SpaceLogic™ Room Controllers

SE8650 Installation Guide
Roof Top Unit (RTU), Heat Pump and Indoor Air Quality (IAQ)
Firmware Revision 2.6

Version 14

Life Is On | Schneider Electric

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1. SAFETY INFORMATION

1.1 IMPORTANT INFORMATION

Read these instructions carefully and inspect the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

⚡ The addition of this symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

⚠ This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this signal word.

1.2 PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

1.3   BEFORE YOU BEGIN

LOSS OF CONTROL

NOTICE

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and over travel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of anticipated transmission delays or failures of the link.[1]
- Each implementation of equipment utilizing communication links must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in equipment damage.

ELECTROSTATIC DISCHARGE

NOTICE

STATIC SENSITIVE COMPONENTS

Circuit boards and option cards can be damaged by static electricity. Observe the electrostatic precautions below when handling controller circuit boards or testing components.

Failure to follow these instructions can result in equipment damage.

Observe the following precautions for handling static-sensitive components:
- Keep static-producing material such as plastic, upholstery, and carpeting out of the immediate work area.
- Store static-sensitive components in protective packaging when they are not installed in the drive.
- When handling a static-sensitive component, wear a conductive wrist strap connected to the component or drive through a minimum of 1 megohm resistance.
- Avoid touching exposed conductors and components leads with skin or clothing.

INSTALLATION

NOTICE

INSTALLATION

- The system must be installed correctly by a qualified technician.
- If replacing an existing Room Controller, label wires before removal of the Controller.
- Electronic controls are static sensitive devices. Discharge yourself correctly before manipulating and installing Room Controller.
- A short circuit or wrong wiring may permanently damage the Room Controller or equipment.
- All Room Controllers are designed for use as operating controls only and are not safety devices. Tampering with the devices or unintended application of the devices will result in a void of warranty.
- This device must be installed to provide a separation distance of at least 8in (20cm) from all persons and must not be located or operating in conjunction with any other antenna or transmitter.
- Refer to the Room Controller User Interface Guide for information on how to configure the Room Controller.

Failure to follow these instructions can result in equipment damage.

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1   For additional information about anticipated transmission delays or failures of the link, refer to NEMA ICS 1.1 (latest edition), *Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control* or its equivalent

UNAUTHORIZED USB ACCESS

NOTICE
UNAUTHORIZED USB ACCESS To prevent unauthorized access to the Room Controller via USB, it is recommended that: • "USB access" is set to "Disabled" to prevent changing of firmware, standby image, configuration or LUA scripts via USB. • "Main password" is set to a non-zero value to limit configuration menu access to authorized users only. **Failure to follow these instructions may lead to unauthorized users modifying the firmware or the configuration of the Room Controller.**

UNAUTHORIZED USB ACCESS

NOTICE
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LOCATION

NOTICE
LOCATION • Do not install on an exterior wall. • Do not install behind a door. • Do not install in areas with a direct heat source. • Do not install near any air discharge grill. • Do not install in areas exposed to direct sunlight. • Ensure the Room Controller has sufficient natural air circulation. • Ensure the wall surface is flat and clean. • Ensure external thermal sensor wirings are away from noisy electrical sources. • Install 1.3 to 1.5 meters (52 to 60 inches) above the floor. • Perform preventive maintenance on the damper and Variable Air Volume (VAV) box, according to the supplier documentation. **Failure to follow these instructions can result in equipment damage.**

NOTICE

CLEANING THE ROOM CONTROLLER

- Use a soft, pre-moistened lint-free cloth for cleaning.
- Avoid getting moisture in openings.
- Do not spray anything directly on the Room Controller or use compressed air.
- Do not use caustic/corrosive products, ammonia, solvents or any cleaning product containing alcohol or grit.
- Never use tools directly on the touchscreen.
- Never use paint on the Room Controller.
- Do not drop or crush the Room Controller, or allow it to come into contact with liquids.
- Do not use a damaged device (such as one with a cracked screen).

Failure to comply with these recommendations will result in damage to the unit and void the manufacturer's warranty.

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2. INSTALLATION

1. Remove the security screw (if any) on the bottom of the Room Controller cover.

2. Open unit by pulling on the bottom side of the Room Controller (Figure 1).

3. Read FCC ID and IC label installed in the cover before installing any wireless product.

4. Ensure correct side of base faces up.

5. Pull cables 6in (15cm) out from the wall.

6. Align base and mark location of two mounting holes on wall (Figure 2).

7. Install anchors in the wall.

8. Insert cable in the central hole of the base.

9. Insert screws in mounting holes on each side of the base.

10. Strip each wire 1/4in (0.6cm) from the end.

11. Insert each wire and screw according to the wiring chart.

12. Gently push excess wiring back into the hole.

13. Gently align the cover to the top of the base and snap in place from the bottom (Figure 3).
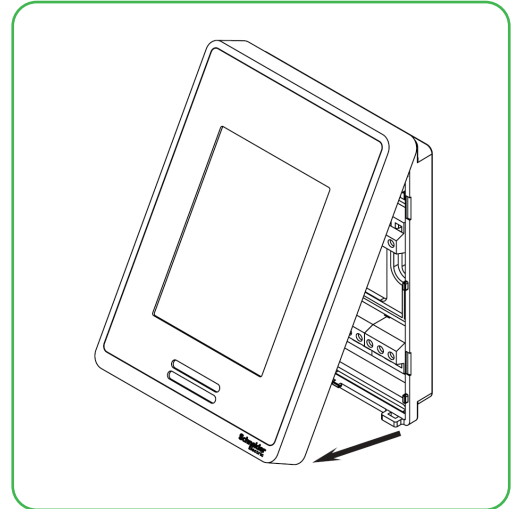
14. Install the security screw.
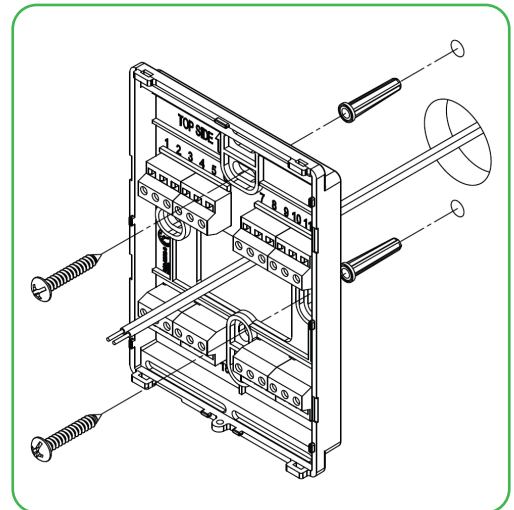

Figure 1   Open cover
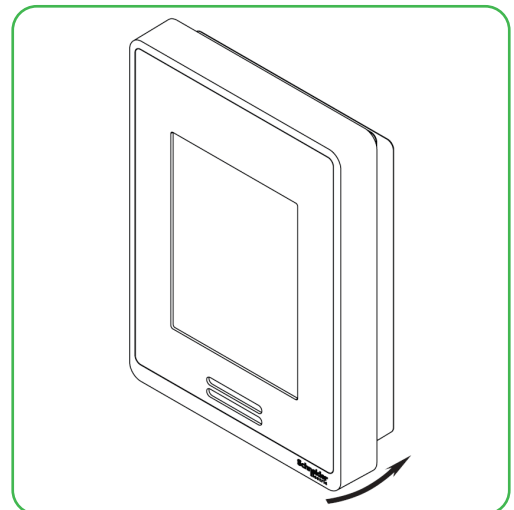

Figure 2   Install base

Figure 3   Reinstall cover

NOTICE

DISABLED WIRED NETWORK PROTOCOL

The RS-485 transceiver connected to pins 13 and 14 is not installed on Room Controllers with part numbers SE8650U0N11 and SE8650U5N11, thus disabling the wired network protocol (BACnet MS/TP or Modbus). The network screens and the optional Wi-Fi protocol BACnet/IP will still operate normally.

When ordering, make sure the Room Controller specifications comply with your system design.

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3.   TERMINAL IDENTIFICATION AND FUNCTION

SpaceLogic SE8650 Description / Application	Used in applications
	IAQ, HP & RTU
Internal Temperature	**X**
1- BO1	Aux
2- BO2	Y2
3- BO3	Y1
4- BO4	G
5- RC	RC (24 Vac)
6- C	Common
7- RH	RH
8- BO8	W1
9- UO9	W2 / OB
10- UO10	Econo (0-10 Vdc)
11- UO11	Heat (0-10 Vdc), set "Heat Stages" to 0 to enable
12- UO12	Dehumidification output (24 Vac On/Off)
13- RS-485 +	BACnet MS/TP or Modbus (+)
14- RS-485 -	BACnet MS/TP or Modbus (-)
15- RS-485 Ref	BACnet MS/TP or Modbus (Ref) (do not wire shield to this terminal)
16- UI16	UI16 (multifunction input)
17- UI17	UI17 (multifunction input)
18-Scom	Common
19- UI19	CO2 (0-10 Vdc input)
20- UI20	RS (Remote sensor input 10K, type 2 thermistor)
21-Scom	Common
22- UI22	SS (Supply sensor input 10K, type 2 thermistor)
23- UI23	OS (Outside sensor input 10K, type 2 thermistor)
24- UI24	Airflow (0-10 Vdc input)

4. REMOTE SENSOR ACCESSORIES

Model no.	Description
S3010W1031	Wall-mounted temperature sensor
S3020W1031	Wall-mounted temperature sensor with override button and occupancy status LED

NOTE:

If one or multiple sensor(s) is/are connected to the RS terminal, the internal temperature sensor is automatically disabled. Disconnecting the sensor(s) in the RS terminal will re-activate the internal sensor.

Remote mount temperature sensor inputs use 10K type 2 NTC thermistors.

Features:

• Each sensor can be configured for various averaging combinations. Refer to S3000 series remote sensors for more details.

Temperature vs. resistance chart for 10 Kohm NTC thermistor (R25°C = 10KΩ±3%, B25/85°C = 3975K±1.5%)
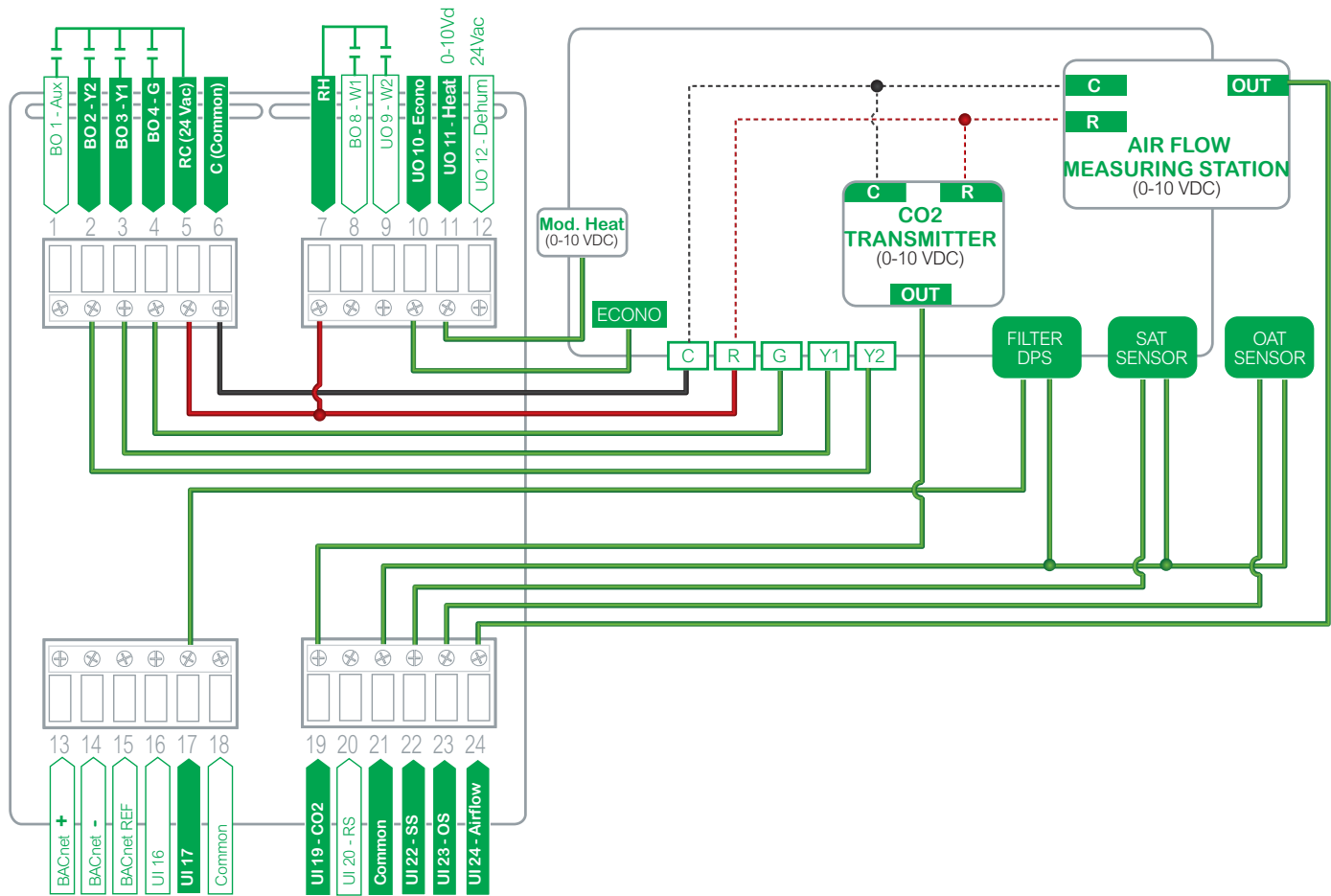
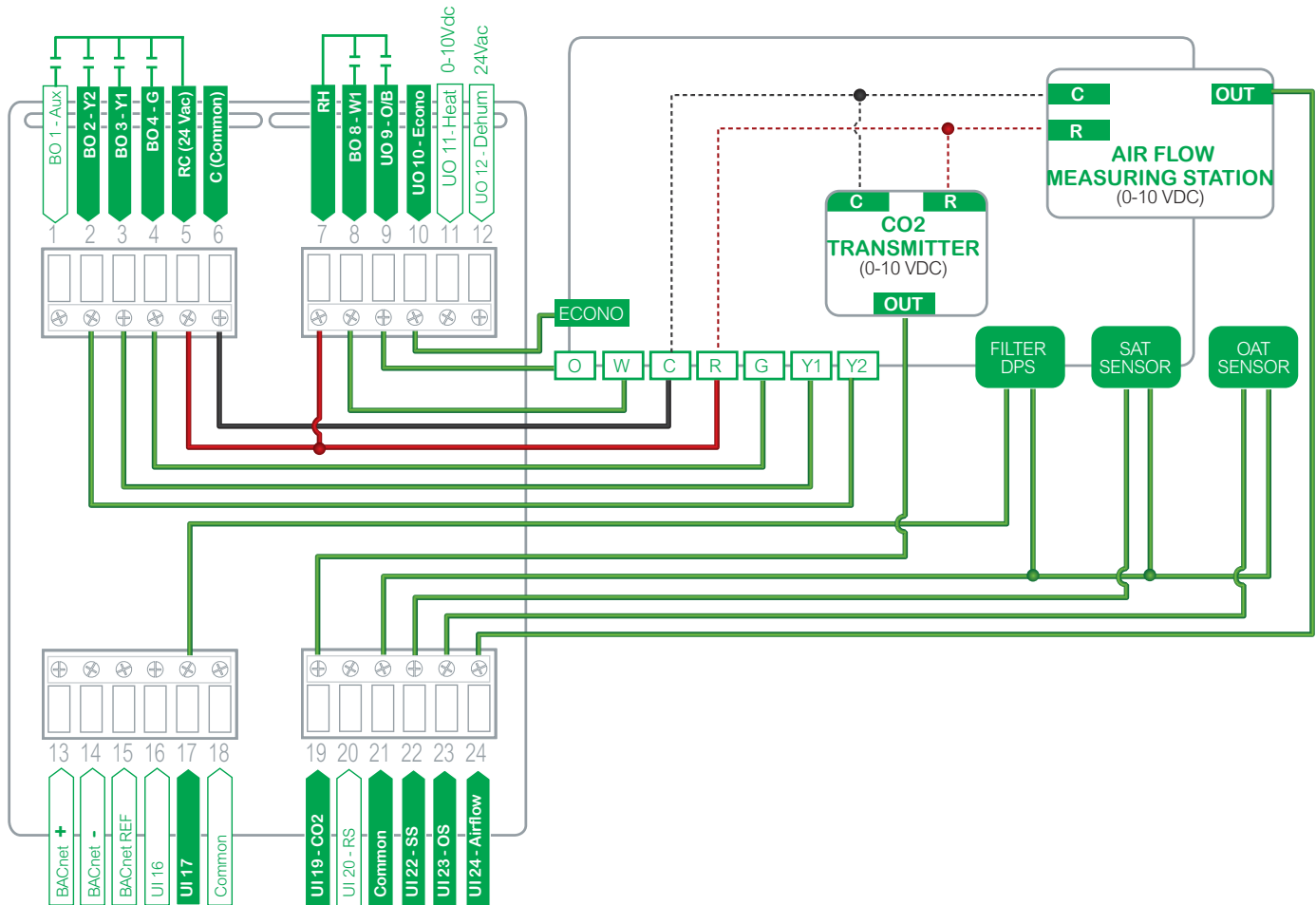| °C	°F	Kohm	°C	°F	Kohm	°C	°F	Kohm	°C	°F	Kohm	°C	°F	Kohm
-40	-40	324.3197	-20	-4	94.5149	0	32	32.1910	20	68	12.4601	40	104	5.3467
-35	-31	234.4009	-15	5	71.2430	5	41	25.1119	25	77	10.0000	45	113	4.3881
-30	-22	171.3474	-10	14	54.1988	10	50	19.7390	30	86	8.0694	50	122	3.6202
-25	-13	126.6109	-5	23	41.5956	15	59	15.6286	35	95	6.5499	55	131	3.0016

5. TYPICAL APPLICATIONS

5.1 RTU: 2 HEATING / 2 COOLING
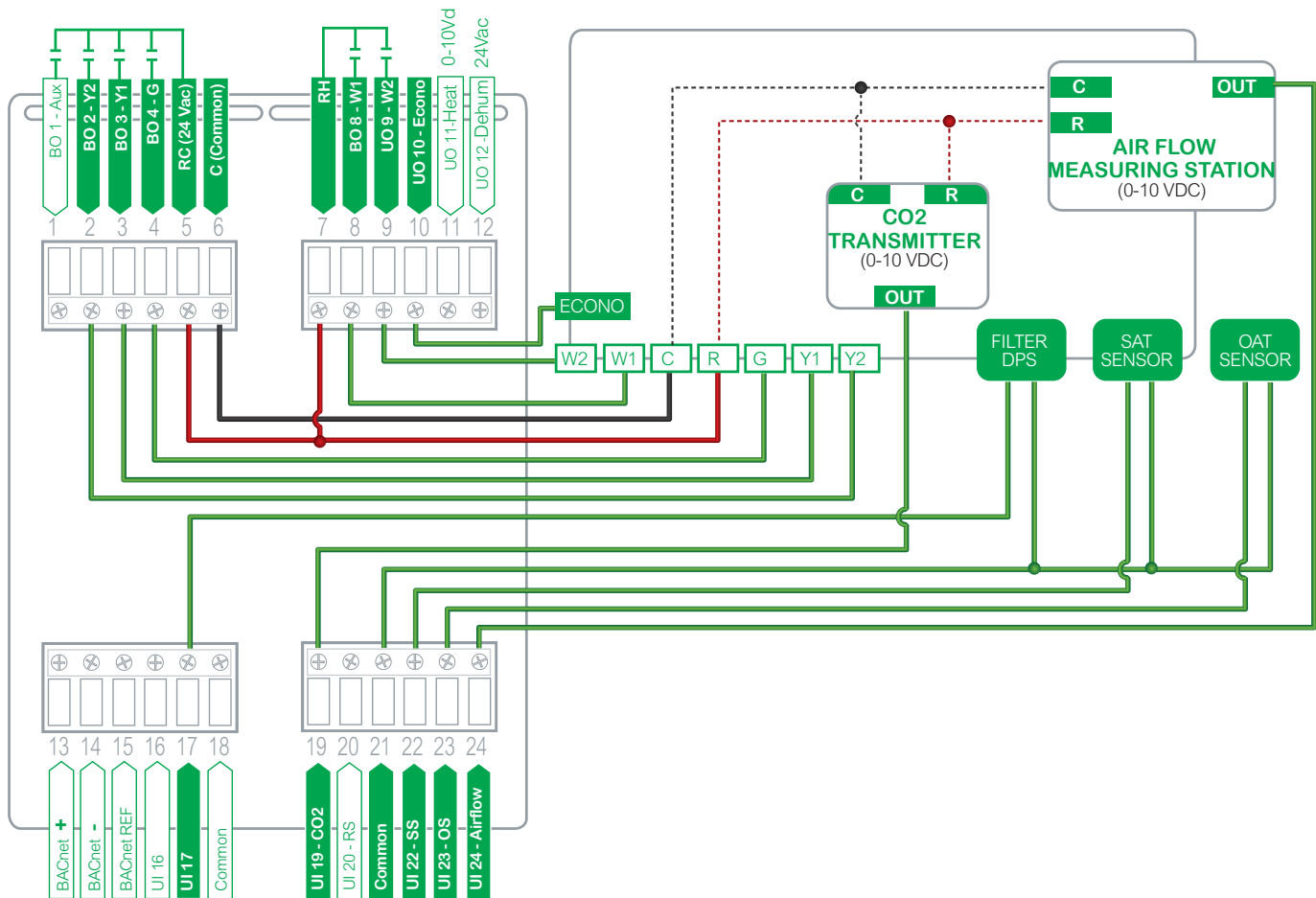
5.2   RTU: 2 COOLING / MODULATING HEAT

## 5.3   2 COMPRESSORS, AUXILIARY HEAT AND ECONOMIZER

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6. HOME SCREEN DISPLAY

6.1 TYPICAL HOSPITALITY USER INTERFACE SHOWN

Date

Short Network Message

Occupancy Status

Room Indoor Temperature

Outdoor Temperature

09.26.2012   12:54 PM

Room 1705

Occupied

Indoor °F

73.5°

Outdoor
64 °F

74.5

Schneider
Electric

Time

System Status

Fan Status

Up Arrow
Raise Temperature Setpoint

Occupied Setpoint of
Current System Mode

Down Arrow
Lower Temperature Setpoint

Help
Enter help screen

Language
Select preferred language

System Mode
Select system mode

Fan Mode
Select fan mode

Temperature Units
Select Celsius or Fahrenheit

NOTE: User HMI is configurable and allows display functions such as Outdoor Temperature, Setpoint, and other buttons to be enabled or disabled by setting various parameters in the setup screens.

7. HOW TO ENTER SET-UP SCREEN
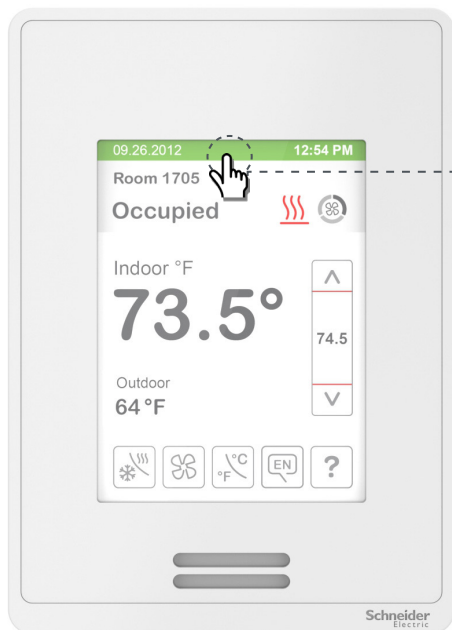
Touch and hold this point
for 3 seconds to enter set-up mode

NOTE: If a configuration/installer
password is activated to prevent
unauthorized access to the
configuration menu parameters,
a password entry prompt shows
to prevent access to the device
configuration components.

For more information on using and
configuring the functions of the HMI,
refer to the **SE8650 User Interface
Guide**

8. SET-UP SCREEN DISPLAY

1/2 Setup
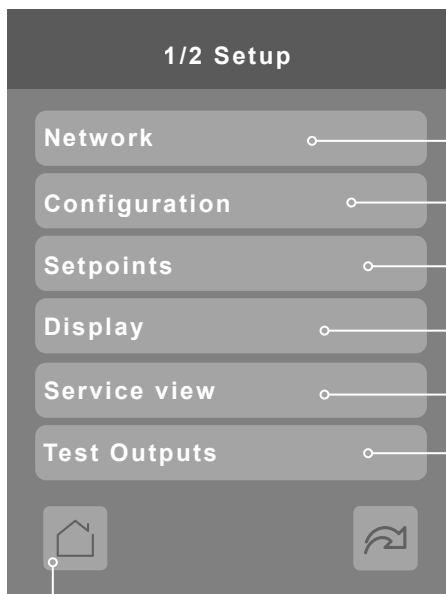
Network	Enter BACnet® & Zigbee® network settings
Configuration	Enter parameter configuration menu
Setpoints	Enter setpoint settings
Display	Enter display settings
Service view	Enter status display (read only)
Test Outputs	Enter test outputs settings

Return to the
home screen

General Note:
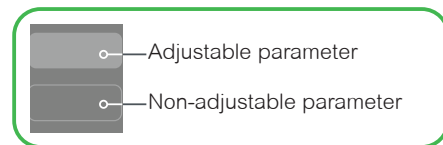
Adjustable parameter

Non-adjustable parameter

NOTICE

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Room Controllers with part numbers SE8650U0N11 and SE8650U5N11, thus
disabling the wired network protocol (BACnet MS/TP or Modbus). The network
screens and the optional Wi-Fi protocol BACnet/IP will still operate normally.

**When ordering, make sure the Room Controller specifications comply with
your system design.**

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APPENDIX A. TERMINAL CORRESPONDENCE

The terminals of a SE8650 are identified differently and have a wider range of possible functions compared to those of any of the SE7000 Room Controllers. Nonetheless, there is a direct correspondence of functions between the terminals of the SE7000 and the SE8650. Consult the table below to verify the appropriate terminal when replacing a SE7000 Room Controller with a SE8650 Room Controller.

SE7000		SE8650	
Terminal name	**Terminal ID**	**Terminal name**	**Terminal ID**
Binary Input 1	BI1	Universal Input 16	UI16
Binary Input 2	BI2	Universal Input 17	UI17
Universal Input 3	UI3	Universal Input 19	UI19
Sensor Common	Scom	Terminal 18 Common	COM
Remote Sensor	RS	Universal Input 20	UI20 - RS
Sensor Common	Scom	Terminal 21 Common	COM
Mix/Supply Sensor	MS	Universal Input 22	UI22 - SS

APPENDIX B. POWER OUTAGE CLOCK RESET

In the event of a power outage, Room Controllers retain the correct time as long as the duration of the power outage is not prolonged. Depending on the duration of the power outage, the Room Controllers' internal clock may need to be updated or reset completely. The following table indicates the expected clock performance after a power outage of a given duration.

Outage duration	Room Controller behavior
0 - 24 hours	Clock functions are normal
24 - 36 hours	Clock accuracy not guaranteed, time may need to be adjusted
36 - 72 hours	Clock no longer increments and must be adjusted when power is restored.
72+ hours	Clock functions are fully reset, and must be reinitialized as per a new installation.

APPENDIX C. DEPLOYMENT

The placement of the Room Controller must be given consideration. It is recommended to install the Room Controller as close to a door as possible (without being blocked by the door), or in an area with high occupant movement.

Ideally, the Room Controller should be installed 5 feet (1.5 meters) above the floor surface to ensure maximum detection range is achieved. As well, Room Controller placement should ensure the occupant crosses the lens beam in a perpendicular path within the prescribed detection zone.

C.1   EXAMPLE OF RECOMMENDED DEPLOYMENT

The below shows Room Controllers installed in ideal locations for two rooms.

The examination room shows one Room Controller installed adjacent to the door. In this area of the room, occupant traffic is high and ensures the occupant will almost always cross the PIR detection path laterally and within the detection range.

The waiting room shows one Room Controller installed beside a door in the middle of the room. As shown in the diagram below, occupant traffic is high in several areas of the room including the entrance, waiting room, access to the door and activity around the reception desk.
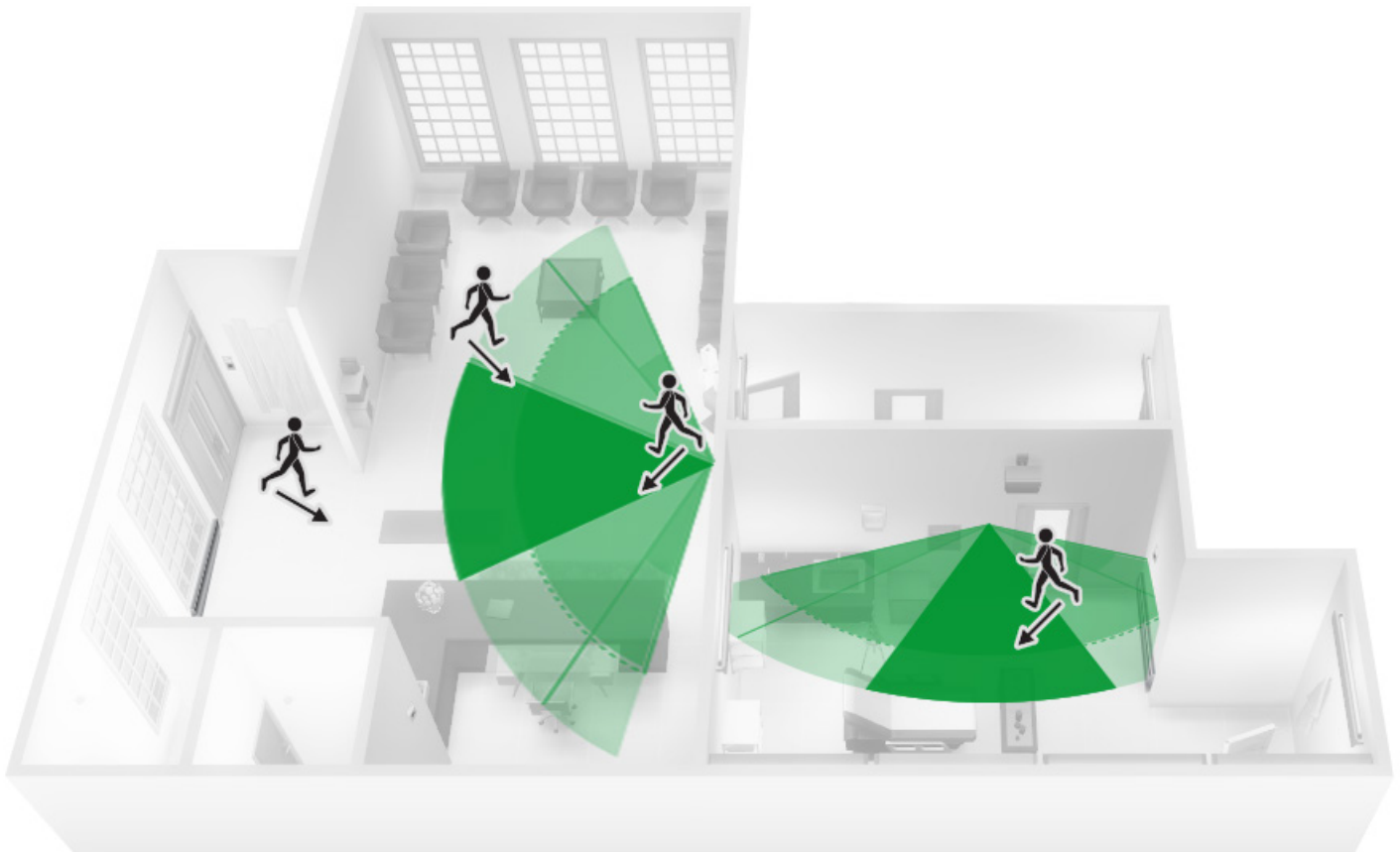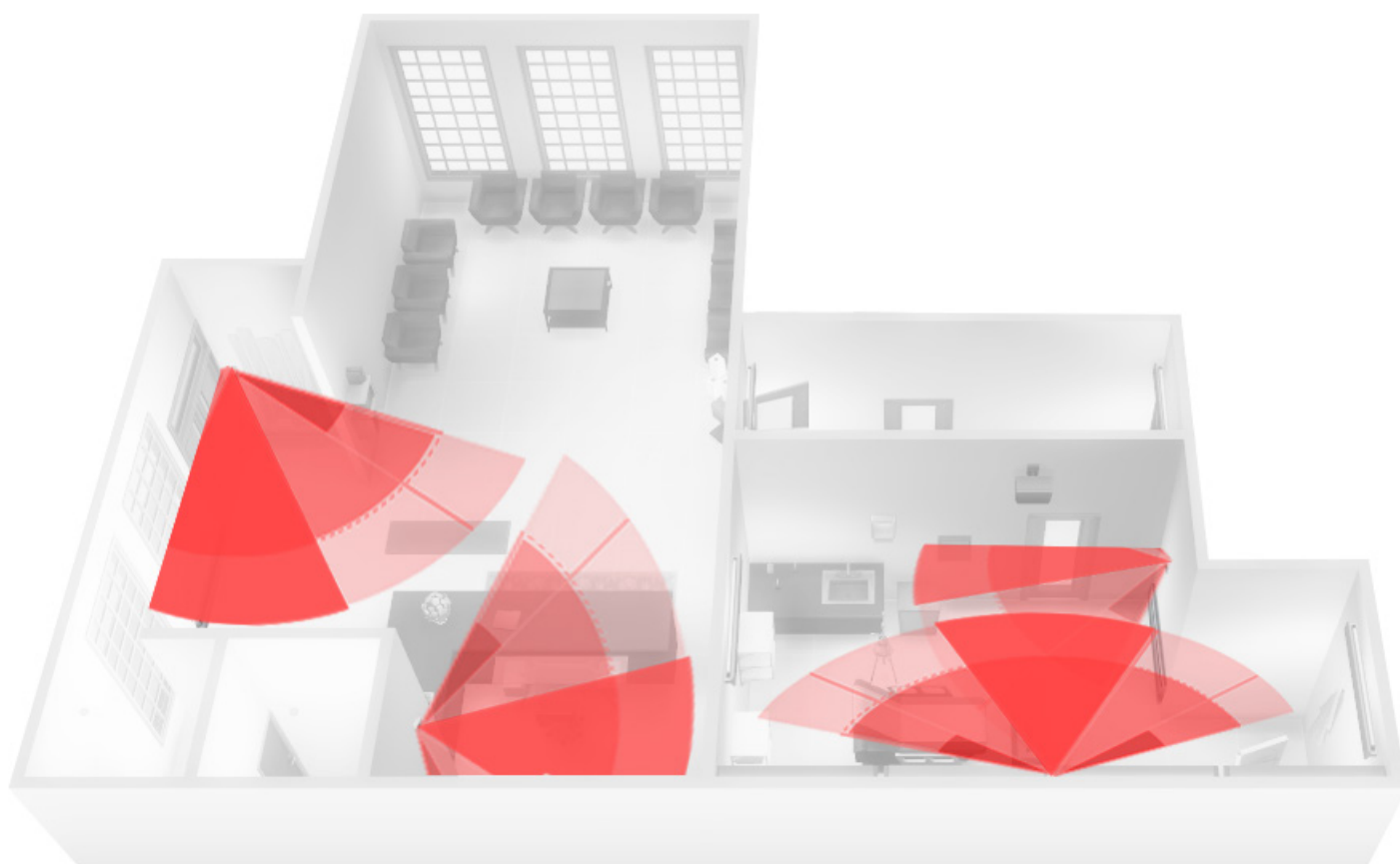

Recommended Installation

C.2   EXAMPLE OF NON-RECOMMENDED DEPLOYMENT

The below shows four Room Controllers (two for each room) installed in non-ideal locations for the two rooms.

The examination room shows one Room Controller installed in a low traffic area near the door, and a second Room Controller installed on the wall directly opposite the door. For the Room Controller installed in the corner wall, the PIR could be blocked by the opened door, while occupant traffic could also be minimal in this area of the room. For the second Room Controller installed opposite the door, the PIR detection could fall outside the specified detection zone, while at the same time most occupant movement would not be lateral to the PIR, thereby not respecting optimal crossing patterns for PIR detection.

The waiting room shows one Room Controller installed in the corner of the room, and a second Room Controller installed beside the reception area. For the Room Controller installed in the corner, the opening/closing of the door creates a high probability that the PIR would get blocked, and therefore, occupancy going undetected. For the Room Controller installed beside the reception area, occupant traffic could fall outside the detection zone, and the receptionist would often be below the 5-foot recommended installation height for the Room Controller.

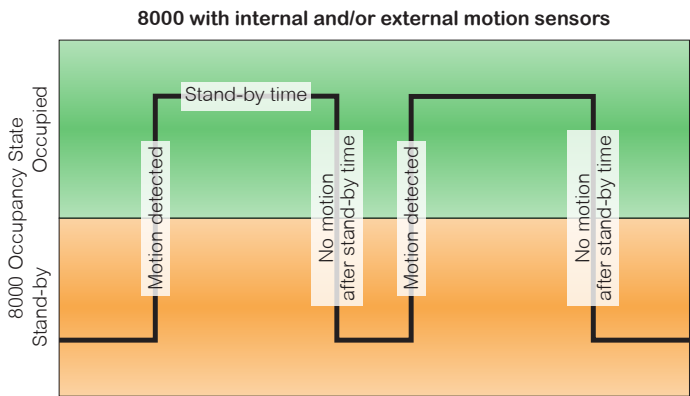Non-Recommended Installation

C.3   ROOM CONTROLLER PIR SENSOR DETAILS

The internal Room Controller PIR sensor only detects lateral movement. It cannot detect movement when a person is moving toward it. It will not detect someone seating on a chair and/or lying on the bed.
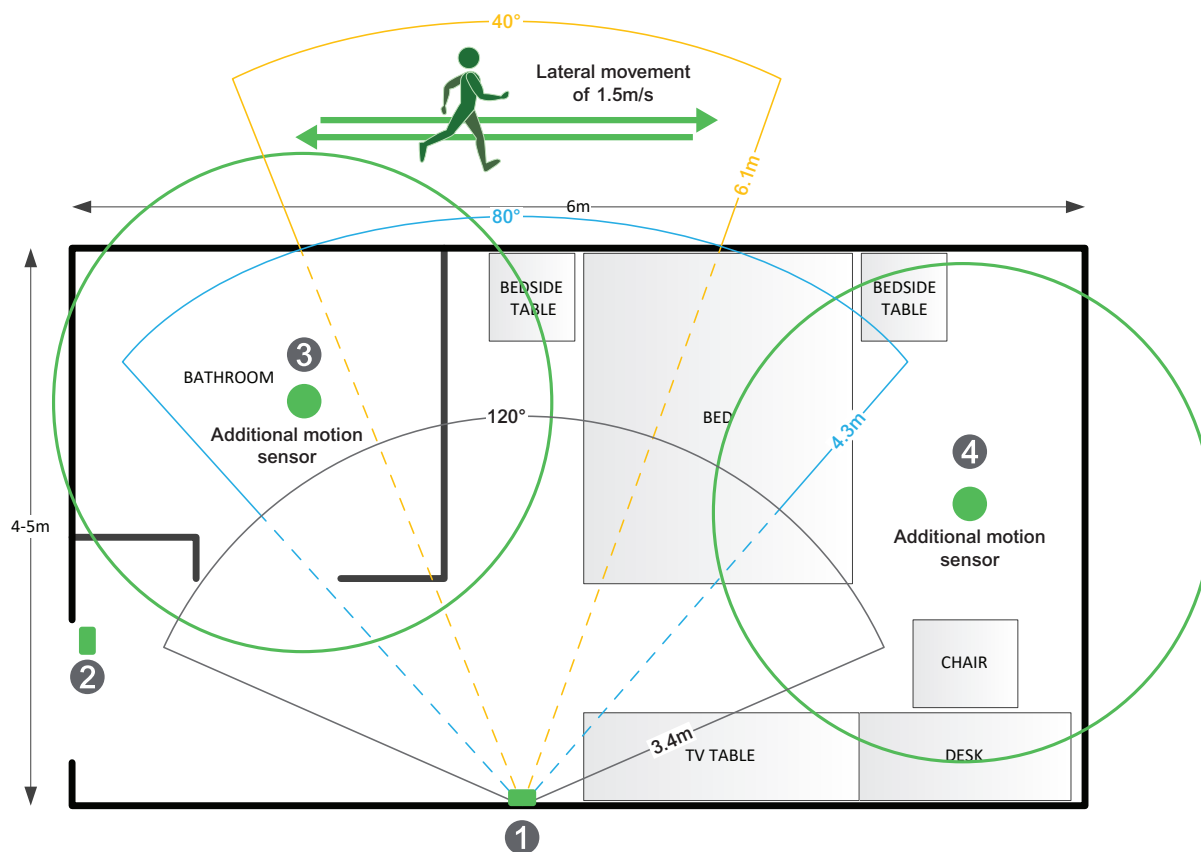
C.4   RECOMMENDATIONS FOR INSTALLATIONS

1.   Install the Room Controller to cover more lateral movement.
2.   Install a door sensor, the internal Room Controller occupancy logic works better with a door sensor. Once a motion is detected after a door is opened, the room stays in an occupied state until the door is opened again which puts the Room Controller in stand-by mode and if there is a motion then it goes back in occupied mode. It is also recommended to disable the unoccupied mode, set the "unoccupied time" to 0, so there are only 2 modes in the Room Controller: stand-by and occupied for a stand-alone solution. Please refer to the two(2) diagrams below for the Room Controller internal occupancy states transition.

8000 with internal and/or external motion sensors

8000 with door sensor, internal and/or external motion sensors

More aggressive energy savings logic but may cause a bad guest experience (when a guest is sleeping or not moving)
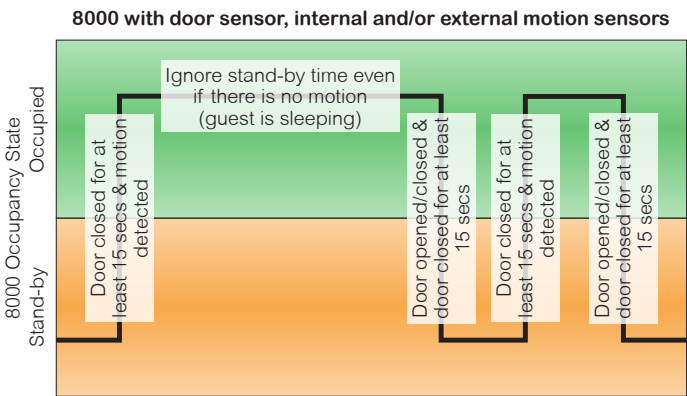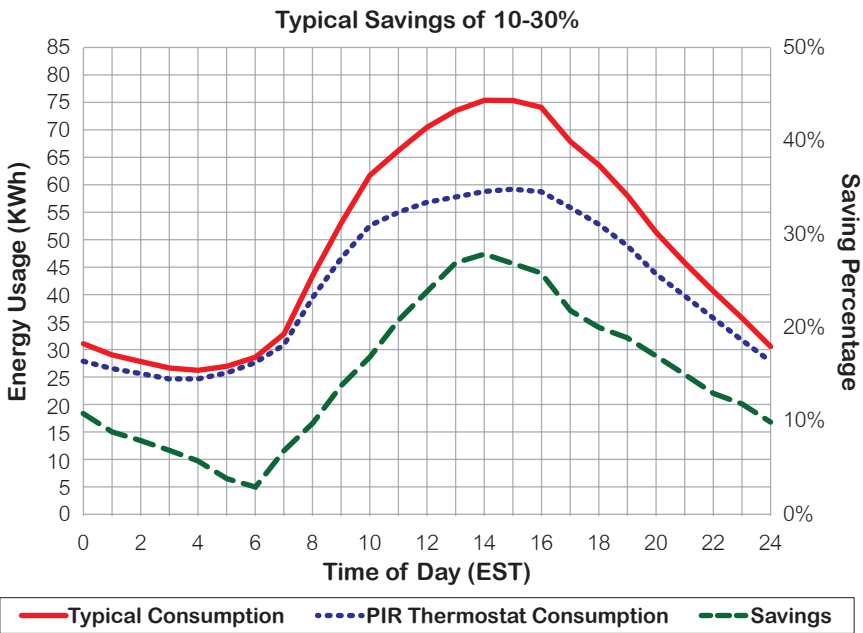
Good energy savings logic and better guest experience even when a guest is sleeping or not moving

3.   Install additional motion sensors in the bathroom.
4.   Install additional motion sensors for better motion detection in the entire room.

C.5   ENERGY SAVINGS

PIR can maximize your energy saving from 10-30% by adjusting temperature set points in unoccupied zones during scheduled periods.

PIR can maximize your energy saving from 10-30% by adjusting temperature set points in unoccupied zones during scheduled periods.

Typical Savings of 10-30%

Legend: **Typical Consumption** ······**PIR Thermostat Consumption** --- **Savings**

APPENDIX D. CALIFORNIA PROPOSITION 65 WARNING STATEMENT FOR CALIFORNIA RESIDENTS

⚠ **WARNING**: This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm, and Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Technical Support

For any issues with EcoStruxure Building, contact Schneider Electric Technical Support according to your region.

North America (NAM) Product Support
Building Management Systems (BMS): www.nampss.com

Global Product Support
Building Management Systems (BMS): productsupport.BMS@schneider-electric.com

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Schneider Electric is leading the Digital Transformation of Energy Management and Automation in Homes, Buildings, Data Centers, Infrastructure and Industries.

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In our global Ecosystem, we collaborate with the largest Partner, Integrator and Developer Community on our Open Platform to deliver real-time control and operational efficiency.

We believe that great people and partners make Schneider a great company and that our commitment to Innovation, Diversity and Sustainability ensures that Life Is On everywhere, for everyone and at every moment.

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