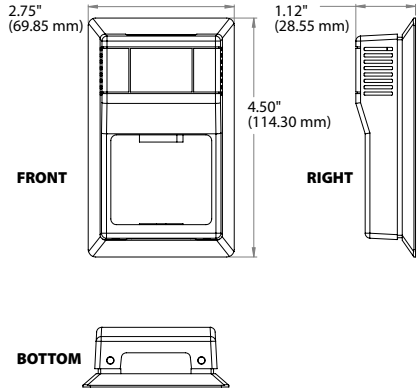
### LCD Installation

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.

## FIGURE 1: ROOM DIMENSIONS

### ROOM, VERSION 1 [R]



## WIRING INSTRUCTIONS

**Do not apply power to the (+) Input terminal or you may damage the LCD Display.**

Open the cover of the enclosure. ACI recommends 16 to 26 AWG twisted pair wires or shielded cable for all transmitters. Refer to **FIGURE 4** (p. 3) and **TABLE 1** (p. 2) for wiring connections. The number of wires needed depends on the application. All wiring must comply with all local and National Electric Codes.

ACI/LCD-4 to 20 mA will drop a maximum of 7 VDC, therefore:

$$Vs - V1 > 7VDC$$

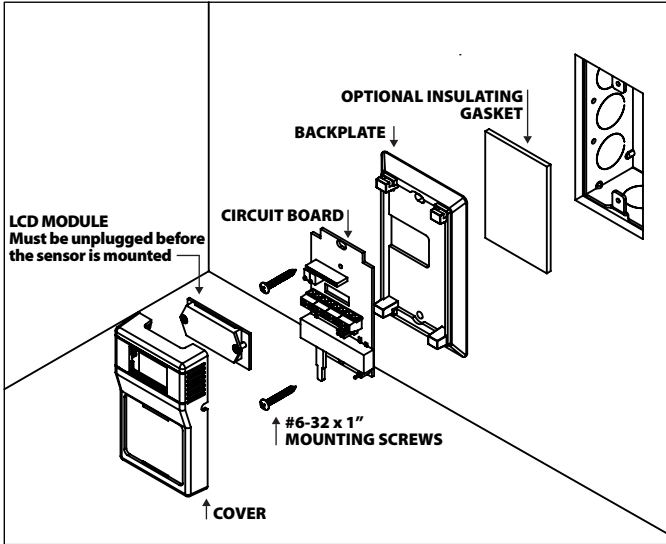
Where: Vs = Source Voltage

V1 = Voltage Requirement of Transmitter (Load)

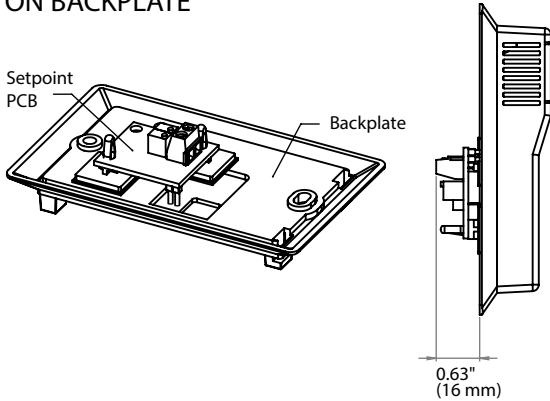
7V = Maximum Voltage Drop of ACI/LCD-4 to 20 mA



**FIGURE 2: MOUNTING**



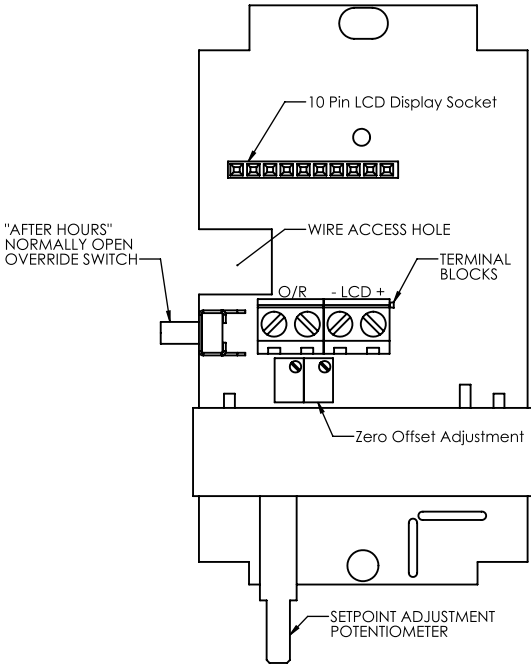
**FIGURE 3: SETPOINT PCB MOUNTED ON BACKPLATE**



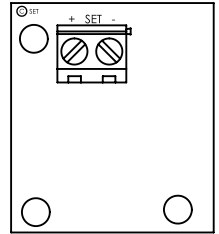
**TABLE 1: PCB CONNECTIONS**

TERMINAL BLOCKS	CONNECTIONS
+	(+) 4 to 20 mA current loop input (Input to Display from Transmitter or Controller) <b>Note:</b> If Set Point, this wire will be factory installed.
-	(-) 4 to 20 mA LCD current loop output to controller analog input
<b>+ SET (located on back PCB)</b>	+24VDC Supply Voltage
<b>-SET (located on back PCB)</b>	(-) 4 to 20 mA set point current loop output to controller analog input <b>Note:</b> This wire will be factory installed into the (-) Terminal Block
<b>O/R</b>	Override signal to controller analog input (N/O Dry Contact Closure)
<b>O/R</b>	Override signal common to controller analog input (N/O Dry Contact Closure)

**FIGURE 4: LAYOUT**

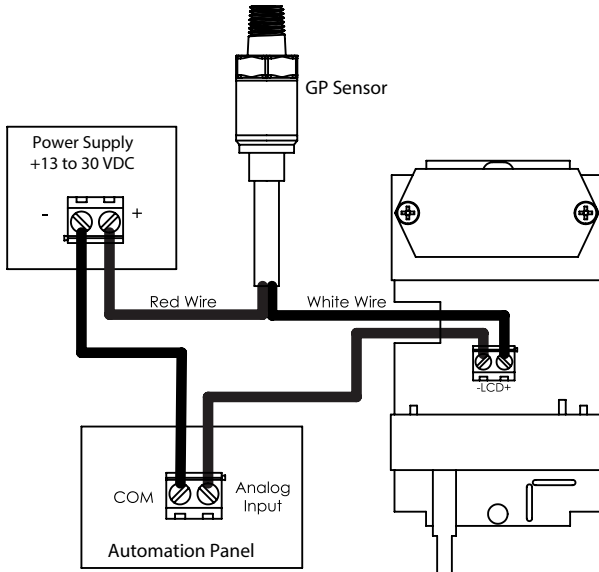


**FIGURE 5: SETPOINT PCB**



**FIGURE 6: WIRING ACI'S GP PRESSURE SENSOR**

**Note:** The example below shows ACI's GP Pressure sensor wired to the A/LCD-R-4-20MA.



# TEMPERATURE DISPLAY ADJUSTMENTS

The Temperature Display may be adjusted by adjusting the ZERO Potentiometer as shown on the above diagram. Adjust zero pot until the LCD Display reading matches your sensor if necessary. Do not adjust the SPAN pot.

## 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).

## OVERRIDE ADJUSTMENTS

Override will be set to Dry Contact.

## PRODUCT SPECIFICATIONS

SENSOR NON-SPECIFIC INFORMATION	
<b>Input:</b>	2 Wire, 4-20 mA current loop
<b>Maximum Voltage Drop:</b>	+7 VDC for LCD Display
<b>Display Accuracy:</b>	+/- 0.5% of span
<b>LCD Resolution   Descriptors:</b>	3 ½ Digit LCD (-199.9 to 199.9)   F (Fahrenheit), C (Centigrade) or No Descriptor
<b>Override Contact Type   Contact Ratings:</b>	Dry Contact "N/O" Contact   Minimum: 10 uA @ 1 VDC; Maximum: 50 mA @ 24 VDC
<b>Override Contact Resistance   Life Expectancy:</b>	0.1 Ohms maximum   100,000 Cycles
<b>Set Point Accuracy:</b>	+/- 10%   4-20 mA: 4 mA (Far Left)   20 mA Far Right (DA- Direct Acting (Default) 20 mA (Far Left / 4 mA Far Right (RA- Reverse Acting (Optional)
<b>Setpoint Supply Voltage: (4 to 20 mA Only):</b>	+24 VDC +/-10%
<b>Operating Temperature Range:</b>	35 to 131°F (1.5 to 55°C)
<b>Storage Temperature Range:</b>	-40 to 160°F (-40 to 71°C)
<b>Operating Relative Humidity Range:</b>	5 to 95% non-condensing
<b>Connections   Wire Size:</b>	Screw Terminal Blocks   16 (1.31 mm <sup>2</sup> ) to 26 AWG (0.129 mm <sup>2</sup> )
<b>Terminal Block Torque Rating:</b>	0.5 Nm (Minimum); 0.6 Nm (Maximum)

## 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](http://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.

## TROUBLESHOOTING

PROBLEM	SOLUTION(S)
<b>Display Not Working</b>	<ul style="list-style-type: none"> <li>Wires not connected correctly, no signal from transmitter or common ground. Also make sure the display is plugged in correctly after mounting.</li> </ul>

