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.

INTRODUCTION
Carrier’s Smart Sensors are optional replacements for Remote Sensors used with Comfort Zone II zoning systems. They allow viewing and adjustment of temperatures from within the zone. OUT, OFF, and HOLD features can also be controlled from Smart Sensors.

INSTALLATION CONSIDERATIONS
The Smart Sensor is connected to either Equipment Controller, User Interface, or another Smart Sensor via 4-wire communication bus. Wiring can be "home run" or "daisy chained." (Smart Sensor daisy chain wire limit is 1000 ft.) Solid conductor, stranded, or shielded wire work equally well. Wire size may range from 16 to 22 gage. Plan the connection of each Smart Sensor to provide easiest wiring route.

If Smart Sensor is used, Remote Sensor must NOT be applied for that zone.

The Smart Sensor cannot be used to control Zone 1.

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.

Step 2—Install Smart Sensor
Before installing sensor, turn off all power to unit. There may be more than 1 power disconnect. Electrical shock can cause personal injury or death.

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 either to Equipment Controller or to User Interface. Multiple Smart Sensors may be daisy chained together, but somewhere chain must connect to

Comfort Zone II Smart Sensor

• On section of wall without pipes or duct work.
• 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.

Height (in.) | Width (in.) | Depth (in.)
--- | --- | ---
3-1/2 | 5-3/4 | 1-3/8

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either Equipment Controller or User Interface. (Smart Sensor daisy chain wire limit is 1000 ft.) Recommended connection is RED to V+, WHITE to VG, BLUE or YELLOW to RS+, and GREEN to RS-.

3. To mount Smart Sensor, open door to expose buttons. Remove door by snapping apart at hinge. Open circuit board from mounting base by pressing in on right end of back half of plastic and pulling 2 halves apart at right end. Separate these 2 halves by snapping hinge apart again. Handle circuit board carefully, be sure not to damage glass sensor marked R20.

4. Route wires through large hole in mounting base. Level mounting base against wall and mark wall through 2 mounting holes.

5. Drill two 3/16-in. mounting holes in wall where marked.

6. Secure mounting base to wall with 2 anchors and screws provided, making sure all wires extend through hole in mounting base.

7. Adjust length and routing of each wire to reach proper terminal and connector block on mounting base with 1/4 in. of extra wire. Strip only 1/4 in. of insulation from each wire to prevent adjacent wires from shorting together when connected.

8. Match and connect 4 wires: RED to V+, WHITE to VG, BLUE or YELLOW to RS+, and GREEN to RS-.

**CAUTION**

Improper wiring or installation may damage the Smart Sensor. Check to make sure wiring is correct before proceeding with installation or turning on unit.

9. Push any excess wire into wall and against mounting base. Seal hole in wall to prevent air leaks. Leaks can affect operation.

10. Replace circuit board by snapping hinge back together and carefully closing circuit board into base so that connector pins engage socket in base. Snap cover hinge together and close cover.

Step 3—Setup and Checkout

→ NOTE: If the system is operated before Smart Sensor address selections have been made, a C1 communications failure message may appear. Follow method below to avoid C1 communications failure message.

The preferred setup sequence is to first check out system without Smart Sensors connected. Smart Sensors can be disconnected from the system by opening the circuit board from mounting base on every Smart Sensor. Check out the system according to the Comfort Zone II Installation Instructions. The zones with Smart Sensors will not be recognized. After this step is complete, proceed with the following:

1. Reconnect any 1 Smart Sensor by closing circuit board into base.

→ 2. Each Smart Sensor must be assigned to its zone by entering its zone number into it. Factory default is zone 2, displayed as 02. A special access method is provided to enter zone number. Press and hold OUT button for at least 10 sec until single 2-digit number appears in display. Release OUT button and use large UP and DOWN buttons to increase or decrease right digit until it matches the number of the zone in which it is located. The left digit must be 0. (If there are 2 zoning systems connected together on same communication bus, all smart sensors in second system must have 1 as their left digit. Use UP key to advance to second set of zone numbers with 1 in their left digit for second system.)

After address is selected, Smart Sensor will automatically exit address selection mode and return to normal operation within 15 sec.

3. Observe zone temperature displayed in window, and write it down or remember it. Use UP or DOWN keys to change set point to new value, and write it down or remember it. The new set point will be transferred to User Interface within 10 sec.

4. Go to User Interface, select new zone, and observe that zone temperature checks. Press UP key once to show set point and observe that set point checks. If these numbers agree, checkout is complete.

5. Repeat steps 1 through 4 for all Smart Sensors in system.

6. Make final settings of system mode and all set points if system is to be left in operation.

7. Inform homeowner that Smart Sensor operating information is in the Smart Sensor section of the Comfort Zone II Homeowner’s Manual.

ERROR MESSAGES

All the error messages displayed on User Interface will also be displayed on Smart Sensor. In addition, there are 3 error messages unique to Smart Sensor:

C1 — Communication failure between Smart Sensor and User Interface. This error can occur if Smart Sensors have not had proper zone numbers assigned. See Step 3, item 2.

C2 — Addressing error. An address mismatch exists between User Interface and Smart Sensor. Reassigning address to Smart Sensor may be required.

C3 — Smart Sensor memory failure. Replace Smart Sensor.
SMART SENSOR OPERATION

The Smart Sensor can control the setting of zone temperature, OUT, HOLD, or OFF. It can also display outdoor temperature and indoor humidity.

CHANGING DESIRED TEMPERATURE

1. The current temperature in that zone will be displayed in the LCD.
2. Press UP or DOWN button to display desired temperature for that zone.
3. Press UP or DOWN button again as needed until new desired temperature is shown.
4. Press SET TEMP button to change temperature between COOL desired temperature and HEAT desired temperature.
5. Pressing HOLD button will hold desired temperature setting indefinitely. Pressing HOLD button again removes HOLD function.
6. Pressing OUT button will program zone as being unoccupied. Pressing OUT button again changes zone to occupied. When a zone is set to OUT, desired temperature will be displayed as dashes.

VIEWING OUTDOOR TEMPERATURE AND INDOOR HUMIDITY

1. Pressing both UP and DOWN buttons simultaneously will display outdoor temperature, if this feature is included, and indoor humidity. Outdoor temperature will be displayed first for 5 sec, followed by humidity for 5 sec. Smart Sensor will then return to normal. The humidity value will be humidity level as measured at user interface.

NOTE: If All Zone feature has been enabled from user interface, you will not be able to override settings at Smart Sensor location. You must first remove All Zone function by pressing ALL ZONE button on user interface.

A Smart Sensor does not remove or transfer features from User Interface. It only provides a location within zone where access is provided to some of User Interface features. Any input that can be provided at Smart Sensor can also be provided at User Interface.
Typical Smart Sensor Wiring Diagram

**NOTE:**
* Smart Sensor cannot be used to control Zone 1.
** Remote Sensor must not be used when applying Smart Sensor.