

Installation and Maintenance Manual

IM 1238-3

Group: **WSHP**
 Part Number: **IM1238-3**
 Date: **March 2024**

Basic Room Sensors

Used with:

- Water Source Heat Pumps (WSHP)
- SmartSource® Units - Models GC, GD, GS, GT, SC, SM, SS
- Infinity™ Units with MicroTech® III Controls - Models CCH, CCW; VFC, VFW; LVC, LVW; MHC, MHW, VHC, VHF
- Fan Coil Units (FCU)



Sensor 910152149

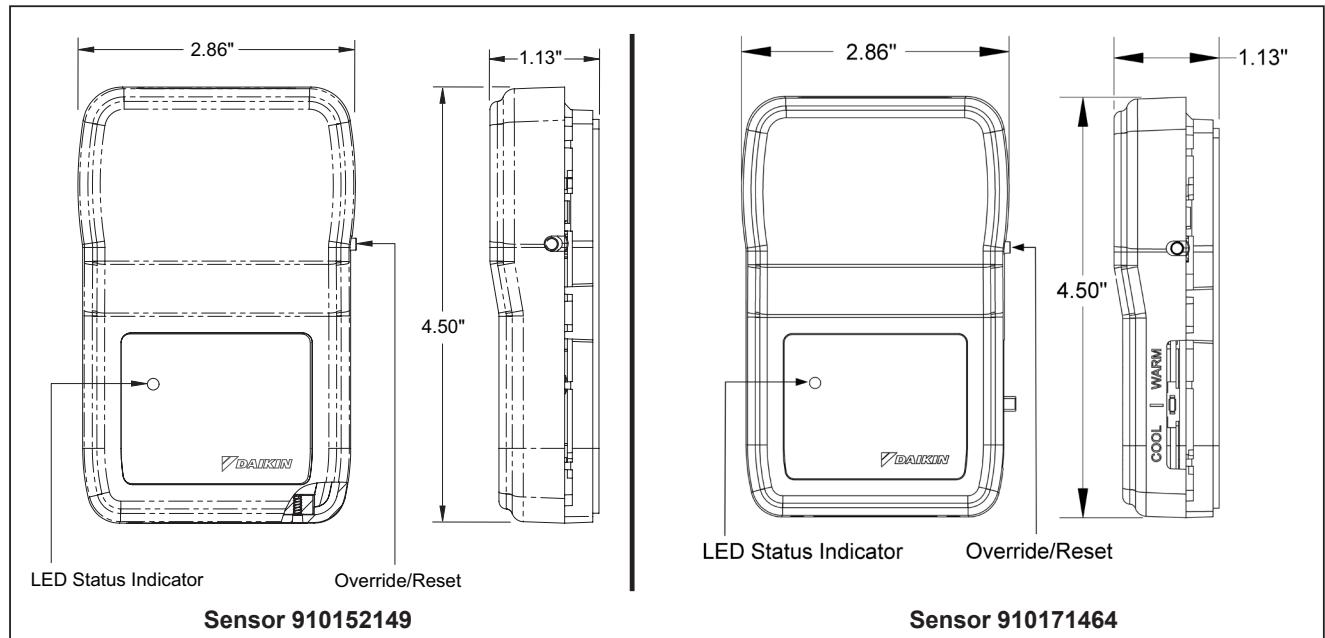


Sensor 910171464

The basic room sensor (910152149) and the basic room sensor with cool to warm (910171464) are used in conjunction with the MicroTech III or MT2300 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 910171464 requires a fourth conductor for cool to warm temperature adjustment.

Basic room sensor buttons & dimensions

Figure 1: Basic room sensors for Water Source Heat Pumps and Fan Coil Units (P/N 910152149 & 910171464)



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 Basic Room Temperature Sensor
Water Source Heat Pumps	Horizontal	Enfinity™	W.CCH, CCW	MicroTech III Unit Controller	Yes
	Vertical		W.VFC, VFW, LVC, LVW		
	Vertical Stacked		W.VHC		
	Console		W.MHC, MHW		
	Horizontal & Vertical	SmartSource 1-Stage	W. GCV, GSH, GSV	MicroTech III Unit Controller	
			W. GTH, GTV		
R32 SmartSource 1-Stage			W.SCH, SMH, SSH	MT2300 Unit Controller	
Fan Coils	Horizontal	ThinLine™	FC.H, FH.H	MicroTech III Unit Controller	Yes
	Vertical		FC.V, FH.V		

The basic room sensors for water source heat pump applications are shown in [Table 2](#).

Table 2: Water source heat pump application guide

Units	Product		Models	Applications											
				Cooling	Heating	Dehumidification					Electric Heat			Waterside Econo- mizer	
						Stages	Smart Dehu- midifi- cation	Hot Gas Reheat	Simpli- fied	Hu- midistat Con- trolled	Dehu- midifi- cation Only	Boil- erless	Supple- mental	Primary	3-Way Valve Control
Water Source Heat Pumps	Horizontal	Enfinity	W.CCH, W.CCW	1	1	No	No	No	No	No	No	No	No	No	No
	Vertical		W.VFC, W.VFW, W.LVC, W.LVW	1	1	No	Yes	No	No	No	Yes ¹	No	No	No	No
	Vertical Stacked		W.VHC	1	1	No	No	No	No	No	No	No	No	No	No
	Console		W.MHC, W.MHW	1	1	No	No	No	No	No	Yes ¹	No	No	No	No
	Horizontal & Vertical	Smart-Source 1-Stage	W.GCH, W.GCV, W.GSH, W.GSV, W.SCH, W.SMH, W.SSH	3	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Horizontal & Vertical	Smart-Source 2-Stage	W.GDH, W.GTH, W.GTV	3	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: ¹With optional boilerless controls

Temperature(4), Analog thermistor resistance.

Basic room sensor(s) functions
910152149 & 910171464 Water source heat pump model & Fan-coil unit model:

- Basic room sensor for room temperature (910152149)
- Temperature adjustment cool to warm (910171464)

Sensor controls

Termination:.....Terminals, 16 to 22 AWG.
 Mounting:.....Standard 2" x 4" J-box or drywall

Specifications

Sensor

Temperature10K-2 Thermistor, ±0.36°F (±0.2°C)

Enclosure material

ABS Plastic, UL94V-0.

Ambient

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

Agency

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

Outputs

Mounting

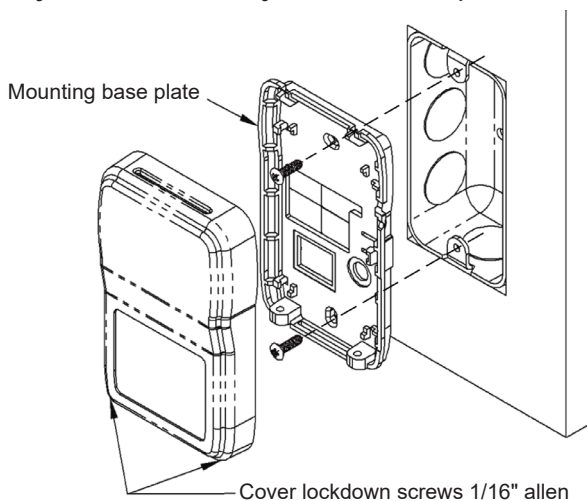
Location

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

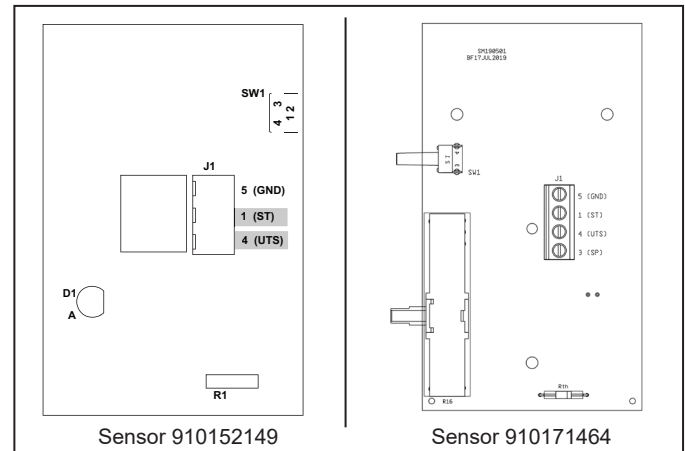
Wipe as needed with a damp water only cotton cloth. Do not paint.

Terminations

Daikin Applied recommends at minimum 22AWG wires. Larger gauge wire may be required for wire runs greater than 250'.

Note: *Three conductors are required for the basic sensor 910152149, and four conductors are required for the basic sensor with cool to warm 910171464.*

Figure 3: Basic sensor circuit board



CAUTION

The AC power wiring at terminals [R] & [5] should be run in a separate twisted shielded pair to avoid fluctuating and inaccurate signal levels induced into the other sensor signal wires. This sensor AC power can be run in the same conduit with the sensor signal wire as long as it's run in twisted, shielded pair and terminated properly.

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 board" on page 3 for terminal locations

1..... Status indicator input from the MicoTech III or MT2300 unit controller. (5VDC).

4..... Output signal, room temp thermistor sensor. (10K ATP Z curve, 10K-2). 910113575 tenant override only

5..... Ground or neutral. Common reference for all signal terminals.

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

Figure 4: SmartSource MicroTech III board to basic temperature sensor wiring

SmartSource Board	MicroTech III Base Board			
Terminal Block Label	TB1-1	TB1-3*	TB1-4	TB1-5
Description	Unit Status Output	Room Sensor – Setpoint Adjust	Room Temp Sensor & Tenant Override	DC Signal Common
Terminal Label	1	3	4	5
Typical Wiring	↑ ↓	↑ ↓	↑ ↓	↑ ↓
Terminal Label	1 (ST)	3 (SP)*	4 (UTS)	5 (GND)
Description	Unit Status Output	Setpoint Adjustment	Room Temp Sensor & Tenant Override	DC Signal Common
Sensors	Basic Room Sensor (Part No. 910152149) / Basic Room Sensor with Cool to Warm Adjustment (910171464)*			

Note: *The "3 (SP)" terminal is not used with sensor part number 910152149. Used with sensor 910171464 only.

Figure 5: SmartSource MT2300 board to basic temperature sensor wiring

SmartSource Board	MT2300 Base Board			
Terminal Block Label	TB2-1	TB2-3*	TB2-4	TB2-5
Description	Unit Status Output	Room Sensor – Setpoint Adjust	Room Temp Sensor & Tenant Override	DC Signal Common
Terminal Label	1	3	4	5
Typical Wiring	↑ ↓	↑ ↓	↑ ↓	↑ ↓
Terminal Label	1 (ST)	3 (SP)*	4 (UTS)	5 (GND)
Description	Unit Status Output	Setpoint Adjustment	Room Temp Sensor & Tenant Override	DC Signal Common
Sensors	Basic Room Sensor (Part No. 910152149) / Basic Room Sensor with Cool to Warm Adjustment (910171464)*			

Note: *The "3 (SP)" terminal is not used with sensor part number 910152149. Used with sensor 910171464 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.

IMPORTANT

Microtech III jumpers and MT2300 configuration switches must be configured per the WSHP IM.

For MicroTech III, Jumper JP6 must be shorted for room sensor control of unit. Jumper JP5 should be open for $\pm 5^{\circ}\text{F}$ adjustment.

For the MT2300 unit controller, configuration switch SW6 must be ON for room sensor control of unit. Configuration switch SW5 should be OFF for $\pm 5^{\circ}\text{F}$ adjustment.

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

Resistance					
$^{\circ}\text{F}$	$^{\circ}\text{C}$	Ohm	$^{\circ}\text{F}$	$^{\circ}\text{C}$	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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