



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

Installation & Operating Instructions

11931_ins_network_hum_temp_set

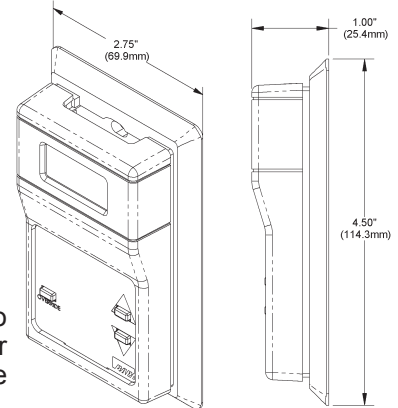
rev. 06/26/15

Identification and Overview

The Echelon compatible “L-Combo” Room Unit features measurement and display of local temperature and relative humidity, as well as display of outdoor temperature and outdoor humidity – all in one aesthetically-pleasing package. Additional options include Temperature Setpoint, Humidity Setpoint and Local Override.

An onboard Neuron® chip allows connection directly to a LonWorks® network using star, bus, or loop topology. The LCD can toggle between temperature and humidity at a user adjustable rate, and the user can select °C or °F.

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 6" 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. 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.

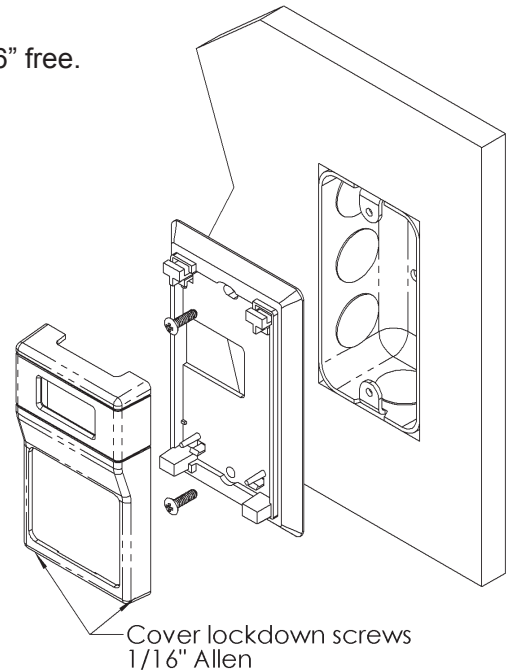


Fig. 2:
Delta Room Sensor installation
Hardware for J-box or direct
drywall mount provided

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.

Specifications subject to change without notice.



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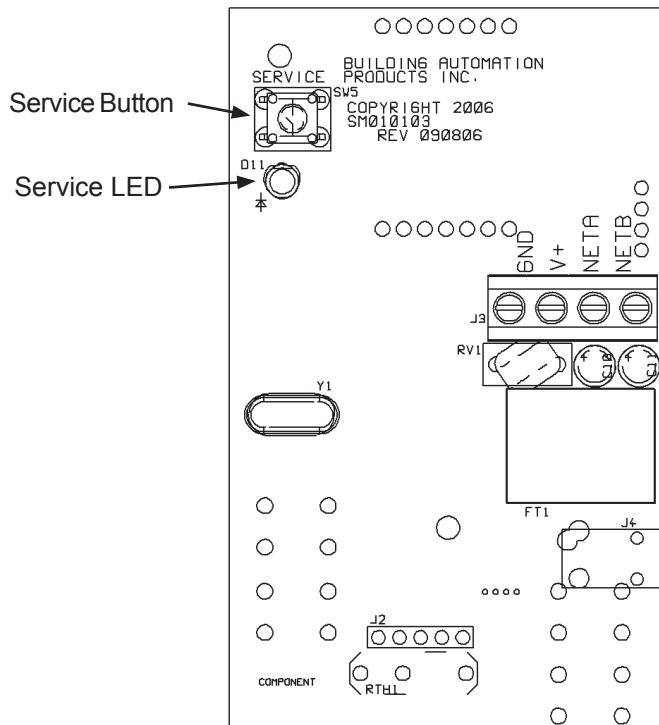
Wiring & Termination

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>



BAPI recommends wiring the product with power disconnected. Proper supply voltage, polarity, and wiring connections are important to a successful installation. Not observing these recommendations may damage the product and will void the warranty.



Terminal Description

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

Fig. 3:
Termination & Board layout

Optional Comm. Jack Termination

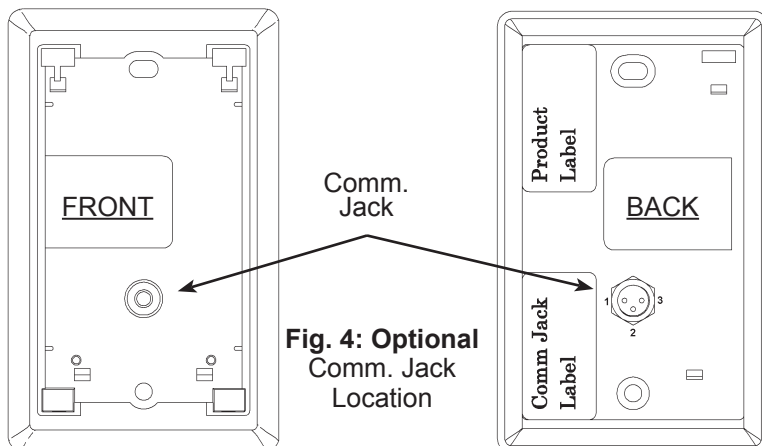


Fig. 4: Optional
Comm. Jack
Location

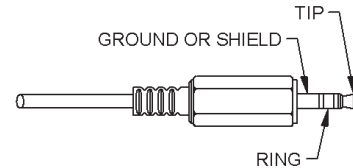


Fig. 5: 3.5mm Stereo Jack Pin-out

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.



Controls and Indication

Occupant controls (See Fig. 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 Fig. 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.

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 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, set to 1 = °C, 0 = °F *bit 1 = OSA temp in the display rotation, 0 = In display (default), 1 = Not in display *bit 2 = OSA RH in the display rotation, 0 = In display (default), 1 = Not in display *bit 3 = Occupancy in the display, 0 = In display (default), 1 = Not in display bits 4 through 15 = reserved for future use. (default set to 0) *Added bits are only used on BA/LCH2-RD-F1 sensor version. Other version would have bits 1 to 15 set to 0.

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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, $\pm 0.3^{\circ}\text{C}$
Opt. Humidity	Capacitive Polymer, $\pm 1.8\% \text{RH}$ Accuracy

Options:

Display (D)	0.4", 3.5 digit, LCD
Setpoint (S)	2 Pushbuttons, Up & Down
Override (O)	Pushbutton
Fan (XLD)	Pushbutton (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

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