

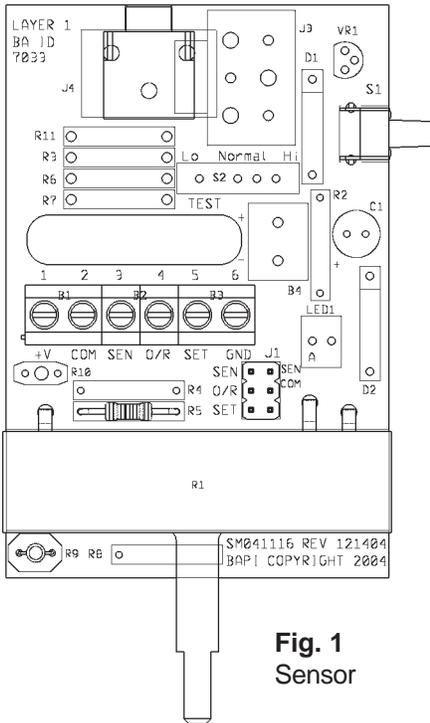
## Termination

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, NEC class 2, NEC class 3 or with wiring used to supply highly inductive loads such as motors, contactors and relays. BAPI's tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your BAPI representative.

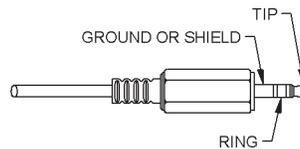


BAPI does not recommend wiring the sensor with power applied as accidental arcing may damage the product and will void the warranty



**Fig. 1**  
Sensor

- Pin 1 V+ [ +7 to 30 VDC ]  
[Used with voltage setpoint and COM options (COM Tip)]
- Pin 2 COM [To communications port (COM Ring)]
- Pin 3 SEN [Temperature sensor, to analog input of controller]
- Pin 4 O/R [Override, may be in parallel with setpoint or sensor]
- Pin 5 SET [Setpoint, resistive or voltage]
- Pin 6 GND [To Ground (common) of controller (COM Ground)]



**Fig. 2**  
COM wiring

## Jumper Settings

<p>Override as a separate input</p> <p>J1= </p>	<p>Override in parallel with sensor</p> <p>J1= </p>	<p>Override in parallel with setpoint</p> <p>J1= </p>
---	---	---

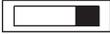
## LED Options

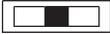
The selection of the LED option adds a two pole terminal block (B4) and a square, red LED. In order to light the LED, connect either a 24 VAC source or a 5 to 24 VDC source to B4. Proper polarity must be observed for all DC voltages and for AC voltages when the transformer has one leg grounded. Polarity is indicated by + and - on the circuit card legend.

Specifications subject to change without notice.

**Test & Balance Switch**

Optional: Test and Balance Switch (S2)

 H: Will set the sensor value HIGH temperature

 N: Thermistor/RTD will operate normally

 L: Will set the sensor value LOW temperature

<u>Sensor Type</u>	<u>Low Temperature (40° F)</u>	<u>High Temperature (105° F)</u>
	<u>Resistance Value</u>	<u>Resistance Value</u>
1000Ω RTD	1.02KΩ (41.2°F)	1.15KΩ (101.5°F)
3000Ω Thermistor	7.87KΩ (39.5°F)	1.5KΩ (106.8°F)
10K-2 Thermistor	30.1KΩ (39.2°F)	4.75KΩ (105.8°F)
10K-3 Thermistor	26.7KΩ (35.9°F)	5.11KΩ (108.4°F)
10K-3(11K) Thermistor	7.32KΩ (43.7°F)	3.65KΩ (105.2°F)

Specifications subject to change without notice.



## Troubleshooting

### Problems:

General troubleshooting

### Possible Solutions:

- Determine that the input is set up correctly in the controller's and building automation software.
- Check wiring for proper termination
- Check for corrosion at either the controller or the sensor. Clean off the corrosion, re-strip the interconnecting wire and reapply the connection. In extreme cases, replace the controller, interconnecting wire and/or sensor.
- Label the terminals that the interconnecting wires are connected to at the sensor end and the controller end. Disconnect the interconnecting wires from the controller and the sensor. With the interconnecting wires separated at both ends measure the resistance from wire-to-wire with a multimeter. The meter should read greater than 10 Meg-ohms, open or OL depending on the meter you have. Short the interconnecting wires together at one end. Go to the other end and measure the resistance from wire-to-wire with a multimeter. The meter should read less than 10 ohms (22 gauge or larger, 250 feet or less). If either test fails, replace the wire.

Temperature reading is incorrect

- Determine that the temperature sensors wires are connected to the correct controller input terminals and are not loose.
- Check the wires at the sensor for proper connections.
- 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 across the sensor output pins with an ohmmeter. Compare the temperature sensor's resistance to the appropriate temperature sensor table on the BAPI web site. If the measured resistance is different from the temperature table by more than 5% call BAPI technical support. Find BAPI's web site at [www.bapihvac.com](http://www.bapihvac.com); click on the button labeled SENSORS on the left of the screen and then click on the type of sensor you have. Don't forget to reconnect the wires.
- Make sure that the test and balance switch is in the correct position.
- Make sure that the sensor leads are not touching

Setpoint reading is incorrect

- Make sure that the setpoint output is correct. Remove the setpoint output wire and check the output for the correct resistance or voltage output. See the product label for your specific range. Don't forget to reconnect the wire.

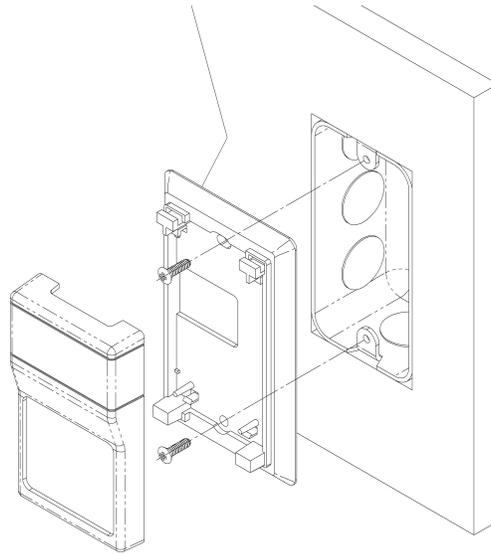
Override is not working correctly

- Check that the resistance across the override output is less than 5 ohms when the override switch is pushed
- Make sure that the override jumper setting are correct.

Specifications subject to change without notice.

## Mounting

Fig. 5



Mounting hardware is provided for both junction box and drywall installation (junction box installation shown).

### 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 or with Security screws which are sold separately. (Order BA/SP632x1 — Spanner Security Screws, 6-32x1" (box 50) and BA/SPBIT — Spanner Bit for Spanner Security Screws).
4. Terminate the unit according to the guidelines in **Termination** on page 1.
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 guidelines in **Termination** on page 1.
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.

### 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 and seal the hole in the drywall by using an adhesive backed, foam insulating pad (order part number BA/FOAMBACK).*

Specifications subject to change without notice.