Installation and Maintenance Manual IM 1277-1

Group: **UV**
Part Number: **910299290**
Date: **January 2020**

Basic Room Sensors

Used with:

Unit Ventilators (UV) - Sensor Part No. 910247450
& Sensor Part No. 910247453 (With Cool/Warm)
Units with MicroTech® Controls
Models UAV, UAH, UAR/ER, UAZ and UAE

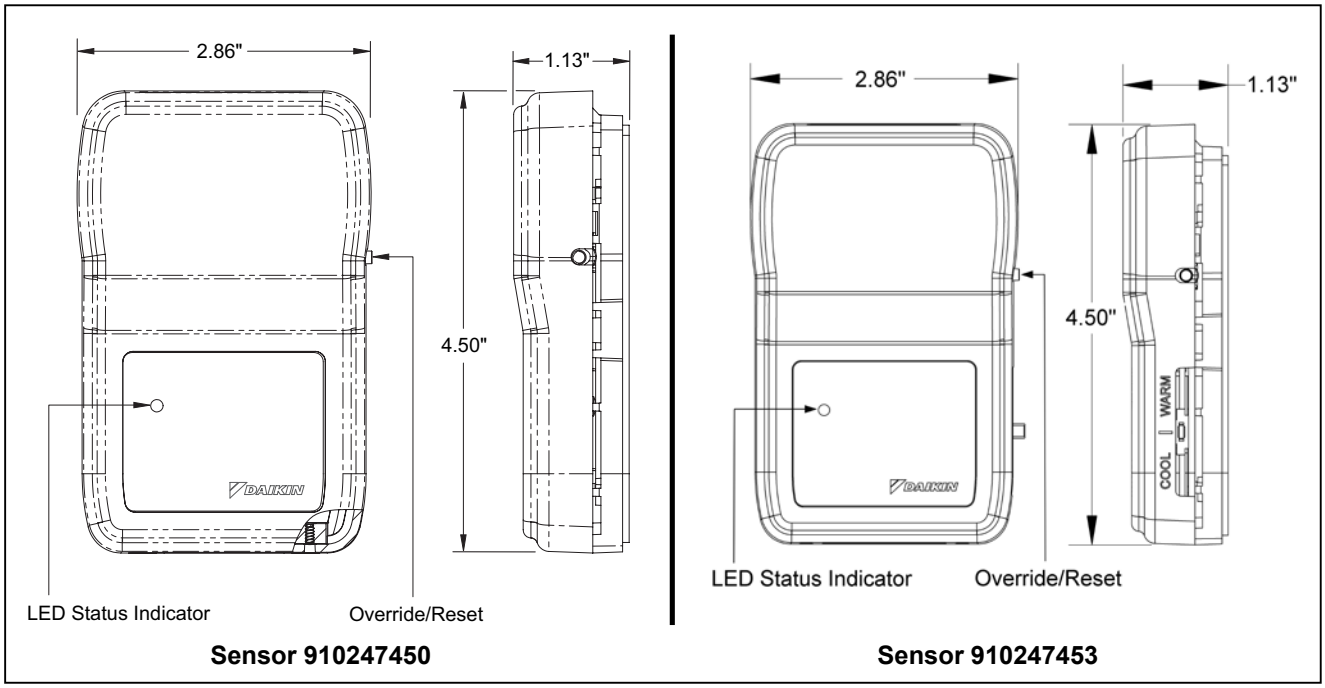
Sensor 910247450

Sensor 910247453

The basic room sensor (910247450) and the basic room sensor with cool to warm (910247453) are used in conjunction with the MicroTech equipped units as described in the application section on page 2. These sensors have an output for temperature, and LED status indication and also include an override reset button. Sensor 910247453 requires a fourth conductor for cool to warm temperature adjustment.

Basic room sensor buttons & dimensions

Figure 1: Basic room sensors for Unit Ventilator units (P/N 910247450 & 910247453)



The basic room sensors can be used on the products shown in Table 1.

Table 1: Product usage guide

Units	Product		Models	Controls	Used with Digitally Adjustable Sensor with Temperature and Humidity Display
Unit Ventilator	Vertical	Floor Model	UAV	MicroTech Unit Controls	Yes
	Horizontal	Ceiling Model	UAH		
	Self-Contained	Floor Models	UAZ, UAE, UAR/ UGR		

Basic room sensor(s) functions

Unit ventilator models:

- Basic room sensor for room temperature (910247450)
- Temperature adjustment cool to warm (910247453)

Specifications

Sensor

Temperature .....10K-2 Thermistor, ±0.36ºF (±0.2ºC)

Outputs

Temperature .....(4), Analog thermistor resistance.

Sensor controls

Termination:.....Terminals, 16 to 22 AWG.

Mounting:.....Standard 2" × 4" J-box or drywall

Enclosure material

ABS Plastic, UL94V-0.

Ambient

32º to 122ºF (0º to 50ºC), 0 to 95%RH, Non-condensing.

Agency

Restriction of the use of certain hazardous substances (RoHS).

Mounting

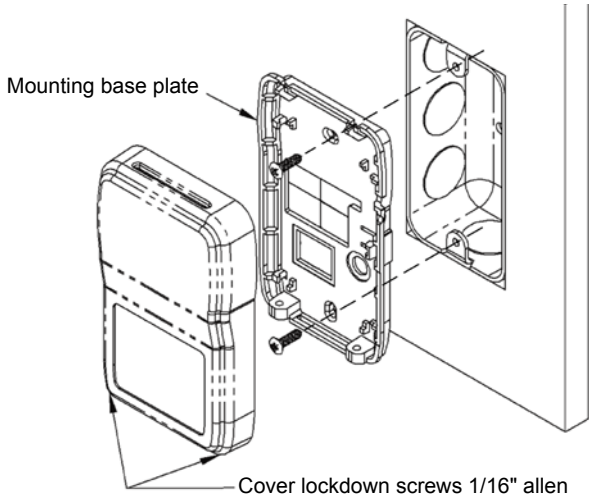
Location

Avoid mounting on outside walls or in direct sunlight.

Junction Box, (J-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 back plate to the box using the #6-32 × 1/2 inch mounting screws provided.
4. Screw the plate firmly to the wall so the foam plate backing is compressed about 50%.
5. Terminate the unit according to the guidelines in the termination section.
6. Attach cover by latching it to the top of the base, rotating it down and snapping into place.
7. Secure the cover by backing out the lock-down screws using a 1/16" Allen wrench until it is flush with the bottom of the cover.

Figure 2: Junction box mounting (hardware is provided for both junction box and drywall installation.)



Drywall mounting

1. Place the base plate against the wall where you want to mount the sensor.
2. Mark out the two mounting holes where the unit will be attached to the wall. Drill a 3/16" hole in the center of each mounting hole and insert a drywall anchor into the holes.
3. Drill one 1/2" hole in the middle of the marked wiring through hole area.
4. Pull the wire through the wall and out the 1/2" hole, leaving about six inches free.
5. Pull the wire through the hole in the base plate.
6. Secure the base to the drywall anchors using the #6 × 1" mounting screws provided.
7. Screw the plate firmly to the wall so the foam plate backing is compressed about 50%.
8. Terminate the unit according to the guidelines in the termination section.
9. Attach cover by latching it to the top of the base, rotating it down and snapping it into place.
10. Secure the cover by backing out the lock-down screws using a 1/16" Allen wrench until it is flush with the sides of the cover

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 sensor failure. To prevent these conditions, Daikin recommends sealing the conduit leading to the junction box with fiberglass.

Maintenance

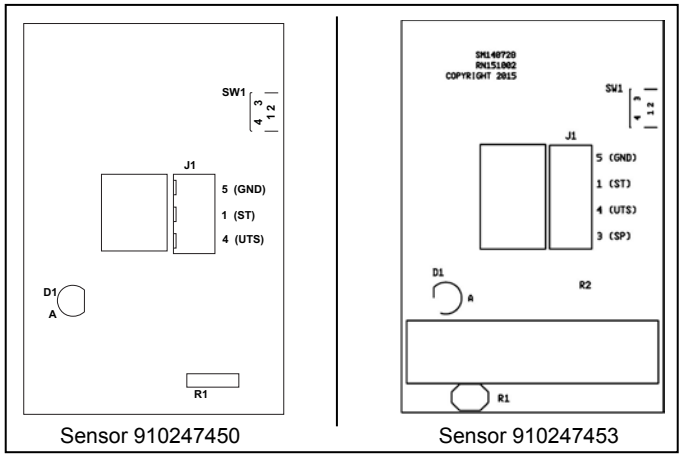
Wipe as needed with a damp water only cotton cloth. Do not paint.

Terminations

Daikin Applied recommends using shielded 22AWG for all connections and a separate twisted pair for the power wire connections. The shield should be earth grounded only at the power source. Larger gauge wire may be required for runs greater than 250'.

Note: Three conductors are required for the basic sensor 910247450, and four conductors are required for the basic sensor with cool to warm 910247453.

Figure 3: Basic sensor circuit boards



All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run any of this device's wiring in the same conduit as other AC power wiring. 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 Daikin representative.

Terminal descriptions

Note: *Refer to "Figure 3: Basic sensor circuit boards" on page 3 for terminal locations*

1(ST)..... Status indicator input from the MicroTech unit controller. (5VDC).

3(SP)* ... Setpoint Adjustment (used with sensor 910247453 only)

4(UTS) .. Output signal, room temp thermistor sensor. (10K ATP Z curve, 10K-2).

5(GND) . Ground or neutral. Common reference for all signal terminals.

Note: *Resistance measurements between terminals 4 & 5 can be compared to those in Table 3.*

Table 2: Unit ventilator MicroTech board to room temperature sensor wiring

MicroTech Base Board				
Terminal Block Label	**H6-3**	**H6-4**	**H6-7**	**H6-8**
Description	Status LED	Setpoint	10K RTD	Ground
Wire	**909**	**912**	**911**	**910**
Typical Wiring	↕	↕	↕	↕
Terminal Label	**1 (ST)**	**3 (SP)***	**4 (UTS)**	**5 (GND)**
Description	Unit Status Output	Setpoint Adjust	Room Temp Sensor & Tenant Override	Ground
Sensor	**Room Temperature Sensor**			

Note: **The "**3 (SP)**" terminal is not used with sensor part number 910247450. Used with sensor 910247453 only.*

Diagnostics

Problem & possible solution

No temperature signal

- Be sure the termination and wiring is correct and the controller is set up properly.
- Replace unit if all checks are okay.

Table 3: Resistance measurement comparison table - between terminals 4 and 5

Resistance					
°F	**°C**	**Ohm**	**°F**	**°C**	**Ohm**
42.8	6	22,431.44	71.6	22	11,297.24
46.4	8	20,518.43	75.2	24	10,412.64
50	10	18,787.38	82.4	28	8,869.27
53.6	12	17,219.35	86	30	8,196.25
57.2	14	15,797.53	89.6	32	7,580.73
60.8	16	14,506.99	93.2	34	7,017.29
64.4	18	13,334.43	96.8	36	6,501.09
68	20	12,268.03	100.4	38	6,027.74

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