

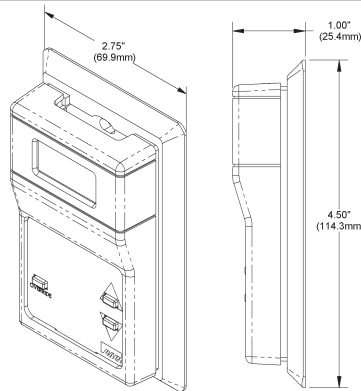


# LON Communicating Temperature and Humidity Room Sensor BA/LC, L-Combo Sensor Installation & Operating Instructions

11931\_ins\_network\_hum\_temp\_set

rev.01/21/11

## Identification



**Fig: 1** L-Combo (BA/LC-H2-RSOD)  
LON Sensor w/Display, Setpoint & Override

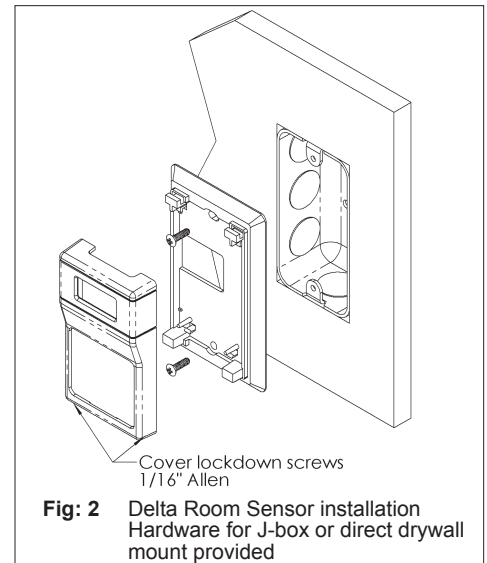
## Mounting

### JUNCTION BOX

1. Pull the wire through the wall and out of the junction box, leaving about six inches free.
2. Pull the wire through the hole in the base plate.
3. Secure the base to the box using the #6-32 x 1/2 inch mounting screw provided.
4. Terminate the unit according to the guidelines in the Termination Section.
5. Attach Cover by latching it to the top of the base, rotating the cover down and snapping it into place.
6. Secure the cover by backing out the lock-down screws using a 1/16" Allen wrench until they are flush with the bottom of the cover.

### DRYWALL MOUNTING

1. Place the base plate against the wall where you want to mount the sensor.
2. Using a pencil, mark out the two mounting holes and the area where the wires will come through the wall.
3. Drill two 3/16" holes in the center of each marked mounting hole. Insert a drywall anchor into each hole.
4. Drill one 1/2" hole in the middle of the marked wiring area.
5. Pull the wire through the wall and out of the 1/2" hole, leaving about six inches free.
6. Pull the wire through the hole in the base plate.
7. Secure the base to the drywall anchors using the #6 x 1 inch mounting screws provided.
8. Terminate the unit according to the Termination guidelines in on pg 2.
9. Attach Cover by latching it to the top of the base, rotating the cover down and snapping it into place.
10. Secure the cover by backing out the lock-down screws using a 1/16" Allen wrench until they are flush with the bottom of the cover.



**Fig: 2** Delta Room Sensor installation  
Hardware for J-box or direct drywall  
mount provided

**NOTE:** In a wall-mount application, the wall temperature and the temperature of the air within the wall cavity can cause erroneous readings. The mixing of room air and air from within the wall cavity can lead to condensation, erroneous readings and premature failure of the sensor. To prevent these conditions, seal the conduit leading to the junction box.

## Controls and Indication

### Occupant controls (See figure 1)

- Display LCD: Shows the temperature that is sent out on "nvoHVACTemp"  
 Override Button: Pushing this button activates "nvoOccupancy"  
 Setpoint Buttons: Up and down buttons activate "nvoTempSP"

### Technician controls (See figure 3)

- Service Button: The service button on the upper left of the board is used to request communication with the main computer over the network.  
 Service LED: The LED flashes when the unit is first turned on and still needs commissioning.  
 The LED is off when commissioned and is ready for use.  
 The LED flashes on a "Wink" request.

Specifications subject to change without notice.

## Wiring & Termination

BAPI recommends using twisted pair of at least 22AWG and sealant filled connectors for all wire connections. Larger gauge wire may be required for long runs. All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run this device's wiring in the same conduit as AC power wiring.

For additional wiring information and requirements, please refer to Echelon® Corporation's Bulletin titled "Junction Box and Wiring Guidelines for Twisted Pair LonWorks® Networks" which can be found online at the following URL. <http://www.echelon.com/support/documentation/Bulletin/005-0023-01K.pdf>

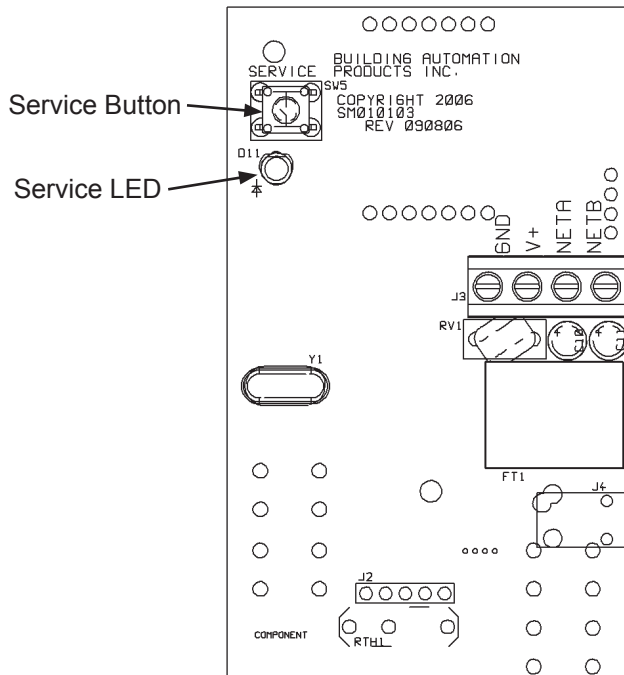


Fig. 3 Termination & Board layout

### Terminal Description

- NETB Network B
- NETA Network A
- V+ 8-24VDC or 12 to 28VAC
- GND Power supply ground

## Optional Wiring

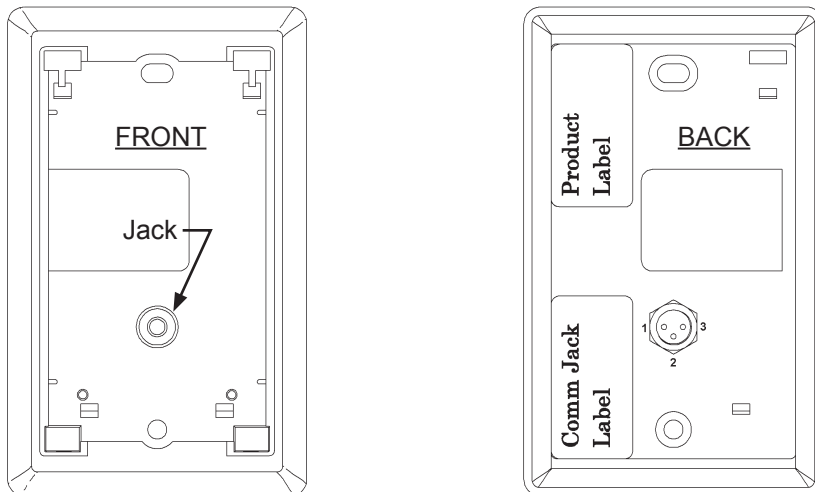


Fig. 4 Comm. Jack Option

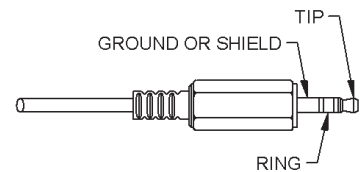


Fig. 5 3.5mm Stereo Jack Pin-out

C35 Wiring		
Plug ID	Wire Color	Pin #
Ground	Black	1
Tip	White	2
Ring	Red	3

Table 1 C35 Wiring ID

Specifications subject to change without notice.



# LON Communicating Temperature and Humidity Room Sensor BA/LC, L-Combo Sensor

## Installation & Operating Instructions

11931\_ins\_network\_hum\_temp\_set

rev.01/21/11

### Network Variable Listing and Definitions

Current External Interface File (XIF), Neuron® Executable File (NXE) and/or Application Binary File (APB) files can be downloaded for [www.bapihvac.com](http://www.bapihvac.com) under the "Humidity" tab for the Room sensors, L-Temp & L-Combo.

Network Variable	SNVT Type	Description
nviRequest	SNVT_obj_request	[Request information from sensor]
nvoStatus	SNVT_obj_status	[Status information from sensor]
nvoHVACTemp	SNVT_temp_p	[Temperature Output]
nciMaxSendTime	SNVT_time_sec	[Maximum amount of time before nvoHVACTemp is updated]
nciMinSendTime	SNVT_time_sec	[Minimum amount of time before nvoHVACTemp is updated]
nciMinDelta	SNVT_Temp_p	[Minimum change in temperature that must be observed in order for information to be sent to the network]
nciTmpOffset	SNVT_temp_p	[Temperature Offset]
nvoHVACRH	SNVT_lev_percent	[Relative Humidity Output from sensor]
nciMaxSendTime1	SNVT_time_sec	[Maximum amount of time before nvoHVACRH output is updated]
nciMinSendTime1	SNVT_time_sec	[Minimum amount of time before nvoHVACRH output is updated]
nciRHMinDelta	SNVT_lev_percent	[Minimum change in relative humidity that must be observed in order for information to be sent to the network]
nciRHOffset	SNVT_lev_percent	[Relative Humidity Offset]
nviHumSP	SNVT_lev_percent	[Relative Humidity setpoint sent from network to sensor]
nvoHumSP	SNVT_lev_percent	[Relative Humidity setpoint sent from sensor to network]
nviTempSP	SNVT_Temp_p	[Temperature setpoint sent from network to sensor]
nvoTempSP	SNVT_temp_p	[Temperature setpoint sent from sensor to network]
nciTempSPlo	SNVT_Temp_p	[Minimum Temperature Setpoint]
nciTempSPhi	SNVT_temp_p	[Maximum Temperature Setpoint]
nciHumSPlo	SNVT_lev_percent	[Minimum Relative Humidity Setpoint]
nciHumSPhi	SNVT_lev_percent	[Maximum Relative Humidity Setpoint]
nviOccupancy	SNVT_occupancy	[Occupancy variable sent from network to sensor]
nvoOccupancy	SNVT_occupancy	[Occupancy variable sent from sensor to network]
nvoOccTrig	SNVT_occupancy	[5 second occupancy toggle, unoccupied to occupied]
nviOATemp	SNVT_temp_p	[Outside Air Temperature for local display]
nviOArh	SNVT_lev_percent	[Outside Air Relative Humidity for local display]
nciLCDRate	SNVT_time_sec	[Toggle rate of LCD from Temperature to Relative Humidity in seconds]
ncist_bits	SNVT_state	[bit 0 = Degree Setting for LCD, 1 = °C, 0 = °F bits 1-15 = reserved for future use]

### Specifications

**Supply Voltage:** 8 to 24VDC (recommended) or 12 to 28VAC

**Power:** 35 mA maximum DC

**Sensing Elements:**

Temperature: Semiconductor Band Gap,  
Proportional to Absolute, ±0.3°C

Optional Humidity: Capacitive Polymer, ±1.8% RH Accuracy

**Options:**

Display (D): 0.4", 3.5 digit, LCD

Setpoint (S): 2-Push buttons, Up & Down

Override (O): Push button

Fan (XLD): Push button

Note: Includes display, setpoint and override

C35: 3.5mm stereo jack, add 3 wires

**Wiring:** 4 wire, twisted pair 22 AWG minimum

**Communication:** Neuron® 3120®,  
78 kbps using FTT-10A transceiver

**Mounting:** 2x4" J-box or drywall mount  
Mounting screws provided

**Ambient:**

Temperature: 32 to 122°F (0 to 50°C)

Humidity: 0 to 95%, non-condensing

**Material:** ABS Plastic

**Material Rating:** UL 94, V-0

**Range:** -40°C to 85°C

**Agency:** RoHS

Specifications subject to change without notice.