Installation Operation & Maintenance Data

IOM 1177-1

Group: **WSHP**

Part Number: **910133392**

Date: **October 2013**

Room Temperature Sensor – Adjustable Cool/Warm With Occupancy Switch (Sensor Part No. 910121753)

Used With:

Water Source Heat Pumps

- SmartSource Units with MicroTech® III Controls – Models GS & GT
- Enfinity™ Units with MicroTech III Controls – Models CCH, CCW; VFC, VFW; LVC, LVW; MHC, MHW & VHC, VHF

IMPORTANT!

Operator, save these instructions for future use!

Contents

Safety

⚠ WARNING

Wiring connections must be made in accordance with all applicable electrical codes. Failure to read and follow all instructions carefully before installing or operating this control could cause personal injury and/or property damage.

⚠ CAUTION

To prevent electrical shock, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.

NOTICE

If in doubt about whether your wiring is millivolt, line, or low voltage, have it inspected by a qualified heating and air conditioning contractor or electrician.

Do not exceed the specification ratings.

All wiring must conform to local and national electrical codes and ordinances.

This control is a precision instrument, and should be handled carefully. Rough handling or distorting components could cause the control to malfunction.

The remote sensors cannot be used with systems where power interruptions are part of normal system operation.

NOTICE

MERCURY NOTICE

This product does not contain mercury. However, this product may replace a product that contains mercury. Mercury and products containing mercury must not be discarded in household trash. Do not touch any spilled mercury. Wearing non-absorbent gloves, clean up any spilled mercury and place in a sealed container. For proper disposal of a product containing mercury or a sealed container of spilled mercury, place it in a suitable shipping container. Refer to www.thermostat-recycle.org for location to send the product containing mercury.

Applications

The display sensor 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
Water Source Heat Pumps	Horizontal	Enfinity™	W. CCH, CCW	MicroTech III Unit Controller	Yes
	Vertical		W. VFC, VFW		
	Vertical Stacked		W. VHC		
	Console		W. MHC, MHW		
	Horizontal & Vertical	SmartSource 1-Stage	W. GSH, GSV	MicroTech III SmartSource Unit Controller	
		SmartSource 2-Stage	W. GTH, GTV		
	Vertical	SmartSource Inverter	W. DFW	Daikin Inverter Controller	No

The display sensor for water source heat pump applications is shown in Table 2

Table 2: Water source heat pump application guide

Units	Product		Models	Applications									
				Cooling	Heating	Dehumidification					Electric Heat			Water-side Economizer
				Stages		Smart Dehumidification	Hot Gas Reheat	Simplified	Humidistat Controlled	Dehumidification Only	Boilerless	Supplemental	Primary	3-Way Valve Control
Water Source Heat Pumps	Horizontal	Enfinity	W. CCH, CCW	1	1	No	No	No	No	No	No	No	No	No
	Vertical		W. VFC, VFW	1	1	No	Yes	No	No	No	Yes[1]	Yes	No	No
	Vertical Stacked		W. VHC	1	1	No	No	No	No	No	No	No	No	No
	Console		W. MHC, MHW	1	1	No	No	No	No	No	Yes[1]	Yes	No	No
	Horizontal & Vertical	SmartSource 1-Stage	W. GSH, GSV	3	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Horizontal & Vertical	SmartSource 2-Stage	W. GTH, GTV	3	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Vertical	SmartSource Inverter	W. DFW	NA	NA	No	No	No	No	No	No	No	No	No

Note: *[1]With optional Boilerless controls*

Termination

Daikin recommends using seven conductor shielded cable 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. 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.

Installation

Mounting

Location

Note: *Mount the thermostat about five feet above the floor. Do not mount the thermostat on an outside wall, in direct sunlight, behind a door, or in an area affected by a vent or duct.*

Junction Box, (J-Box)

⚠ DANGER

Hazardous Voltage!
Turn off power at the main service panel by removing the fuse or switching the appropriate circuit breaker to the OFF position before removing the existing thermostat.

IMPORTANT!

Thermostat installation must conform to local and national building and electrical codes and ordinances.

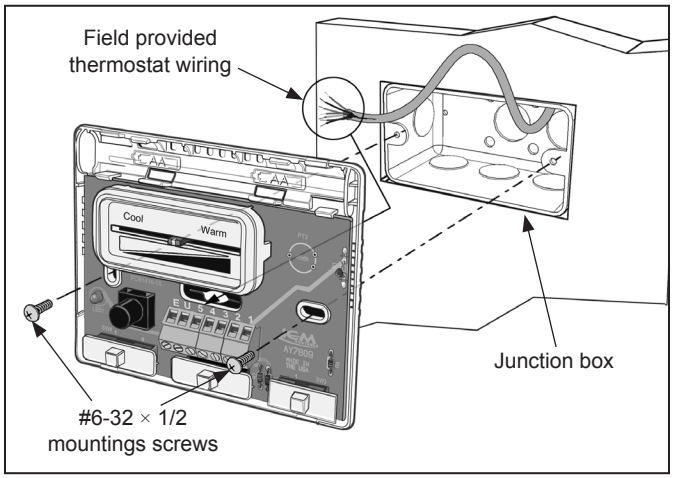
1. To remove cover, insert and twist a coin or screwdriver in the slots on the thermostat.
2. Pull the wire through the wall and out of the junction box, leaving about six inches free. Note that the J-box must be rotated to the horizontal position to accommodate the proper mounting position. See Figure 1.
3. Pull the wire through the hole in the base plate.
4. Secure the back plate to the box using #6-32 × 1/2 inch mounting screws.
5. Screw the plate firmly to the wall so the foam plate backing is compressed about 50%.
6. Terminate the unit according to the guidelines in the "Field Wiring" section.

⚠ CAUTION

Be sure exposed portion of wires do not touch other wires.

7. Attach cover by placing the top of the cover on the back base and snapping the bottom into position.

Figure 1: Junction box mounting



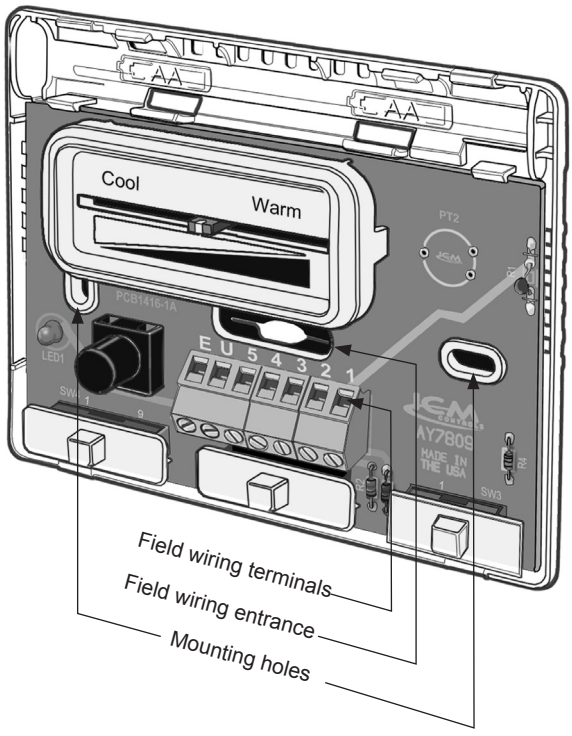
Drywall Mounting

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. Mark out the center hole for the field wiring entrance and drill one 1/2" hole in the middle of the marked wiring 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 #6 × 1" mounting screws.
7. Screw the plate firmly to the wall so the foam plate backing is compressed about 50%.
8. Terminate the wiring according to the guidelines in the "Field Wiring" section.
9. Attach cover by placing the top of the cover on the back base and snapping the bottom into position.

Note: *1. In any wall-mount application, the wall temperature and the temperature of the air within the wall cavity can cause erroneous readings.*

2. 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.

Figure 2: Field mounting and wiring termination



Field Wiring

Wiring between the sensor and the water source heat pump unit for typical heating and cooling operation is shown in Figure 3.

Figure 3: Field wiring

SmartSource™ Board	MicroTech® III Board						
	Base Board						
Terminal Block Label	TB1-1	TB1-2	TB1-3	TB1-4	TB1-5	TB3-1	TB3-2
Description	Unit Status Output	Fan & Unit Mode	Setpoint Adjust	Room Temp Sensor & Tenant Override	DC Signal Common	Emergency Shutdown Input	Unoccupied Input
Terminal Label	1	2	3	4	5	E	U
Typical Wiring	↕	↕	↕	↕	↕	↕	↕
Terminal Label	1	2	3	4	5	E	U
Description	Unit Status LED Input	Fan & Unit Mode	Setpoint Adjustment	Room Temperature Sensor & Tenant Override	DC Signal Common	Emergency Shutdown	Unoccupied
Adjustable Cool/Warm Room Temperature Sensor with Occupancy Switch (Part No. 910121753)							

Maintenance

Wipe the thermostat case as needed with a damp, water only cotton cloth. Do not use any type of cleaner as it may damage the buttons or labeling. Do not paint.

Terminal Descriptions

1 – Unit Status Indicator Input from the MicoTech III SmartSource Unit Controller. (5VDC)

2 - Output Signal, Fan and Unit Mode (0 to 5VDC)

3 - Output Signal, Setpoint Adjustment

4 - Output Signal, Room Temp Thermistor Sensor. (10K ATP Z curve, 10K-2)

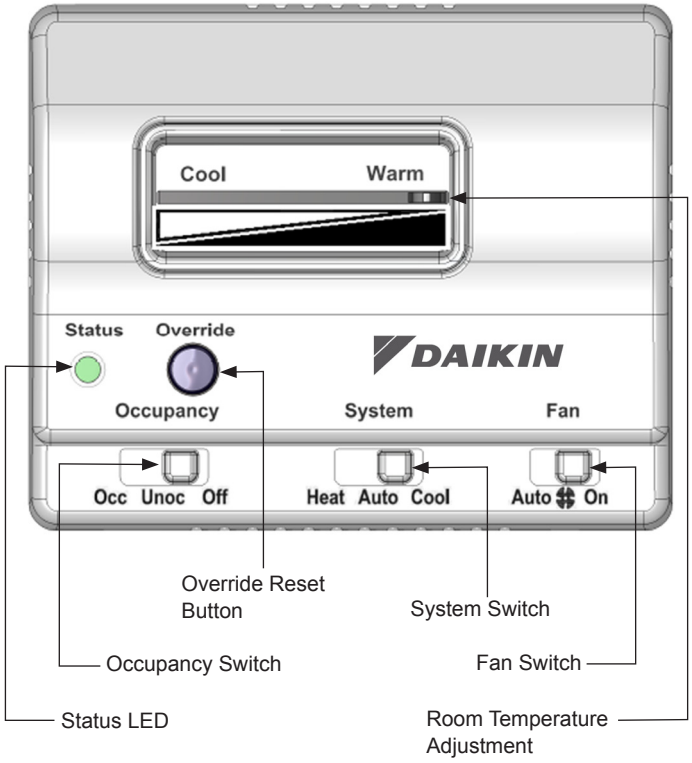
5 - Ground or Neutral. Common Reference for All Signal Terminals

E – Emergency Shutdown. (Terminal grounded when in System “Off” mode)

U - Unoccupied Contact. (Terminal grounded when in Unoccupied)

Sensor Functions

Figure 4: Sensor switches and functions



This sensor is used for water source heat pump applications requiring the following functionality:

- **Cool/Warm Room Temperature Adjustment** – This slide adjustment is used to set the desired room temperature. To increase the desired room temperature, move the slide to the right toward "Warm". To decrease the desired room temperature, move the slide to the left toward "Cool".
- **Occupancy Switch** – Move the switch to the "Occ" to allow the unit to operate in the occupied mode. Move the switch to the "Unoc" to allow the unit to operate in the unoccupied mode. Move the switch to the "Off" so heating, cooling and the fan remain off.
- **System Switch** – Set to "Heat" for heating only operation. Set to "Auto" for operation of heating or cooling as needed to satisfy the room setpoint conditions. Set to "Cool" for cooling only operation. The output voltage on Terminal 2 will change based on the system mode selection.
- **Fan Switch** – Set to "Auto" to allow the fan to cycle with all requests for heating or cooling capacity. Set to "On" to allow the fan to operate continuously as long as the MicroTech III control is not in an alarm condition.
- **Status LED** – This green LED will light to indicate the system status. See Table 8 for unit status LED definitions.
- **Override Button** – When the "Override" button is pressed, the thermistor sensor across terminal 4 is shorted. If held for more than 5 seconds but less than 11 seconds, it puts the water source heat pump controller into a timed Occupied Override. If the unit is in alarm, then holding the "Override" Button for more than 11 seconds will clear all alarms in the water source heat pump controller but only if the cause of the alarm has already returned to its non-alarm condition. Some alarms will not reset from the room sensor.

In this case, power to the unit must be cycled off for 5 seconds to clear the alarm. Continuously resetting alarms from the room sensor could damage the controller. Please call a service technician when repeated alarm resets are required to keep the unit operational.

Table 8: WSHP unit status LED definition

Status LED		Unit Status	Unit Operation
ON	OFF		
0.5 seconds	0.5 seconds	Controller Off (or Network "Wink" operation active)	"Alarm"
0.0 seconds	Continuous	Unit running in Night Setback Override Mode or no power to the sensor	"Override"
0.5 seconds	5.5 seconds	Unoccupied Mode	"Unoccupied"
5.5 seconds	0.5 seconds	Standby Mode	"Energy Save" or "Load Shed" command from Energy Management System
Continuous	0.0 seconds	Occupied Mode	"Occupied"

This page left blank intentionally