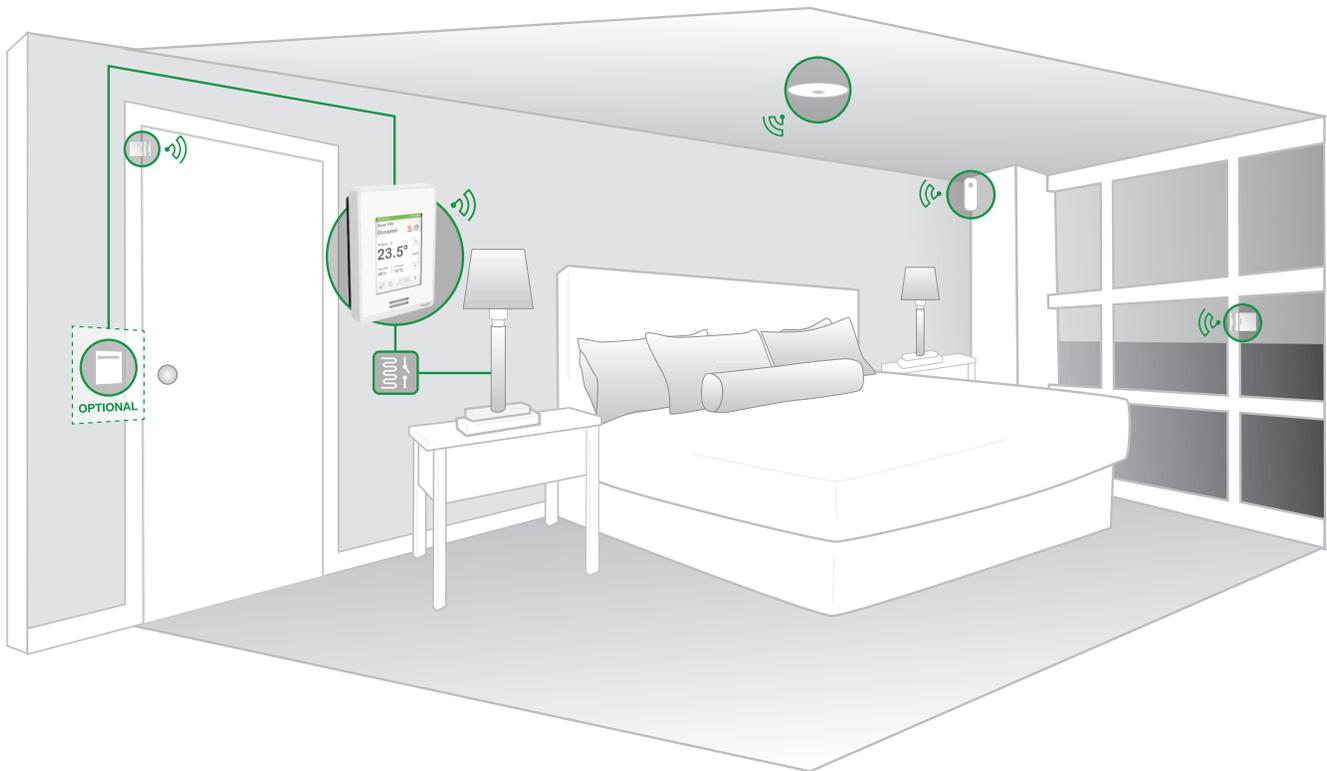


Hotel Guest Room Management - Limited Service Standalone Solution

Application Specific Integration Guide



Version 1.0-2

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The Limited Service Standalone Solution focuses on delivering high level of comfort to the Guest while being energy efficient, but also allows each room to be controlled independently, without the need of a central system.

The Limited Service Standalone Solution also offers the following:

- Manage Fan-coil unit HVAC system using the SE8000 Room Controller series.
- Occupancy-based master lighting relay control.
- Independence from building management systems and/or property management systems.

Room Layout

Typical room installation includes a Room Controller for HVAC controls, and a combination of various sensors providing the required control Information.

Hardware Requirements

The Bill of Materials (BOM) used in this application consists of the following products:

Item	Quantity	Part Number	Description
Room Controller - Low voltage FCU	As required	SE8350U5BXX	SE8300 Series Room Controller. With RH sensor, PIR on board, BACnet MS/TP enabled. No ZigBee module.
		SE8350U5BXXP	SE8300 Series Room Controller. With RH sensor, PIR on board, BACnet MS/TP enabled, built-in ZigBee module.
Room controller - Line voltage FCU	As required	SER8350A5BXX	SER8300 Series Room Controller. With RH sensor, PIR on board, BACnet MS/TP enabled. No ZigBee module
		SER8350A5BXXP	SER8300 Series Room Controller. With RH sensor, PIR on board, BACnet MS/TP enabled, built-in ZigBee module.
Relay pack (SER8300 only)	As required	SC3xxxE5045	SC3000 Relay Pack, must be combined with an SER8300.
Master Lighting Relay options* – SE8000	As required	V120	24 VAC/DC coil, 20 A. SPDT
		RSB1A160B7S	RS Plug-in Relay and Socket. 24 VAC coil, 16 A. SPDT
		RSZE1S48M	RS Socket for RS Plug-in Relay
		RSB1A160BD	RS Plug-in Relay, 1 Pole, 16A, 24 Vdc
Master Lighting Relay options* – SER8000	As required	V100	10-30 VAC/DC, 10 A. SPDT. For use with SER8300
Wireless Door/Window contact	As required	SED-WDS-P-5045-US	ZigBee wireless Door/Window contact. Room Controller must have ZigBee Comm. module.
ZigBee Ceiling Mounted motion sensor	As required	SED-CMS-P-5045	ZigBee wireless Ceiling Mounted motion sensor. Room Controller must have ZigBee Comm. module.
ZigBee Wall Mounted motion sensor	As required	SED-WMS-P-5045-US	ZigBee wireless Wall Mounted motion sensor. Room Controller must have ZigBee Comm. module.
Keycard switch	As required	Contact your Schneider Electric representative for part number	Normally Closed Keycard switch that enables Remote Night Setback (NSB). No card=Closed contact/Unoccupied. Card inserted = Open contact / Occupied.

 *Note: The suggested part numbers could be replaced by any other model or brand, according to the project requirements. Make sure that the Master Lighting Relay (MLR) has a NC wiring option. SE8350 would normally provide 24 VAC in the output, while the SER8350 only provides a maximum of 10 VDC.

Software Requirements

SOFTWARE

Software	Version
SE8350 / SER8350 Firmware	1.4.2 or newer

FILES

Filename	Version
Lua4RC_HotelLighting.lua	1.0 or newer

Architecture

In the standalone architecture each room is autonomous. There is no need for any component at the Hotel or Floor levels, all the control hardware and software is installed inside each room. At the center of this architecture is the Room Controller. The SE8300 is used for low voltage heating/cooling systems. For line voltage control, the SER8300 is used in combination with an SC3000 relay pack. The Room Controller not only optimizes the management of the heating/cooling system, it also controls the lighting.

The lights in the room are connected through a Master Lighting Relay, which can be turned off by the Room Controller when the room is empty, thus saving energy. Since the thermostat's built-in logic does not provide this functionality, a Lua script is required. In order to sense the occupancy of the room, door, window, and motion sensors are used. Optionally, a key card can also be used to determine when a room is rented/occupied or not rented/unoccupied, respectively adapting room control settings to provide further energy savings.

The Master Lighting Relay supports both 'normally closed' and 'normally open' configurations. The Lua script must be configured accordingly. The 'normally closed' configuration is recommended because it acts as a fail-safe; it will allow use of the lights if the Lua script stops being executed or while the thermostat is off.

The window contact is used to save energy, shutting down the HVAC system if the window or balcony door is left open. Additionally, door bell, blind control, and MUR standalone switches can be installed to improve comfort and guest experience.

Each sensor (door, window, and movement) can be implemented as either a wired sensor, or a ZigBee wireless sensor. Most combinations of wired and wireless sensors is possible; however it is not possible to have a wired window sensor and a wired remote sensor at the same time, as they both use UI16. The remote motion sensor also adds the possibility to monitor occupancy in the room, and should be used if physical layout blocks or impedes the on-board sensor of the Room Controller.

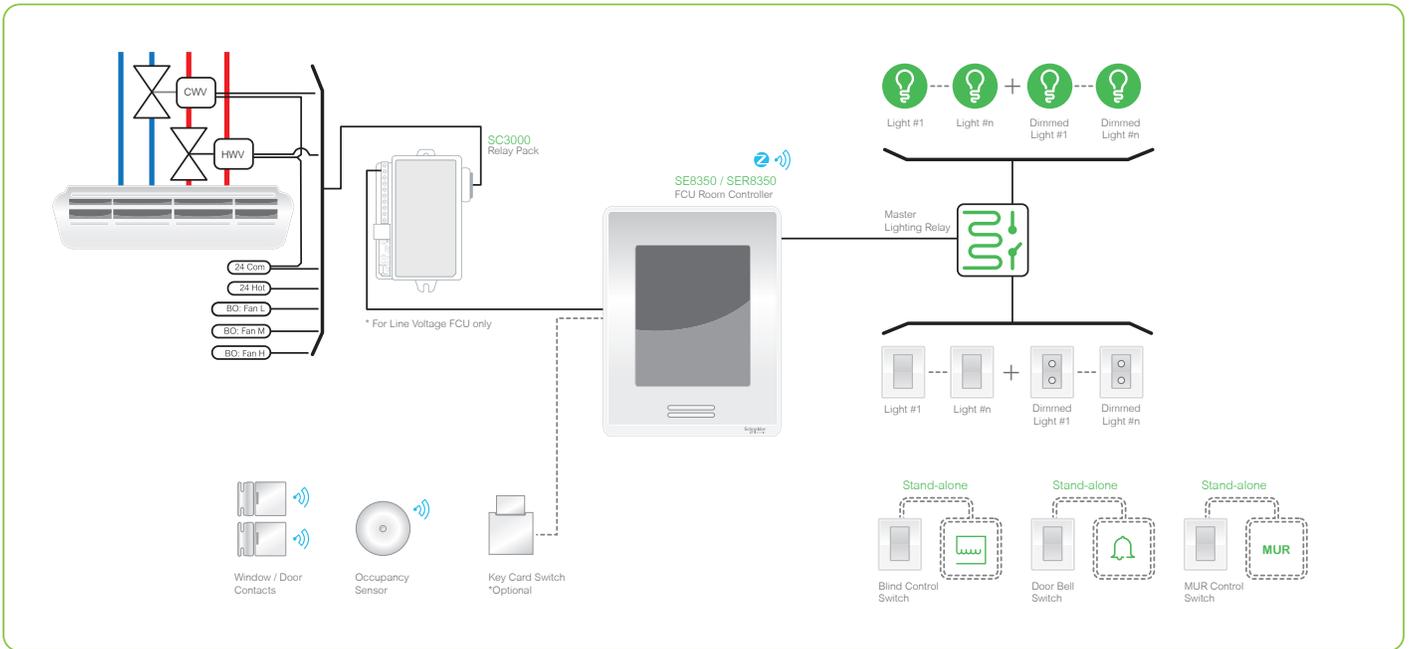
Hotel Level



Floor Level

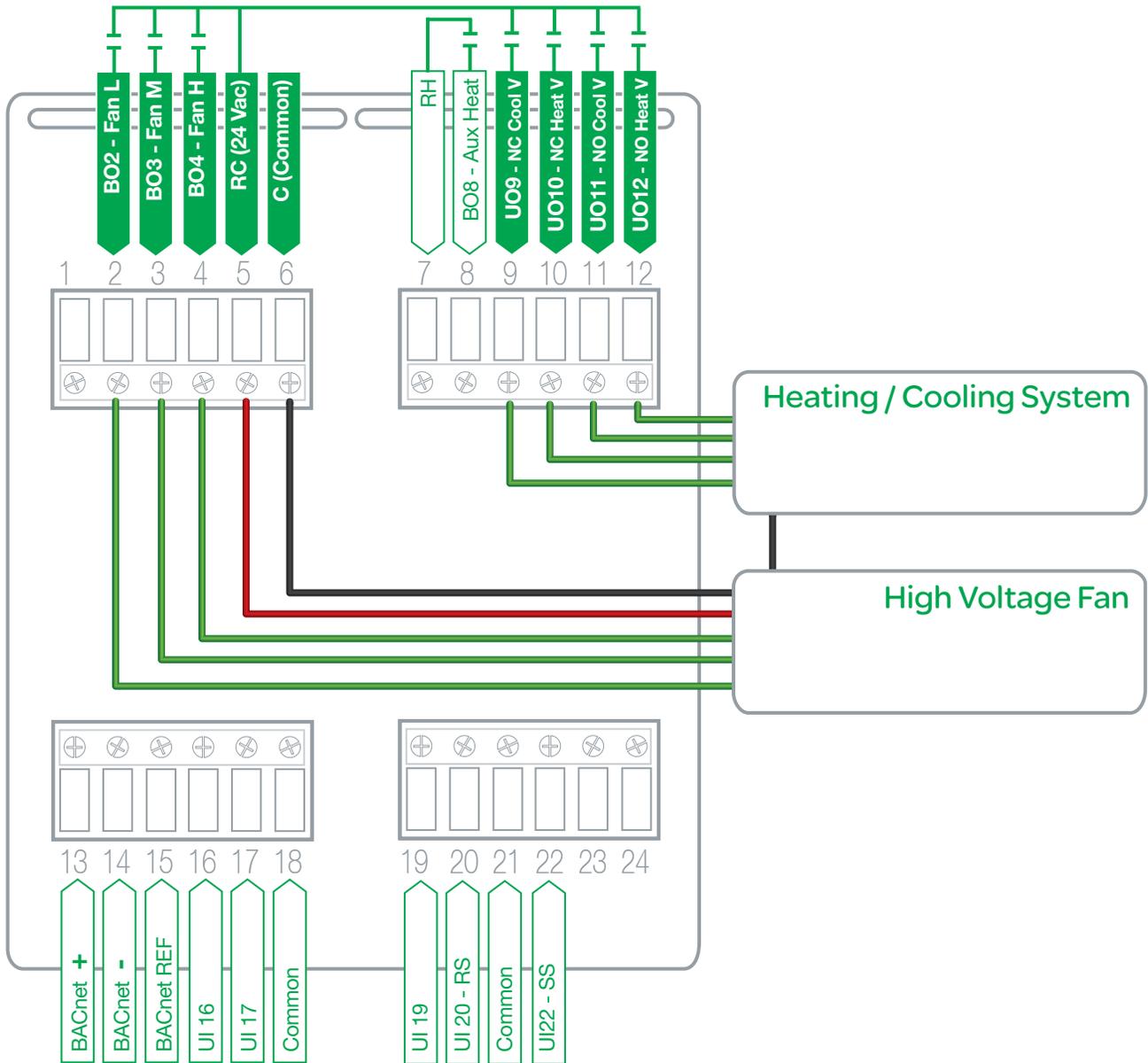


Room Level



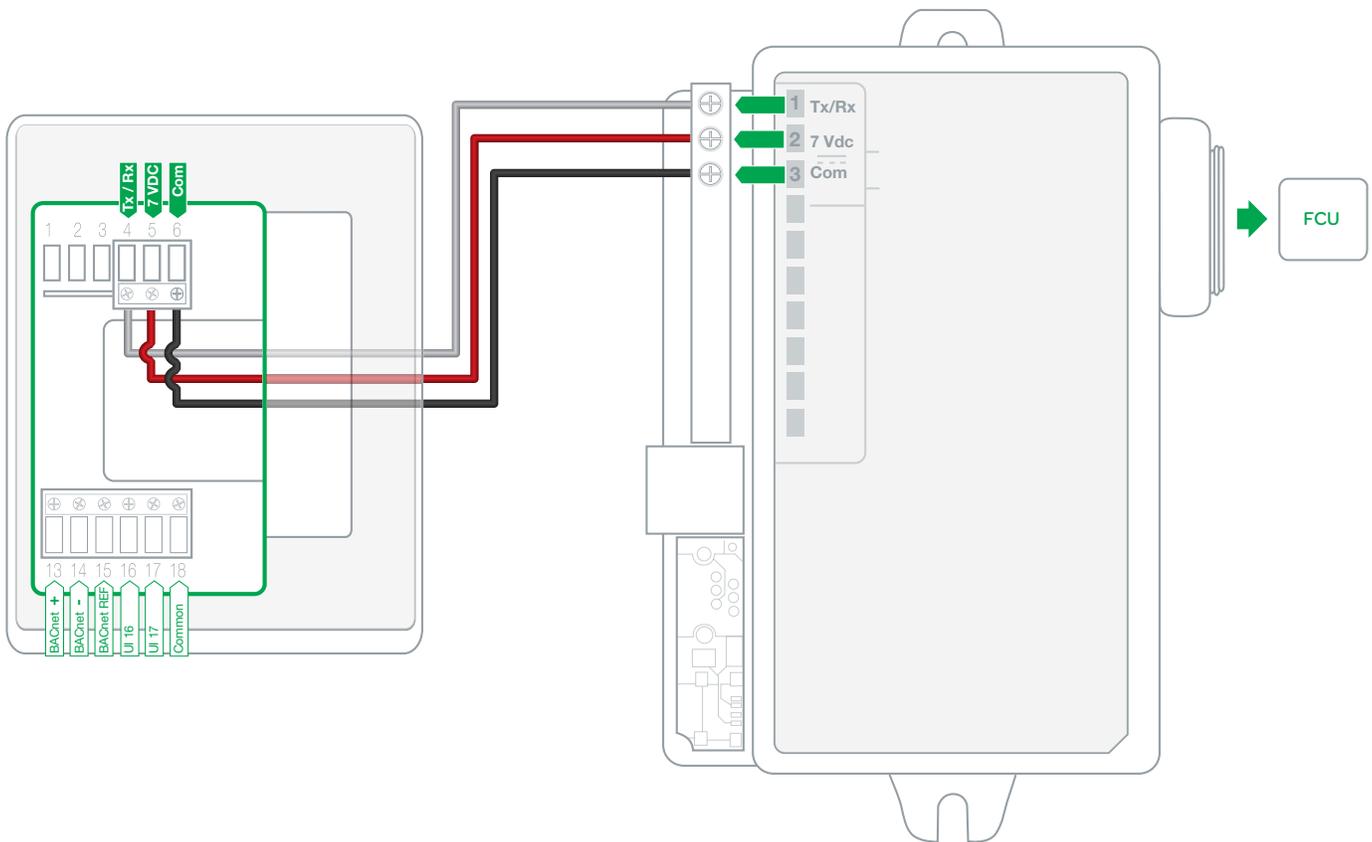
Low Voltage With SE8350

Quantity	Part Number	Description
1	SE83XXU5PXX	SE8350 Series Room Controller



Line Voltage With SER8350

Quantity	Part Number	Description
1	SER83XXAXPXX	SER8350 Series Room Controller
1	SC3XXXE5045	SC3000 Relay Pack

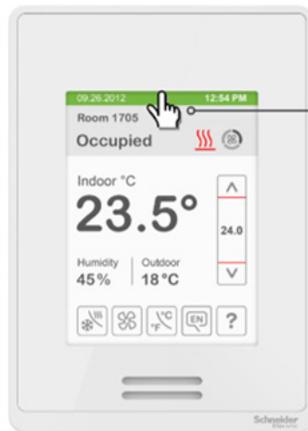


Configuration

Room Controller

All configurations are done through the Room Controller configuration menu.

1. Access Setup menu as shown below:

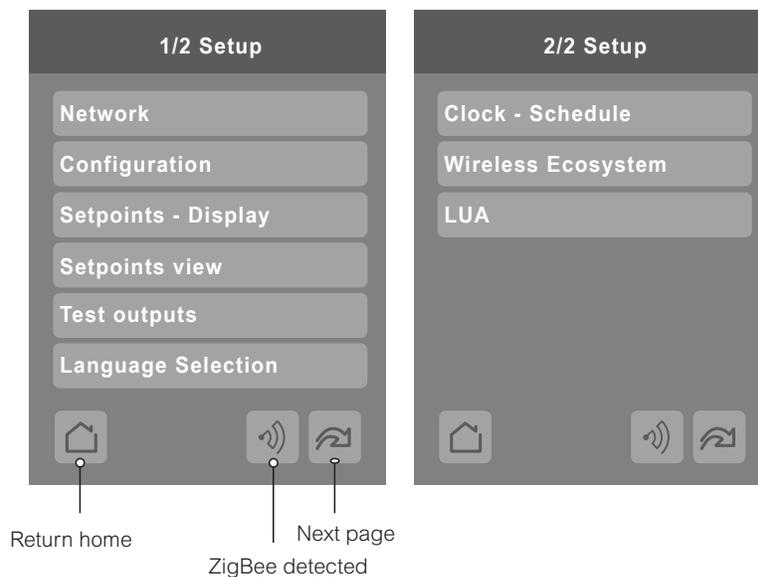


Touch and hold for 3 seconds mode

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

2. Navigate menus and set below values as required:

- » Network: enter BACnet or ZigBee settings
- » Configuration: set necessary configuration parameters
- » Setpoints: enter all necessary setpoints
- » Setpoints view: monitor Room Controller status
- » Test: test necessary outputs
- » Language: set preferred language
- » Clock: set clock, control schedule and occupancy
- » Wireless Ecosystem: set zone parameters
- » LUA: allows for a custom script to be implemented



Network

The network configuration is defined by the following three parameters:

- COM Address: Device ID on the network with range from 1 to 254.
- ZigBee PAN ID: Network ID. Range from 1 - 65,536 for standalone network and from 1 to 500 for centralized network.
- ZigBee Channel: Defines frequency spectrum used by network, with range from 10 - 25.

Regional recommendation to minimize interference are as follows:

1. North America: 15, 20, 25
2. EMEA: 15, 16, 21, 22
3. APAC: varied

The above values represent ZigBee channels and are less likely to overlap with WiFi channels, however there is no guarantee of prevention of overlap.

Note: ZigBee and WiFi can coexist together, however both configurations require different parameters for the Room Controller.

Room Controller as Coordinator

The example below shows each Room Controller with identical COM address and channels, however they must have unique PAN IDs. Each room represents a unique network.



COM: 254
Channel: 25
PAN ID: 501



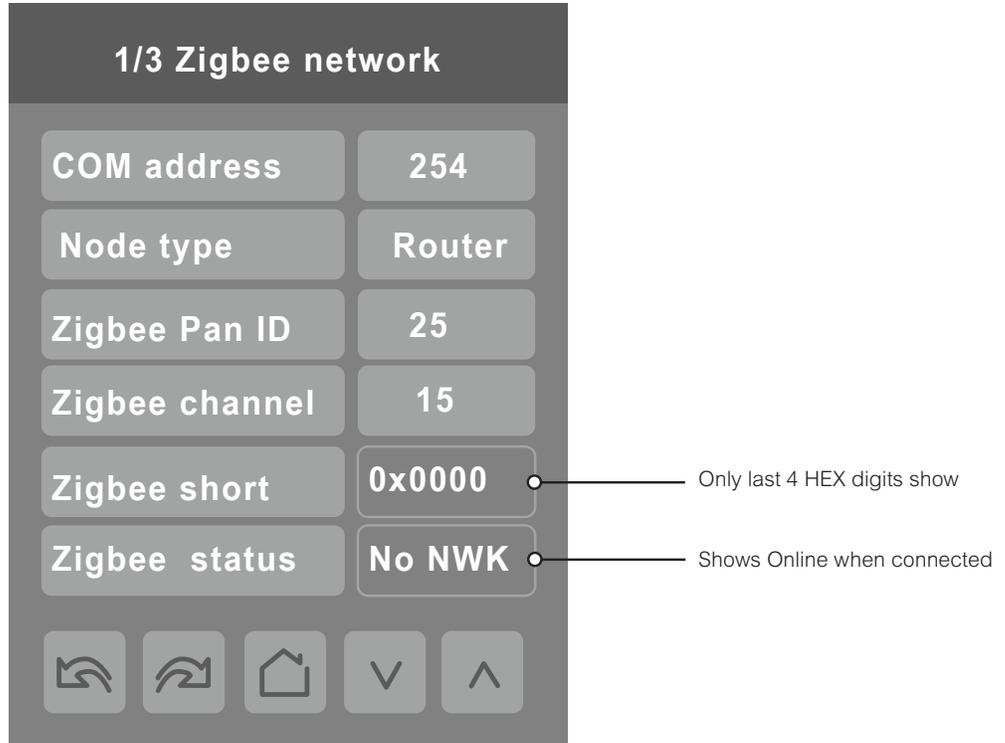
COM: 254
Channel: 25
PAN ID: 502



COM: 254
Channel: 25
PAN ID: 503

The procedure below sets the Room Controller as the coordinator of the ZigBee network and results in each guestroom becoming an independent network.

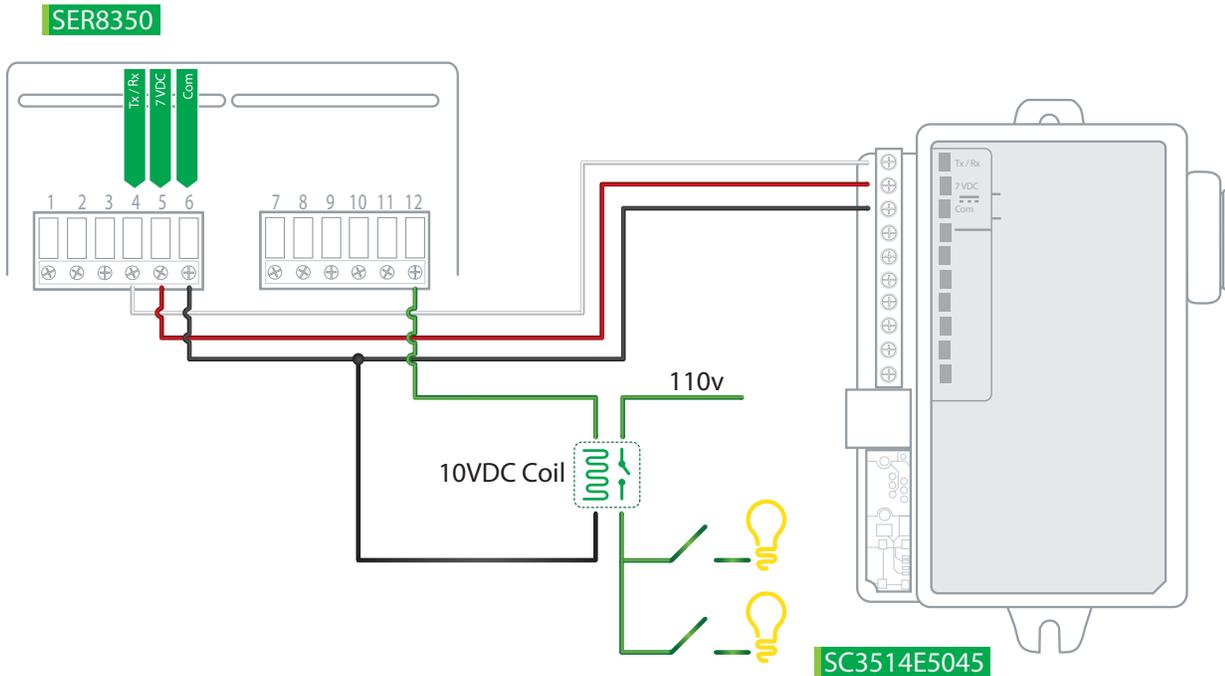
1. Enter the **Setup** menu on Room Controller and select **Network**.
2. Using Up/Down arrows, set the following:
 - » **COM address**
 - » **ZigBee PAN ID to unique value for each Room Controller**
 - » **ZigBee channel**
3. Select Home to return to main screen.



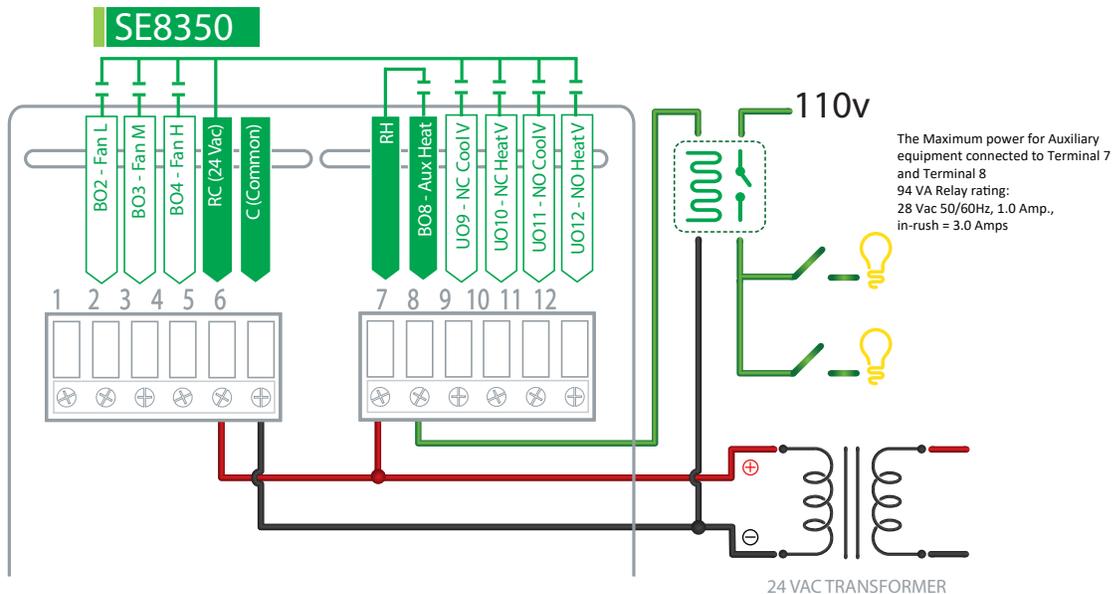
Lighting Control

The Room Controller uses a digital output to control the room's lighting circuit. Since the thermostat's built-in logic does not provide this functionality, a Lua script is required. For the SER8350 Room Controller, the output voltage is 10VDC; for the SE8350 model, the output voltage is 24VAC.

SER8350 ROOM CONTROLLER AND RELAY PACK APPLICATION



SE8350 ROOM CONTROLLER APPLICATION

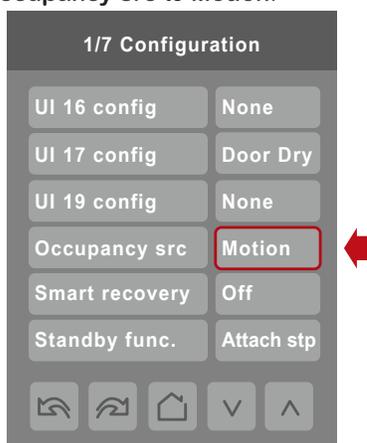


The Lua4RC script adds the lighting logic to the thermostat. This script opens the Master Lighting Relay, shutting the lights off, when the room has been empty for a pre-configured time. However, if movement is detected within the room, the lighting will be activated immediately.

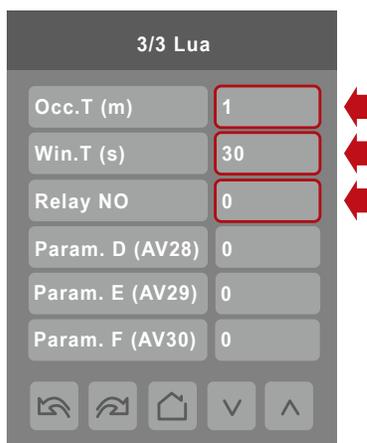
In addition, this script monitors the window contact. If the window is left open for the given configured time, the script turns off the HVAC function (cooling or heating).

For the Lua4RC script to work properly, the following configuration must be set:

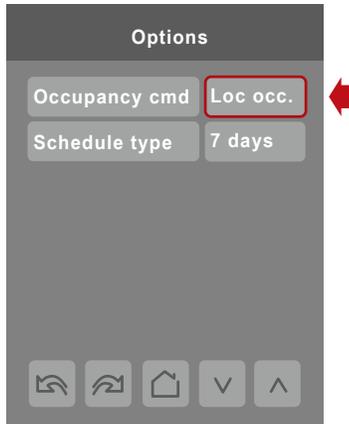
1. Enter the **Setup** menu on Room Controller and select **Configuration**.
 - » Set **Occupancy src** to **Motion**.



2. In screen 3/3 of the Lua menu, set:
 - » Set **Occ.T(m)** to the number of minutes of room inactivity before deactivating the lighting. For example, if this value is set to 1, one minute after the guest has left the room, the lights will go off.
 - » Set **Win.T(s)** to number of seconds before window alarm. For example, if set to 30, if the window is left open for 30 or more seconds, the thermostat will go into an energy saving cooling or heating mode.
 - » Set **Relay NO** to 0 if the Master Lighting Relay is normally closed (recommended). Otherwise, set to 1 (normally open).



3. In the **Set Schedule** menu, select **Options**:
 - » Set **Occupancy cmd** to **Loc occ.**

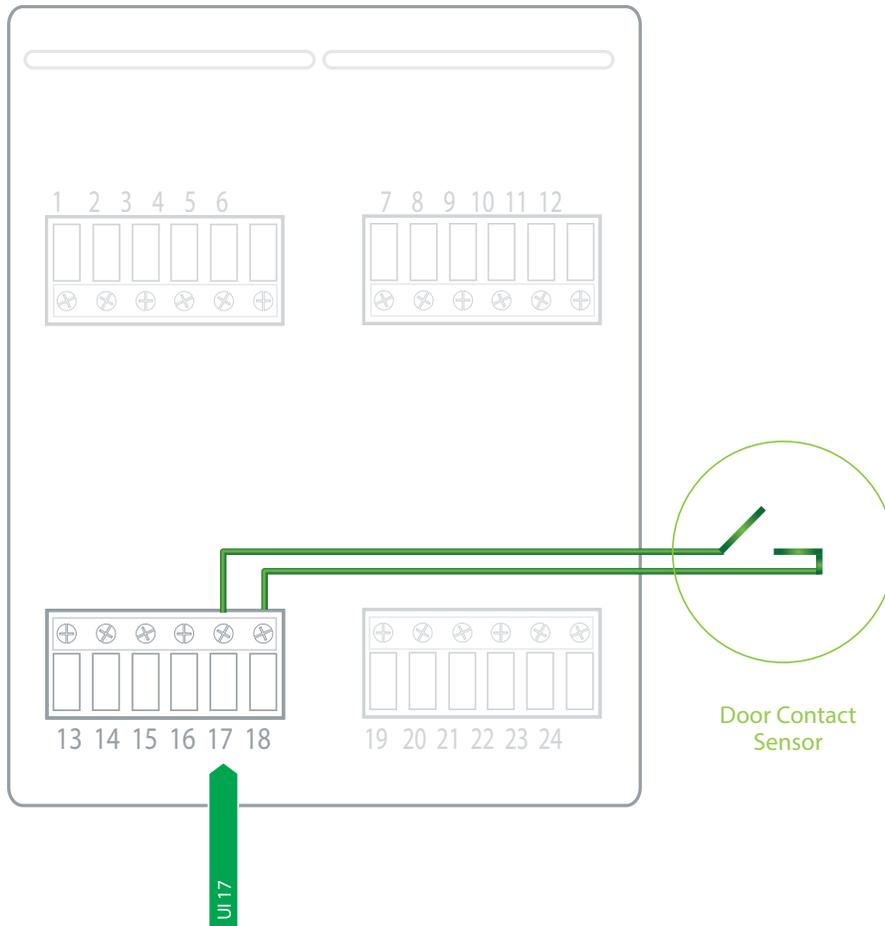


Additionally, the lighting control requires configuring the door sensor and at least one motion sensor. These configurations will be detailed in the following sections.

Door Contacts

Door Contacts are either dry contacts or wireless ZigBee sensors. The Room Controller logic treats balcony doors as windows; only the sensor from the room's main door is considered as door contact.

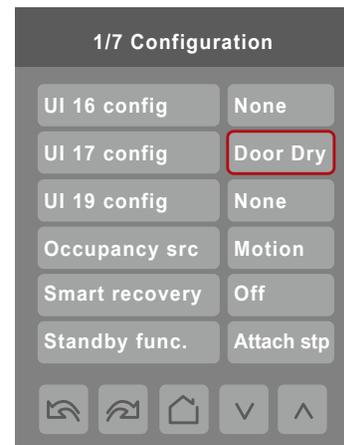
WIRED DOOR CONTACT WIRING DIAGRAM



WIRED DOOR SENSOR CONFIGURATION

This procedure configures the Room Controller to a wired sensor.

1. From **Setup** menu on Room Controller, select **Configuration**.
2. Select **UI17**.
3. Using Up/Down arrows, set the parameter to **Door Dry**.
4. Select **Occupancy src**.
5. Using Up/Down arrows, set parameter to **Motion**.
6. Press Home.

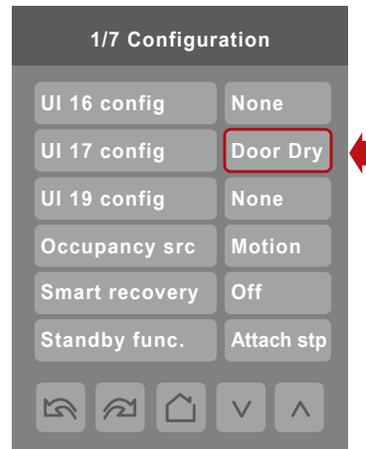


WIRELESS DOOR SENSOR CONFIGURATION

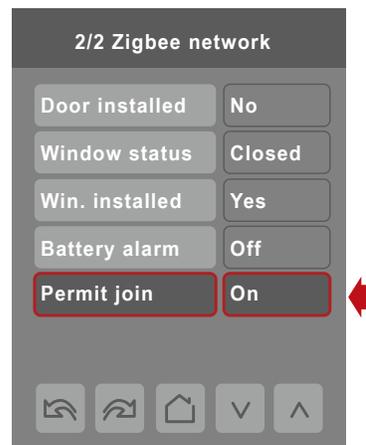
This procedure configures the Room Controller to a wireless sensor. A combination of 10 wireless sensors can be used (door, window, and motion). All door sensors are combined in an “OR” logic.



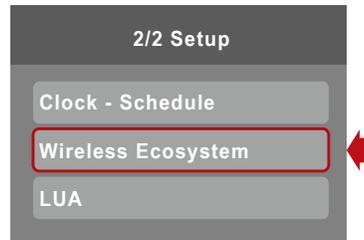
1. From **Setup** menu on Room Controller, select **Configuration**.
2. Select **UI17**.
3. Using Up/Down arrows, set the parameter to **Door Dry** and then press Home.



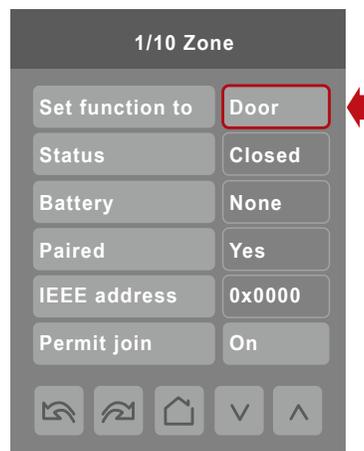
4. From **Setup** menu, navigate to **ZigBee network** screen 2/2.
5. Verify **permit join** is set to **On** before pairing sensors and then press **Home**.



6. In **Setup** menu, select Setup screen 2/2.
7. Select **Wireless Ecosystem**.



8. In an unused **Zone** screen (1 to 10), set the **Set function to Door**.



9. Once paired, verify **Paired** shows **Yes**.
10. Verify last four digits of **IEEE address** match last four digits of MAC address of sensor.

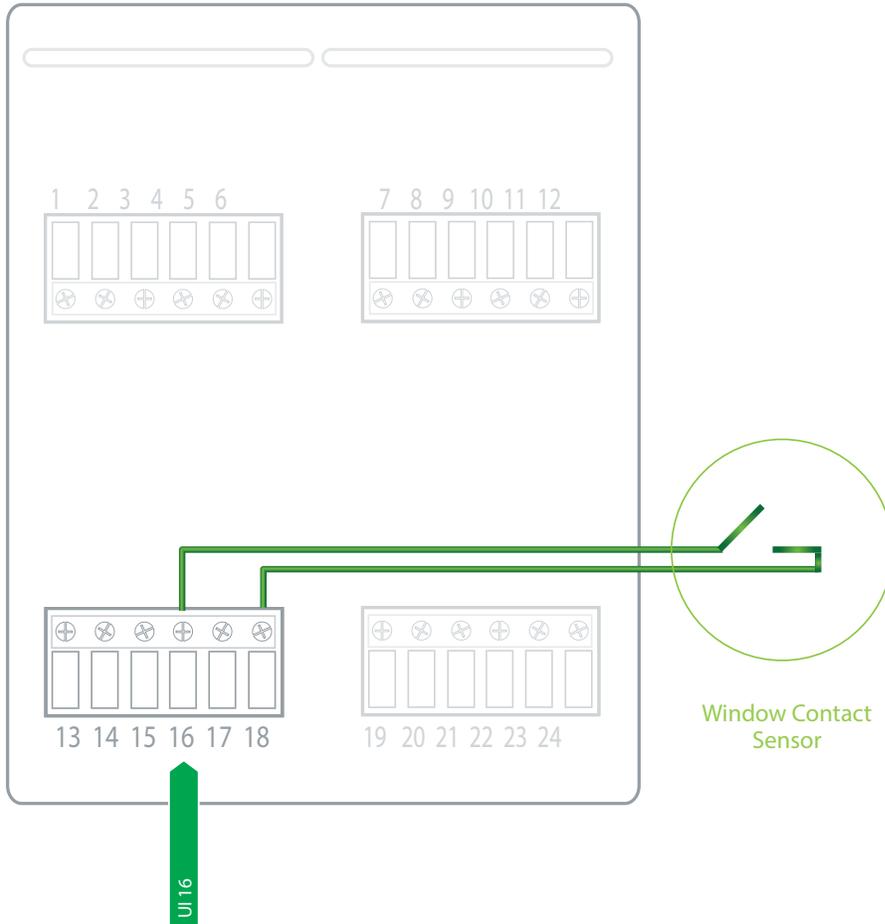


11. Verify sensor operates correctly by opening and closing the sensor and to change Status from Closed to Open.

Window Contact

Window Contacts are either wired dry contact or wireless ZigBee sensors.

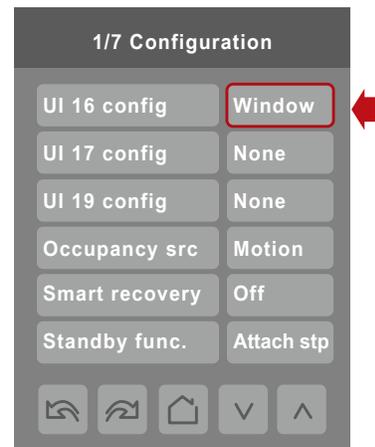
WIRED DOOR CONTACT WIRING DIAGRAM



WIRED WINDOW SENSOR CONFIGURATION

This procedure configures the Room Controller to a wired window sensor.

1. In **Setup** menu, select **Configuration** screen 1/7.
2. Select **UI16** config.
3. Using Up/Down arrows, set to **Window**.
4. Select Home.



WIRELESS WINDOW SENSOR CONFIGURATION

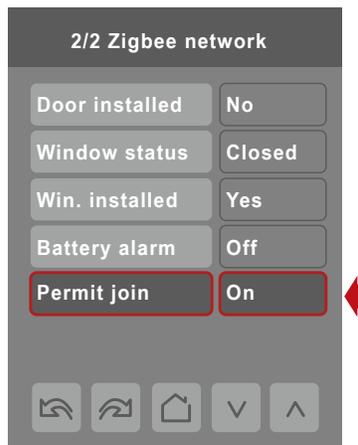
This procedure configures the Room Controller to a wireless window sensor. A combination of 10 wireless sensors can be used (door, window, and motion). All window sensors are combined in an “OR” logic.



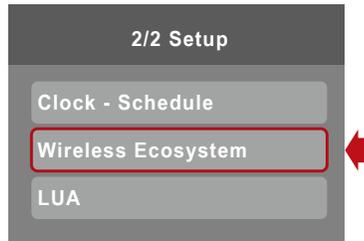
1. In **Setup** menu, select **Configuration** screen 1/7.
2. Select **UI16** config.
3. Using Up/Down arrows, set to **Window**.



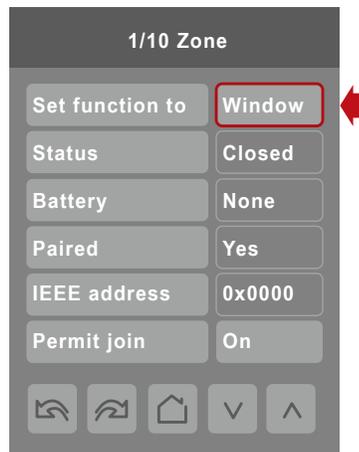
4. Navigate to **ZigBee network** screen 2/2.
5. Once paired, verify **Permit join** shows **On**.
6. Select Home.



7. In **Setup** menu, select Setup screen 2/2.
8. Select **Wireless Ecosystem**.



9. In an unused **Zone** screen (1 to 10), set the **Set function to Window**.



10. Once paired, verify **Paired** shows **Yes**.
11. Verify last four digits of **IEEE address** match last four digits of MAC address of sensor.

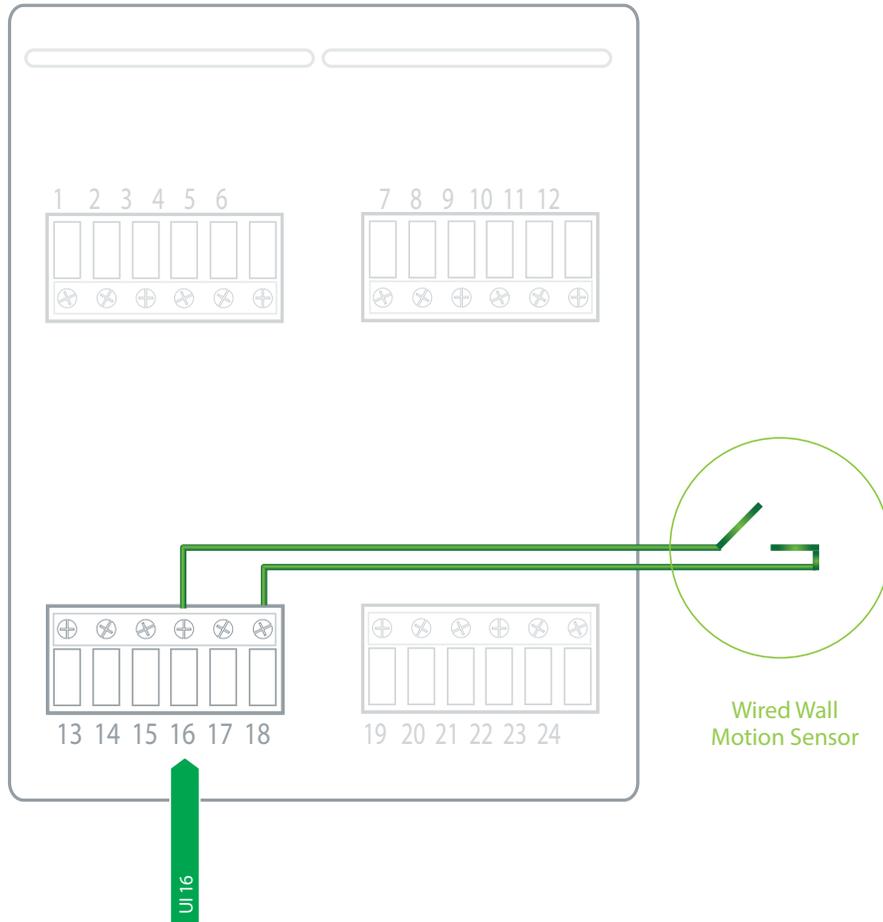


12. Verify sensor operates correctly by opening and closing the sensor and Status changes from Closed to Open.

Remote Motion Sensor

This section describes the installation of the Multiple Motion detector. It is not possible to have a wired window sensor and a wired remote sensor at the same time as they both use UI16. The remote motion sensor also adds the possibility to monitor occupancy in the room and should be used if physical layout blocks or impedes the on-board sensor of the Room Controller.

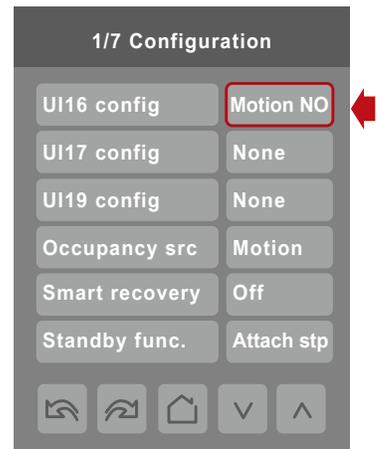
WIRED REMOTE MOTION SENSOR WIRING DIAGRAM



WIRED MOTION SENSOR CONFIGURATION

This procedure configures the Room Controller to a wired motion sensor.

1. Wire Motion Sensor contact to terminal **UI16** on Room Controller.
NOTE: If UI16 is currently used by a wired window contact, the Motion Sensor requires custom application development for implementation.
2. From **Setup** menu, select **Configuration** screen 1/7.
3. Tap **UI16** and using Up/Down arrows set parameter to **Motion NO**.
4. Press Home.

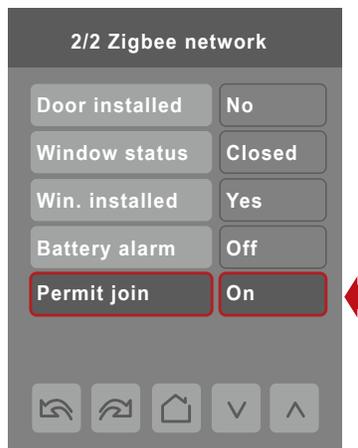


WIRELESS MOTION SENSOR CONFIGURATION

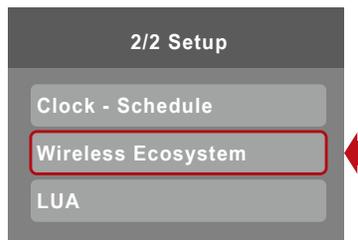
This procedure configures the Room Controller to a wireless motion sensor. A combination of ten 10 wireless sensors can be used (door, window, and motion). All motion sensors are combined in an “OR” logic.



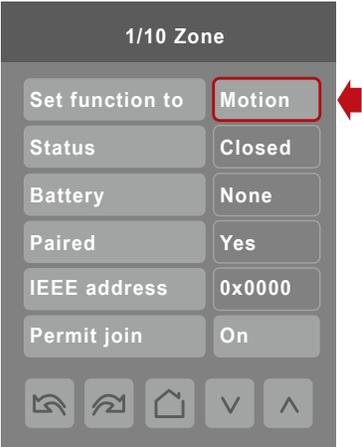
1. Navigate to **ZigBee network** screen 2/2 and verify **Permit join** is set to **ON** before pairing Sensors.
2. Press Home.



3. Navigate to **Setup** screen 2/2 and select **Wireless Ecosystem**.



4. Set the **Set function to** parameter to **Motion**.



5. Verify last four digits of **IEEE address** match last four digits of MAC address of sensor.



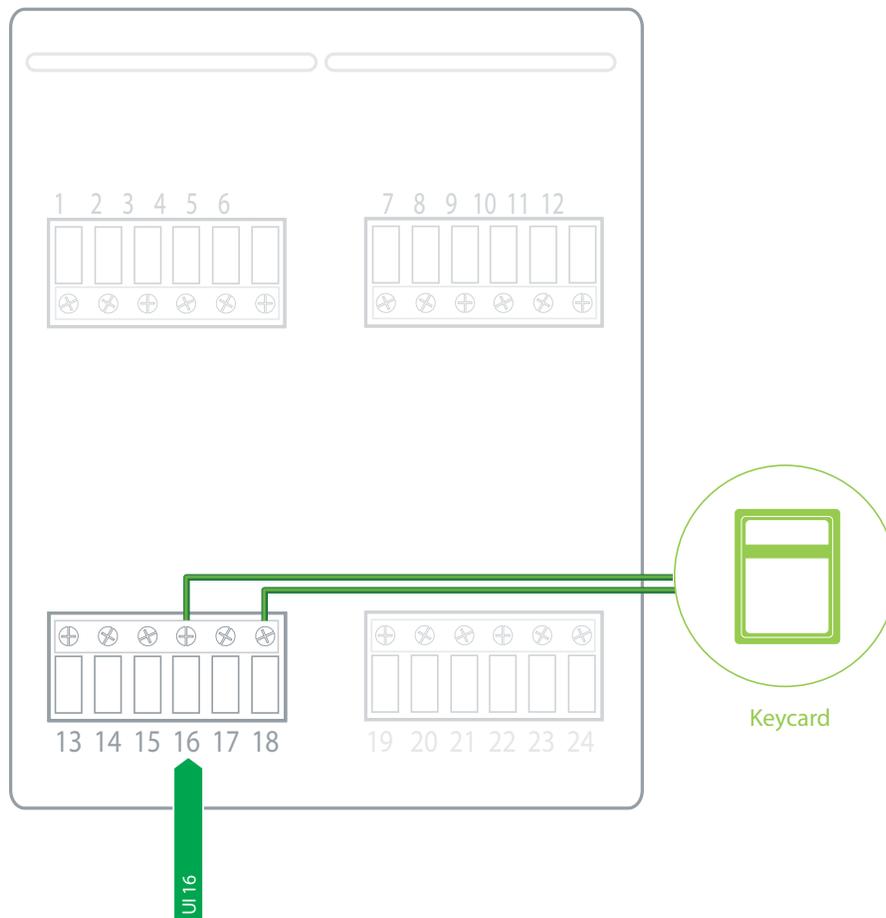
6. Verify sensor operates correctly by opening and closing the sensor and Status changes from Closed to Open.

Keycard Switch

The Keycard switch is used to monitor occupancy. When the Keycard is inserted, the room goes in occupied mode. When the Keycard is removed, the room is considered unoccupied. It is not possible to have a wired wall and a wired remote sensor at the same time as they both use UI16.

There is no wireless option available for the Keycard switch.

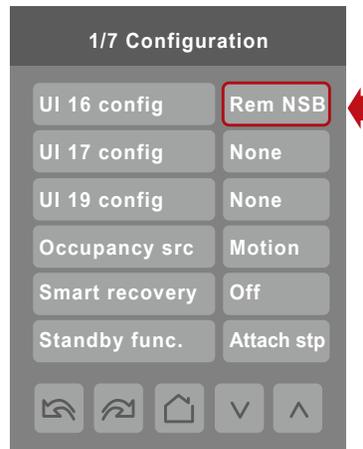
KEYCARD WIRING DIAGRAM



WIRED KEYCARD CONFIGURATION

This procedure configures the Room Controller to a wired keycard switch.

1. Wire Keycard to terminal UI16.
2. From **Setup** menu, select **Configuration** screen 1/7.
3. Tap **UI16** and using Up/Down arrows set parameter to **Rem NSB**.
4. Press Home.



Technical Support

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

Level 1

- In-country support via SE Branches or SI Partners
- CCC / SRC / CSS

Level 2 - For product support, open ticket in BFO

- For Building Expert related issues*: PSS Advanced and Experts
- For EcoStruxure BMS issues: PSS Advanced

Level 2 - For solutions/application support

- Country Champion / Solution Architects / App Center

Level 3

- For Building Expert related issues*: SBS Support team
- For EcoStruxure BMS issues: PSS Experts

Level 4 - For solutions/application support

- For Building Expert related issues*: SBS Solutions, Offer Management and R&D
- For EcoStruxure BMS issues: Global Sustain Team

*Only for P1 issues (high impact, urgent and complex), country champion have the option of opening a ticket in Jira to escalate directly to Level 3

About Schneider Electric

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

With global presence in over 100 countries, Schneider is the undisputable leader in Power Management – Medium Voltage, Low Voltage and Secure Power, and in Automation Systems. We provide integrated efficiency solutions, combining energy, automation and software.

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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