Infinity™ Smart Sensor for Zoning

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Installation and Start-Up Instructions

NOTE: Read the entire instruction manual before starting the installation.

This symbol → indicates a change since the last issue.

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for brazing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements.

It is important to recognize safety information. This is the safety-alert symbol ⚠ . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **would** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

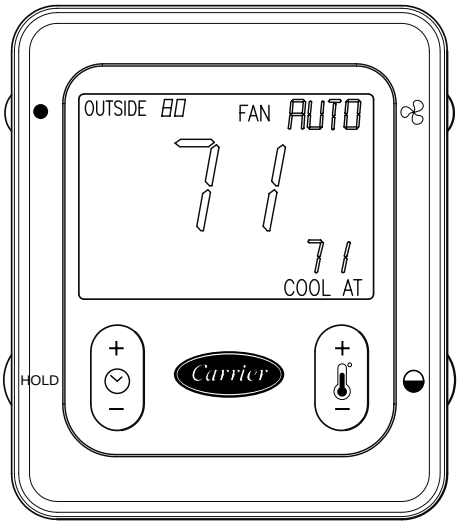
INTRODUCTION

Carrier's Infinity Smart Sensors are optional replacements for Remote Room Sensors used with Infinity zoning systems. They allow viewing and adjustment of temperatures from within the zone. UNOCCUPIED, HOLD, and FAN control features can also be controlled from Smart Sensors.

INSTALLATION CONSIDERATIONS

Any zone may use a Smart Sensor. It provides a temperature display and buttons to adjust the desired temperature in that zone only. It also displays outdoor temperature and indoor humidity. The Smart Sensor can be ″home run″ wired directly to the Damper Control Module, or ″daisy chained″ from the User Interface or another Smart Sensor via 4-wire ABCD communication bus. Ordinary thermostat wire is recommended; however, solid conductor, stranded, or shielded wire may be used. Use 22 AWG or larger for normal wiring applications. Continuous wire lengths over 100 ft. should use 20 AWG or larger. Plan the connection of each Smart Sensor to provide easiest wiring route.

NOTE: Whenever possible, it is suggested to always ″home run″ wires back to the Damper Control Module for convenience of troubleshooting. Using a ″pig-tailed″ connection, or a field supplied terminal block may be helpful in achieving proper wire termination at the Damper Control Module.



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HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)
4	3-1/2	1

Infinity Smart Sensor
SYSTXCCSMS01

A Smart Sensor may now be used to control Zone 1. In addition, a Remote Room Sensor may also be used in the same zone. If a Remote Room Sensor is applied in the same zone, the Remote Room Sensor has temperature priority over the Smart Sensor.

INSTALLATION

Step 1—Select Smart Sensor Location

Sensor should be mounted:

- Approximately 5 ft. (1.5m) from floor.
- Close to center of zone, preferably on inside partitioning wall.
- On section of wall without pipes or ductwork.
- Where wiring can be routed to it within wall. Avoid running directly next to other AC power.

Sensor should **NOT** be mounted:

- Close to a window, on outside wall, or next to a door leading to the outside.
- Exposed to direct light and heat from a lamp, sun, fireplace, or other temperature radiating object which may cause a false reading.
- Close to or in direct airflow from supply registers and return-air grilles.
- In areas with poor air circulation, such as behind a door or in an alcove.
- Do not run wires next to AC power lines.

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

Step 2—Install Smart Sensor

⚠ WARNING

ELECTRICAL SHOCK HAZARD
Failure to follow this warning could result in personal injury or death.
Before installing sensor, turn off all power to unit. There may be more than 1 power disconnect.

1. Turn OFF all power to unit.
2. If an existing thermostat or sensor is being replaced:
   a. Remove existing device from wall.
   b. Disconnect wires from existing device, 1 at a time. Be careful not to allow wires to fall back into wall.
   c. Discard or recycle old device.
   d. If 4 wires exist in wall, they may be used. If not, plan and route wiring to connect with either the Damper Control Module, or User Interface. Multiple Smart Sensors may be daisy chained together, but somewhere chain must connect to either Damper Control Module or User Interface. (Smart Sensor daisy chain wire limit is 100 ft.)
   Recommended connection is:
   A - Green = Data A
   B - Yellow = Data B
   C - White = 24vac (com)
   D - Red = 24vac (hot)

NOTE: It is not mandatory that the above color code be used, but each ABCD connection in the system **MUST** be wired consistently.

3. To mount Smart Sensor, remove rear mounting base. Route wires through hole in mounting base and level base against wall.
4. Mark wall through 2 mounting holes and drill two 3/16-in. holes. Secure assembly to wall with 2 anchors and screws provided, making sure all wires properly extend through opening.
5. Adjust length and routing of thermostat wire to reach each terminal entry on the connector. Strip 1/4-in. of insulation from each wire and properly connect to A-B-C-D.
6. Push any excess wire into the wall. Seal hole in wall to prevent any air leaks. Leaks can affect Smart Sensor operation.
7. Attach Infinity™ Smart Sensor to the mounting base by lining up the plastic guides and gently snapping assembly together.

⚠ CAUTION

ELECTRICAL OPERATION HAZARD
Failure to follow this caution may result in equipment damage or improper operation.
Improper wiring or installation may damage the Smart Sensor. Check to make sure wiring is correct before proceeding with installation or turning on unit.

Step 3—Setup and Checkout

NEW SMART SENSOR SETUP

Upon initial power up, the Smart Sensor will need to be properly addressed. The ZONE icon will be displayed and default zone number ″2″ will be shown in the temperature display. The word SETUP will also appear in the lower left text area. Use the TEMP (+/-) button to select the correct zone address number 1 through 8. If only one Damper Control Module exists, the zone address selection will only be 1 through 4. Once the zone number is selected, press the FAN button to store the zone address and exit the setup menu. The Smart Sensor is ready to operate.

CHANGING ZONE ADDRESS

To change an existing zone address; enter the setup menu by pressing the FAN button for 10 seconds until the ZONE icon is displayed. Use the TEMP (+/-) button to select the correct zone address and then press the FAN button once to automatically save and exit the setup menu. If no buttons are pressed for approximately 3 minutes, the screen will automatically save and exit back to a normal display.

NOTE: If the Zone Control (User Interface) is configured for non-programmable operation, the Smart Sensor will ignore HOLD and Override functions at the Smart Sensor.

BACKLIGHTING

The LCD backlighting will energize whenever a button is pressed. The backlighting will de-energize after 10 seconds of no push button or activity. To enable constant backlighting, press the FAN button for 10 seconds to enter setup menu. Use the HOLD button to toggle between ″LIGHT OFF″ and ″LIGHT ON″ which will enable a fixed low intensity backlight. Press the FAN button to save all settings and exit the setup menu.

FAN BUTTON

Pressing the FAN button momentarily will scroll through: AUTO, LOW, MED, and HIGH speed continuous fan operation. Also, the FAN button is used to enter into the setup mode by holding the FAN button for 10 seconds.

HUMIDITY/OAT BUTTON

Pressing the HUMIDITY/OAT button will toggle between the Outside Temperature and Indoor Relative Humidity reading (humidity reading at User Interface). The LCD will revert back to the outside temperature after 5 seconds.

COOL/HEAT BUTTON

Use the COOL/HEAT button to change between ″COOL AT″ and ″HEAT AT″ setpoints.

TEMPERATURE UP/DOWN BUTTON

Use the TEMP (+/-) button to change and select a zone temperature setpoint. Changing the setpoint will cause the Override timer to be displayed (i.e. 2-hours). This can either be increased or decreased by using the TIME (+/-) button. In addition, if the active mode is heating; the ″HEAT AT″ icon will appear, or likewise ″COOL AT″ icon will appear, depending on the mode setting at the Zone Control (User Interface).

TIME UP/DOWN BUTTON

When the TIME (+/-) button is pressed during a normal operation, the ″OVERRIDE″ icon is displayed and the timer is shown (default is 2-hours). The program will continue to hold the currently displayed setpoint for that amount of time. While the timer is shown, the TIME buttons can be used to raise or lower the Override timer in 15-minute increments up to a maximum of 24 hours. If the time is decreased to zero, the Override text disappears along with the timer and the program resumes regular operation.

HOLD/UNOCCUPIED BUTTON

Pressing the HOLD button momentarily will display the ″HOLD″ icon and the system will continue using the active (displayed) temperature setpoints indefinitely. Pressing the HOLD button again removes the ″HOLD″ icon and the system resumes normal programming schedules.
Pressing the HOLD button for approximately 3 seconds activates the ″UNOCCUPIED″ icon. This will be displayed in the lower left area of the LCD and the unoccupied temperature settings will be

displayed. Pressing the HOLD button again cancels the ″UNOCCUPIED″ icon. When Unoccupied exits, the Smart Sensor will return to the current operating mode.

SYSTEM OFF

When the Zone Control (User Interface) OFF button is pressed, the Smart Sensor will show ″SYSTEM OFF″ in the lower left text area of the display screen. The end user will be unable to operate the system from the Smart Sensor.

KEYPAD LOCK

The Smart Sensor can be locked if the FAN and HUMIDITY/OAT buttons are pressed simultaneously for approximately 3 seconds. A padlock icon will appear and all push button functions will be ignored. Pressing the FAN and HUMIDITY/OAT buttons again for 3 seconds will unlock the Smart Sensor.

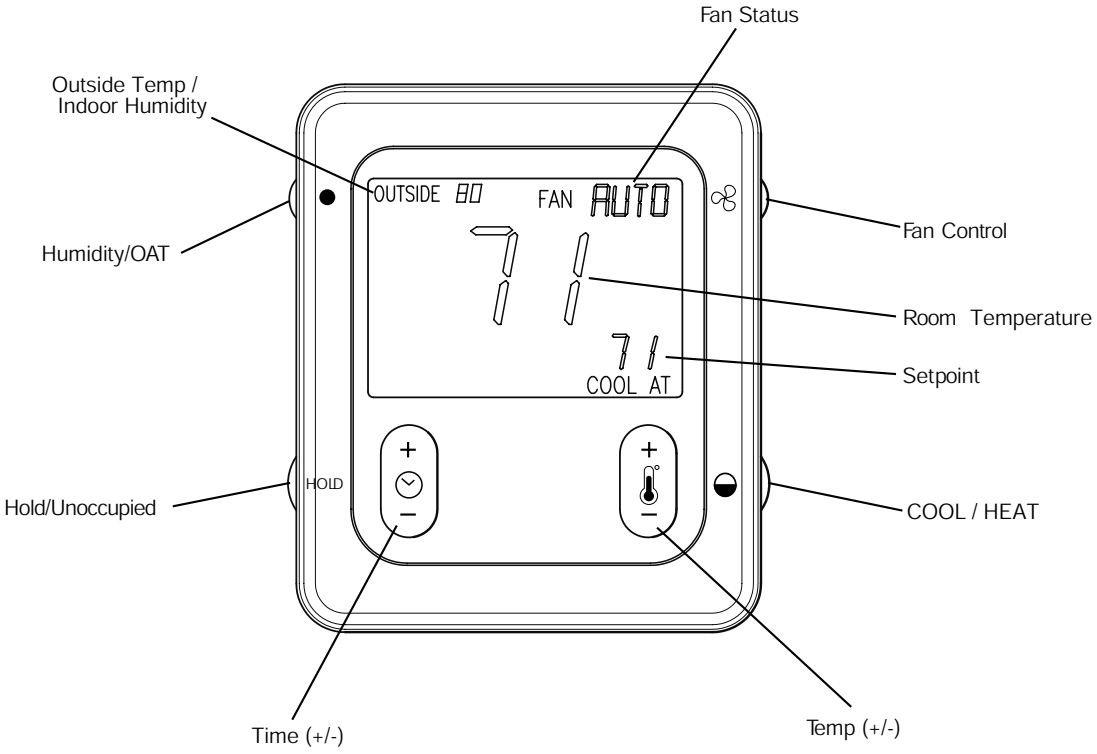
VACATION

When the VACATION mode is activated from Zone Control (User Interface), the Smart Sensor will display the ″VACATION″ icon in the lower left area of the LCD. If the TEMP (+/-) button is pressed, the Override timer will display ″2-hours″. This can either be increased or decreased with the TIME (+/-) button. When the Override timer expires, the Vacation setpoints return.

ERROR DISPLAY

COM ERROR (Communication Error) will be displayed If the Smart Sensor cannot send or receive communication data with the Zone Control (User Interface). Check ABCD wiring and Zone address.

SYST ERROR (System Error or Malfunction) will be displayed if a system critical error is active at the Zone Control (User Interface). Check fault history at the Zone Control (User Interface).

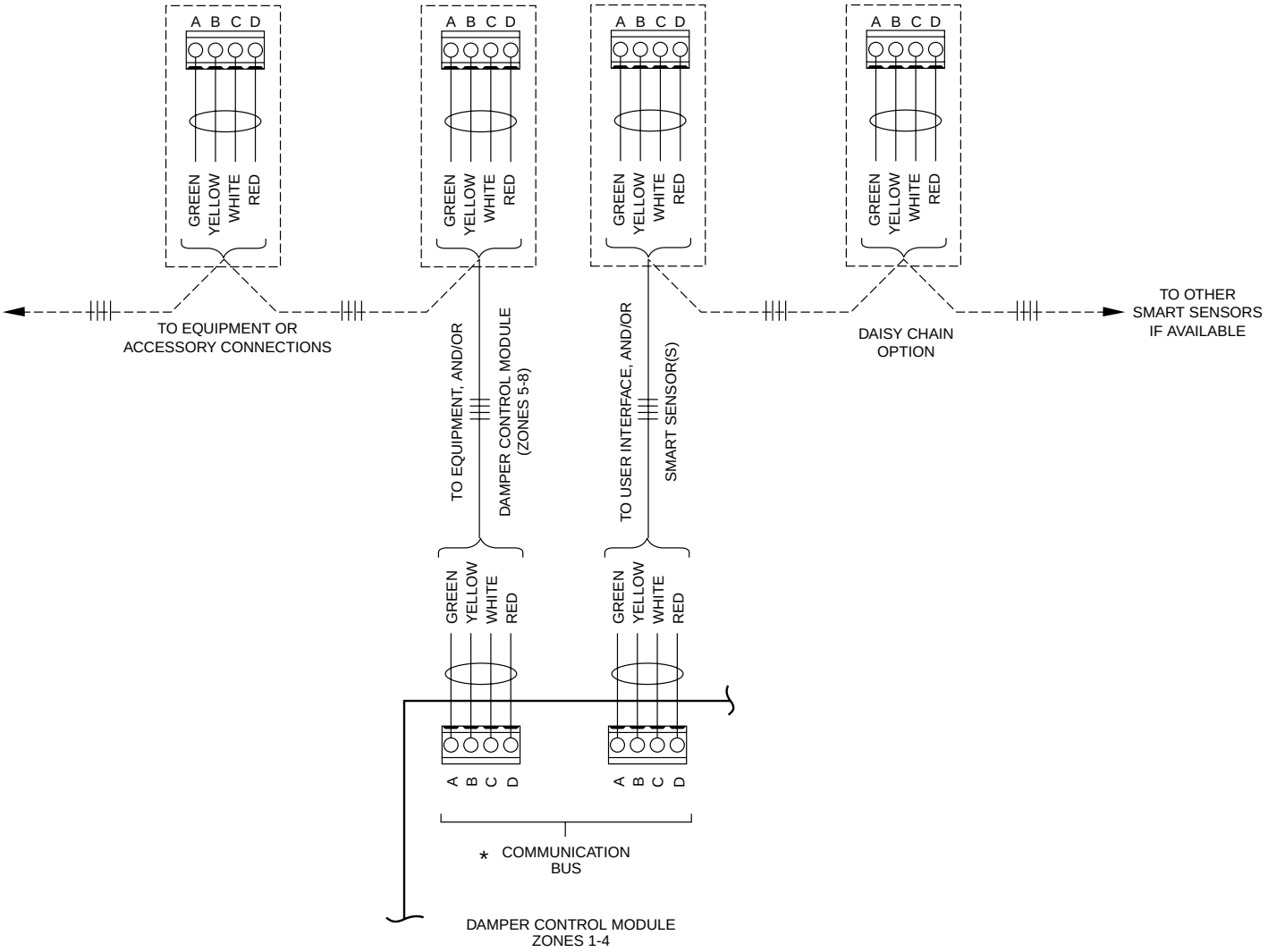


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Fig. 2 — Smart Sensor Functions

NOTE: * ABCD Connections are in Parallel with each other.
Smart Sensors and Equipment may be connected in any combination.

For easier troubleshooting, the installer may elect to use one terminal block
for user interface and smart sensor connections, and the other for equipment connections.

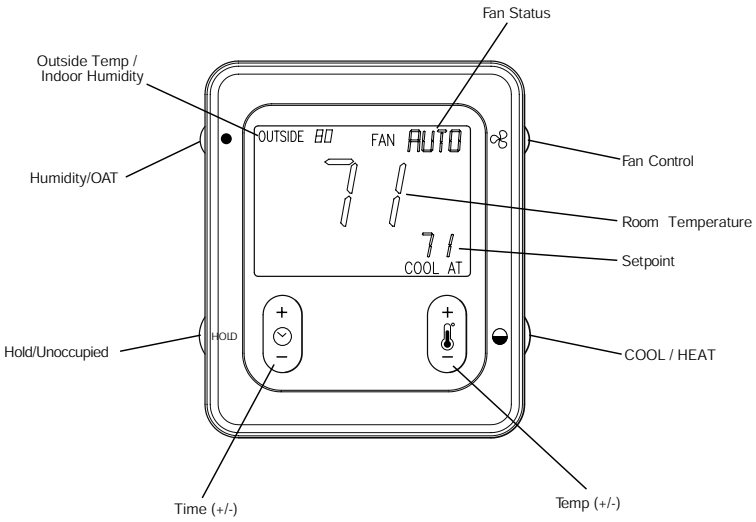


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Fig. 3 — Typical Smart Sensor Wiring Diagram

SMART SENSOR OPERATION

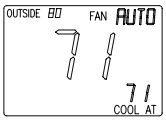
The Infinity Smart Sensor allows control and changing of zone temperature setpoints. Continuous FAN selection is available; AUTO, LOW, MED, HIGH. Other features include viewing Outdoor Temperature and Indoor Relative Humidity. Infinity Smart Sensor Functions also include; HOLD and UNOCCUPIED settings.



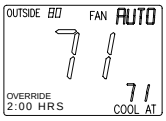
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CHANGING DESIRED TEMPERATURE

- The current zone temperature will be displayed in the LCD.
- Press COOL/HEAT button to change between ″COOL AT″ and ″HEAT AT″ setpoints.
- Press Temp (+/-) button to raise or lower setpoints.
- The default time for temporarily overriding the temperature schedule is 2:00 HRS as indicated by the text in the lower left screen.
- Temporary override time can be changed in 15-minute increments by pressing the TIME (+/-) button to increase or decrease the override timer.



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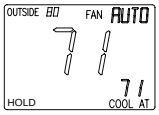


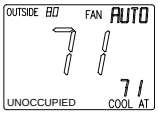
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NOTE: Override will not appear if programming has been turned off.

HOLD/UNOCCUPIED

- Pressing HOLD / UNOCCUPIED button will display HOLD allowing setpoints to remain permanent and override any existing program schedules. Pressing HOLD/UNOCCUPIED button again will release HOLD and return to previous program schedules.
- Pressing HOLD/UNOCCUPIED button for approximately 3 seconds will display UNOCCUPIED status on lower left screen. Pressing button again for approximately 3 seconds will release UNOCCUPIED status and return to previous mode.

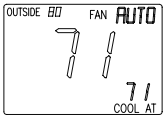




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CONTINUOUS FAN ADJUSTMENT

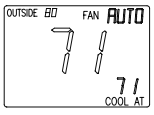
- Pressing the FAN button will scroll through the following: AUTO, LOW, MED, HIGH.
- When AUTO is selected, zone airflow is available only when a heating or cooling demand exists within the zone.
- When LOW, MED, or HIGH is selected, zone airflow will be continuous without a heating or cooling demand.

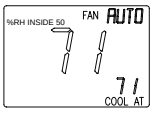


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OUTDOOR TEMPERATURE AND INDOOR RELATIVE HUMIDITY

- The current outside temperature is displayed in upper left corner of the LCD.
- Press and release the HUMIDITY/OAT button to view % Indoor Relative Humidity, value is measured at Zone Control (User Interface).
- Outdoor temperature will return after five seconds, or after the button is pressed again.





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Tab 3a 5a 2a 5a PC 101 Catalog No. 809-50013 Printed in U.S.A. Form ZONESMS-1SI Pg 8 7-04 Replaces: NEW