SYSTXBBSMS01-E
Evolution® Smart Sensor for Zoning

bryant ®

Installation Instructions

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

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, 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, protective clothing, and work gloves. Have a fire extinguisher available. Read these instructions thoroughly and follow all warnings and cautions included in literature and attached to the unit. Consult local building codes and the current edition of the National Electrical Code (NEC) NFPA 70. In Canada, refer to the current editions of the Canadian Electrical Code CSA C22.1.

Recognize safety information. 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 **may** 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

Bryant's Evolution® Smart Sensors are optional replacements for Remote Room Sensors used with Evolution Zoning systems. It provides a temperature display and buttons to adjust the desired temperature within the zone. It also displays outdoor temperature and indoor humidity. When used with an Evolution Connex™ Control wall control- FAN, HOLD and HOLD UNTIL features are available. When used with an Evolution User Interface (UIZ) wall control- FAN, HOLD, OVERRIDE, UNOCCUPIED features are available.

INSTALLATION CONSIDERATIONS

Any zone may use an Evolution Smart Sensor. The Evolution Smart Sensor can be "home run" wired directly to the Damper Control Module, or "daisy chained" from the wall control 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.

An Evolution 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.
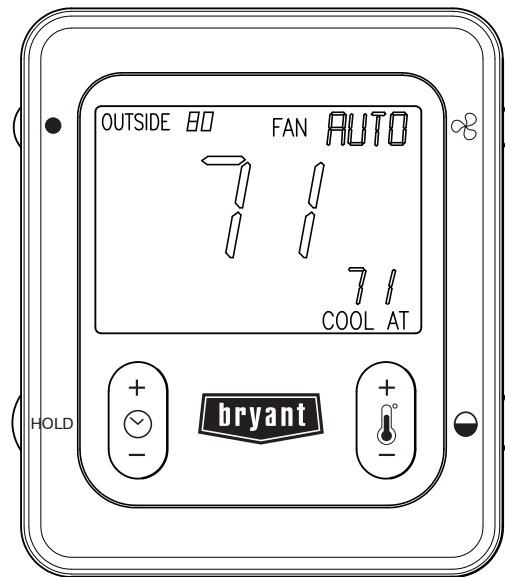

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Fig. 1 - Evolution Smart Sensor
SYSTXBBSMS01-E

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.
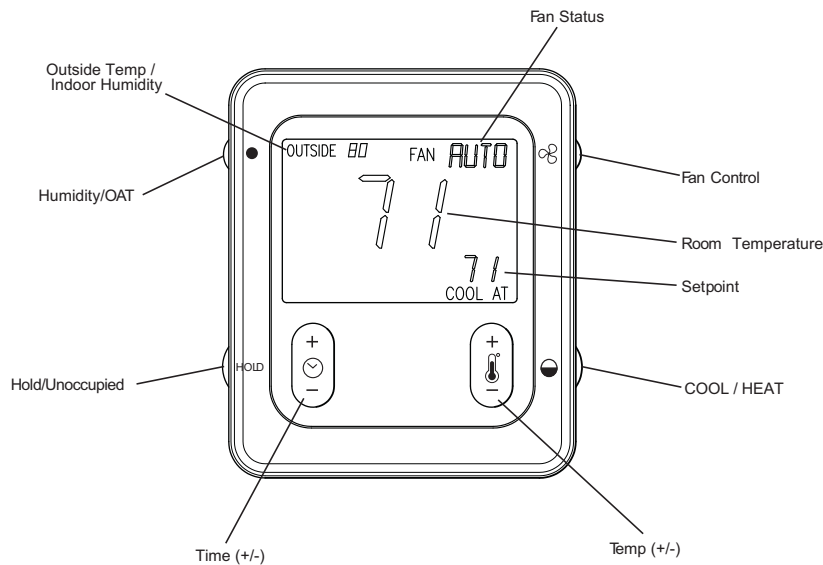- Do not run wires next to AC power lines.

Fig. 2 – Smart Sensor Functions

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Step 2 — Install Evolution 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.

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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 Evolution Smart Sensors may be daisy chained together, but somewhere chain must connect to either Damper Control Module or the Evolution Connex Control/Evolution User Interface wall control. (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 Evolution 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 EVOLUTION SMART SENSOR SETUP

Upon initial power up, the Evolution Smart Sensor will need to be properly addressed. "ZONE" 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 Evolution 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 "ZONE" 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.

To ensure that all changes are recognized by the main control, perform the "Full Installation" function in the Installation & Service Menu of the Evolution Connex Control. After zone addresses are changed.

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. If no buttons are pressed for approximately 3 minutes, the screen will automatically save and exit back to a normal display.

FAN BUTTON

Pressing the FAN button momentarily will scroll through: AUTO, LOW, MED, and HIGH speed continuous fan operation. 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 wall control). 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 a zone temperature setpoint. Depending on the active heating/cooling mode, the "HEAT AT" or the "COOL AT" setpoint will appear and will increment or decrement accordingly. If not in a "HOLD" mode, changing the setpoint, when used with an Evolution User Interface wall control, will cause the Override timer to be displayed (i.e. 2-hours). If used with an Evolution Connex Control wall control, changing the setpoint will cause a HOLD UNTIL with a default time of approximately 3 hours from the current time to be displayed. Either the Override timer or default time can be increased or decreased by using the TIME (+/-) button.

TIME UP/DOWN BUTTON

When used with Evolution User Interface wall control and the TIME (+/-) button is pressed during a normal operation, "OVERRIDE" is displayed and the Override timer is shown (default is 2-hours). When used with an Evolution Connex Control wall control and the TIME (+/-) button is pressed during a normal operation, pressing the setpoint will cause a HOLD UNTIL with a default time of approximately 3 hours from the current time to be displayed. When used with either wall control, the Override timer or default time can be increased or decreased by using the TIME (+/-) button. While the timer or default time is shown, the TIME buttons can be used to raise or lower the Override timer or the default time 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 or the default time will be replaced with "SCHEDULED," depending on the type of wall control, and the program resumes regular operation.

NOTE: If the wall control is configured for non-programmable operation, the Evolution Smart Sensor will ignore HOLD and Override functions at the Smart Sensor.

HOLD BUTTON

Pressing the HOLD button momentarily will cause "HOLD" to be displayed. The system will continue using the active (displayed) temperature setpoints indefinitely. Pressing the HOLD button again removes the "HOLD" text and the system resumes normal programming schedules. When used with an Evolution User Interface wall control, pressing the HOLD button for approximately 3 seconds will cause "UNOCCUPIED" to 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" mode and the system resumes normal programming schedules.

NOTE: The Evolution Connex Control System does not include an "unoccupied" mode.

SYSTEM OFF

When the OFF mode is selected on the Evolution Connex Control/ Evolution User Interface wall control, the Evolution 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 Evolution 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 Evolution Smart Sensor.

VACATION

When the VACATION mode is activated from Evolution Control/ Evolution User Interface wall control, the Evolution Smart Sensor will display the "VACATION" in the lower left area of the LCD. The padlock icon will appear, flash and ignore all push button functions for 15 minutes.

ERROR DISPLAY

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

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

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
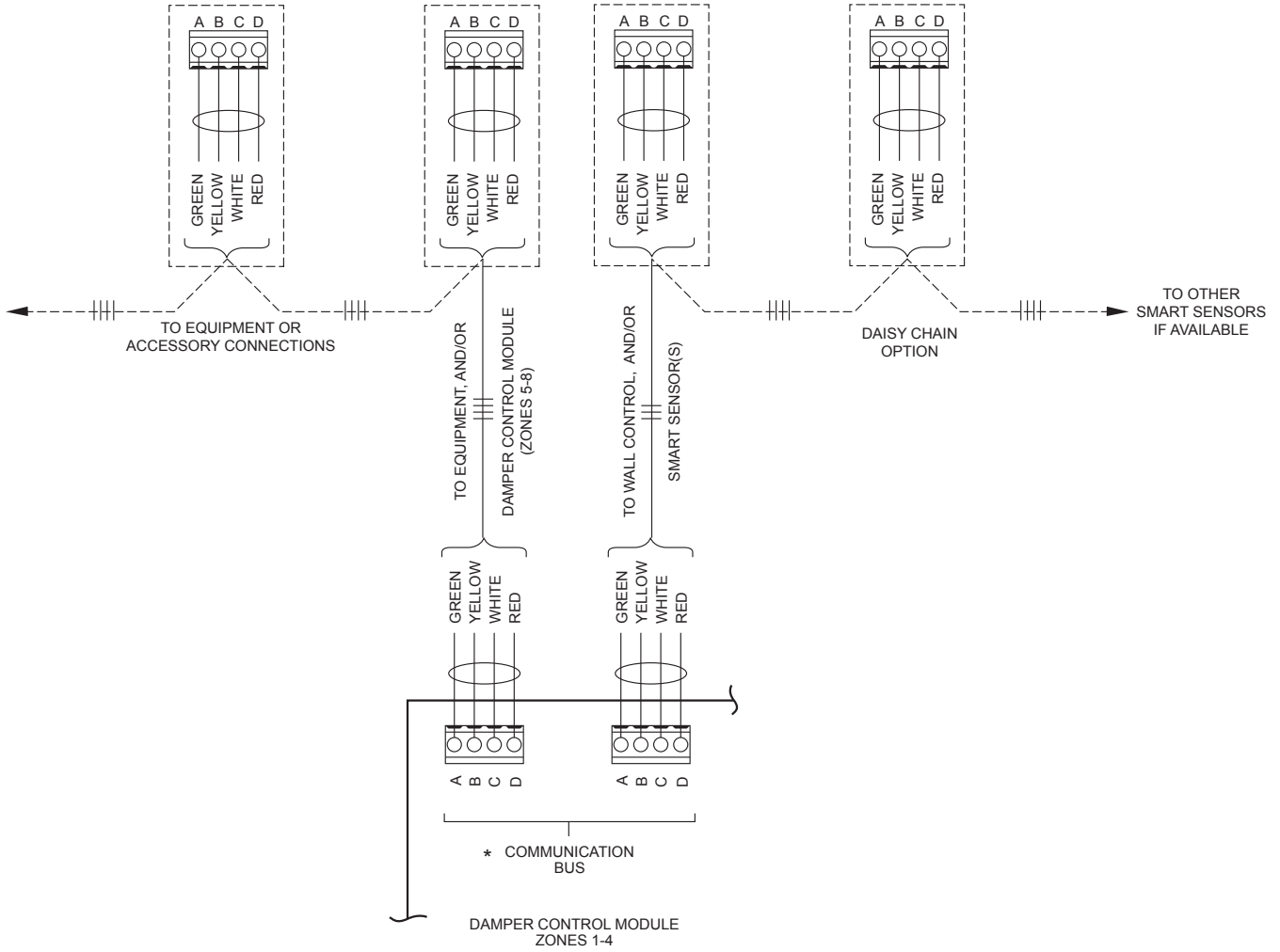   for wall control and smart sensor connections, and the other for equipment connections.

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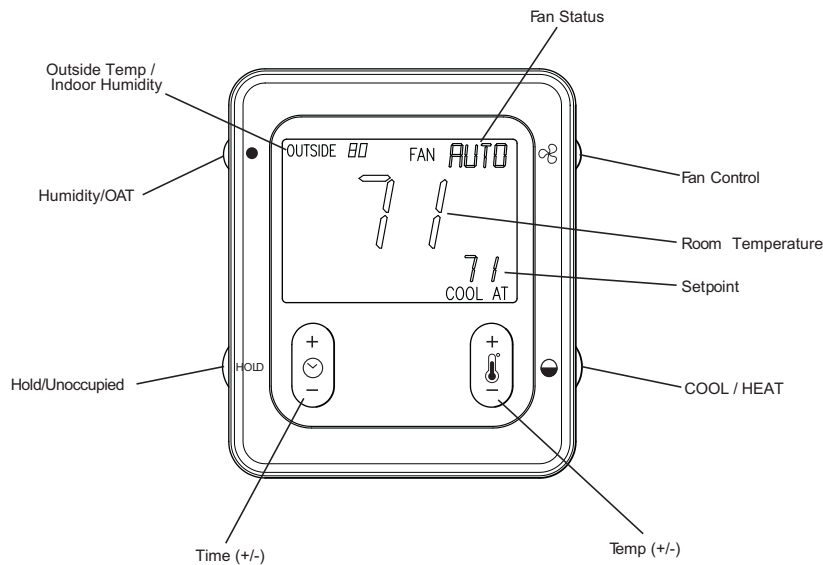
Fig. 3 – Typical Smart Sensor Wiring diagram

Fan Status

Outside Temp / Indoor Humidity

Humidity/OAT

Fan Control

Room Temperature

Setpoint

Hold/Unoccupied

COOL / HEAT

Time (+/-)

Temp (+/-)

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Fig. 4 -- Smart Sensor Operation

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. Evolution Smart Sensor Functions also include; HOLD and UNOCCUPIED settings.
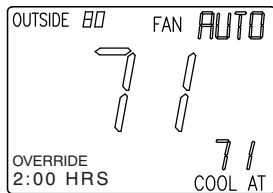
A. Changing Desired Temperature

- The current zone temperature will be displayed in the LCD.
- Press COOL/HEAT button to change between "COOL AT" and "HEAT AT" setpoints.
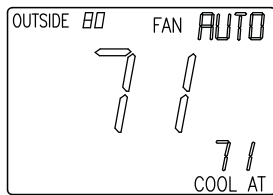
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- Press Temp (+/-) button to raise or lower setpoints.
- The default time for temporarily overriding the temperature schedule is 2:00 HRS as indicated by the text in the lower left screen.
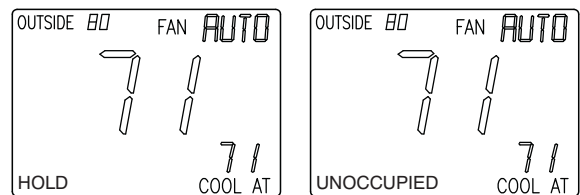

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- Temporary override time can be changed in 15-minute increments by pressing the TIME (+/-) button to increase or decrease the override timer.

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

B. 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.
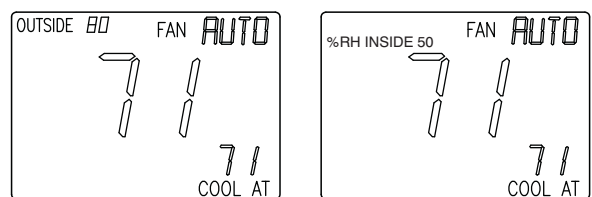

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C. Continuous Fan Adjustment

- 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.
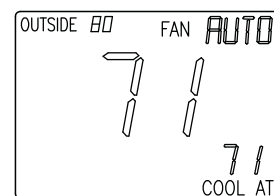
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D. Outdoor Temperature and Indoor Relative Humidity

- 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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