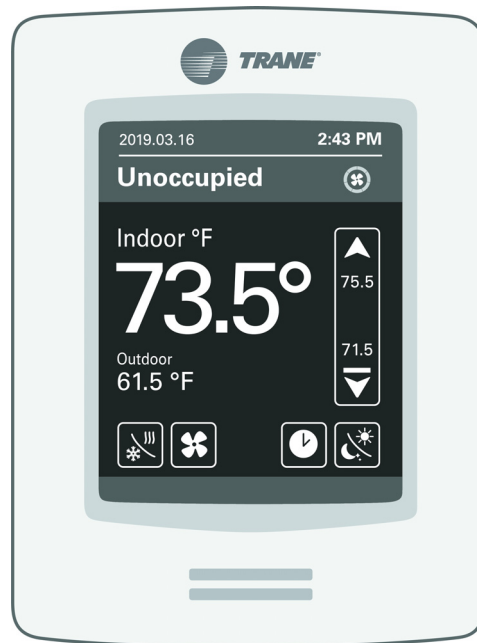




Installation Instructions

Trane® Commercial Touch Screen Programmable Zone Sensor

for ReliaTel™, UC400 and Symbio™ 400/700/800 Controls



Part Number Symbio™ 400/UC400: X13790993 (SEN02587)
ReliaTel™: X13790994 (BAYSENS924)
Symbio™ 700/800: X13791009 (BAYSENS800)

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

- WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
- NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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Revision History

- Updated Specifications chapter.
- Running edits.



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Equipment/Software Supported

The three zone sensor models are compatible with the following HVAC equipment and control systems. The sensor is designed for use with stand-alone space comfort control equipment only. It is not designed for use in a building automation system.

ReliaTel™

The zone sensor controls Precedent™, Voyager™ 2, Voyager 3, and Odyssey™ CV/SZVAV/Multi-speed indoor fan equipment that uses the ReliaTel™ control system.

For proper operation, the ReliaTel™ RTRM board must be installed in the equipment with software version 19.2 or later. In addition, the BCI-R board must be installed with software version 6.00 or later.

Multi-zone systems are not supported. In the field, Multi-zone HVAC equipment can be identified by the presence of the ReliaTel™ RTAM board installed in the equipment

Symbio™ 400/UC400

The zone sensor controls factory-programmed fan coil, blower coil, and both staged and variable speed water source heat pump equipment that uses the Symbio™ 400//UC400 control system. Field-programmed Symbio™ 400/UC400 controlled equipment is not supported.

Symbio™ 700

The zone sensor controls any equipment that uses the Symbio™ 700 control system. Multi-zone systems are not supported.

Symbio™ 800

The zone sensor controls IntelliPak equipment that uses the Symbio™ 800 control system.

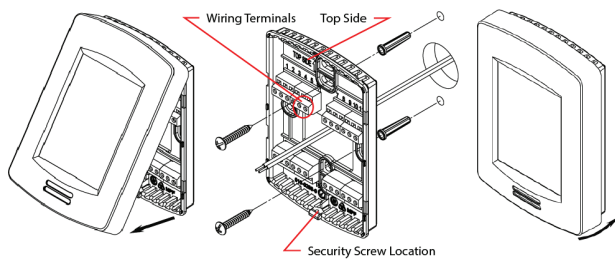


Installation

Location Guidelines

- Do not install on an outside wall.
- Do not install in areas with direct heat source.
- Do not install near any air discharge grill.
- Do not install in areas exposed to direct sunlight.
- Ensure the sensor has sufficient air circulation.
- Ensure the mounting wall surface is flat and clean.

Installing the Sensor



1. Remove the security screw from the bottom of the sensor (if present).
2. Firmly grasp the sensor and pull up on the bottom to remove the front cover.
3. Feed the wires from the wall through the backside of sensor base.
4. Ensure the sensor is oriented correctly. The word 'TOP' is embossed on the backplate to indicate correct orientation. Mark the top/bottom mounting hole locations on the wall.
5. Install the provided wall anchors and then affix the sensor base to the wall using the provided screws.
6. Strip the wire coating from the ends of each wire approximately 0.25 inch.
7. Insert the wires into the wire terminals (per terminal identification below) and tighten down the terminal screws to secure wire.
8. Push any excess wire back into the wall and then replace the sensor cover. Once the cover snaps on, the sensor powers up.
9. Replace the security screw on the bottom of the sensor to avoid tampering.



Zone Sensor Wiring

Wiring the zone sensor to the HVAC equipment varies based on the control system to which the sensor is connected. Reference one of the following electrical schematics for proper wiring installation of the zone sensor to the HVAC equipment.

Communication Wire

Use the correct communication wire to ensure reliable communication between the zone sensor and the HVAC equipment. Trane recommends the following wire supplier and wire type.

Important: *This sensor can only be used with standalone HVAC equipment. It cannot be used on a BACnet/MSTP link connected to a BAS.*

Suggested Supplier: Windy City Wire

- Plenum rated P/N: 043005AL
- Non-plenum rated P/N: 108760

Other wire may be used if it conforms to the following physical characteristics:

- Twisted pair (2-conductor) plus shield.
- Characteristic Impedance: 100 and 130 ohms.
- Distributed capacitance between conductors: < 100 pF/m.
- Distributed capacitance between conductor and shield: < 200 pF/m.
- Foil or braided shield is acceptable.
- Wire diameter: 22 to 18 AWG.

External Sensor Inputs

The zone sensor supports three external inputs that can be used to control the behavior of the sensor.

- Demand shed signal. A dry contact relay can be wired to terminals 16 and 18. Closure of the contact indicates to the sensor that a demand shed request is present.
- Motion Sensor or external occupancy signal. A dry contact relay can be wired to terminals 17 and 18. Closure of the contact indicates to the sensor that the space is not occupied.

When the sensor is configured for occupied standby control and it is in occupied mode based on a time schedule. Closure of the contact indicates the space is not occupied and the sensor enters occupied standby mode.

- Space temperature signal. Use a 10k ohm, type 2 thermistor/sensor when using a remote mounted space sensor wired to terminals 17 and 18, or wired to HVAC equipment.

Important: *Configure the Temp Sensor parameter as needed. See 2/4 Configuration menu for details.*



Zone Sensor Wiring

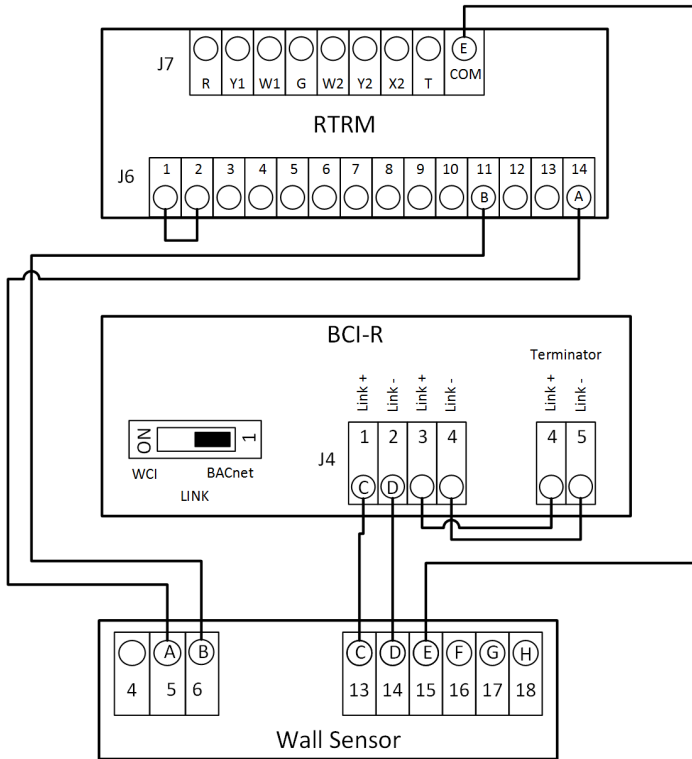
ReliaTel™ Systems

The zone sensor and the BCI-R form a two-node BACnet MS/TP network. Wire the system as shown in the schematic below while adhering to the following recommendations:

- At the RTRM board, terminate the shield wire at J7-COM terminal. The shield wire may need to be extended to make this connection. Use an insulated extension wire to prevent contact with the metal enclosure and circuit boards.

- Set the link switch on the BCI-R to **BACnet**.

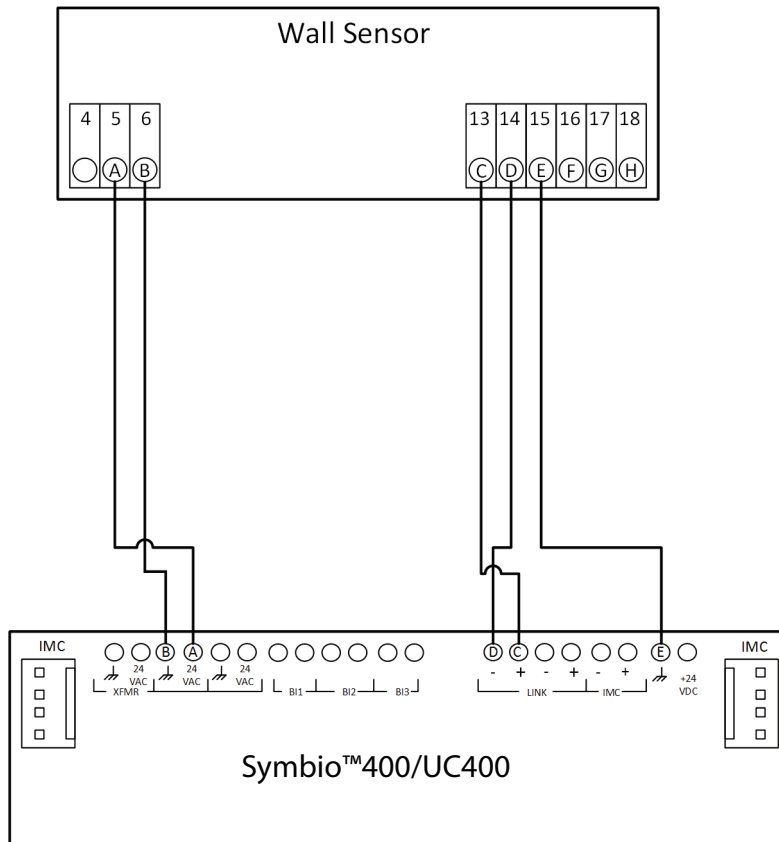
Important: Install a jumper wire between terminals J6-1 and 2 when the internal temperature sensor or a sensor wired to terminals 17 and 18 is used.



- | | |
|---------------|-------------------------------|
| A: 24 VAC | E: Comm. Shield |
| B: 24 Vground | F: Demand Shed |
| C: BACnet + | G: Motion Sensor / Thermistor |
| D: BACnet - | H: Input common |

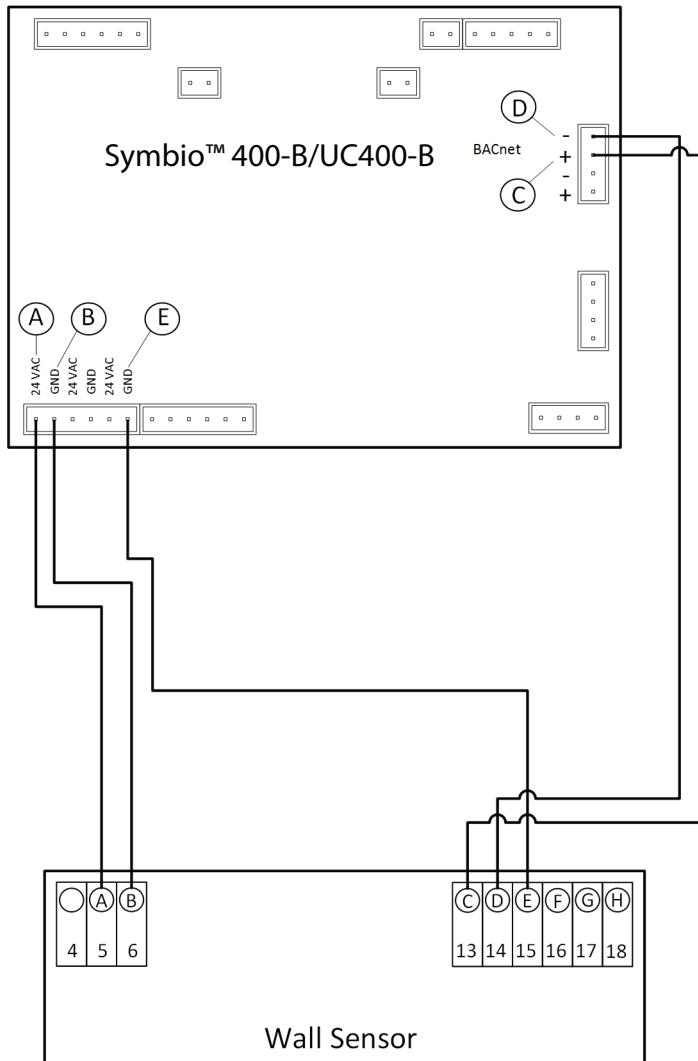
Symbio™ 400/UC400

The zone sensor and the Symbio™ 400/UC400 form a two-node BACnet MS/TP network. Wire the system as shown in the schematic below.



- | | |
|---------------|-------------------------------|
| A: 24 VAC | E: Comm. Shield |
| B: 24 Vground | F: Demand Shed |
| C: BACnet + | G: Motion Sensor / Thermistor |
| D: BACnet - | H: Input common |

Zone Sensor Wiring



- | | |
|---------------|-------------------------------|
| A: 24 VAC | E: Comm. Shield |
| B: 24 Vground | F: Demand Shed |
| C: BACnet + | G: Motion Sensor / Thermistor |
| D: BACnet - | H: Input common |

Symbio™ 700 Systems

The zone sensor and the Symbio™ 700 form a two node BACnet MS/TP network. Wire the system as shown in the schematic below.

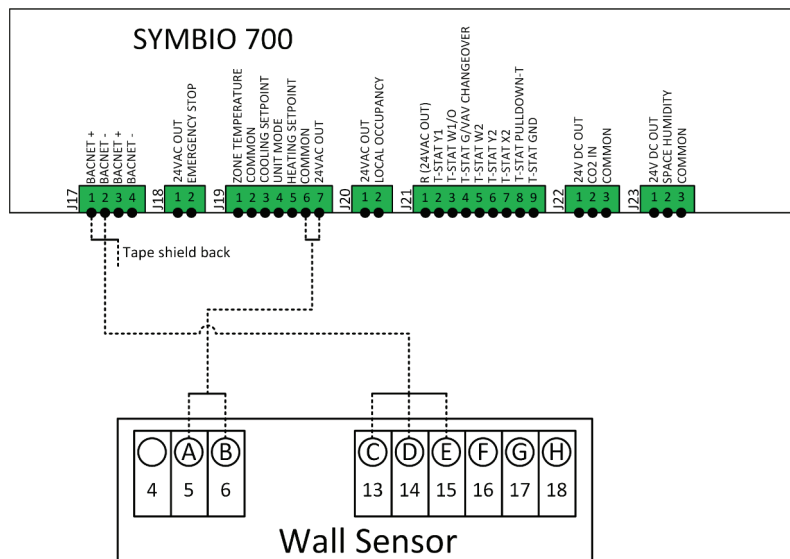
Note:

- The Symbio™ 700 controller must be an advanced version. The controller protocol must be set to BACnet MS/TP.

- The Symbio™ 700 controller must be configured for a single setpoint zone sensor for proper operation by using the Symbio™ Service and Installation App:

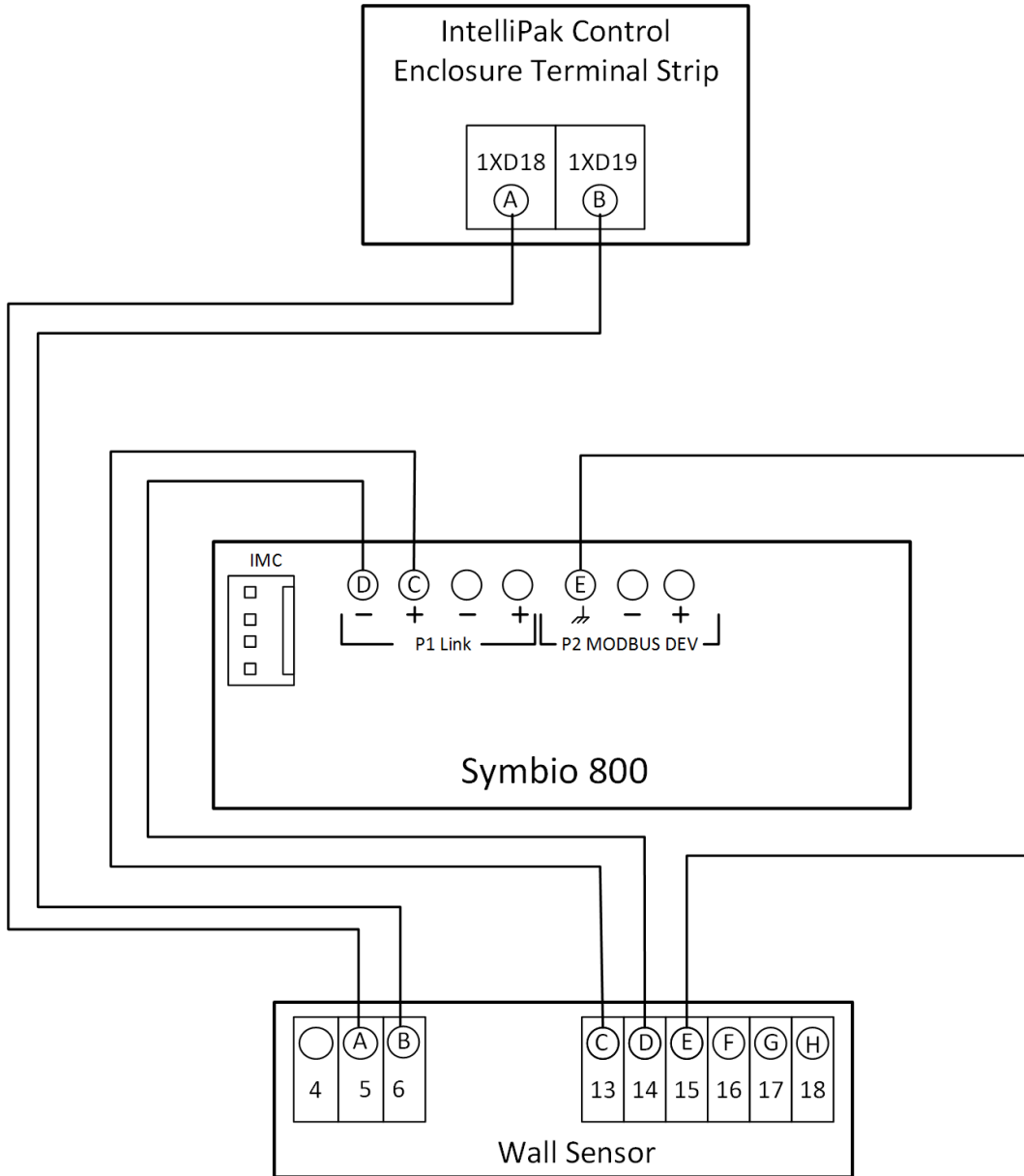
(Settings > Edit Configuration > Space Controller = Single Setpoint Zone Sensor)

or Local Display (Utilities > Unit Config > Edit Unit Config > Space Controller = Single Setpoint Zone Sensor).



Symbio™ 800 Systems

The zone sensor and the Symbio™ 800 form a two node BACnet MS/TP network. Wire the system as shown in the schematic below.



- | | |
|---------------|-------------------------------|
| A: 24 VDC | E: Comm. Shield |
| B: 24 Vground | F: Demand Shed |
| C: BACnet + | G: Motion Sensor / Thermistor |
| D: BACnet - | H: Input common |



General Information

The sensor displays **Power on** during initial power-up and advances to display the Home Screen.

All user accessible functions are easily set from the Home screen:



- Temp sensor failure could be from OAT, MAT, RAT, SAT (DAT) or space temp.
DAT SAT sensor is optional on CV units and is not always installed.

- Single tap of **▼** or **▲** advances the setpoint value by one. Holding down **▼** or **▲** rapidly advances through the available range of values.
- Temperature: Displays either the current space temperature or the temperature setpoint currently being used to condition the space.
- If configured to do so, the Home screen will revert to a blank standby screen after 2.5 minutes of user inactivity.
- All settings are retained in sensor memory in the event of a power outage.

- **Occupancy Status:** displays either Occupied, Unoccupied, or Override to indicate current occupancy mode.
- **Fan Status:** when fan is running, exterior circle indicates current fan speed.
 - No Segments: Fan is OFF
 - One Segment: 1% to 33%
 - Two Segments: 34% to 66%
 - Three Segments: 67% to 100%
- **Setpoint:** When Heat/Cool Mode is Cool Only or Heat Only, the current setpoint in use is displayed in the center of the setpoint control bar. When mode is Auto or Off, the cooling setpoint is displayed just below the red bar and the heating setpoint is displayed just above the blue bar.
- **Message Line:** Displays information regarding the current state of the equipment.
 - Please adjust clock: verify the date/time information is correct.
 - Shed demand: a demand shed signal is present. The zone sensor controls to the demand shed setpoints.
 - Shed cancel: a demand shed signal is present and the user has overridden the demand shed signal. The zone sensor controls to the occupied setpoints.
 - Contact service: the zone sensor has detected an HVAC equipment temperature sensor failure, economizer fault, or loss of communication with the HVAC equipment.
 - Temperature sensor failure: displayed if any temperature sensor in use has failed. If the 'remote' or 'wired' space temperature sensor has failed, the zone sensor switches to the internal temperature sensor for temperature control.



Configuring Settings on the Home Screen

Icon buttons displayed on the Home screen can be changed by selecting 1 of 3 available home screen configurations. See menu 1/2 Setup > 1/2 Display > User HMI.


Cool/Heat Mode

- Off: the system will not cool nor heat the space.
- Auto: the system switches between cooling and heating automatically to condition the space.
- Cool: the system will only provide cooling to the space.
- Heat: the system will only provide heat to the space.


Fan Mode

- Auto: the system fan runs only when there is a call for either cooling or heating.
- On: the system fan runs continuously in occupied mode. The fan runs only when there is a call for heating or cooling in unoccupied mode.

Schedule Menu

Tap  to access the Schedule Menu. From this menu the date/time, schedule events, and temperature setpoints can be adjusted. The Options sub-menu allows the user to override schedule control and change the schedule type.

Override

Tap  to override/cancel occupancy mode, cancel temperature setpoint overrides, and exit/enter demand shed mode.

Touch Button Legend



Return to Home screen.



Previous and Next screen advancement.



Change setting values.



Reset the instance number on 2/2 Network Instance screen.



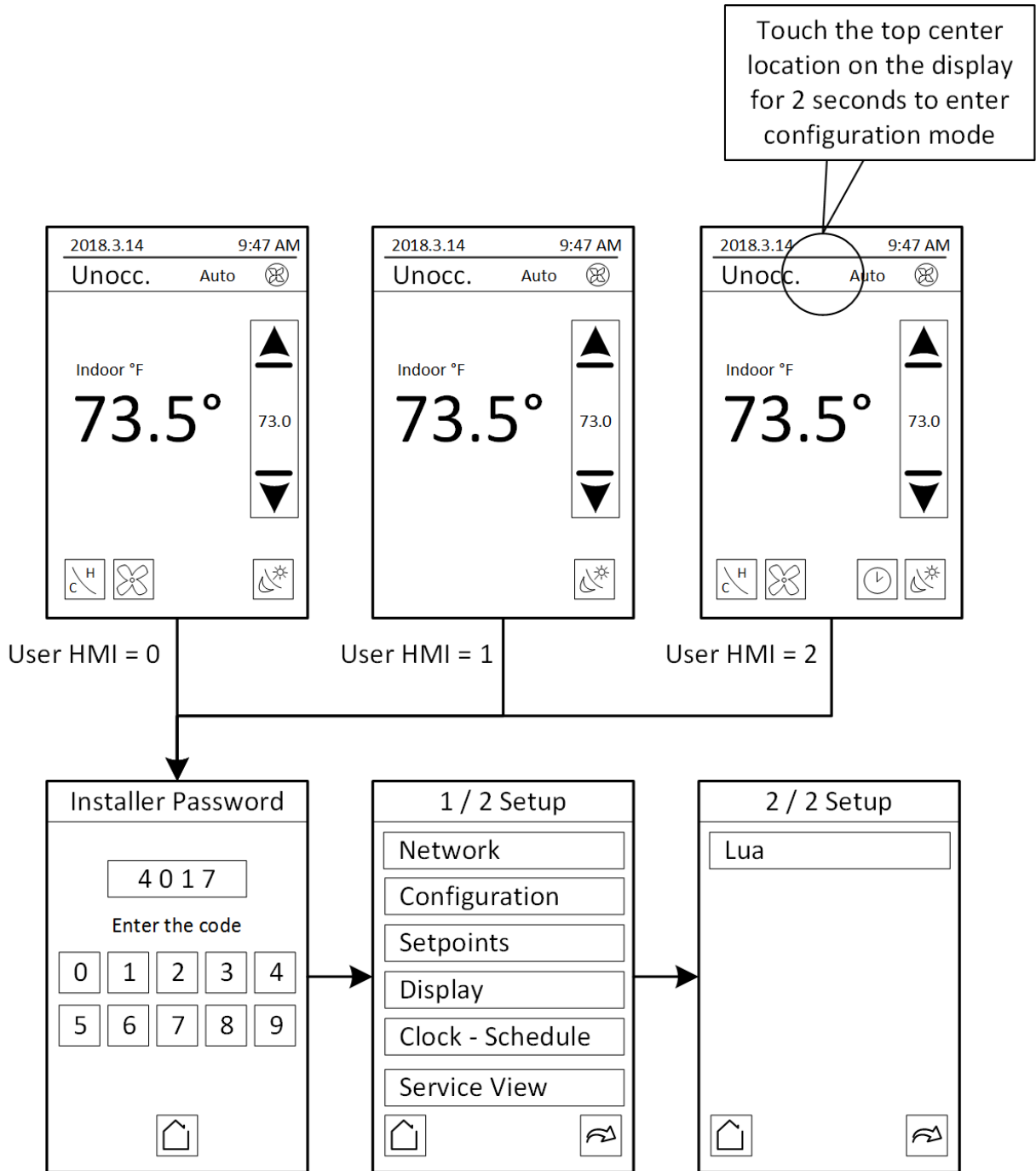
Confirms the change to instance number.

Menu Navigation

Interface Flowchart, Part 1

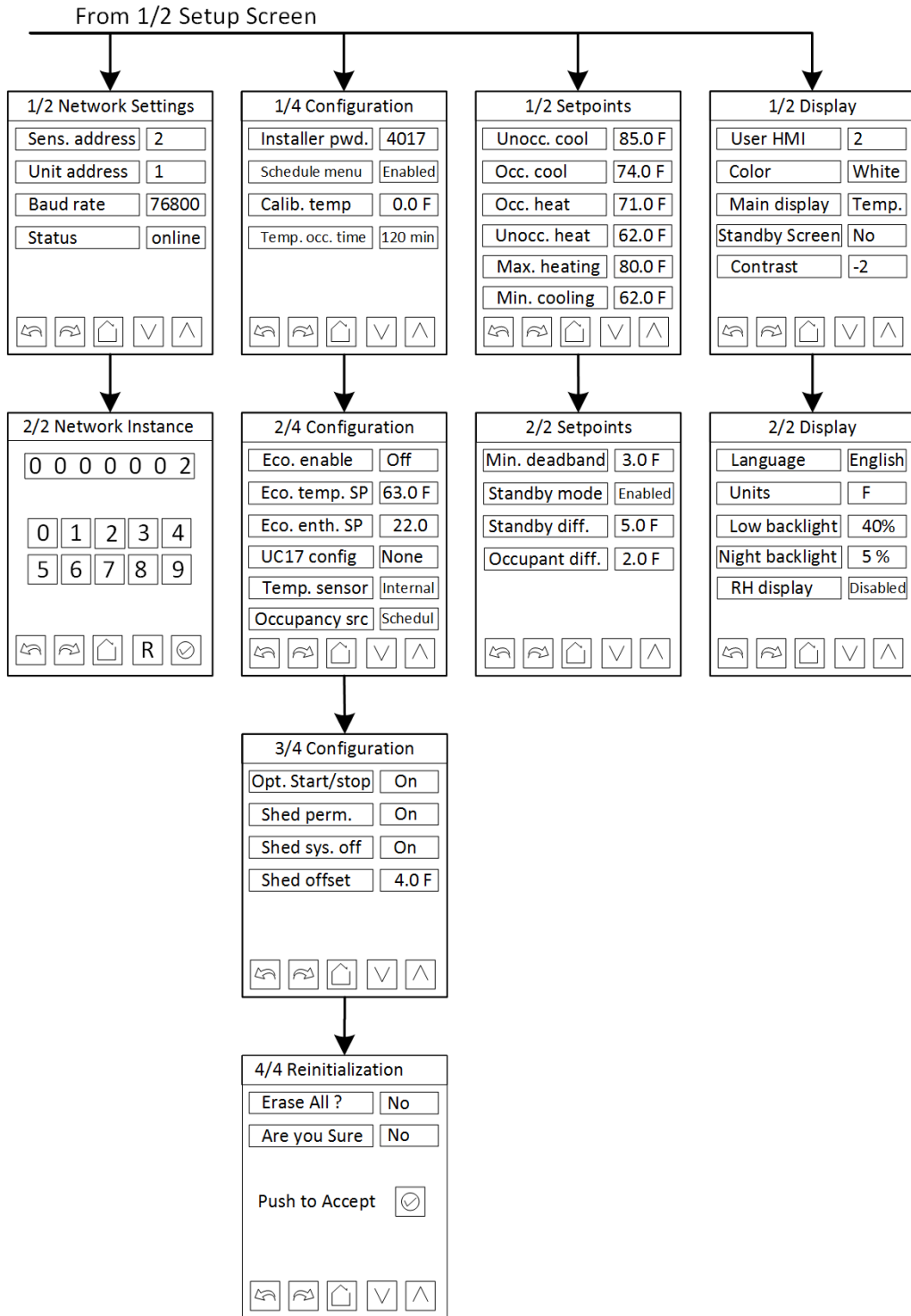
Tapping on one of the six selections on the 1/2 Setup page or advancing to 2/2 Setup page allows the installer access to set

the device configuration parameters. The following pages provide a flow chart of features.

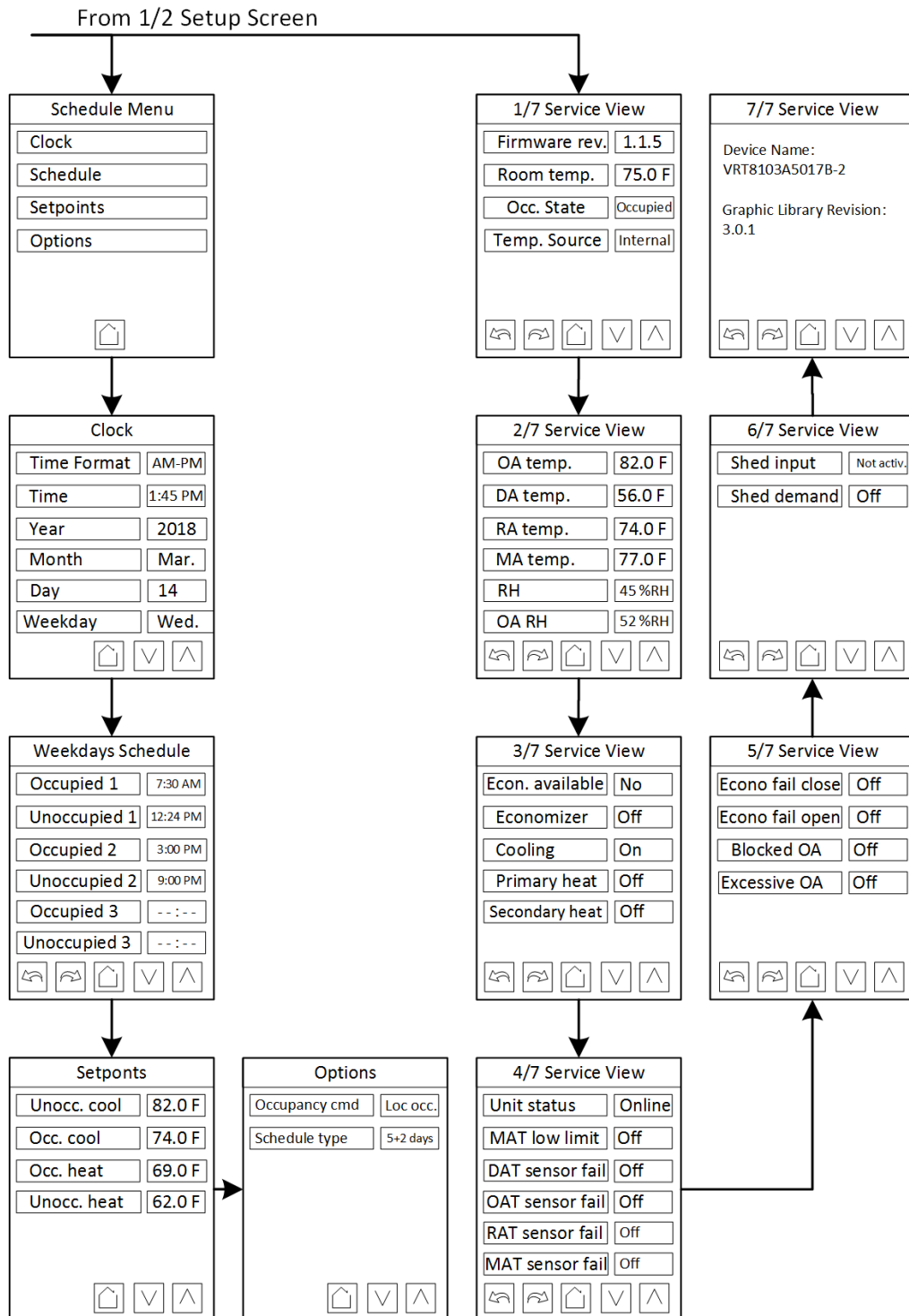


Note: The installer password is 4017 and cannot be changed.

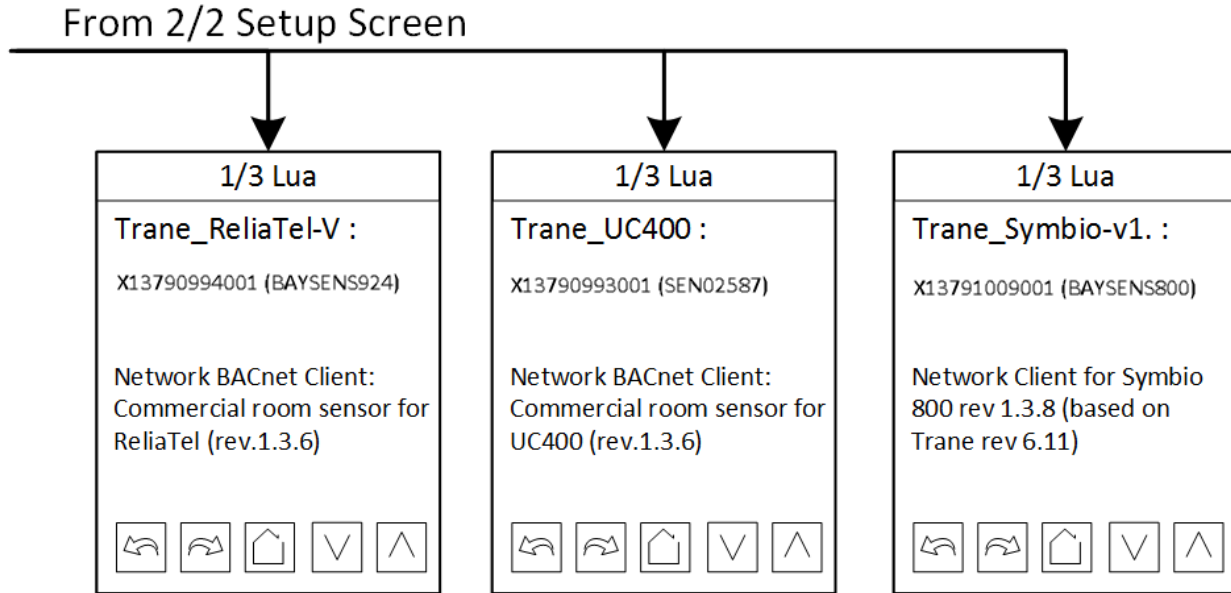
Interface Flowchart, Part 2



Interface Flowchart, Part 3



Interface Flowchart, Part 4




There are no field configurable parameters in the Lua menus. This menu is displayed to confirm that the version of the sensor is correct for the application.

Note: *Sensors that show UC400 are also compatible with Symbio™ 400 controllers. Sensors that show Symbio™ 800 are also compatible with Symbio™ 700 controllers.*

Network

Refer to the Zone Sensor Configuration section at the end of this document for zone sensor configuration instructions.

Sens. Address	Defines the BACnet MAC address of the zone sensor (0-127).
Unit address	Defines the BACnet MAC address of the HVAC equipment (0-127).
Baud rate	Defines the baud rate of the zone sensor. Default is 76800 (use default value unless directed by Trane Technical Support).
Status	Indicates if a network is established between the zone sensor and the HVAC equipment.
2/2 Network Instance	Defines the BACnet Device ID of the sensor. Tap  to Confirm and Save the value (0 - 4194302). Tapping R on this screen copies the sensor MAC address number to the BACnet Device ID field. For example, if the MAC address = 7, tapping R sets the Device ID number to 7.



Menu Definitions

Configuration

Installer pwd	The installer password is fixed at the value 4017 and cannot be changed.
Schedule menu	<p>Defines schedule menu user access and display of the clock value on the home screen:</p> <ul style="list-style-type: none"> • Enable – Schedule, Clock. • Disable – No Schedule, Clock. • En. no. clk (Enable No Clock) – Schedule, No Clock. • Dis. no. clk (Disable No Clock) – No Schedule, No Clock. <p>When the schedule is enabled, if the user touches and holds either the upper left or right corner of the display, the schedule menu will be displayed. When the clock is enabled, the current time is displayed at the top of the Home screen.</p> <p>Note: The installer password function does not prevent a user from accessing the schedule menu via the corner touch method. It is recommended to disable this feature if there is intent to prevent the user from changing the schedule.</p>
Calib. temp.	Provides a means to adjust the raw value measured by the temperature sensor internal to the zone sensor. Used to calibrate the zone sensor to an external reference value.
Temp. occ. time	Defines the length of time that a temporary override command remains in effect (15 min. to 240 min.).
Eco. enable ^(a)	<p>Defines the source of the economizer enable temperature or enthalpy setpoint.</p> <ul style="list-style-type: none"> • On – Zone sensor setpoint in use. • Off – HVAC equipment setpoint in use. <p>The method of economizer control, OA temperature or OA enthalpy, is an HVAC equipment control system configuration setting.</p>
Eco. temp. SP ^(a)	<p>Defines the economizing temperature termination setpoint. If the outdoor air temperature is above the setpoint, then the system will not economize.</p> <p>(Range: 50°F to 100°F [10°C to 37°C])</p>
Eco. enth. SP ^(a)	<p>Defines the economizing enthalpy termination setpoint. If the outdoor air enthalpy is above the setpoint, then the system will not economize.</p> <p>(Symbio™ 800 range: 19 to 36 BTU/lb [26 to 66 kJ/kg]) (ReliaTel™ range: 19 to 28 BTU/lb [26 to 47 kJ/kg])</p>
Opt. start/stop	<p>Defines the use of schedule optimization.</p> <ul style="list-style-type: none"> • On – Optimal start: HVAC equipment will start a calculated amount of time prior to a schedule occupied event. This enables the space temperature to reach the occupied temperature setpoint at the beginning of the occupied period. • On – Optimal stop: HVAC equipment will switch to unoccupied temperature setpoints a calculated amount of time prior to the schedule unoccupied event. This enables the space temperature to reach the unoccupied setpoint at the beginning of the unoccupied period. • Off – HVAC equipment will start and stop based on the schedule events.
Shed perm.	<p>Defines the behavior of the zone sensor when a load shed signal is received.</p> <ul style="list-style-type: none"> • On – Upon receipt of demand shed signal, the load shed cooling/heating setpoints are used to control the space. • Off – the load shed signal is ignored.
Shed sys. off	<p>Defines the load shed sequence in use when a load shed signal is present and Shed perm. parameter is set to on.</p> <ul style="list-style-type: none"> • On – when a load shed command is received, the equipment will stop heating/cooling for 5 minutes and adjust the setpoints. • Off – when a load shed command is received, the equipment will continue in its current mode and adjust the setpoints.
Shed offset	<p>Defines temperature offset applied to calculate load shed setpoints. The value is added to the occupied cooling setpoint and subtracted from the occupied heating setpoint. The resultant values are the load shed cooling/heating setpoints.</p> <p>(Range: 4.0°F to 5.0°F [2.0°C to 2.5°C])</p>



Menu Definitions

Erase all?	Resets the sensor back to factory settings.
Are you sure?	Confirms the erase reset.
UC17 config	Defines the sensor connected to electrical terminals 17 and 18. <ul style="list-style-type: none">• None – terminal not in use.• Motion – motion sensor or external dry contact.• Temp – 10K temperature sensor.
Temp. sensor	Defines the location of the space temperature sensor used for control. <ul style="list-style-type: none">• Internal – sensor internal to the zone sensor.• Remote – sensor wired to the HVAC equipment.• Wired – sensor wired to zone sensor terminals 17 and 18.
Occupancy src	Defines the source of the occupancy signal. <ul style="list-style-type: none">• Schedule – zone sensor time schedule.• Motion – motion sensor or external dry contact wired to zone sensor.

(a) The parameter is only displayed when the zone sensor is connected to a ReliaTel™ or Symbio™ 800 control system.

Setpoints

Cooling/Heating Setpoints	<p>Defines the temperature setpoints used for space temperature control.</p> <ul style="list-style-type: none"> • Unocc. Cool – unoccupied cooling setpoint temperature (Maximum; 90°F [32.2°C]). • Occ. cool – occupied cooling setpoint temperature. • Occ. heat – occupied heating setpoint temperature. • Unocc. heat – unoccupied heating setpoint temperature (Minimum; 50°F [10°C]).
Max. heating	<p>Defines the maximum temperature the user can set the occupied/unoccupied heating temperature setpoint to.</p> <p>(Range: 55°F to 80°F [12.7°C to 26.6°C])</p>
Min. cooling	<p>Defines the minimum temperature that the user can set the occupied/unoccupied cooling temperature setpoint to.</p> <p>(Range: 60°F to 85°F [15.5°C to 29.4°C])</p>
Min. deadband	<p>Defines the minimum difference between the occupied cooling and occupied heating setpoints. If the cooling or heating setpoint is adjusted so the difference between the two is less than minimum deadband value, the other setpoint is adjusted to maintain the minimum value.</p> <p>(Range: 2.0°F to 10.0°F [1.0°C to 5.5°C])</p>
Standby mode	<p>Defines zone sensor standby offset mode behavior. When in use and the current schedule event is occupied and the motion sensor indicates an unoccupied space, the zone sensor will enter standby occupied mode. Upon entering the mode, the occupied standby cooling/heating setpoints are used to control the space.</p> <ul style="list-style-type: none"> • Enabled – standby mode is in use. • Disabled – standby mode is not in use.
Standby diff.	<p>Defines temperature offset applied to calculate standby offset setpoints. The value is added to the occupied cooling setpoint and subtracted from the occupied heating setpoint. The resultant values are the occupied standby cooling/heating setpoints.</p> <p>(Range: 2.0°F to 5.0°F [1.0°C to 2.5°C])</p>
Occupant diff.	<p>Defines the temperature amount that an occupant can adjust the cooling/heating setpoint by, when performing a temporary override action.</p> <p>Setting this value to zero prevents the occupant from adjusting the setpoint.</p> <p>(Range: 0.0°F to 5.0°F [0.0°C to 2.5°C])</p>



Menu Definitions

Display

User HMI	Defines the Home screen button configuration. Refer to the illustration under the Interface Flowchart section in this document.
Color	Defines the background color for the home page: white, green, blue, gray, dark gray.
Main display	Select space temperature or space temperature setpoint to be displayed on Home screen.
Standby screen	Select display standby mode behavior: <ul style="list-style-type: none">• No – screen display returns to Home screen.• Yes – screen display returns to the blank screen after 2 minutes.• Occ. Only – screen display returns to the blank screen after 2 minutes when the sensor is using the occupied setpoint.• Scr. Sav. – screen display returns to a previously stored image.
Contrast	Defines the screen contrast and brightness. (Range: -5 to 5).
Language	Defines the language in use: English, French, or Spanish.
Units	Defines the temperature scale in use: Fahrenheit or Celsius.
Low backlight	Defines the back lighting intensity. (Range: 0% to 100%).
Night backlight	Defines the night backlight intensity. (Range: 0% to 100%).
RH display	Defines - the zone humidity value is displayed on the home screen: <ul style="list-style-type: none">• Enable – humidity value is displayed.• Disable – humidity value is not displayed.

Clock, Schedule, Setpoints, and Options

Clock	<p>Defines the time and date used with the programmable time schedule function.:</p> <ul style="list-style-type: none"> • Time format <ul style="list-style-type: none"> – AM-PM: 12 hour format (displays as 8:00 PM). – 24 Hours: 24 hour form (displays as 20:00 hours). • Time – defines the hour and minute of the current day. • Year – defines the current year. • Month – defines the current month. • Day – defines the current day of current month. • Weekday – displays a day of the week corresponding to the date entered into the sensor.
Schedule	<p>Defines the time values that are used to determine when to transition from the current occupancy state to the next state.</p> <p>Three occupied/unoccupied event pairs are supported. Setting an event to a time value enables the event. Setting the event to - - : - - disables the event.</p>
Setpoints	<p>Defines the following:</p> <ul style="list-style-type: none"> • Unocc. cool – the temperature setpoint in use when the equipment is in cooling mode and occupancy mode is unoccupied. • Occ. cool – the temperature setpoint in use when the equipment is in cooling mode and occupancy mode is occupied. • Occ. heat – the temperature setpoint in use when the equipment is in heating mode and occupancy mode is occupied. • Unocc. heat – the temperature setpoint in use when the equipment is in heating mode and occupancy mode is unoccupied. <p>(50.0°F to 90.0°F [10.0°C to 32.2°C])</p>
Options	<p>Defines the occupancy commands and schedule type.</p> <ul style="list-style-type: none"> • Occupancy cmd <ul style="list-style-type: none"> – Loc. occ.: occupancy is determined by the schedule – Occupied: force occupied mode – Unocc.: force unoccupied mode. • Schedule type <ul style="list-style-type: none"> – 7 days: each day of the week. – 5+2: weekdays + weekend. – 5+1+1: weekdays + Saturday + Sunday.



Menu Definitions

Service View

1/7 Service View	<ul style="list-style-type: none"> Firmware rev – current firmware installed on sensor. Room temp. – current air temperature in the space. Occupancy state – occupancy state being sent to HVAC equipment unit status. Temp. source – location of the space temperature sensor currently in use: <ul style="list-style-type: none"> Internal: Sensor internal to zone sensor. Wired: External sensor wired to zone sensor terminals 17 and 18. Remote: External sensor wired to HVAC equipment controller.
2/7 Service View ReliaTel™/Symbio™ 800	<ul style="list-style-type: none"> OA temp. – outdoor air temperature. DA temp. – discharge air temperature. RA temp. – return air temperature. MA temp. – mixed air temperature. RH – indoor relative humidity. OA RH – outdoor relative humidity. <p>Note: Discharge air sensor is an optional sensor for Symbio™ 800 controlled equipment.</p>
2/7 Service View Symbio™400/ UC400	<ul style="list-style-type: none"> DA temp. – discharge air temperature. RH - indoor relative humidity.
3/7 Service View ReliaTel™/Symbio™ 800	<ul style="list-style-type: none"> Econ. available: Yes – OA conditions allow economizing. Economizer: On – HVAC equipment currently economizing. Cooling: On – HVAC equipment is cooling. Primary heat: On – HVAC equipment is heating. Secondary heat: On – Secondary heat source is heating. <p>Note: The Symbio™ 800 does not support a secondary heat source.</p>
3/7 Service View Symbio™400/ UC400	<ul style="list-style-type: none"> Cooling – HVAC equipment is cooling. Primary heat – HVAC equipment is heating. Secondary heat – Secondary heat source is heating.
4/7 Service View ReliaTel™/ Symbio™ 800	<ul style="list-style-type: none"> Unit status: Indicates if BACnet data is being passed between the HVAC equipment and the zone sensor. <ul style="list-style-type: none"> Online: data is being passed. Offline: data is not being passed. MAT low limit: On – economizer is being limited due to low mixed air temperature. Off – normal temp. DAT sensor fail: On – sensor fail. Off – sensor normal. OAT sensor fail: On – sensor fail. Off – sensor normal. RAT sensor fail: On – sensor fail. Off – sensor normal. MAT sensor fail: On – sensor fail. Off – sensor normal. <p>Note: Symbio™ 800 does not use the mixed air sensor for economizer control.</p>
4/7 Service View Symbio™400/ UC400	<ul style="list-style-type: none"> Indicates if BACnet data is being passed between the HVAC equipment and the zone sensor. <ul style="list-style-type: none"> Online: data is being passed. Offline: data is not being passed.
5/7 Service View ReliaTel™/ Symbio™ 800	<ul style="list-style-type: none"> Econo fail close: On – OA damper is open when it should not be. Off – normal. Econo fail open: On – OA damper is not open when it should be. Off – normal. Blocked OA: On – No outdoor air to equipment. Off – normal. Excessive OA: On – excessive outdoor air. Off – normal.
5/7 Service View Symbio™400/ UC400	<ul style="list-style-type: none"> No items to display.
6/7 Service View	<ul style="list-style-type: none"> Shed input: displays status of dry contact between terminals 16 and 18. Shed demand: displays status of BACnet load shed command. Can be modified for testing purposes. This is the only field that is configurable in Service View.
7/7 Service View	<ul style="list-style-type: none"> Device Name: VTR810xAxxx-2. Graphic Library Revision: 3.0.1.



Installation Instructions

The zone sensor has been designed for easy installation. Use the checklists below to assist in the device installation and configuration process. Performing and verifying the steps below will prevent or resolve the most common field installation errors.

⚠ WARNING
Hazardous Voltage! Failure to disconnect power before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

Symbio™ 400/UC400

✓	
1	Remove power from the HVAC equipment and apply electrical lock out/tag out procedures.
2	Symbio™ 400/UC400 controller: Set rotary dials to 0 – 0 – 1.
3	Connect the 24 Volt AC power wires between the zone sensor and the Symbio™ 400 controller.
4	Connect the 2-conductor + shield cable between the zone sensor and Symbio™ 400 controller. Note: Communication is polarity sensitive. Ensure that the wires are landed to the correct terminals.
5	(Optional) Connect motion sensor or space temperature sensor to zone sensor terminals 17 and 18.
6	Apply power to the HVAC equipment.
7	Proceed to the Zone Sensor Configuration checklist.

ReliaTel™ BCI-R

✓	
1	Remove power from the HVAC equipment and apply electrical lock out/tag out procedures.
2	BCI-R control board: Install the jumper wires between J4 - terminals 3 and 4 and Terminator terminals 4 and 5.
3	BCI-R control board: Set rotary dials to 0 - 0 - 1.
4	BCI-R control board: Set the Link slide switch to BACnet .
5	RTRM control board: Install a jumper wire between J6 - terminals 1 and 2 when the internal or wired space temperature sensor is used.
6	Connect the 24 Volt AC power wires between the zone sensor and RTRM control board.
7	Connect the 2-conductor + shield cable between the zone sensor and the BCI-R control board. Connect the shield wire to the RTRM control board. Note: Communication is polarity sensitive. Ensure that the wires are landed to the correct terminals.
8	(Optional) Connect motion sensor or space temperature sensor to zone sensor terminals 17 and 18.
9	Apply power to the HVAC equipment.
10	Proceed to the Zone Sensor Configuration checklist.

Important: *If the HVAC equipment configuration has been changed, the BCI-R must be reinitialized to make the additional control data available. See section, "What To Do After Adding Options or Equipment to the Unit".*



Installation Instructions

Symbio™ 700/800

✓		
	1	Remove power from the HVAC equipment and apply electrical lock out/tag out procedures.
	2	Symbio™ controller: Set rotary dials to 0 - 0 - 1.
	3	Connect the 24 Volt AC/DC power wires between the zone sensor and Symbio™ controller.
	4	Connect the 2-conductor + shield cable between the zone sensor and Symbio™ controller. Note: Communication is polarity sensitive. Ensure that the wires are landed to the correct terminals.
	5	(Optional) Connect motion sensor or space temperature sensor to zone sensor terminals 17 and 18.
	9	Apply power to the HVAC equipment.
	10	Proceed to the Zone Sensor Configuration checklist.

Zone Sensor Configuration

✓		
	1	<p>Navigate to menu — 1/2 Network Settings</p> <p>Confirm the following:</p> <ul style="list-style-type: none"> • Sens. Address = 2 • Unit address = 1 • Baud rate = 76,800 • Status = Online
	2	<p>If Status = Offline</p> <ul style="list-style-type: none"> • Check communication cable wiring for incorrect termination and reverse polarity. <p>Confirm the following:</p> <ul style="list-style-type: none"> • Rotary dial value on the equipment controller = 2. <p>Cycle power to zone sensor and equipment controller.</p>
	3	<p>Navigate to menu — 2/2 Network Instance.</p> <ul style="list-style-type: none"> • Press the R icon button. The instance value will change to 2. • Press the check-mark icon button. The new value will be saved. <p>Zone sensor configuration is complete.</p>
	4	<p>Navigate to menu — 4/7 Service View.</p> <p>Confirm the following:</p> <ul style="list-style-type: none"> • Unit status = Online <p>If Unit status = Offline repeat the zone sensor configuration process. If problems persist, contact Trane Technical support (1-877-788-7263).</p>



ReliaTel™ Field Upgrade Procedure

When ReliaTel™ controlled equipment is modified in the field in a manner that changes the point configuration of the unit, the BCI-R must interrogate the ReliaTel™ control system to learn the new points list of the equipment. This action only takes place during initial power-up after the BCI-R device memory has been cleared. The new point list is permanently stored in the memory of the BCI-R device.

BCI-R Initialization Procedure

Use the BACnet Setup Tool to clear the controller and restore to factory defaults.

1. Navigate to the Controller Settings screen.
2. Click within the light gray area of the bottom left of the screen just above the "Connected" indicator.
The Clear Controller button appears at the top right of the screen.
3. Click **Clear Controller**.
A message appears stating that the configuration will be reset (deleted).
4. Click **OK**.
When the controller is cleared, the Select Device Units message box appears.
5. Click **OK** and then expand the Controller Units box on the Controller Settings screen.
6. Select the units (SI, IP, or Custom).
Note: *This selection defaults to Custom after clearing the controller. If you want to use Custom, ensure that all unit options are set correctly.*
7. Click **Save**.



Specifications

Sensor Operating Temperature	32°F to 122°F (0°C to 50°C).
Storage Temperature	-22°F to 122°F (-30°C to 50°C).
Storage and Operating Humidity Range	0% to 95%, non-condensing.
Temperature Control Accuracy	+/-0.9°F (+/-0.5°C) @ 70F (21°C) typical calibrated.
Temperature Sensor Resolution	+/-0.2°F (+/-0.1°C).
Room Air Temperature Display Range	-40°F to 122°F (- 40°C to 50°C).
Occupied/Unoccupied Setpoint Range	<ul style="list-style-type: none"> • Cooling: 60°F to 85°F (15.5°C to 29.4°C). • Heating: 55°F to 80°F (12.7°C to 26.6°C).
Heating/Cooling Setpoint Minimum Deadband	2°F to 10°F (1.0°C to 5.5°C).
Power Supply	24 Vdc / 24 Vac (19-30 Vac), 50 / 60 Hz, Class 2.
Power Wire	18 AWG or larger
Power Consumption	4 VA.
Housing	<ul style="list-style-type: none"> • Polycarbonate/ABS blend. • UV protected. • U.L. 94–5VA flammability rating. • Suitable for application in a plenum.
Weight	0.75 lb. (0.34 kg).
Mounting	3.24 in. (8.26 cm) for 2 mounting screws (supplied).
Communication Wire	<ul style="list-style-type: none"> • 22 AWG or Larger. • Two conductor shielded twisted pair with drain wire. • Characteristic impedance between 100 and 130 ohms. • Capacitance between conductors, less than 100 pF per meter (30 pF per foot). • Capacitance between conductors and shield, less than 200 pF meter (60 pF per foot).
Load Shed Input	Dry contact
Standards	<ul style="list-style-type: none"> • CAN/CSA-E60730-1:2015 • UL 60730-1:2016 • UL 60730-2-9:2017 • UL 90730-2-13:2014 • CAN/CSA-E60730-2-9:15 • IEC 60730-2-13:2006 • EN 60730-1:2016 • EN 60730-2-9:2010 • EN 60730-2-13:2008 • EN 60730-1:2011 • IEC 60730-1:2013
RoHS Compliance	Enclosure and components are RoHS compliant (RoHS 2002/95/EC).

WARNING

Cancer and Reproductive Harm!

This product can expose you to chemicals including lead and bisphenol A (BPA), which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.



Notes

Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.