

Overview and Identification

The RuPS Room Unit with an External Sensor displays the temperature where the external sensor is located. The unit can also provide a setpoint adjustment value and occupancy override value to a controller. The unit does **NOT** provide a temperature sensor value to the controller. A second temperature sensor is required for the controller (see Figs 2 & 4).

The setpoint adjustment is a vertical slide pot with an analog output and a Warm/Cool legend imprinted on the unit's base. Optional setpoint indication is available. The setpoint values can be a resistance or a voltage for easy configuration with the controller. The occupancy override is available as a separate output or in parallel with the Sensor or Setpoint. An optional LED indicator is available on the face of the RuPS unit and is energized from the controller. An optional 3.5mm (1/8") or RJ11 communication jack can be mounted in the base to provide direct access to the network. The sensor and setpoint outputs can be configured for "common ground" or "differential ground" controller inputs.

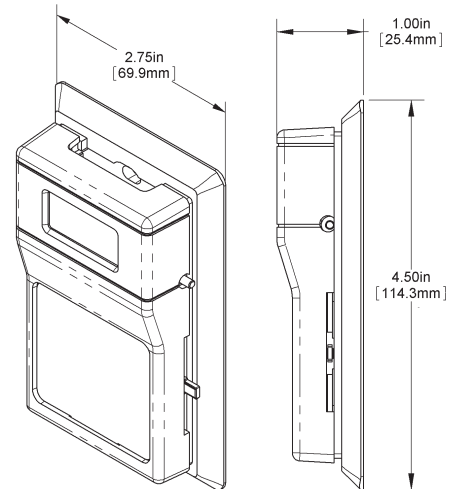
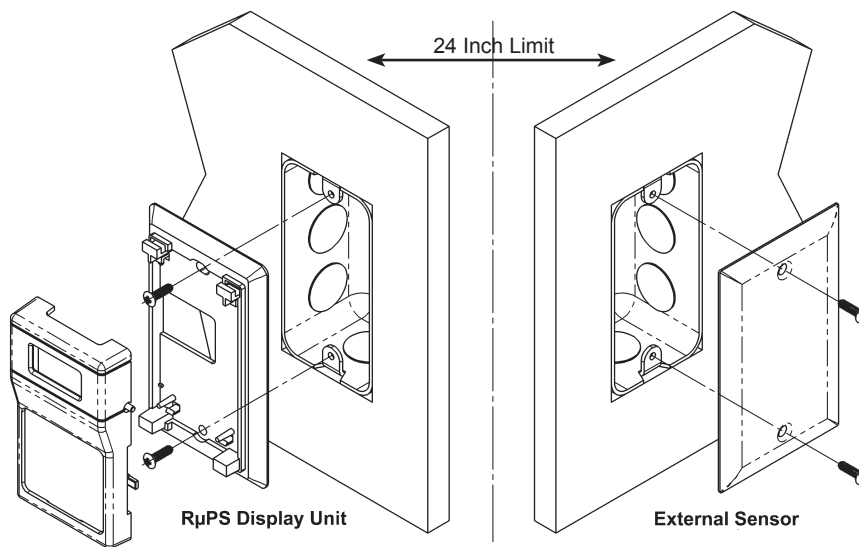


Fig 1: RuPS Display Unit Dimensions

Mounting (on two sides of the same wall)

Fig 2:
RuPS Display
Unit and External
Sensor mounted
on opposite sides
of the same wall.



Note: The External Sensor could be a Wall Plate sensor (shown) or a Return Air Sensor. (All external sensors are ordered separately.)

1. Mount two junction boxes on opposite sides of the same wall. One side of the wall is the wall plate external sensor and the other side of the wall is where the RuPS display unit will be installed. Place the boxes close enough together that the wire on the wall plate and the display unit can reach one another.
2. Secure the RuPS display unit base to the junction box using the #6-32 x 1/2 inch mounting screws provided.
3. Run the wires from the wall plate through the junction box into the junction box for the RuPS display unit. Secure the wall plate to the junction box with the #6-32 x 1/2 inch mounting screws provided making sure the foam on the back of the wall plate makes a good seal with the wall.
4. Terminate the unit according to the Termination guidelines on page 1.
5. Attach RuPS Cover by latching it to the top of the base, rotating the cover down and snapping it into place.
6. Secure the RuPS cover by backing out the lock-down screws using a 1/16" Allen wrench until they are flush with the bottom of the cover.

Specifications subject to change without notice.

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 of NEC class 1, NEC class 2, NEC class 3 or with wiring used to supply highly inductive loads such as motors, contactors and relays.

BAPI does not recommend wiring the sensor with power applied as accidental arcing may damage the product and will void the warranty.

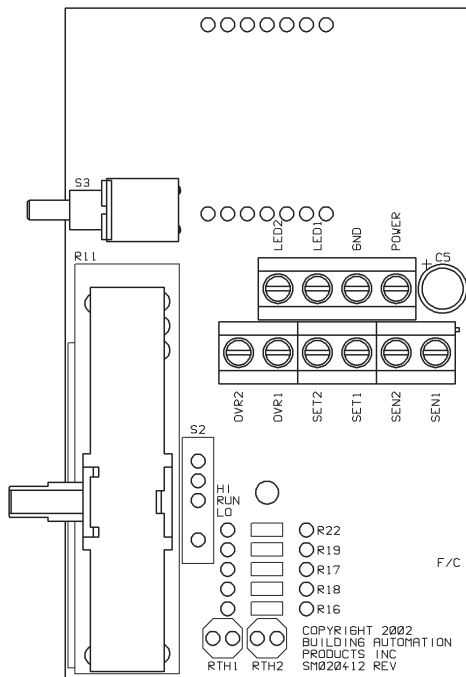


Fig 3: RuPS Circuit Board

- LED1** Short this terminal to Ground or Common to activate the occupancy override LED on the front of the unit.
- LED2** This terminal is only used if the unit is special ordered and the customer wants to provide both power and ground to light the occupancy override LED. Call BAPI tech support for more info.
- GND** Unit Ground or Common. Needs to be the same as the controller's Ground or Common.
- POWER** Unit power. 5 VDC (if 5 VDC option is selected when ordered) 9 to 40 VDC (15 to 24 VDC recommended) 15 to 28 VAC (requires a separate pair of shielded wires)
- SEN1 & SEN2** 10K-2 Thermistor input to the sensor display. No output to controller. When unit is configured as Common Ground (CG), SEN2 is internally shorted to the GND (Common) terminal.
- SET1 & SET2** Temperature Setpoint Slider output. When unit is configured as Common Ground (CG), SET2 is internally shorted to the GND (Common) terminal.
- OVR1 & OVR2** Occupancy Override Pushbutton, dry contact output. When unit is configured as Common Ground (CG), OVR2 is internally shorted to the GND (Common) terminal.

Notes:

Test and Balance Switch is not available with an external sensor.
 Common Ground (CG): GND, SEN2, SET2 & OVR2 are all internally connected.
 Differential Ground (DG): GND, SEN2, SET2 & OVR2 are all internally isolated.

RUPS W/ EXTERNAL SENSOR WIRING EXAMPLE

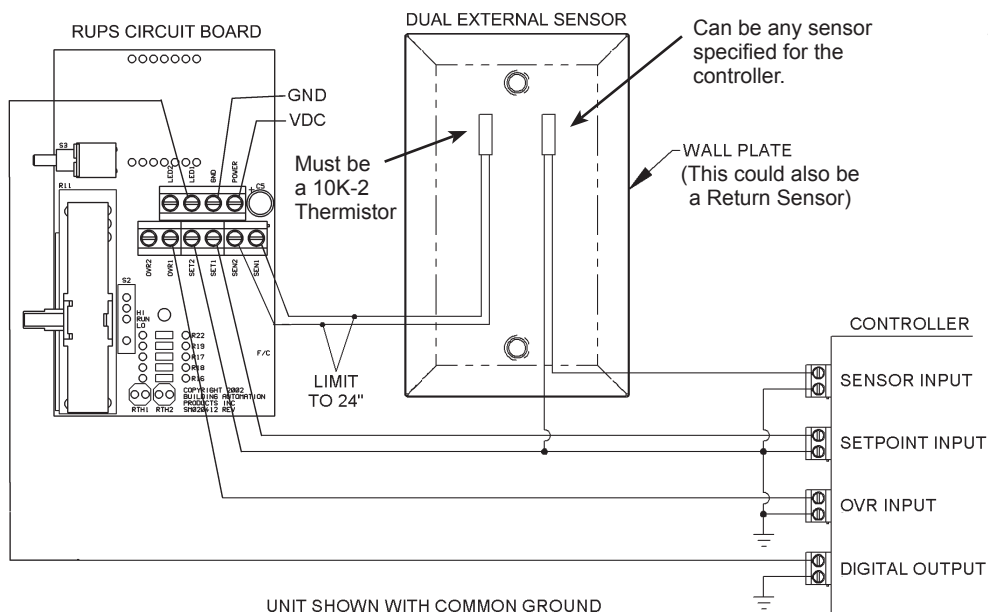


Fig 4: Dual External Sensor Wiring Example with a Common Ground (CG) configuration.

Optional Communications Jack

C35L Wiring	
	Wire Color
Ground	Black
Tip	White
Ring	Red

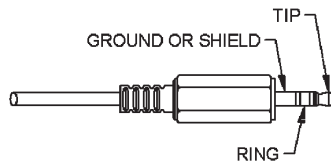


Fig. 5:
C35L Comm Jack
(Male Jack shown for clarity)

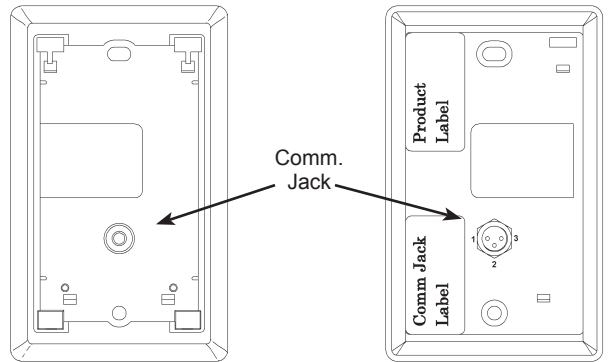


Fig. 6:
C35L Comm Jack in Unit's Base.
(Front of unit base is shown at left, back of base at right)

C11L or C22L Wiring	
Comm Jack Pin	Wire Color
1	Not Connected
2	Black
3	Red
4	Yellow
5	White or Green
6	Not Connected

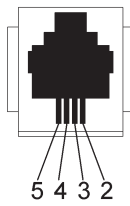


Fig. 7:
C11L or C22L Comm Jack

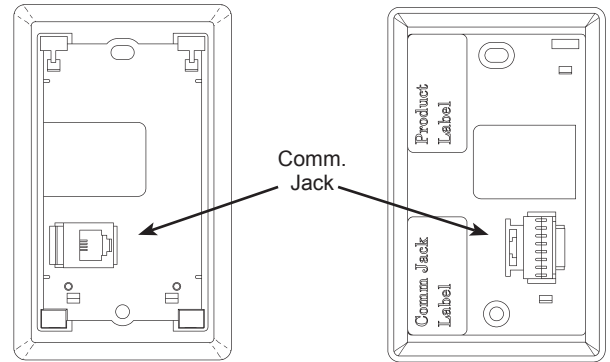


Fig. 8:
C11L or C22L Comm Jack in Unit's Base.
(Front of unit base is shown at left, back of base at right)

Communications Jack Diagnostics

Possible Problems:

Comm. Jack has no connection to controller

Comm. Jack information received through wires is garbled

Possible Solutions:

- Confirm connection from patch cable to remote computer
- Make sure wires are tightly pressed in
- Check wiring for proper termination
- Check wiring for proper termination
- Verify that no wires are shorted together

Optional Settings for the RuPS Unit

OPTIONAL SETTINGS

Overrides:

Override in parallel with the sensor or override as a separate input

External Sensor:

10K-2 Thermistor required

Setpoint:

Resistive (Potentiometer) or 0 to 5VDC or 5 to 0VDC per order.

CONTACT FACTORY WITH ANY DIFFERENT RANGE INQUIRIES

Common Ground (CG): Unit can be set up at factory (CG)

Differential Ground (DF): Unit can be set up at factory (DG)

Specifications subject to change without notice.



RuPS Room Unit with External Sensor

Installation and Operating Instructions

13406_ins_rups_ext_sen

rev. 06/26/15

Diagnostics

Possible Problems:

Unit will not operate

Temperature sensor in front end software is reading is incorrect

LCD is not working

Sensor reading is significantly off from the LCD temperature

Possible Solutions:

- Check power supply/controller voltage supply
- Disconnect sensor power wires and check for power to sensor
- Verify the input is set up correctly in the front end software
- Check to see if the thermistor is damaged
- Check wiring for proper termination
- Compare temperature reading to the appropriate sensor table (See Note below)
- Verify that the unit has the proper voltage across the "Power" and "GND" circuit board terminals. See power specifications below proper power.
- Confirm that the sensor is wired correctly
- If outputs are correct but display is not operating, contact BAPI technical support.
- Confirm that the sensor is wired correctly
- Compare temperature reading to appropriate sensor table (See Note below)
- Make sure the specified thermistor is correct

Note: To compare a reading to the appropriate sensor table, measure the physical temperature at the temperature sensor's location using an accurate temperature standard. Disconnect the temperature sensor wires and measure the temperature sensor's resistance with an ohmmeter. Compare the temperature sensor's resistance to the appropriate temperature sensor table on the BAPI website. If the measured resistance is different from the temperature table by more than 5%, call BAPI technical support. BAPI's website is found at www.bapihvac.com. Click on the left menu link "Sensor Specs" and then click on the type of sensor you have.

Specifications

Power:

- 5 VDC (only if 5 VDC option is selected when ordered)
- 9 to 40 VDC (15 to 24 VDC recommended)
- 15 to 28 VAC (Requires a separate pair of shielded wires)

Power Consumption:

- 10 mA max DC, .2 VA max AC

External Sensor Element and Accuracy:

- Thermistor: 10K-2, $\pm 0.36^{\circ}\text{F}$ ($\pm 0.2^{\circ}\text{C}$)

Wiring:

- 2 to 5 pair of 16 to 22 AWG

Communication Jack:

- Option C35: 3.5mm (1/8") phone jack
- Option C11: RJ11
- Option C22: RJ22

Mounting:

- Standard 2" x 4" J-box or drywall (Mounting screws provided)

Ambient:

- 32 to 122°F (0 to 50°C) 0 to 95% RH, Non-condensing

Material:

- ABS plastic, UL94 HB

Override:

- Contact N.O. as a separate closure or contact N.O. in parallel with the setpoint

Setpoint:

- Resistance (Potentiometer) or Voltage 0 to 5VDC or 5 to 0VDC

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