Basic Room Sensors

Used with:
- Water Source Heat Pumps (WSHP)
- SmartSource® Units - Models GS, GT & GCV
- Enfinity™ Units with MicroTech® III Controls - Models CCH, CCW; VFC, VFW; LVC, LVW; MHC, MHW & VHC, VHF
- Fan Coil Units (FCU)

The basic room sensor (910152149) and the basic room sensor with cool to warm (910171464) are used in conjunction with the MicroTech III 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**

<table>
<thead>
<tr>
<th>Units</th>
<th>Product</th>
<th>Models</th>
<th>Controls</th>
<th>Used with Basic Room Temperature Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Source Heat Pumps</td>
<td>Horizontal</td>
<td>Enfinity™</td>
<td>W.CCH, CCW</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Vertical</td>
<td></td>
<td>W.VFC, VFV, LVC, LVW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vertical Stacked</td>
<td></td>
<td>W.VHC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Console</td>
<td></td>
<td>W.MHC, MHW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Horizontal &amp; Vertical</td>
<td>SmartSource 1-Stage</td>
<td>W.GCV, GSH, GSV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MicroTech III SmartSource Unit Controller</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fan Coils</td>
<td>Horizontal</td>
<td>ThinLine™ FC.H, FH.H</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Vertical</td>
<td></td>
<td>FC.V, FH.V</td>
<td></td>
</tr>
</tbody>
</table>

Note: 1With optional boilerless controls

The basic room sensors for water source heat pump applications are shown in Table 2.

**Table 2: Water source heat pump application guide**

<table>
<thead>
<tr>
<th>Units</th>
<th>Product</th>
<th>Models</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Source Heat Pumps</td>
<td>Horizontal</td>
<td>W.CCH, W.CCW</td>
<td>Stages: 1, 1, No, No, No, No, No, No, No, No</td>
</tr>
<tr>
<td></td>
<td>Vertical</td>
<td>W.VFC, W.VFW</td>
<td>Stages: 1, 1, No, Yes, No, No, No, Yes1, No, No, No</td>
</tr>
<tr>
<td></td>
<td>Vertical Stacked</td>
<td>W.VHC</td>
<td>Stages: 1, 1, No, No, No, No, No, No, No, No</td>
</tr>
<tr>
<td></td>
<td>Console</td>
<td>W.MHC, W.MHW</td>
<td>Stages: 1, 1, No, No, No, No, Yes1, No, No, No</td>
</tr>
<tr>
<td></td>
<td>Horizontal &amp; Vertical</td>
<td>SmartSource 1-Stage</td>
<td>W.GCV, GSH, GSV</td>
</tr>
<tr>
<td></td>
<td>Horizontal &amp; Vertical</td>
<td>SmartSource 2-Stage</td>
<td>W.GTH, W.GTV</td>
</tr>
</tbody>
</table>

Note: 1With optional boilerless controls

**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)

**Specifications**

**Sensor**
Temperature ............. 10K-2 Thermistor, ±0.36°F (±0.2°C)

**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**
32° to 122°F (0° to 50°C), 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 it 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 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.

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.

Note: The AC power wiring at terminals [R] & [S] 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 unit controller. (5VDC).
2. Unit Status Output
3. Room Sensor – Setpoint Adjust
4. Room Temp Sensor & Tenant Override
5. DC Signal Common

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

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**Terminal Block Label**

<table>
<thead>
<tr>
<th>SmartSource Board</th>
<th>MicroTech III Base Board</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Terminal Label</strong></td>
<td><strong>TB1-1</strong></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Unit Status Output</td>
</tr>
<tr>
<td><strong>Typical Wiring</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Terminal Label</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Unit Status Output</td>
</tr>
<tr>
<td><strong>Sensors</strong></td>
<td>Basic Room Sensor (Part No. 910152149) / Basic Room Sensor with Cool to Warm Adjustment (910171464)*</td>
</tr>
</tbody>
</table>

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

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**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.

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

<table>
<thead>
<tr>
<th>Resistance</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>°C</td>
</tr>
<tr>
<td>42.8</td>
<td>6</td>
</tr>
<tr>
<td>46.4</td>
<td>8</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>53.6</td>
<td>12</td>
</tr>
<tr>
<td>57.2</td>
<td>14</td>
</tr>
<tr>
<td>60.8</td>
<td>16</td>
</tr>
<tr>
<td>64.4</td>
<td>18</td>
</tr>
<tr>
<td>68</td>
<td>20</td>
</tr>
</tbody>
</table>

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**Diagnostics**

**IMPORTANT**

Microtech III jumpers must be configured per the WSHP IM. Jumper JP6 must be shorted for room sensor control of unit. Jumper JP5 should be open for ±5°F adjustment.

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**Daikin Applied Training and Development**

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at www.DaikinApplied.com and click on Training, or call 540-248-9646 and ask for the Training Department.

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**Aftermarket Services**

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Products manufactured in an ISO Certified Facility.