

Product Identification

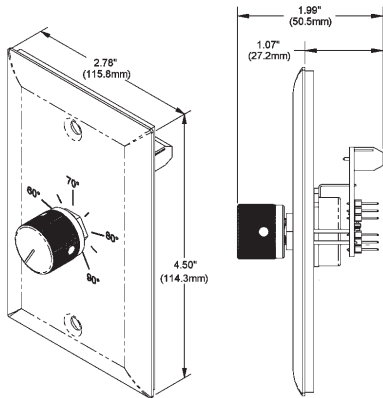


Fig. 1: Wall Plate with Rotary Setpoint

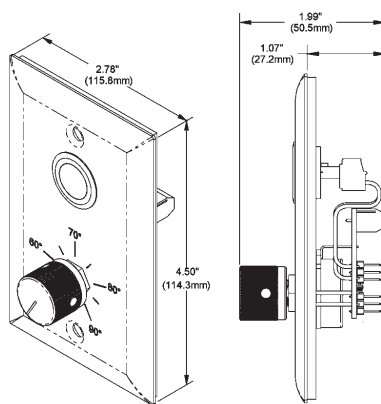


Fig. 2: Wall Plate with Rotary Setpoint and Pushbutton Override

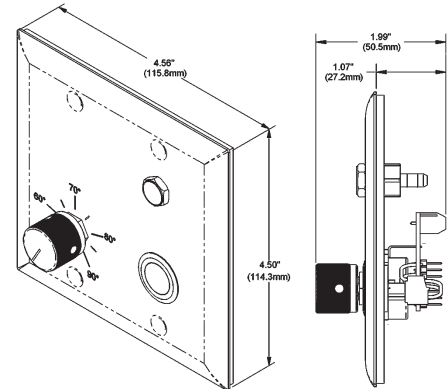


Fig. 3: Doublegang Wall Plate with Rotary Setpoint, Pushbutton Override and Pressure Pickup Port

Mounting

Ensure the plate does not touch the wall when it is mounted as this will lead to slower response rates when the environment changes.

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

Junction Box

1. Pull the wire through the wall and out of the junction box, leaving about 6" free.
2. Terminate the unit according to the guidelines in **Termination** on page 1.
3. Secure the plate to the box using the #6-32 x 1/2" mounting screws provided or with security screws which are sold separately. (Call BAPI or visit the Accessories section of our website for security screw ordering.)
4. Tighten screws until the foam gasket on the back plate is compressed about 50%. Ensure the plate doesn't touch the wall (Fig 4).

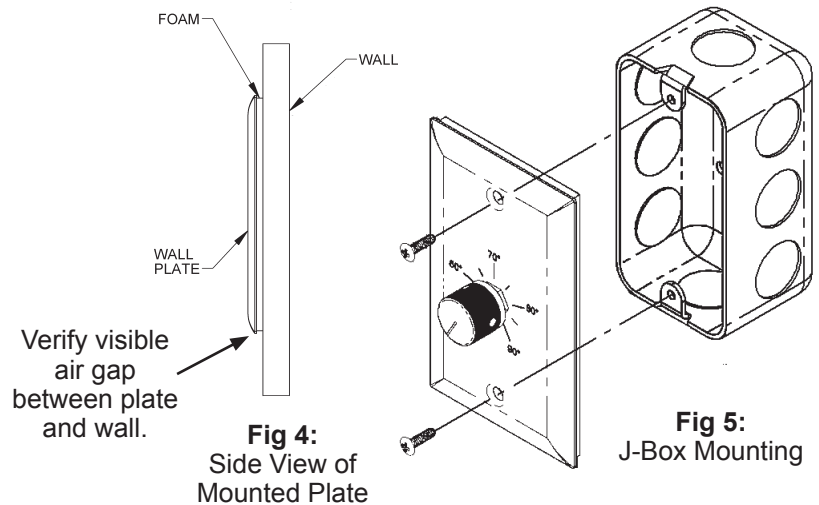


Fig 4: Side View of Mounted Plate

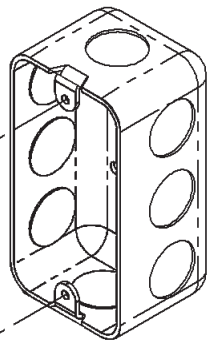


Fig 5: J-Box Mounting

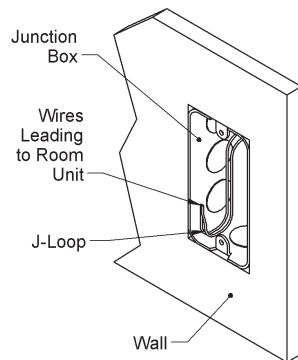
Drywall Mounting

1. Place the plate against the wall where you want to mount the sensor and mark out the two mounting holes.
2. Drill two 3/16" holes in the center of each marked mounting hole. Insert a drywall anchor into each hole.
3. Cut hole between the mounting holes that clears the apparatus mounted on plate. Pull the wire through the wall hole cut in step 2, leaving about 6" free.
4. Terminate the unit according to the guidelines in **Termination** on page 1.
5. Secure the plate to the drywall anchors using the #6 x 1" mounting screws provided. Tighten screws until the foam gasket on the back plate is compressed about 50%. Ensure the plate doesn't touch the wall.

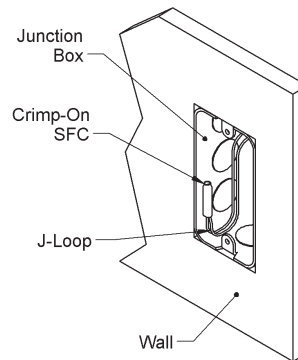
Note: In any wall-mount application, the wall temperature and the temperature of the air within the wall cavity can cause erroneous readings. The mixing of room air and air from within the wall cavity can lead to condensation, erroneous readings and premature failure of the sensor. To prevent these conditions,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

J-Loop Termination Technique

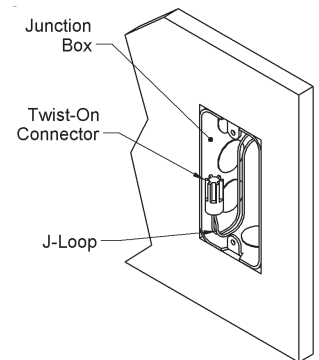
Incorporating a “J-Loop” (also known as a drip loop) into all terminations adds an additional layer of protection against moisture and oxidation by directing moisture away from the connection. The idea is to place the wire junction as high as possible and form a “J” with the leadwires. The bottom of this “J” should be below the junction point. Any moisture that collects on the leadwires is pulled downward by gravity to the bottom of this loop and away from the junction.



J-Loop Technique



J-Loop with Crimp-On SFC



J-Loop with Twist-On SFC

Termination

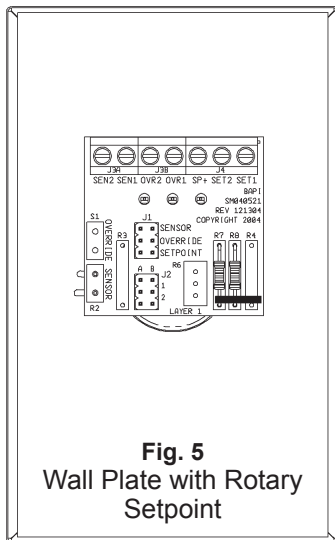


Fig. 5
Wall Plate with Rotary Setpoint

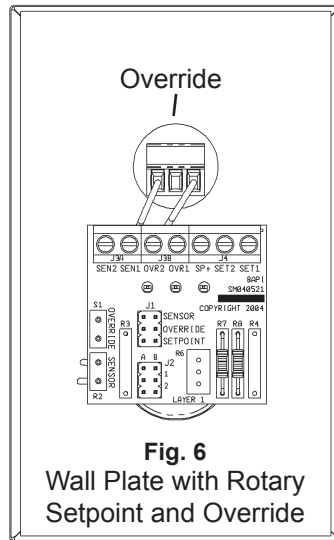


Fig. 6
Wall Plate with Rotary Setpoint and Override

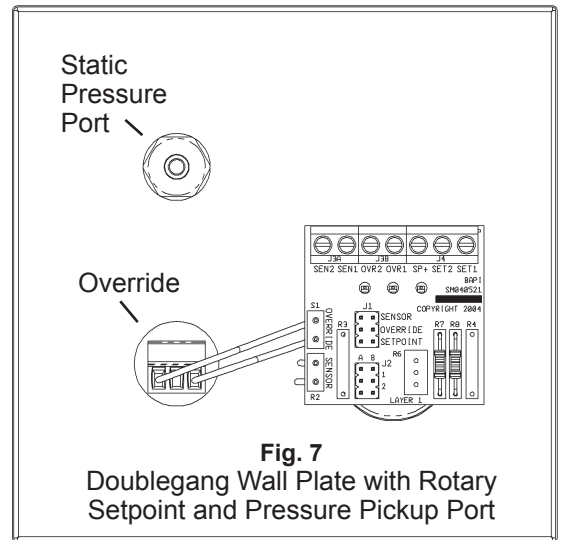


Fig. 7
Doublegang Wall Plate with Rotary Setpoint and Pressure Pickup Port

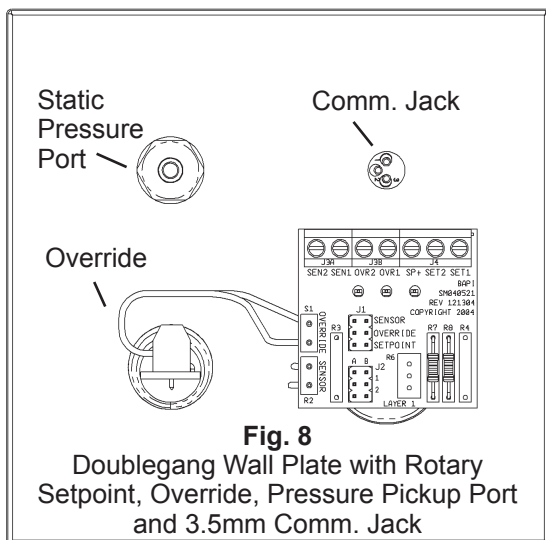


Fig. 8
Doublegang Wall Plate with Rotary Setpoint, Override, Pressure Pickup Port and 3.5mm Comm. Jack

COMMON WIRING

PIN	Function
SEN2	Temperature, Resistance Output , To analog input of controller. [Common Ground]
SEN1	Temperature, Resistance Output , To analog input of controller.
OVR2	Override, Normally OPEN , To analog or digital input of controller. [Common Ground]
OVR1	Override, Normally OPEN , To analog or digital input of controller.
SP+	Setpoint voltage supply.
SET2	Setpoint, To analog input of controller. [Common Ground]
SET1	Setpoint, To analog input of controller.

Note: If unit is configured for common ground then SET2, OVR2 and SEN2 are connected together.

Termination continued...

Jumper Settings - J1 Options

Differential

Override in parallel with setpoint:

Override in parallel with sensor:

Override as a separate input:

Common Ground

Override in parallel with setpoint:

Override in parallel with sensor:

Override as a separate input:

Jumper Settings - J2 Options

Resistive Setpoint

Direct Action

Reverse Action

Voltage Setpoint

Direct Action

Reverse Action

Optional C35 Communications Jack Pin Out

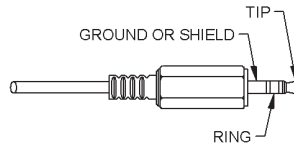


Fig. 9: Comm. Jack Wiring

C35 Terminal Block

Terminal	Connection
Tip	White (Pin 1)
Ring	Red (Pin 3)
Ground	Black (Pin 2)

Pushbutton Override Switch Wiring

The Wall Plate Pushbutton Override is a dry contact, normally-open switch. The contacts close for as long as you hold the switch down. All switches are for NEC Class 2 circuits only.

Standard and Durable Override:

The Standard Override (O) and Durable Override (O1) have two white wires attached to either side of the override switch.

Low Profile Override:

The Low Profile Override (O2) has three screw terminals that accommodate 16 to 28 gauge wire. The center terminal is not used.

Low Profile Override with LED:

The Low Profile Override with LED (O2G or O2R) has four screw terminals that accommodate 16 to 28 gauge wire. The terminals marked OVR are the dry contact output of the override switch, and the + and - terminals are power for the LED.

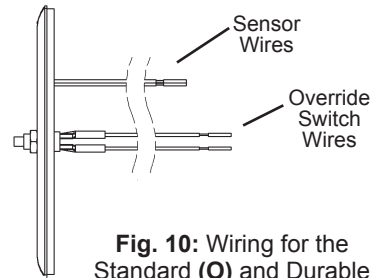


Fig. 10: Wiring for the Standard (O) and Durable Pushbutton (O1) Override

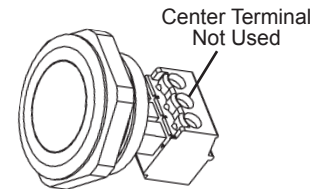


Fig. 11: Screw Terminals for the Low Profile Pushbutton (O2) Override. The center terminal is not used.

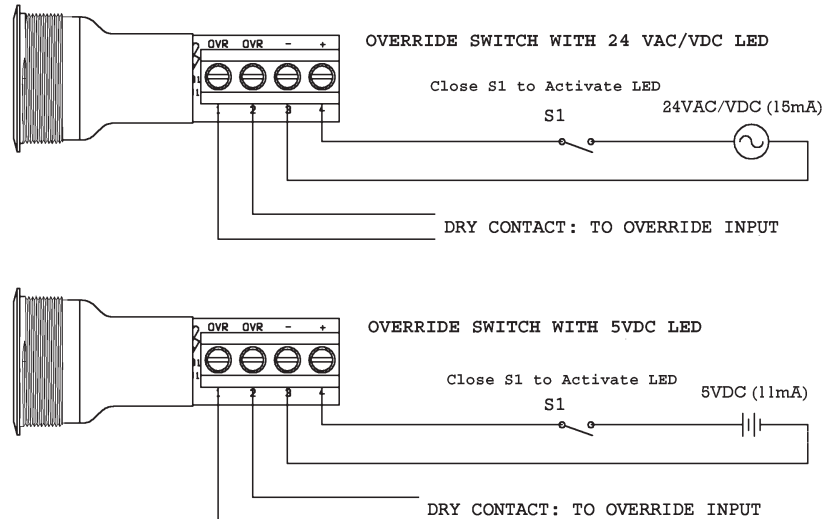


Fig. 12: Wiring Examples for the Low Profile Pushbutton Override with 5 VDC and 24 VAC/VDC LED (O2G5 & O2G24 or O2R5 & O2R24)

Table 1 - Switch Contact Ratings

Standard Override (O)	1 amp
Durable Override (O1)	250 milli-amperes
Low Profile (O2)	125 milli-amperes

Specifications subject to change without notice.



Diagnostics

POSSIBLE PROBLEMS:

General troubleshooting

POSSIBLE SOLUTIONS:

- Make sure 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 and 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. 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. Don't forget to reconnect the wires.

Temperature reading is incorrect

- Make sure the sensor wires are connected to the correct controller input terminals.
- Check wiring for proper termination and make sure that leads are not touching.
- Measure the physical temperature at the sensor's location using an accurate temperature standard. Disconnect the sensor wires and measure the resistance across the sensor output pins with an ohmmeter. Compare this 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. Find BAPI's website at www.bapivac.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.

Setpoint reading is incorrect

- Make sure that the setpoint output is correct. Remove the setpoint output wires and check the output for the correct resistance or voltage output. See the product label for your specific range.

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 settings are correct.

Specifications

Sensor: Passive Thermistor or RTD

Thermistor: Thermal resistor (NTC)

Temp. Output:Resistance

Accuracy(std):±0.36°F, (±0.2°C)

Accuracy (High)±0.18°F, (±0.1°C), [XP] option

Stability:< 0.036°F/Year, (<0.02°C/Year)

Heat dissipation2.7 mW/°C

Temp. Drift<0.02°C per year

Probe range:-40° to 221°F (-40° to 105°C)

RTD: Resistance Temperature Device (PTC)

Platinum (Pt) 100Ω and 1KΩ @0°C, 385 curve,

Platinum (Pt) 1KΩ @0°C, 375 curve

Pt Accuracy (std) ...0.12% @Ref, or ±0.55°F, (±0.3°C)

Pt Stability±0.25°F, (±0.14°C)

Pt Self Heating0.4 °C/mW @0°C

Pt Probe Range-40° to 221°F, (-40 to 105°C)

Nickel (Ni) 1000Ω @70°F, JCI curve

Ni Probe Range-40° to 221°F (-40 to 105°C)

Mounting: 2x4" J-box or Direct Wall

Lead Wire: 22AWG Stranded

Insulation: Etched Teflon, Plenum rated

Sensitivity: Approximate @ 32°F (0°C)

Thermistor: Non-linear (See bapivac.com for specs)

RTD (Plat) 3.85Ω/°C for 1KΩ RTD

0.385Ω/°C for 100Ω RTD

Nickel (NI): 2.95Ω/°F for the JCI RTD

Enclosure: Stainless Steel Plate

Foamback: 0.25" Closed Cell Foam

Ambient (Encl.):

0 to 100% RH, Non-condensing, -40°F to 185°F, (-40° to 85°C)

Agency:

RoHS, CE, PT = DIN43760, IEC Pub 751-1983, JIS C1604-1989

Options:

Override Switch

O N.O. switch, 115 VAC, 1 amp max

O1 N.O. switch, 28 VDC, 250mA amp max

O2 N.O. switch, 4 to 48 VDC, 150mA max

O2G & O2R O2 Switch w/ green or red LED,

5V (11mA) or 24V (15mA) power

Specifications subject to change without notice.