

Product Identification

The Novar UVC compatible temperature sensors are designed to operate only with the ETM 2051 controller. The sensors are available as a Wall Plate (Fig. 2) for room applications and a Duct Unit with the BAPI-Box 4 Enclosure for non-room applications (Fig. 1).

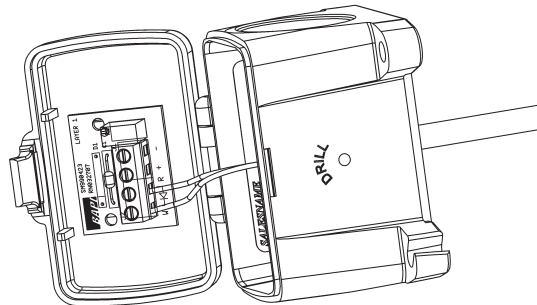


Fig. 1: Duct Unit with BAPI-Box 4 Enclosure

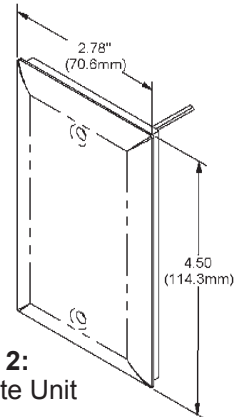


Fig. 2:
Wall Plate Unit

Wall Plate 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 3).

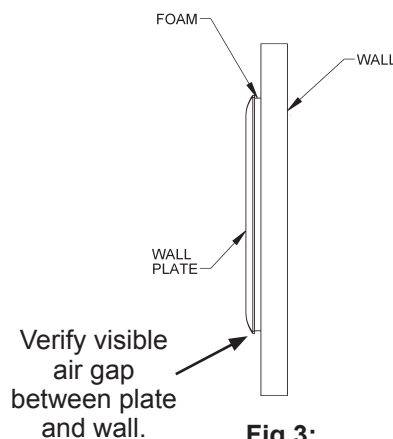


Fig 3:
Side View of
Mounted Plate

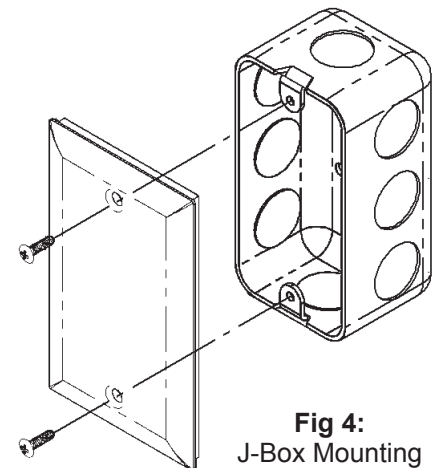


Fig 4:
J-Box Mounting

Note: Louvered wall plates require a mounting adapter bracket for J-Box mounting. The bracket is not shown in the diagram above but is included with any louvered wall plates ordered from BAPI.

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.

Wall Plate Mounting

1. Place the sensor in the middle of the duct away from temperature stratified air, coils or humidifiers to achieve the best temperature reading.
2. Drill the probe hole as depicted on this page for the enclosure being used. Insert the probe into the duct.
3. Mount the enclosure to the duct using BAPI recommended #8 screws through a minimum of two opposing mounting tabs. A 1/8" pilot screw hole in the duct makes mounting easier through the mounting tabs. Use the enclosure tabs to mark the pilot hole locations.
4. Snug up the sensors so that the foam backing is depressed about 50% to prevent air leakage but do not over-tighten or strip the screw threads.

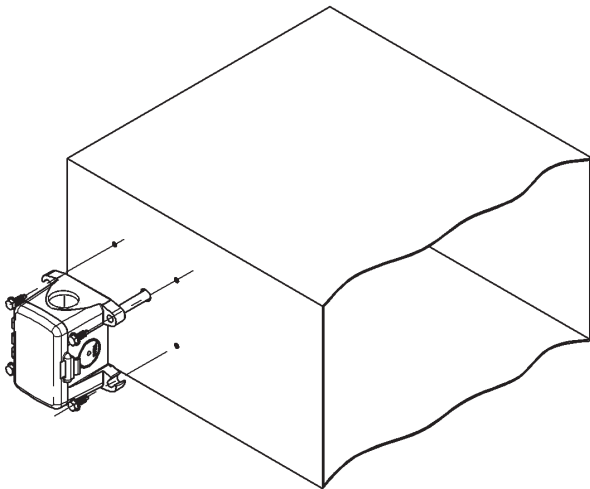


Fig 5: BAPI-Box 4 Enclosure Mounting

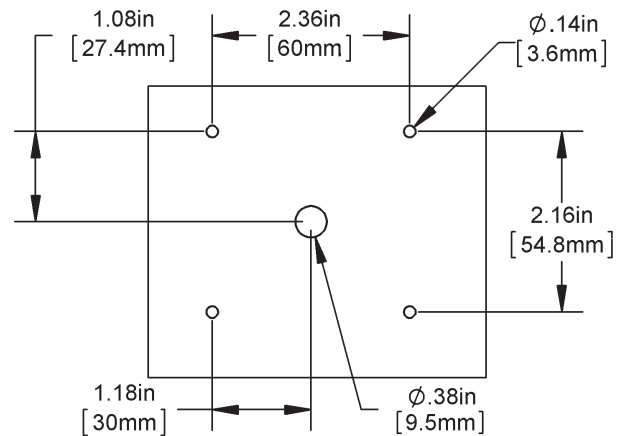


Fig 6: BAPI-Box 4 Mounting Holes

Termination

BAPI recommends using twisted pair of at least 22 AWG and crimp type connectors for all wire connections. Also, it is recommended that wiring **NOT** be run in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators and coils.



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

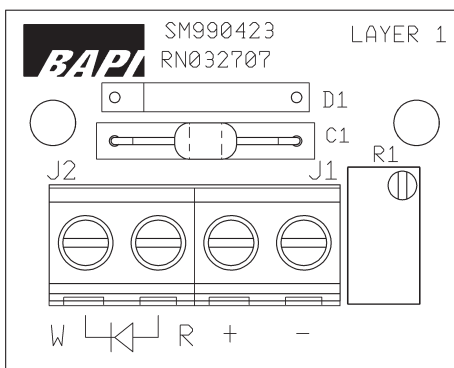


Fig. 7: Circuit board

Terminals Description

- Ground for Temperature Signal - To Ground, Common or Return of Controller
- + Temperature Voltage Signal - To Analog Input of Controller
- R Red Sensor Wire - Factory Connection
- W White Sensor Wire - Factory Connection

NOTE: The sensor requires 0.445mA of current from the controller to match the sensor output voltage table on page 3.



Diagnositics

Possible Problems:

Temperature sensor reading in the front end software is incorrect

Possible Solutions:

- Confirm the ETM 2051 controller is supplying .445mA to the sensor. Varying current supply will effect the sensors accuracy.
- Verify that the wires are not physically shorted or open
- Check wiring for proper termination
- Verify the sensor voltage output is correct from the “+” to “-” terminals. Refer to the table below for proper reading.

Sensor Output Table

Note:

The temperature sensor’s output is a low level voltage signal. You can only read the sensor output voltage when the sensor is connected to the ETM 2051 controller, and the controller is powered on.

The output voltage changes 0.00126VDC per degree Fahrenheit. Use a voltmeter with a minimum resolution of 4 digits to read the voltage signal. If the current being supplied from the controller to the sensor varies from 0.445mA, the sensor output voltage will not match the temperature.

Temperature in degrees Fahrenheit	Sensor Output Voltage	Temperature in degrees Fahrenheit	Sensor Output Voltage	Temperature in degrees Fahrenheit	Sensor Output Voltage	Temperature in degrees Fahrenheit	Sensor Output Voltage
31	0.6151	54	0.5862	77	0.5572	100	0.5282
32	0.6139	55	0.5849	78	0.5559	101	0.5269
33	0.6126	56	0.5836	79	0.5547	102	0.5257
34	0.6114	57	0.5824	80	0.5534	103	0.5244
35	0.6101	58	0.5811	81	0.5521	104	0.5232
36	0.6088	59	0.5799	82	0.5509	105	0.5219
37	0.6076	60	0.5786	83	0.5496	106	0.5206
38	0.6063	61	0.5773	84	0.5484	107	0.5194
39	0.6051	62	0.5761	85	0.5471	108	0.5181
40	0.6038	63	0.5748	86	0.5458	109	0.5169
41	0.6025	64	0.5736	87	0.5446	110	0.5156
42	0.6013	65	0.5723	88	0.5433	111	0.5143
43	0.6000	66	0.5710	89	0.5421	112	0.5131
44	0.5988	67	0.5698	90	0.5408	113	0.5118
45	0.5975	68	0.5685	91	0.5395	114	0.5106
46	0.5962	69	0.5673	92	0.5383	115	0.5093
47	0.5950	70	0.5660	93	0.5370	116	0.5080
48	0.5937	71	0.5647	94	0.5358	117	0.5068
49	0.5925	72	0.5635	95	0.5345	118	0.5055
50	0.5912	73	0.5622	96	0.5332	119	0.5043
51	0.5899	74	0.5610	97	0.5320	120	0.5030
52	0.5887	75	0.5597	98	0.5307		
53	0.5874	76	0.5584	99	0.5295		