



# MultiSITE™ MS8250 VAV Room Controller USER MANUAL




## **MS8250**

Model No. VUCQMS8250

Variable Air Volume (VAV) Controller

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# SAFETY PRECAUTIONS


The instructions below must be followed to prevent product malfunction, property damage, injury or death to the user or other people. Incorrect operation due to ignoring any instructions will cause harm or damage. The level of seriousness is classified by the symbols described below.

## TABLE OF SYMBOLS


 <b>DANGER</b>	<i>This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</i>
 <b>WARNING</b>	<i>This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</i>
 <b>CAUTION</b>	<i>This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</i>
<b>Note:</b>	<i>This symbol indicates situations that may result in equipment or property damage accidents only.</i>
	<i>This symbol indicates an action that should not be performed.</i>

This manual provides details on configuring the LG MultiSITE MS8000 Series Room Controllers to monitor and control LG HVAC equipment (Model Number: VUCQMS8250).  
Refer to the Installation Manual for installation and mounting instructions of the controllers.

### DANGER

 **Do not use or store flammable gas or combustibles near the unit.**  
*There is risk of fire, explosion, and physical injury or death.*


**Disconnect power before installing or servicing the unit.**  
*There is risk of physical injury or death due to electric shock.*

 **Do not touch any exposed unit wiring, terminals, or other electrical components with tools or exposed skin. Only qualified technicians should install, use, or remove this unit.**  
*Improper installation or use may result in fire, explosion, electric shock, physical injury and/or death.*


### WARNING

**The information contained in this manual is intended for use by an industry-qualified, experienced, trained electrician familiar with local, national, and regional codes and who is equipped with the proper tools and test instruments.**  
*Failure to carefully read and follow all instructions will result in personal injury or death.*

**All electric work must be performed by a licensed electrician and conform to local building codes or, in the absence of local codes, with the National Electrical Code, and the instructions given in this manual.**  
*If the power source capacity is inadequate or the electric work is not performed properly, it will result in fire, electric shock, physical injury or death.*

 **Do not change the settings of the protection devices.**  
*If the protection device is shorted and forced to operate improperly, or parts other than those specified by LG are used, there is risk of fire, electric shock, explosion, and physical injury or death.*

**Discharge yourself correctly before handling and installing the controller.**  
*There is risk of electric shock and physical injury or death.*

 **Do not touch the unit with wet hands.**  
*There is risk of fire, electric shock, physical injury, and/or death.*

# SAFETY PRECAUTIONS

## ⚠ WARNING

Use a soft, pre-moistened lint-free cloth for cleaning.

⊘ Avoid getting moisture in openings.

*If moisture accesses the electrical components of the controller, there is risk of fire, electric shock, and physical injury or death.*

⊘ Do not use caustic / corrosive products, ammonia, solvents or any cleaning product containing alcohol or grit.

*There is risk of fire, electric shock, and physical injury or death.*

⊘ Do not drop or crush the controller, or allow it to come into contact with liquids.

*There is risk of fire, electric shock, and physical injury or death.*

⊘ Do not spray anything directly on the controller or use compressed air.

*There is risk of fire, electric shock, and physical injury or death.*

⊘ Never use paint on the controller.

*If moisture accesses the electrical components of the controller, there is risk of fire, electric shock, and physical injury or death.*

⊘ Do not use a damaged device (such as one with a cracked screen).

*There is risk of fire, electric shock, and physical injury or death.*

## ⚠ CAUTION

Wear protective gloves when handling equipment.

*Sharp edges cause personal injury.*

## Note:

Disconnect power before installing or servicing the unit.

*There is risk of equipment damage and degraded performance.*

⊘ Do not allow water, dirt, or animals to enter the controller.

*There is risk of unit failure or degraded performance.*

⊘ Do not spill water or other liquid on the inside of the controller. ⊘ Do not drop the controller into water. If the unit is immersed in water or other liquid, contact your local authorized LG distributor for support.

*There is risk of unit failure or degraded performance.*

This device is only intended for use as a monitoring and control device. It is not a safety device. ⊘ Do not use it for any other purpose.

*Tampering with the devices or unintended application of the devices will result in a void of warranty. There also is risk of data loss or equipment damage.*

The controller is not compatible with a Power-Over-Ethernet (POE) network. ⊘ Do not connect the controller on a network segment that carries power.

*The unit may fail.*

Use a soft, pre-moistened lint-free cloth for cleaning.

⊘ Avoid getting moisture in openings.

*There is risk of equipment damage, and will void the manufacturer's warranty.*

⊘ Do not spray anything directly on the controller or use compressed air.

*There is risk of equipment damage, and it will void the manufacturer's warranty.*

⊘ Do not use caustic / corrosive products, ammonia, solvents or any cleaning product containing alcohol or grit.

*There is risk of equipment damage, and it will void the manufacturer's warranty.*

⊘ Never use tools directly on the touchscreen.

*There is risk of damage to the controller screen, and it will void the manufacturer's warranty.*

⊘ Never use paint on the controller.

*There is risk of equipment damage, and it will void the manufacturer's warranty.*

⊘ Do not drop or crush the controller, or allow it to come into contact with liquids.

*There is risk of equipment damage, and it will void the manufacturer's warranty.*

⊘ Do not use a damaged device (such as one with a cracked screen).

*Performance can be affected if the glass on the screen is broken, and it will void the manufacturer's warranty.*

# STANDARDS AND CERTIFICATIONS

## Standards and Certifications

### Safety Standards

- LV Directive 2014 / 35 / EU
- UL 60730-2-9
- UL 60730-2-13
- CAN / CSA-E60730-2-9
- IEC / EN 60730-1
- IEC / EN 60730-2-9
- IEC / EN 60730-2-13

### EMC Standards

- EMC Directive 2014 / 30 / EU
- FCC 15 Subpart B
- ICES-003
- IEC / EN 60730-1
- IEC / EN 60730-2-9
- IEC / EN 60730-2-13

### Radio Standards (Wireless Models)

- RE Directive 2014 / 53 / EU
- ETSI EN 300 328 V2.1.1
- ETSI EN 301 489-1 V1.9.2
- ETSI EN 301 489-17 V2.2.1
- FCC Part 15 Subpart C
- RSS 247

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER’S AUTHORITY TO OPERATE THE EQUIPMENT.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Industry Canada’s licence-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

In order to comply with FCC/ISED RF Exposure requirements, this device must be installed to provide at least 7-7/8 inches (20cm) separation from the human body at all times.



Check with your local government for instruction on disposal of these products.

## Before Beginning

### Note:

#### 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. Failure to follow instructions will result in operation malfunction.
- Separate or redundant control paths must be provided for critical control functions. Failure to follow instructions will result in operation malfunction.
- System control paths may include communication links. Consideration must be given to the implications of anticipated transmission delays or failures of the link.<sup>1</sup> Failure to follow instructions will result in operation malfunction.
- Each implementation of equipment utilizing communication links must be individually and thoroughly tested for proper operation before being placed into service. Failure to follow instructions will result in operation malfunction.

<sup>1</sup>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.

### WARNING

#### California Proposition 65

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](http://www.P65Warnings.ca.gov). Failure to follow these instructions can result in birth defects or other reproductive harm.

### Note:

#### Electrostatic Discharge / Static-Sensitive Components

Circuit boards and option cards can be damaged by static electricity. Observe the following precautions when handling static-sensitive components such as controller circuit boards or testing components. Failure to follow these instructions can result in equipment damage.

- Keep static-producing material such as plastic, upholstery, and carpeting out of the immediate work area.
- Store static-sensitive components in protective packaging when these 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.



# INTRODUCTION

## Introduction

This manual shows the installation instructions for the LG MultiSITE MS8250 Variable Air Volume (VAV) Room Controller (Firmware v2.4).

### MS8250 Variable Air Volume (VAV) Room Controllers

For Commercial and high end hospitality markets. The MS8250 is a low voltage variable air volume and zone Room Controller.

#### Features

- Configurable to support damper control for Pressure Independent (PI) and Pressure Dependent (PD) VAV systems.
- Embedded local configuration utility using the touch screen allowing for simplified configuration, sequence selection, re-initialization, setting of setpoints and control of display settings.
- Customizable color digital touch screen interface with multi-language support.
- BACnet® (Available BACnet options listed under Connectivity) or Modbus®.\*
- On-Board ZigBee® Communication Module.
- Automatic Demand Response (ADR) used to reduce energy load when electric grid contingencies threaten supply-demand balance.
- Custom LUA script can be uploaded to the VAV Room Controller.
- Passwords can be set to prevent unauthorized user access to main screen adjustments and / or configuration menu parameters.
- Senses both Room Temperature and Relative Humidity.
- Configurable temporary or permanent local override setpoints.
- Local or remote override during unoccupied mode.
- Adjustable local unoccupied heating and cooling setpoint limits, maximum heating and minimum cooling limits, as well as adjustable dead and proportional bands.
- Remote night set back.
- Advanced PIR Occupancy Functions generate automatic energy savings during occupied and unoccupied periods without sacrificing comfort.

*BACnet® is a registered trademark of ASHRAE.*

*Modbus® is a registered trademark of Schneider Electric USA, Inc.*

*ZigBee® is a registered trademark of the ZigBee Alliance, Inc.*



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## Disclaimer

### Standby Screen

The Room Controllers incorporate TFT-type LCD technology, and therefore, necessary precautions are required to prevent the phenomenon of image retention (residual image) from occurring.

Image retention may occur when a static image is displayed on the screen for a prolonged period. This can cause a faint outline of the image to remain visible on the screen when the screen is changed via the user menu, or a different image is uploaded and selected to be displayed. To minimize and prevent image retention, it is recommended to select the "Screen Save" setting on the "Standby" screen selection from the setup menu "Display 1 / 2". This setting switches the display during periods of inactivity from the "Home Screen".

It is recommended to use a black or medium gray image, or one with light color contrasts as the screen saver to prevent this phenomenon from occurring. If the display still exhibits this phenomenon, loading an all-black or all-medium gray image as the screen saver and displaying it for upwards of five (5) hours continuously minimizes this effect.

### WARNING

⊘ Avoid placing the controller in poorly ventilated areas, or in areas that may create excess heat around the display. Poorly ventilated areas or areas that create excessive heat could generate short circuiting, which will lead to electrical shock, fire, physical injury and / or death.

### Note:

⊘ Avoid placing the controller in poorly ventilated areas, or in areas that may create excess heat around the display. Poorly ventilated areas or areas that create excessive heat could generate short circuiting, which will lead to product damage.

# HMI DISPLAY AND SET UP

## Human Machine Interface (HMI) Display

The below shows a typical user interface for the hospitality industry. The User HMI is configurable and allows display functions such as Date, Time, Humidity, Outdoor Temperature, and Setpoint to be enabled or disabled by setting various parameters.

Figure 1: Typical Hospitality Industry User Interface.



## Enter Set-up Screen

Figure 2: Enter Set-up Screen Display.

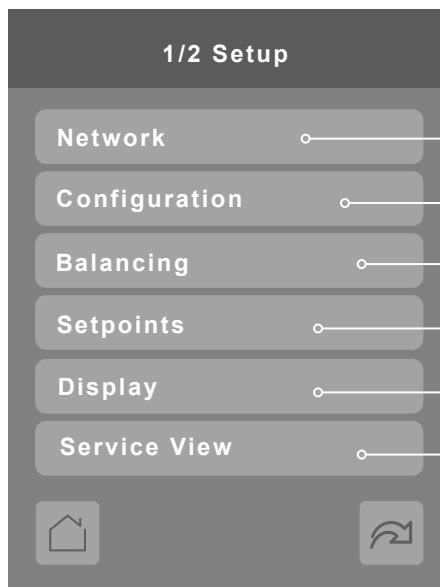


Touch and hold this point for three (3) seconds to enter set-up mode.

### Note:

If a configuration / installer password is activated to prevent unauthorized access to the configuration menu parameters, a password entry prompt appears before proceeding.

Figure 3: Set-up Screen Display 1 / 2.



BACnet MS/TP, Modbus, and ZigBee and Wi-Fi Network Settings network settings (ZigBee network settings appear only if ZigBee feature is available).

Enter Parameter Configuration Menu

Enter Balancing Settings

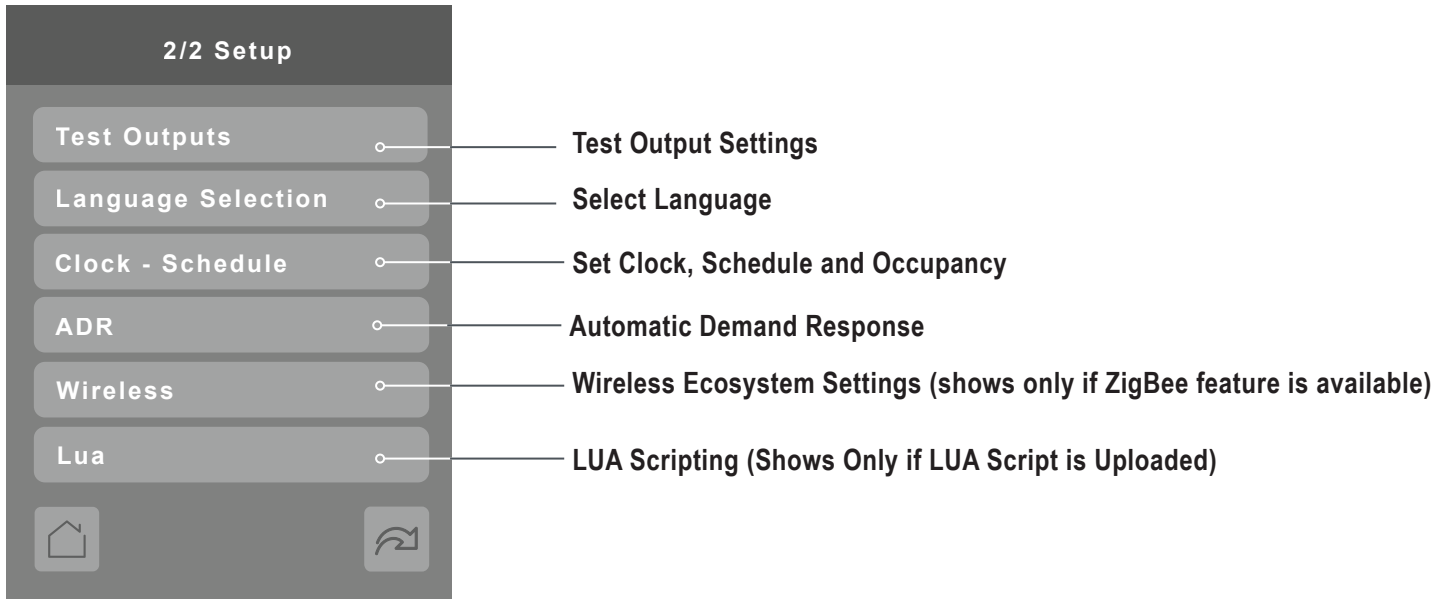
Enter Setpoints Settings

Enter Display Settings

Enter Status and Service View

# HMI DISPLAY AND SET UP

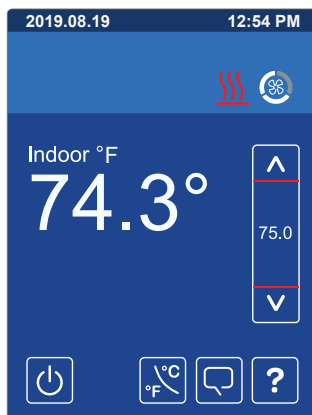
Figure 4: Set-up Screen Display 2 / 2.



# CUSTOMIZED SCREENS

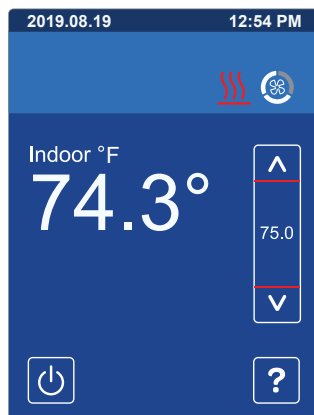
User HMI for Hospitality

## Hospitality 0



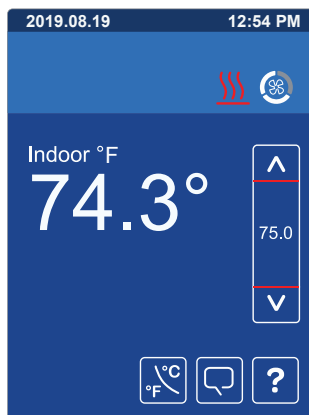
- Setpoint adjustment
- System mode setting
- Local unit scale adjustment
- Local user language
- User help menu

## Hospitality 1



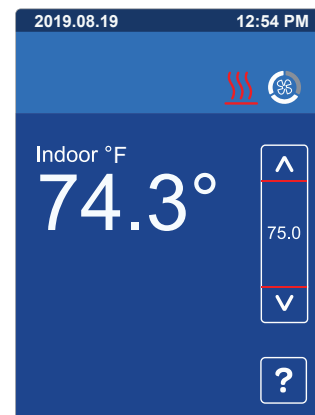
- Setpoint adjustment
- System mode setting
- User help menu

## Hospitality 2



- Setpoint adjustment
- Local unit scale adjustment
- Local user language
- User help menu

## Hospitality 3

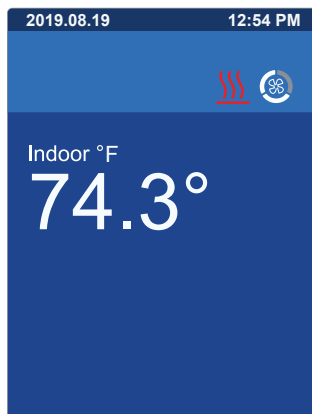


- Setpoint adjustment
- User help menu

### Note:

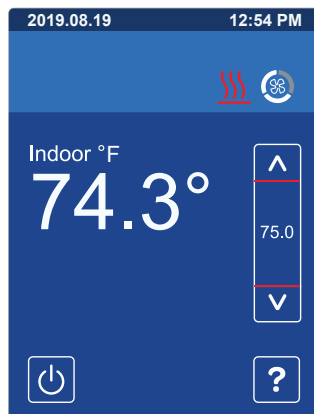
Parameters are model dependent and may not appear on certain models.

## Hospitality 4



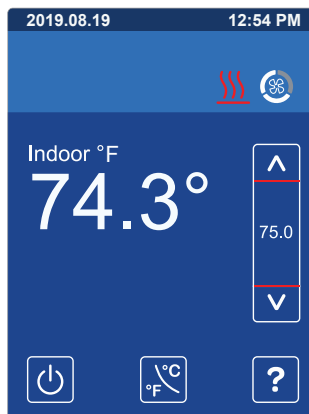
- Fully locked interface with no user settings

## Hospitality 5



- Setpoint adjustment
- System mode setting
- User help menu

## Hospitality 6

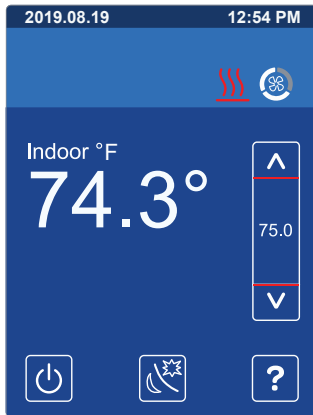


- Setpoint adjustment
- System mode setting
- Local unit scale adjustment
- User help menu

# CUSTOMIZED SCREENS

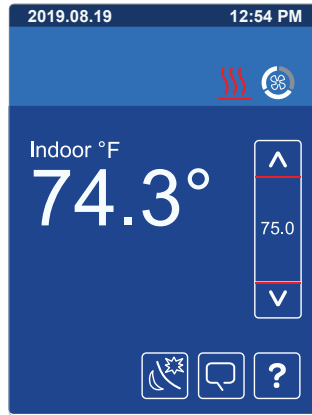
## User HMI for Commercial

### Commercial 7



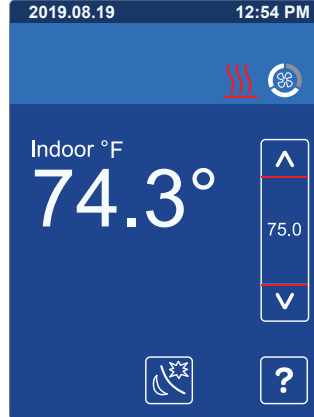
- Setpoint adjustment
- System mode setting
- Unoccupied mode override
- User help menu

### Commercial 8



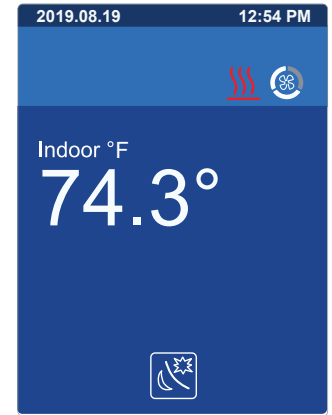
- Setpoint adjustment
- Unoccupied mode override
- Local user language
- User help menu

### Commercial 9



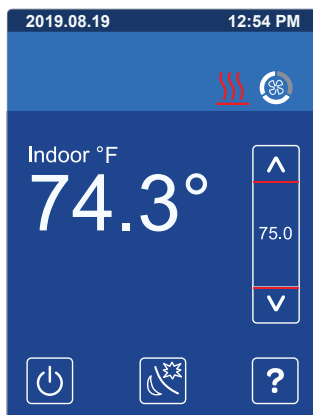
- Setpoint adjustment
- Unoccupied mode override
- User help menu

### Commercial 10



- Unoccupied mode override

### Commercial 11



- Setpoint adjustment
- System mode setting
- Unoccupied mode override
- User help menu

### Commercial 12



- Offset setpoints adjustment
- System mode setting
- Local user language
- Fan mode setting
- User help menu

### Note:

- Parameters are model dependent and may not appear on certain models.
- The day / night setback button appears only in unoccupied mode in the Commercial HMIs 7 to 11. If UI17 input is configured as "override", the day / night setback button does not show.

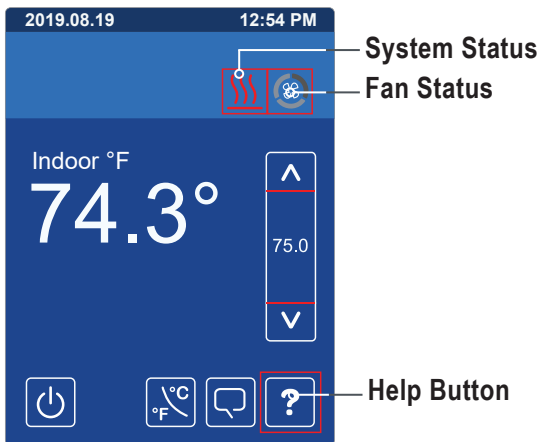
# CUSTOMIZED SCREENS

## User HMI Show / Hide Options and System Mode

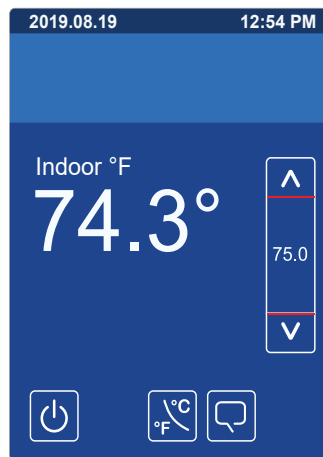
### User HMI Show / Hide Options

User HMI displays can be customized further by hiding the system status, fan status or help button. Each show / hide option is applicable to all User HMI configurations where the option is shown. To hide the option, select disabled for each display setup screen parameter. Refer to the Display Screens Section.

#### Options Enabled

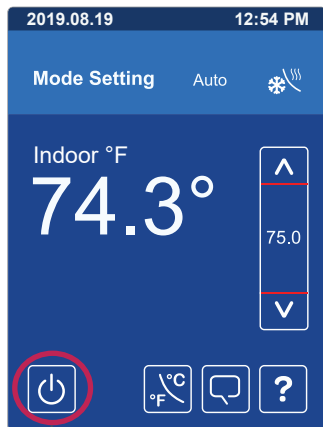


#### Options Disabled

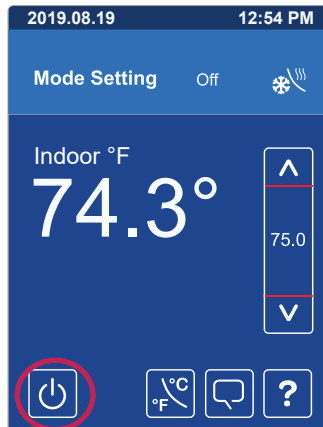


### System Modes

The following apply in System Modes.



System Auto Mode



System Mode Off

Table 1: System Mode Descriptions.

System Mode	Significance and Adjustments
System Mode Off	Off: Heating, Cooling demands are ignored.
System Mode Auto	Auto: Room Controller automatically toggles between Heating and Cooling modes to satisfy both Heating and Cooling demands.



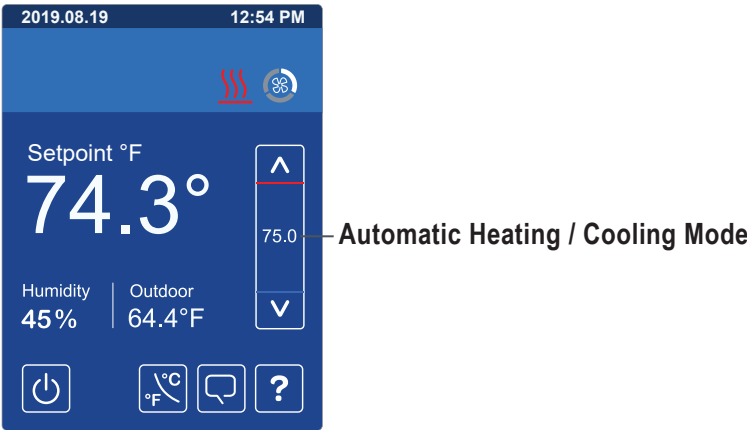
# CUSTOMIZED SCREENS

## Setpoint Adjustment / Other Functions

### Setpoint Adjustment

During occupied setpoint adjustment, large digits are temporarily used to display the occupied setpoint. Use the up and down arrows to select the setpoint. Normal temperature display resumes after the adjustment and the new value is displayed in the setpoint bar.

Figure 5: Setpoint Function Displays.



### Other Functions

Local humidity shows when RH display is enabled on the setup display screen, from either the internal onboard sensor or a wireless sensor end device selected by the RH sensor parameter on the setup configuration screen.

CO<sub>2</sub> shows when CO<sub>2</sub> display is enabled on the setup display screen, from either the optional CO<sub>2</sub> detection sensor module or a wireless sensor end device selected by the CO<sub>2</sub> source parameter on the setup configuration screen.

Outdoor temperature shows when receiving a valid networked outdoor temperature value or a temperature sensor connected to UI23.

Figure 6: Other Function Displays.



# CUSTOMIZED SCREENS

Customizable Color Options

## Customizable Color Options

Figure 7: Display Color Options.

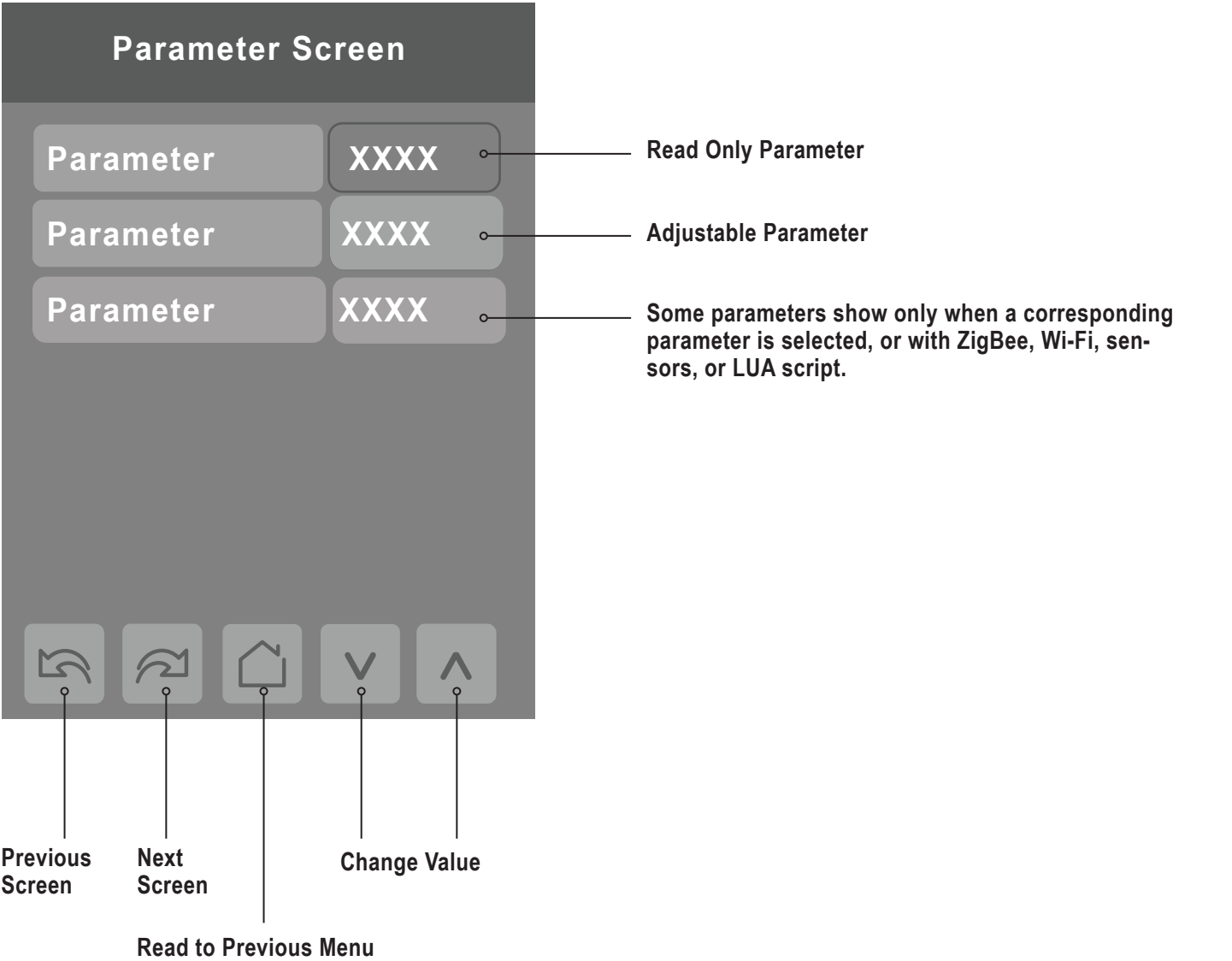


# USER AND INTEGRATOR SCREENS

## User and Integrator Screens

The MS8250 VAV Room Controller has dynamic screens that show adjustable parameters and read-only status information. Some screens and parameters show only when a corresponding parameter is selected. Some screens show only on models with onboard ZigBee, optional CO<sub>2</sub> Sensor Module (VCM8001V504), optional Wi-Fi Module (VCM8002V504), or paired with optional ZigBee Wireless Sensor (CO<sub>2</sub>, Temperature, and Humidity) (SEDCO2G5045). The LUA selection on the Setup screen shows only if a LUA script is uploaded to the Room Controller.

Figure 8: Legend Screen Details.



### Note:

When any change is made to a parameter, the value is automatically saved in memory when the next parameter is selected or another screen is opened. This event is true only if a parameter was changed locally on the Room Controller; making changes through BACnet will not have the same outcome. If changes need to be done remotely through BACnet, use priority 1, 2, or 3, or write to relinquish default (priority 17).

### Network Settings

User can select wired BACnet / Modbus / ZigBee wireless protocol (when ZigBee feature is available).

#### Note:

##### Upgrade of ZigBee 2.4 to 3.0

Upgrading ZigBee 2.4 to 3.0 will not support the SEDCO2G5045 sensor. It will therefore need to be recommissioned.

There is also a new "Security Levels" parameter for the ZigBee network (see page 21):

- Low (default value) is fully backwards compatible with ZigBee Home Automation 1.2 devices, and therefore compatible with all of the sensors.
- Normal (needs to be selected by user) is only compatible with ZigBee 3.0.

Figure 9: Network Settings Display.

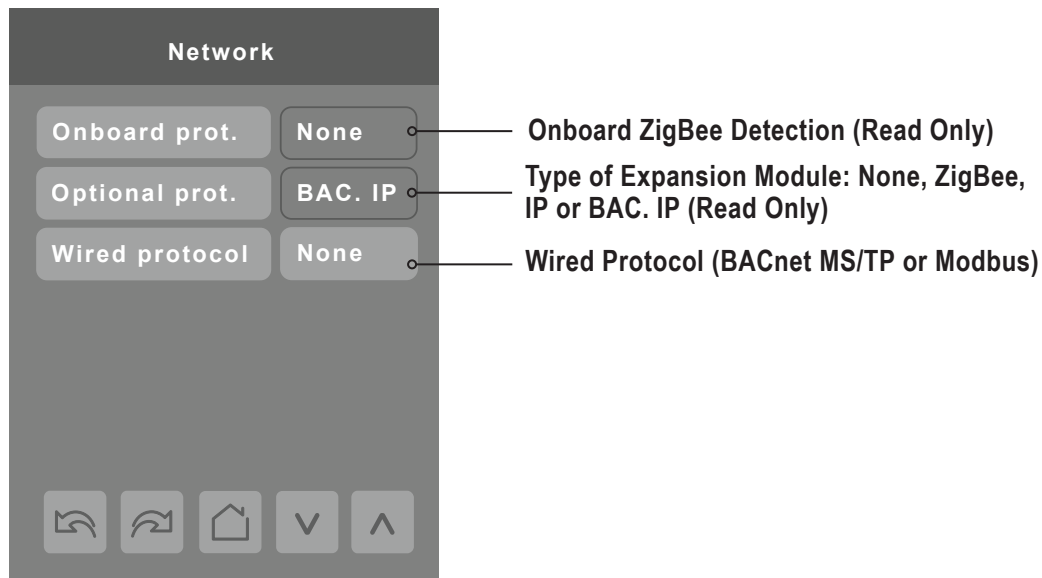


Table 2: Network Settings Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Onboard Protocol</b> Read Only	Onboard ZigBee detection Display Readings: None, ZigBee
<b>Optional Protocol</b> Read Only	Requires onboard ZigBee module or optional Wi-Fi module (VCM8002V504). ZigBee: ZigBee detected IP: Wi-Fi module detected BAC. IP: Wi-Fi module detected and BACnet/IP enabled Display Readings: ZigBee, IP or BAC. IP
<b>Wired Protocol</b> Default Value: BACnet	None: No wired protocol configured BAC MSTP: BACnet MS/TP network protocol Modbus: Modbus network protocol Choices: None, BACnet or Modbus

# NETWORK SCREENS

## ZigBee Network 1 / 2

### ZigBee Network 1 / 2

The ZigBee Network screen shows only in models with onboard ZigBee.

When creating a ZigBee network, there must be one and only one device with its Node Type set to Coordinator. For a ZigBee network with a single Room Controller (RC), the RC is set as Coordinator to pair with the Sensor End Devices (SED). Setting the RC back to Router will remove the paired SEDs.

For a ZigBee network with a Multi-Purpose Manager (MPM) paired to multiple RCs, the MPM is set as Coordinator and the RCs are set as Router. The Coordinator MPM controls the pairing of the Router RCs to the SEDs.

**Note:**  
Before pairing any ZigBee devices, the network must first be created by the Coordinator.

Figure 10: ZigBee Network 1 / 2 Display.

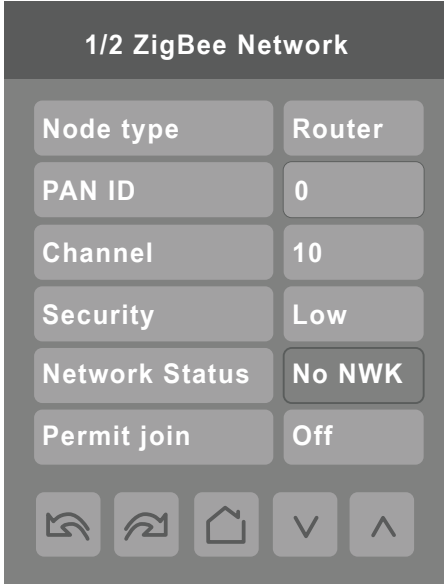


Table 3: ZigBee Network 1 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Node Type Default Value: Router	Sets device to act as Router or Coordinator in a network. Coord.: Creates the network and manages the binding of wireless devices. Router: Joins a network created by a coordinator (Coordinator permit join must be set to "ON"). Choices: Coord. or Router
PAN ID (ZigBee Pan ID) Default Value: 0	Personal Area Network Identification that links specific Room Controllers to specific ZigBee coordinators. For every Room Controller reporting to a coordinator, set the SAME PAN ID value both on the coordinator and the Room Controller.  <b>Note:</b> The default value of 0 is NOT a valid PAN ID and causes ZigBee to be disabled.  Range: 1 to 65535
Channel (ZigBee Channel) Default Value: 10	The channel (wireless frequency) on which the ZigBee network transmits and receives data. The channel of the Coordinator must match that of the routers to exchange data. The default value of 10 is NOT a valid channel and causes ZigBee to be disabled. The valid range of available channels is from 11 to 25. Using channels 15, 20, and 25 is recommended. Channel 25 is considered as being the best one because it is furthest from the Wi-Fi channels. Range: 10 to 25

# NETWORK SCREENS

## ZigBee Network 1 / 2 continued

Table 4: ZigBee Network 1 / 2 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
<b>Security Default Value (Security Levels): Low</b>	<p><b>Note:</b> <i>Changing between ZigBee Security levels does not require re-creating the ZigBee network, or re-commissioning sensors.</i></p> <p>Low: Disables new security features in ZigBee 3.0 to be fully backwards compatible with ZigBee Home Automation 1.2 devices, and therefore compatible with all of our sensors. Normal: Enables the typical new features of ZigBee 3.0. This means that legacy ZigBee Home Automation 1.x devices cannot join a Normal security network. Compatible with the SEDC02G5045 sensor.</p> <p><b>Note:</b> <i>Selecting the Normal Security option will result in the removal of legacy sensors from the network.</i></p> <p>Choices: Low or Normal.</p>
<b>Network Status (ZigBee Network Status) Read Only</b>	<p>Shows the current status of the ZigBee network. No NWK: ZigBee configured but no network joined Joined: ZigBee network joined Online: Communicating (Exchanging data) Display Readings: No NWK, Joined, Online</p>
<b>Permit Join Default Value: On</b>	<p>Changing this value to "Off" on the Coordinator prevents any new ZigBee devices from joining the network. Permit join can be On/Off when the Controller is a Coordinator, however the parameter is read only when the Controller is a router. If not set to off manually the Permit join will stay On for three (3) hours. Choices: On or Off</p>

# NETWORK SCREENS

## ZigBee Network 2 / 2

### ZigBee Network 2 / 2

Figure 11: ZigBee Network 2 / 2 Display.



Table 5: ZigBee Network 2 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
COM address Default Value: 254	Room Controller networking address. For wireless models, the use of the COM address is not mandatory. The COM address is an optional way to identify a device on the network and is recommended if used with an MPM. It is Mandatory for BACnet. Range: 0 to 254
Short Address (ZigBee Short Address) Default Value: 0 Read Only	The unique ZigBee address is generated once device joins a ZigBee network
IEEE Address Read Only	The extended IEEE address (MAC address) is a unique worldwide identifier of the on-board ZigBee or optional ZigBee add-on module.
ZigBee Revision (ZigBee Communication Module Revision Number) Read Only	Shows the ZigBee firmware revision number.



### BACnet Network Settings

BACnet network screen shows when BACnet MS/TP is selected in wired protocol parameter.

Figure 12: BACnet Network Display.

1/2 BACnet Network

COM address	254
Network units	SI
Network lang.	English
Baud rate	Auto
BACnet status	Offline
BACnet PRate	4

Table 6: BACnet Network Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Comm address (Communication Address)</b> Default value: 254	Room Controller networking address. Default value of 254 disables BACnet communication for the Room Controller. Range: 0 to 254
<b>Network Units (Measurement Units)</b> Default Value: SI	Network units transmitted over the BACnet network.  <b>Note:</b> <i>Use the Temperature scale parameter to change the display units locally on the Room Controller.</i>  Imperial: Network units shown as Imperial units. SI: Network units shown as International Metric units. Choices: Imperial or SI
<b>Network Language</b> Default Value: English	Network language/object names transmitted over network. Choices: English, French or Spanish
<b>Baud Rate (BACnet Baud Rate)</b> Default Value: Auto	Leave the value at Auto unless instructed otherwise as this automatically detects BACnet baud rate. Choices: Auto, 115200, 76800, 57600, 38400, 19200, and 9600.
<b>BACnet Status</b> Read Only	Read Only value shows if a BACnet Network is detected or not. Display Readings: Online or Offline
<b>BACnet PRate (BACnet Poll Rate)</b> Default Value: 4	Rate at which a BACnet stack is processed, in milliseconds. Range: 1 to 5.

# NETWORK SCREENS

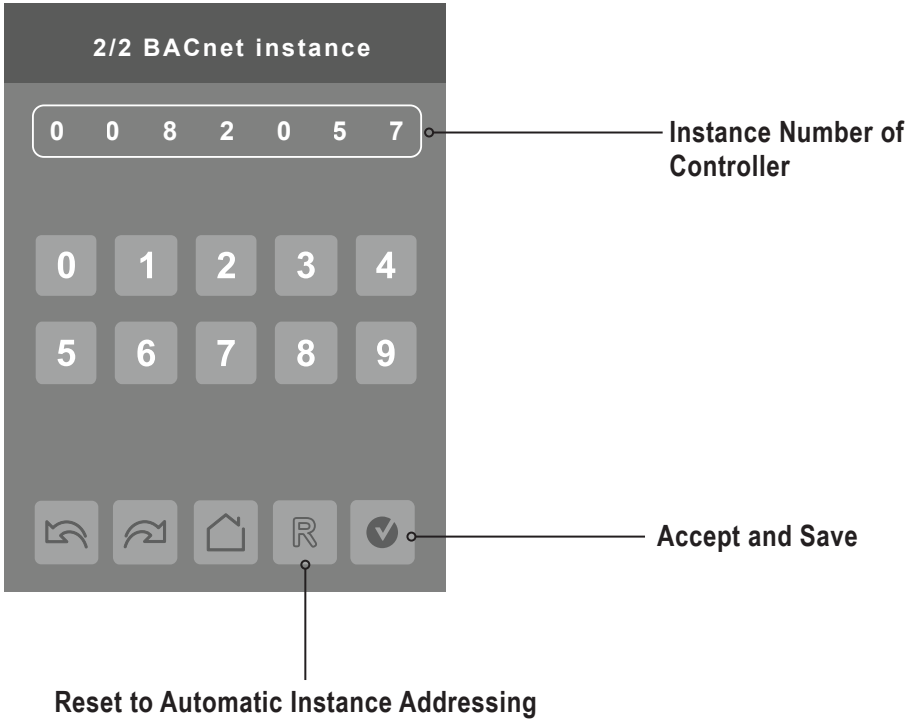
## BACnet Instance Number

### BACnet Instance Number

The default BACnet instance number is generated by the model number and COM address of the Controller. For example, the instance number of the VUCQMS8250 with a COM address of 57 is generated as 82057.

The default instance number appears first. To change the instance number, use number pad and press Accept and Save. Tap “R” icon to reset to automatic instance addressing.

Figure 13: BACnet Instance Setting Display.



### Modbus Network Settings

Modbus network screen shows when Modbus is selected in wired protocol parameter.

Figure 14: Modbus Network Setting Display.

The image shows a digital display titled "Modbus Network". It contains four rows of settings, each with a label on the left and a value on the right:

- COM address: 254
- Network units: SI
- Baud rate: 19200
- Parity: None

At the bottom of the screen, there are five navigation icons: a left arrow, a right arrow, a home icon, a down arrow, and an up arrow.

Table 7: Modbus Network Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Comm Address (Communication Address)</b> Default Value: 254	Valid address range is set at 1 to 247 and each Modbus device must have a unique address. Other values not recommended for Modbus. Default value of 254 disables Modbus communication for the Controller. Range: 0 to 254
<b>Network Units (Measurement Units)</b> Default Value: SI	Network units transmitted over the Modbus network. <b>Note:</b> <i>Use the Temperature scale parameter to change the display units locally on the Room Controller.</i>  Imperial: Network units shown as Imperial units. SI: Network units shown as International Metric units. Choices: Imperial or SI
<b>Baud rate (Modbus Baud Rate)</b> Default Value: 19200	Automatically detects Modbus baud rate. Choices: 57600, 38400, 19200, 9600, and 4800.
<b>Parity</b> Default Value: Even	Determines how the parity bit of the character's data frame is set to detect any errors in the sent / receives frame. Choices: None, Odd and Even

# NETWORK SCREENS

## Wi-Fi Network 1 / 5

### Wi-Fi Network 1 / 5

The Wi-Fi Network screen shows only in models with optional Wi-Fi module (VCM8002V504).

Figure 15: Wi-Fi Network 1 / 5 Display.

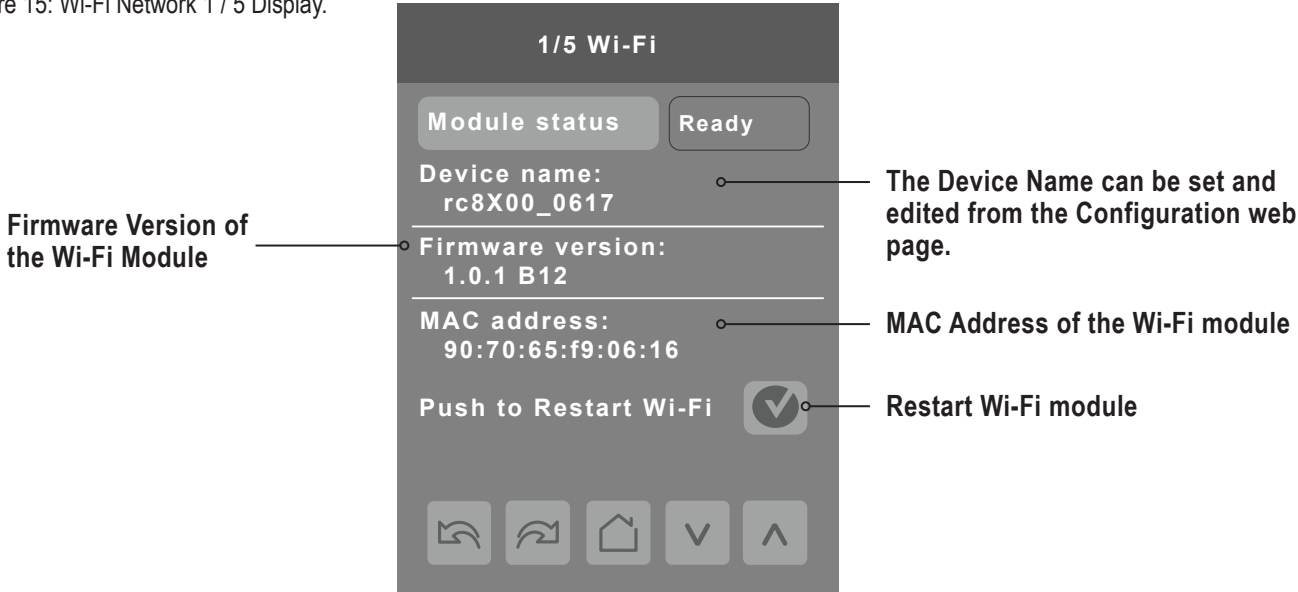


Table 8: Wi-Fi Network 1 / 5 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Module Status Read Only	Displays the current status of the Wi-Fi module. It would normally display Ready when the Wi-Fi module is operational. Status value: Offline, Booting, Initializing, Ready, Fail.

Wi-Fi Network 2 / 5

Figure 16: Wi-Fi Network 2 / 5 Display.

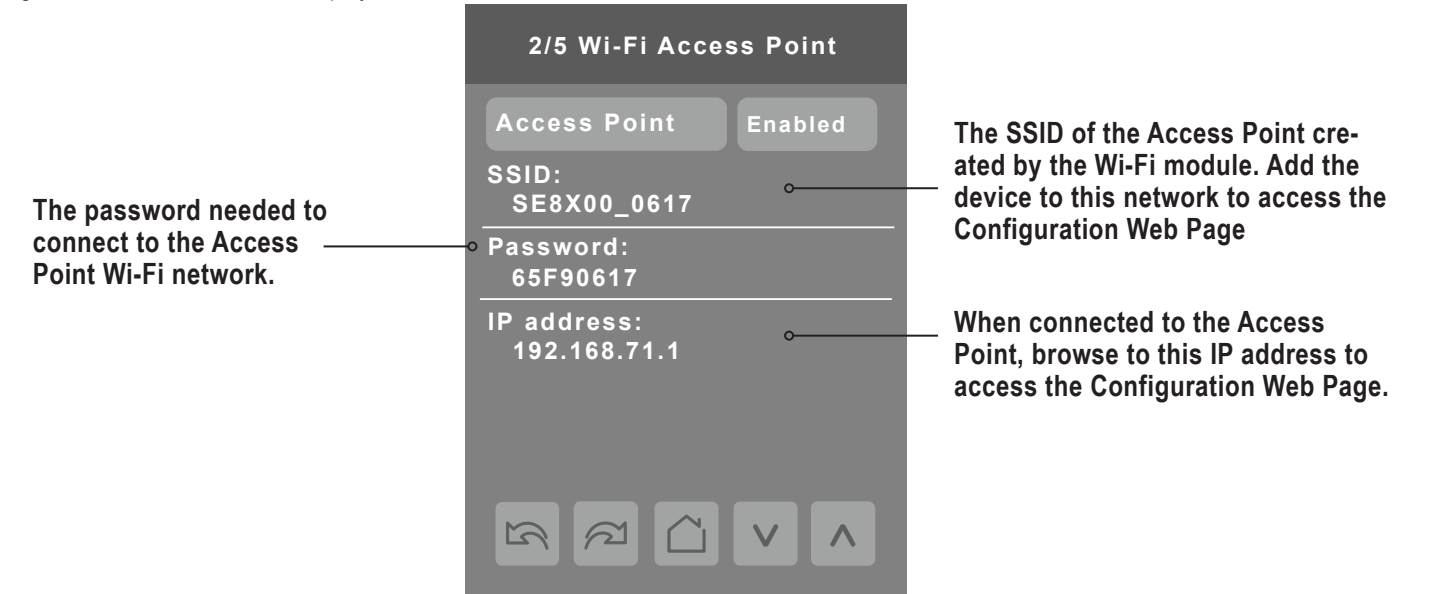


Table 9: Wi-Fi Network 2 / 5 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Access Point Default Value: Enabled	On this screen, the access point can be enabled or disabled as needed. Choices: Enabled or Disabled

# NETWORK SCREENS

## Wi-Fi Network 3 / 5

### Wi-Fi Network 3 / 5

Figure 17: Wi-Fi Network 3 / 5 Display.

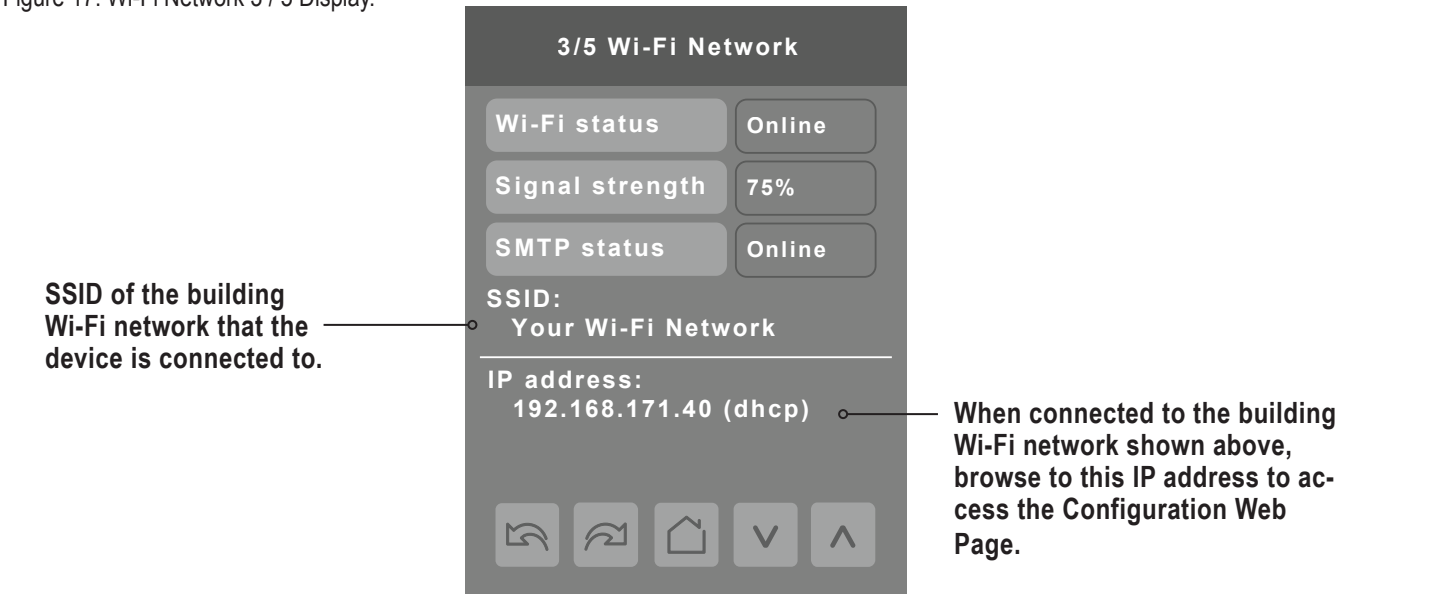


Table 10: Wi-Fi Network 3 / 5 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Wi-Fi Status</b> Read Only	When not connected to a Wi-Fi network, the status remains Idle. After the RC is on the preferred Wi-Fi network, the status will be displayed as Ready, or Online if it has an internet connection. Status value: Idle, Connected, Associate, Config, Ready, Online, Disconn, Failure.
<b>Signal Strength</b> Read Only	Signal strength of the Wi-Fi network. Range: 0 to 100%
<b>SMTP status</b> Read Only	Status of the email SMTP server Status value: Disabled, Offline, Online

Wi-Fi Network 4 / 5

Figure 18: Wi-Fi Network 4 / 5 Display.



Table 11: Wi-Fi Network 4 / 5 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Facility Expert Read Only	Shows whether the Facility Expert system is Disabled or Enabled. Status value: Disabled or Enabled
Status Read Only	Shows the current status of the Facility Expert system. Range: Disabled, Offline, Connect., Online, Failure, Unknown.



# NETWORK SCREENS

## Wi-Fi Network 5 / 5

### Wi-Fi Network 5 / 5

Figure 19: Wi-Fi Network 5 / 5 Display.



Table 12: Wi-Fi Network 5 / 5 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Factory reset? (Erase All)</b> Default Value: No	Accepting Yes for both and then tapping “Push to accept” will restore the Wi-Fi module to the factory settings, erase all configuration data and revert the Wi-Fi Module Firmware to the factory firmware version.  <b>Note:</b> <ul style="list-style-type: none"> <li>If the password for the Configuration web page is lost or forgotten, a Factory reset of the Wi-Fi module must be performed.</li> <li>If the Wi-Fi module was connected to Facility Expert, it will be necessary to contact the Facility Expert Administrator before the device can be reconnected after a Factory Reset.</li> </ul>
<b>Are you sure?</b> Default Value: No	

# NETWORK SCREENS

## Wi-Fi BACnet Network Settings

### Wi-Fi BACnet Network Settings

BACnet network screens are shown when the wired protocol is set to BACnet, or a Wi-Fi module is installed with BACnet/IP enabled. Only one BACnet protocol can be used at a time, either the wired protocol BACnet MS/TP (BACnet Network screens), or the Wi-Fi BACnet IP (Wi-Fi screens).

Figure 20: BACnet Network Settings Display.

Figure 21: BACnet Instance Setting Display.

Instance Number of Controller

Accept and Save

Reset to Automatic Instance Addressing

Table 13: Wi-Fi BACnet Network Setting Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Network Units (Measurement Units)</b> Default Value: SI	Network units transmitted over the BACnet network.  <b>Note:</b> Use the Temperature scale parameter to change the display units locally on the Room Controller.  Imperial: Network units shown as Imperial units. SI: Network units shown as International Metric units. Choices: Imperial or SI.
<b>Network Lang (Network Language)</b> Default Value: English	Network language/object names transmitted over network. Choices: English, French, or Spanish.
<b>Port</b> Default value: 0 Read Only	The unique short address of Wi-Fi BACnet IP.

### BACNET Instance Number

The default BACnet instance number is generated by the model number and COM address of the Room Controller. For example, the instance number of a MS8250U5B00 with a COM address of 57 is generated as "82057".

The default instance number appears first. To change the instance number, use number pad and press Accept and Save.

Tap "R" icon to reset to automatic instance addressing.

# CONFIGURATION SCREENS

## Configuration 1 / 9

### Configuration 1 / 9

Figure 22: Configuration 1 / 9 Displays.

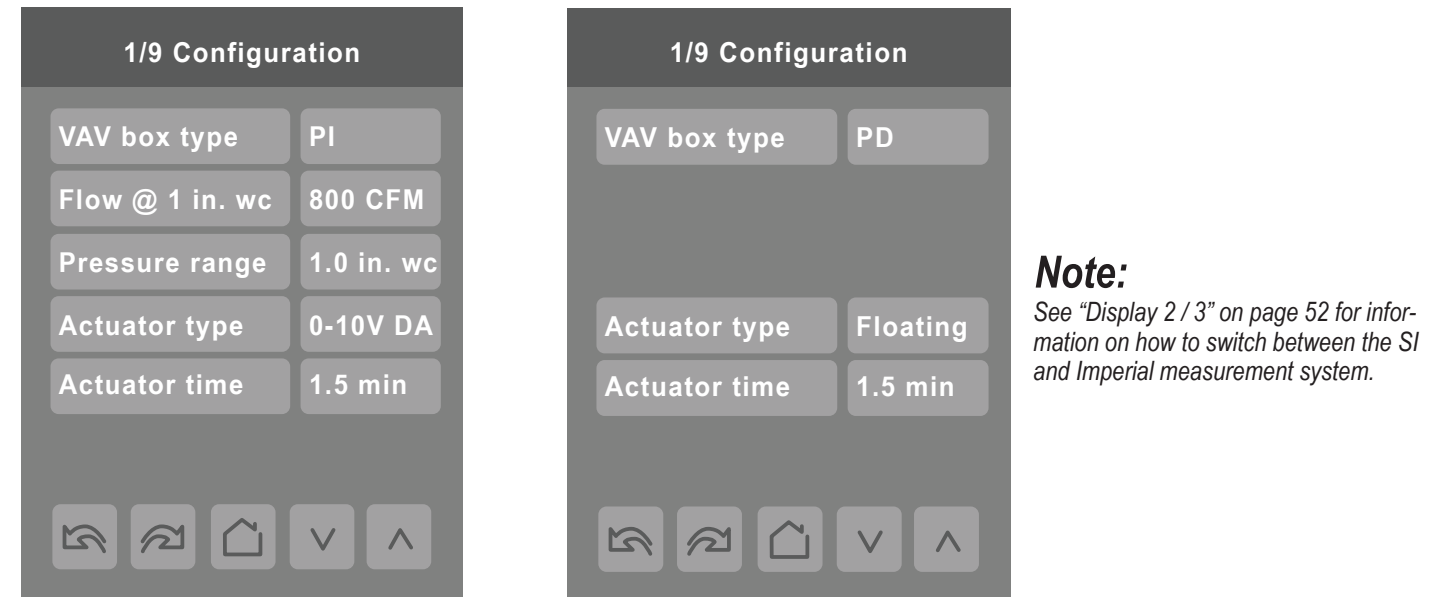


Table 14: Configuration 1 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>VAV Box Type</b> Default value: PI	PI: Pressure Independent. PD: Pressure Dependent. Choices: PI, PD.
<b>Flow @ 1 in. wc (Flow at 1-inch Water Column)</b> Default Value: 800 CFM (377 l/s)	Displayed when PI VAV box type is selected. Range: 150 CFM (71 l/s) to 7500 CFM (3540 l/s), using 10 CFM (5 l/s) increments.
<b>Pressure Range</b> Default Value: 1.0 in. wc (250.0 Pa)	Displayed when PI VAV box type is selected. Range: 0.5 in. wc (125 Pa) to 5.0 in. wc (1250 Pa), using 0.5 in wc (125 Pa) increments.
<b>Actuator Type</b> Default Value: 0-10V DA	Output type used to control the damper actuator. Choices: 0-10V DA, 0-10V RA, 2-10V DA, 2-10V RA, Floating.
<b>Actuator Time</b> Default Value: 1.5 min.	Displayed when PI VAV box type is selected, or when PD VAV box type and Floating Actuator type are selected. Time for floating actuator to transition between fully closed and fully open. Range: 0.5 min to 9.0 min, using 0.5 min increments.

## Configuration 2 / 9

Figure 23: Configuration 2 / 9 Display.

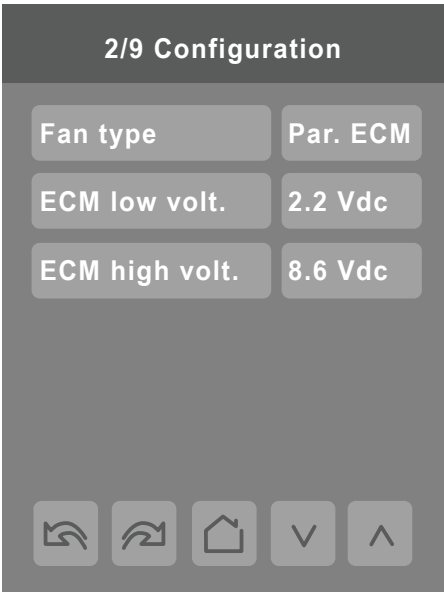


Table 15: Configuration 2 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Fan Type</b> Default Value: None	Fan type configuration determines the fan control method. Choices: None, Par. on/off, Ser. on/off, Par. ECM, Ser. ECM.
<b>ECM Low Volt. (ECM Low Voltage)</b> Default Value: 2.2 Vdc	Displayed when the Parallel ECM or Serial ECM fan type is selected. Range: 2.0 Vdc to 4.0 Vdc, using 0.1 Vdc increments.
<b>ECM High Volt. (ECM High Voltage)</b> Default Value: 8.6 Vdc	Displayed when the Parallel ECM or Serial ECM fan type is selected. Range: 7.1 Vdc to 10.0 Vdc, using 0.1 Vdc increments,

# CONFIGURATION SCREENS

## Configuration 3 / 9

### Configuration 3 / 9

Figure 24: Configuration 3 / 9 Display.

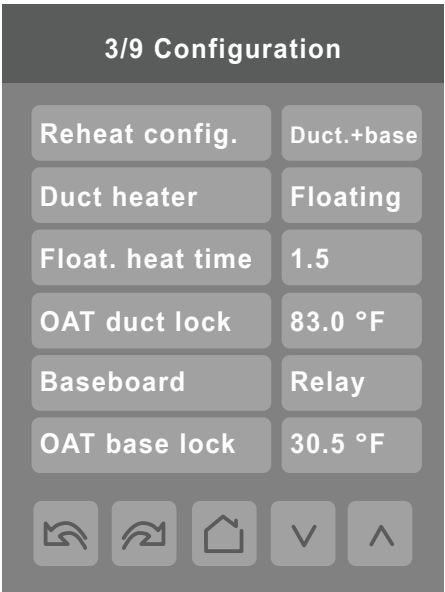


Table 16: Configuration 3 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Reheat Config. (Reheat Configuration)</b> Default Value: None	Reheat configuration for the zone, using the duct, baseboard or both. Choices: None, Duct only, Base only, Duct+base, Base+duct.
<b>Duct Heater (Duct Heater Control)</b> Default Value: On/Off	Displayed when Duct only, Duct+base or Base+duct is selected. Floating is available when Fan type is not Par./Ser. ECM. Choices: On/Off, PWM Vac, Valve NC, Valve NO, 0-10V DA, 0-10V RA, 2-10V DA, 2-10V RA, Floating.
<b>Float. Heat Time (Floating Heat Time)</b> Default Value: 1.5 min	Displayed when Floating Duct heater is selected. Range: 0.5 min to 9.0 min, using 0.5 min increments.
<b>OAT Duct Lock)</b> Default Value: 60.0°F (15.5°C)	Outside air temperature above which duct reheat will be disabled. Displayed when Duct only, Duct+base or Base+duct is selected. Range: 30.0°F (-1.0°C) to 90.0°F (32.0°C) using 0.5°F (0.5°C) increments.
<b>Baseboard (Baseboard Control)</b> Default Value: Relay	Output type used for baseboard control. Displayed when Base only, Duct+base or Base+duct is selected. Choices: Relay, PWM Vac, Valve NC, Valve NO.
<b>OAT Base Lock</b> Default Value: 60.0°F (15.5°C)	Outside air temperature above which baseboard reheat will be disabled. Displayed when Base only, Duct+base or Base+duct is selected. Range: 30.0°F (-1.0°C) to 90.0°F (32.0°C) using 0.5°F (0.5°C) increments.

## Configuration 4 / 9

Figure 25: Configuration 4 / 9 Display.



Table 17: Configuration 4 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Heat PI Weight (Heat Proportional Integral Weight)</b> Default Value: 100%	Zone weight for heating system demand management. Range: 0% to 100% using 25% increments.
<b>Cool PI Weight (Cool Proportional Integral Weight)</b> Default Value: 100%	Zone weight for cooling system demand management. Range: 0% and 100% using 25% increments.
<b>Zone Mode</b> Default Value: Cool	Type of air being delivered to the zone by the VAV system. May be manually configured or automatically managed with a Changeover temperature sensor. Choices: Cool, Heat.

# CONFIGURATION SCREENS

## Configuration 5 / 9

### Configuration 5 / 9

Figure 26: Configuration 5 / 9 Display.

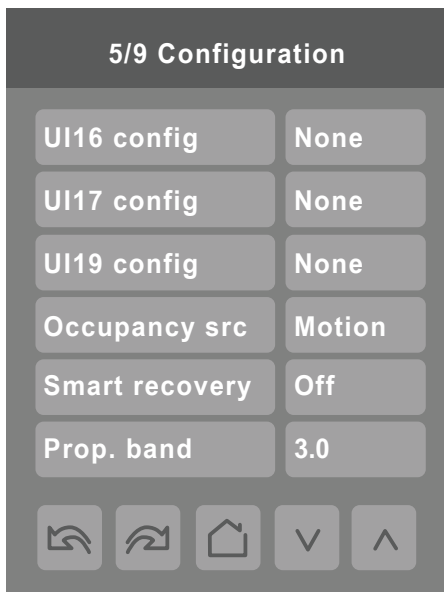


Table 18: Configuration 5 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>UI16 Config (Universal Input Configuration No. 1)</b> Default Value: None	<ul style="list-style-type: none"> <li>• None: No function will be associated with the input. Input can be used for remote network monitoring.</li> <li>• Rem NSB: Remote night setback (NSB) timer clock input. The scheduling gets set as per the binary input and provides low cost setback operation via a dry contact.</li> <li>• Motion NO and Motion NC: Advanced passive infrared sensor (PIR) occupancy functions using a Normally Open (NO) or Normally Closed (NC) remote PIR motion sensor.</li> <li>• Window: Forces system to disable any current heating or cooling action by Room Controller when window is open.</li> <li>• Choices: None, Rem NSB, Motion NO, Motion NC, Window.</li> </ul>
<b>UI17 Config (Universal Input Configuration No. 2)</b> Default Value: None	<ul style="list-style-type: none"> <li>• None: No function associated with input.</li> <li>• Door Dry: Room Controller goes to standby mode when door is opened then closed followed by no presence detection for the next 10 seconds if the local PIR is used in this application. The "Occupancy command" (see "Options" on page 69 for "Occupancy cmd") must be set to "Local Occupancy" and "Occupancy Source" (see next page for "Occupancy src") must be set to "Motion".</li> <li>• Override: A closed contact forces the Room Controller to go in occupied mode. An open contact keeps the current occupancy mode.</li> <li>• Filter: Backlit flashing filter alarm shows on the Room Controller screen when input is energized.</li> <li>• Service: Backlit flashing Service alarm shows on Room Controller screen when input is energized.</li> <li>• Choices: None, Door Dry, Override, Filter, Service.</li> </ul>



# CONFIGURATION SCREENS

## Configuration 5 / 9, continued

Table 19: Configuration 5 / 9 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments																													
UI19 Config (Universal Input Configuration No. 3) Default Value: None	<ul style="list-style-type: none"><li>• None: No function associated with input though input can be used for remote network monitoring.</li><li>• COC/NH: Change over dry contact normally heat. Used to automatically change the Zone Mode between heat/cool based on temperature of incoming air.</li><li>• COC/NC: Change over dry contact normally cool. Used to automatically change the Zone Mode between heat/cool based on temperature of incoming air.</li><li>• COS: Change over sensor. Used to automatically change the Zone Mode between heat/cool based on temperature of incoming air.</li><li>• Choices: None, COC/NH, COC/NC and COS.</li></ul>																													
Occupancy src (Occupancy Source) Default Value: Motion	<ul style="list-style-type: none"><li>• Motion: Occupancy status received from motion sensor.</li><li>• Schedule: Occupancy status configured in the Setup/Schedule menu. Refer to “Configuration 7 / 9” on page 39.</li><li>• Mot. Occ: Occupied when scheduled occupied AND when motion is detected.</li><li>• Mot. Unoc: Occupied when scheduled occupied OR when motion is detected.</li><li>• Choices: Motion, Schedule, Mot. Occ., Mot. Unoc.</li></ul>																													
Smart Recovery (Enable Smart Recovery) Default Value: Off	<ul style="list-style-type: none"><li>• Off: No smart recovery. The occupied schedule time is the time at which the occupancy change will be applied, therefore the desired occupied temperature will not be attained until some minutes after the scheduled time.</li><li>• On: Smart recovery active. The occupied schedule time is the time at which the desired occupied temperature will be attained. The Room Controller automatically optimizes the equipment start time. In any case, the latest a system will restart is ten (10) minutes prior to the occupied period time.</li><li>• Smart recovery is automatically disabled if UI16 is configured to remote NSB.</li><li>• Choices: Off or On.</li></ul>																													
Prop. Band (Proportional Band Setting) Default Value: 3.0	<p>Adjusts proportional band used by Room Controller PI control loop.</p> <p><b>Note:</b> <i>Default value of 3 gives satisfactory operation in most normal installation cases. The use of a superior proportional band different than the factory value is normally needed in applications where Room Controller location is problematic and leads to unwanted cycling of the unit. A typical example is a wall-mounted Controller installed between return and supply air feeds and is directly influenced by the supply air stream of unit.</i></p> <p>Range: 3 to 10.</p> <table><tr><th rowspan="2">Value</th><th colspan="2">Effective Proportional Band</th></tr><tr><th>Fahrenheit</th><th>Celsius</th></tr><tr><td>3.0</td><td>3°F</td><td>1.2°C</td></tr><tr><td>4.0</td><td>4°F</td><td>1.7°C</td></tr><tr><td>5.0</td><td>5°F</td><td>2.2°C</td></tr><tr><td>6.0</td><td>6°F</td><td>2.8°C</td></tr><tr><td>7.0</td><td>7°F</td><td>3.3°C</td></tr><tr><td>8.0</td><td>8°F</td><td>3.9°C</td></tr><tr><td>9.0</td><td>9°F</td><td>5.0°C</td></tr><tr><td>10.0</td><td>10°F</td><td>5.6°C</td></tr></table>	Value	Effective Proportional Band		Fahrenheit	Celsius	3.0	3°F	1.2°C	4.0	4°F	1.7°C	5.0	5°F	2.2°C	6.0	6°F	2.8°C	7.0	7°F	3.3°C	8.0	8°F	3.9°C	9.0	9°F	5.0°C	10.0	10°F	5.6°C
Value	Effective Proportional Band																													
	Fahrenheit	Celsius																												
3.0	3°F	1.2°C																												
4.0	4°F	1.7°C																												
5.0	5°F	2.2°C																												
6.0	6°F	2.8°C																												
7.0	7°F	3.3°C																												
8.0	8°F	3.9°C																												
9.0	9°F	5.0°C																												
10.0	10°F	5.6°C																												

# CONFIGURATION SCREENS

## Configuration 6 / 9

### Configuration 6 / 9

Figure 27: Configuration 6 / 9 Display.



Table 20: Configuration 6 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Standby Mode (Standby Mode Configuration)</b> Default Value: Absolute	Standby setpoints used for control. Absolute: Standby entered values are used for standby mode. Offset: Occupied setpoints +/- Standby diff. used for standby mode. Refer to "Setpoints Screens" on page 49 to define Standby cool and Standby heat values. Choices: Absolute or Offset.
<b>Standby diff. (Standby Temperature Differential)</b> Default Value: 4.0°F (2.0°C)	When Standby mode is set to "offset", standby setpoints are calculated as follows: Standby cool: Cool setpoint + Standby diff. Standby heat: Heat setpoint - Standby diff. Refer to "Setpoints Screens" on page 49 to define Standby cool and Standby heat values. Range: 1.0°F (0.5°C) to 5.0°F (2.5°C), using 1.0°F (0.5°C) increments.
<b>Standby Time</b> Default: 0.5 hours	Time between the moment where the motion sensor detects last movement in the area, and the time which the Room Controller stand-by setpoints become active. <b>Note:</b> <i>This parameter is not active when the "Door" function is used (wired or wireless).</i> Range: 0.5 to 24.0 hours, using 0.5 hour increments.
<b>Unocc. Time (Unoccupied Time)</b> Default: 0.0 hours	Time between the moment where the Room Controller toggles to stand-by mode, and the time which the Room Controller unoccupied mode and setpoints become active. <b>Note:</b> <i>Default value of 0.0 hours disables the unoccupied timer. This prevents the Controller from being able to switch from stand-by mode to unoccupied mode when PIR functions are used.</i> Range: 0.0 to 24.0 hours (0.5 hour increments).
<b>Temp. Ccc. Time (Temporary Occupancy Time)</b> Default Value: 2 hours	The time the Room Controller stays in override mode before reverting back to unoccupied mode. When the Room Controller is in unoccupied mode, pressing the on-screen Override icon or closing the contact on UI17, configured as "Remote Override", sets the Room Controller to Override mode for defined time period, and uses the Occupied Cooling and Heating setpoints. Range: 0.0 to 24.0 hours

## Configuration 7 / 9

Figure 28: Configuration 7 / 9 Display.

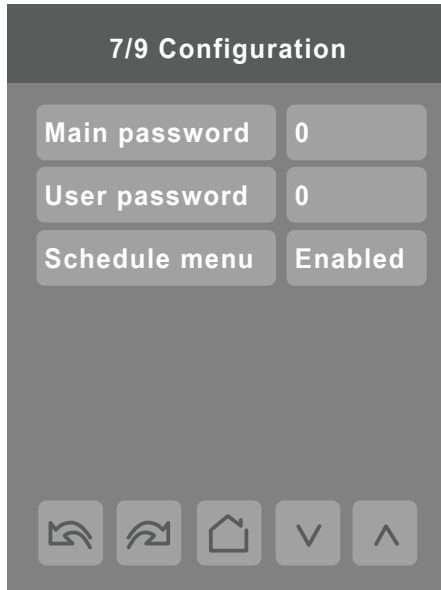


Table 21: Configuration 7 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Main Password</b> Default Value: 0	Sets a protective access password to prevent unauthorized access to configuration menu parameters. A default value of "0" will not prompt for a password or lock access to the configuration menu. Range: 0 to 9999.
<b>User Password</b> Default Value: 0	Sets a protective access password to prevent User unauthorized access to main screen adjustments. A default value of "0" will not prompt for a password. Range: 0 to 9999.
<b>Schedule Menu</b> Default Value: Enabled	Toggles activation of schedule menu direct access. Enabled: Schedule Menu is directly accessible from the main screen via a touch in the upper corner. Disabled: Schedule Menu can only be accessed through the Setup Menu screens. En. no. clk: Schedule Menu is directly accessible from the main screen via a touch in the upper corner. Clock does not show. Dis. no. clk: Schedule Menu can only be accessed through the Setup Menu screens. Clock does not show. Choices: Enabled, Disabled, En. no. clk, and Dis. no. clk.

# CONFIGURATION SCREENS

## Configuration 8 / 9

### Configuration 8 / 9

Figure 29: Configuration 8 / 9 Display.

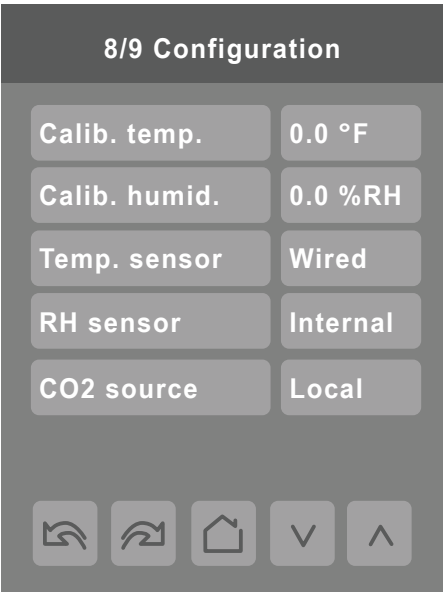


Table 22: Configuration 8 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Calib. Temp. (Calibration Room Temperature Sensor)</b> Default Value: 0°F (0°C)	Room temperature sensor calibration. Offset can be added or subtracted to actual displayed room temperature. Range: ± 5.0°F (± 2.5°C)
<b>Calib. Humid. (Calibrate Humidity Sensor)</b> Default Value: 0.0%RH	Offset that can be added or subtracted to actual displayed humidity. Range: ± 15.0% RH
<b>Temp. sensor (Room Temperature Sensor)</b> Default Value: Wired	<p>Sets the source of the indoor room temperature. This parameter allows the user to designate either the Room Controller or any of the paired wireless devices that support temperature to act as the source for the room temperature.</p> <p>Wired: Sets the thermistor connected to UI20 (RS) as the source to report room temperature.</p> <p>Internal: Sets the Room Controller as the source for the room temperature.</p> <p>WL 1 to WL 20: sets the selected ZigBee wireless device as the source for the room temperature. Only one device can be selected.</p> <p><b>Note:</b> <i>The Room Controller uses the internal temperature sensor only if UI20 (RS) terminal is empty. If a valid temperature sensor is connected to UI20 terminal, the Room Controller will use the sensor as the control point. Disconnecting the sensor, or if the sensor is faulty, the Room Controller will automatically revert to its internal temperature sensor.</i></p> <p>Choices: Wired, Internal and WL 1 to WL 20.</p>

# CONFIGURATION SCREENS

Configuration 8 / 9, continued

Table 23: Configuration 8 / 9 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
<b>RH Sensor (Relative Humidity Sensor)</b> Default Value: Internal	<p>Sets the source of the indoor room humidity. This parameter allows the user to designate either the Room Controller or any of the paired wireless devices that support humidity to act as the source for the room humidity.</p> <p>Internal: Sets the Room Controller as the source for the room humidity.</p> <p>WL 1 to WL 20: Sets the selected ZigBee wireless device as the source for the room humidity. Only one device can be selected.</p> <p>Choices: Internal and WL 1 to WL 20.</p>
<b>CO2 Source (CO2 Sensor Source)</b> Default Value: Local	<p>Sets the source of the indoor CO<sub>2</sub>. This parameter allows the user to designate either the optional CO<sub>2</sub> detection sensor module (VCM8001V504) or any of the paired wireless devices that support CO<sub>2</sub> to act as the source for the room CO<sub>2</sub>.</p> <p>None: CO<sub>2</sub> source disabled.</p> <p>Local: Sets the optional CO<sub>2</sub> detection sensor module as the source for the room CO<sub>2</sub>.</p> <p>WL 1 to WL 20: Sets the selected ZigBee wireless device as the source for the room CO<sub>2</sub>. Only one device can be selected.</p> <p>Choices: None, Local and WL 1 to WL 20.</p>

# CONFIGURATION SCREENS

## Configuration 9 / 9

Figure 30: Configuration 9 / 9 Display.



Table 24: Configuration 9 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Erase all? Default Value: No	Accepting Yes for both and then tapping “Push to accept” returns all values to the factory default settings with the exception of the following: <ul style="list-style-type: none"><li>• COM address</li><li>• Network Units</li><li>• Network Language</li><li>• Baud Rate</li><li>• BACnet Instance</li><li>• Device Name</li><li>• Screen Contrast</li><li>• LUA Script</li></ul> <b>Note:</b> <i>Node type in ZigBee Network screen returns to default value (Router).</i>
Are You Sure? Default Value: No	

# BALANCING

## Pressure Independent

### Balancing

During balancing, a technician will install a calibrated flow sensor (balometer) over the outlet in each room and use this to calibrate the MS8250 VAV Room Controller.

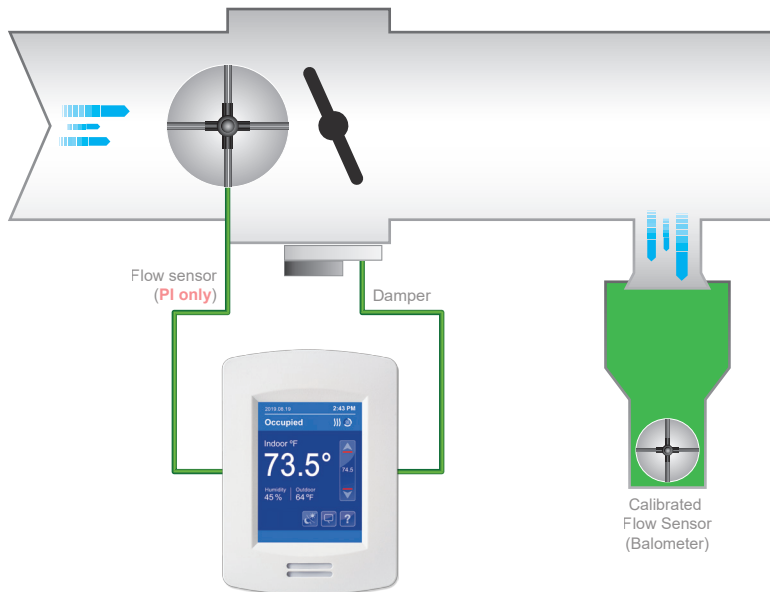
#### Pressure Independent:

- True air flow will be measured using the balometer and compared to the airflow calculated by the MS8250 at various setpoints.
- MS8250 Room Controller calibration parameters will be adjusted to ensure the calculated air flow matches the true air flow.

#### Pressure Dependent:

True air flow at various damper position percentages will be measured and used to set the appropriate damper percentages for the air flow required for the zone.

Figure 31: Balancing.Pressure Diagram.



#### Note:

Balancing menus will timeout after eight (8) hours and any Damper Override will be removed, returning the zone to normal operation.

### Pressure Independent

Before starting to Balance the system, check if the following parameters are correctly configured in the Configuration menu:

- VAV Box Type
- Flow at 1-inch water column
- Airflow Sensor Pressure Range
- Actuator Type
- Floating Actuator Time

Airflow Balancing settings can be found on the Balancing page of the Setup menu.

# BALANCING

## Pressure Independent

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### Pressure Independent, continued.

The recommended process for Balancing the system is:

1. On page "1/2 Balancing (PI)", check the Minimum, Maximum Cooling, Maximum Heating and Reheat airflow setpoints are correctly configured for the zone.
2. Check airflow sensor is correctly calibrated at zero:
  - On page "2/2 Balancing (PI)", set Damper Override to Close.
  - Wait for measured "Airflow level" to stabilize and confirm the value is less than the desired Minimum Airflow. If not, confirm damper is closed and the airflow sensor is auto-calibrated at zero.
3. Before setting the Minimum and Maximum Cooling airflow, make sure that when fully open, the airflow is at least 40-60 CFM higher than the planned Maximum Cooling airflow. Otherwise, the control will be erratic.

### Note:

#### Minimum and Maximum Cooling Airflow

*When damper is fully open, the airflow must be at least 40-60 CFM higher than the planned Maximum Cooling airflow. Failure to follow these instructions can result in erratic airflow control depending on the system design.*

4. Calibrate sensor at Minimum airflow:
  - On page "2/2 Balancing (PI)", set the Damper Override to Minimum Flow. The displayed Airflow Setpoint will use the value of Minimum Airflow.
  - Wait for the Room Controller measured "Airflow level" to stabilize.
  - Take a reading of the actual airflow using a calibrated balometer.
  - Enter the actual airflow as the "Balometer" value on "2/2 Balancing (PI)". The Controller will calculate and display a new Minimum Flow Offset.
  - Wait for the measured "Airflow level" to stabilize again. The Airflow level should now match the Airflow setpoint. Repeat if necessary.
5. Calibrate sensor at Maximum Cooling airflow:
  - On page "2/2 Balancing (PI)", set the Damper Override to Maximum Cooling. The displayed Airflow Setpoint will use the value of Maximum Cooling Airflow.
  - Wait for the Room Controller measured "Airflow level" to stabilize.
  - Take reading of actual airflow using a calibrated balometer.
  - Enter the actual airflow as the "Balometer" value on "2/2 Balancing (PI)".
  - The Room Controller will calculate and display a new Maximum Flow Offset.
  - Wait for the measured "Airflow level" to stabilize again. Airflow level should now match the Airflow setpoint. Repeat if necessary.
6. On page "2/2 Balancing", revert the Damper Override to None allowing the system to return to normal operation.



Pressure Independent, continued.

Figure 32: Balancing PI 1 / 2 Display.



Table 25: Pressure Independent Balancing Options Screen 1 of 2.

Configuration Parameter	BACnet	Function Description
Airflow Level Read Only	AV110 (R)	Measured (calibrated) airflow. Range: 0 to 20000 CFM (0 to 9440 l/s).
Airflow Setpoint Read Only	AI350 (R)	Current active airflow setpoint. Airflow Setpoint is not displayed when Damper Over-ride is Open or Closed. Range: 0 to 10000 CFM (0 to 4720 l/s).
Min. Flow (Minimum Airflow) Default value: 340 CFM (160 l/s)	AV250 (R/W)	Minimum airflow supplied to the zone. Range: 40 to 800 CFM (19 to 377 l/s).
Max. Cool Flow (Maximum Cooling Airflow) Default Value: 340 CFM (160 l/s)	AV252 (R/W)	Maximum airflow supplied to the zone when cooling. Range: 40 to 800 CFM (19 to 377 l/s).
Max. Heat Flow (Maximum Heating Airflow) Default Value: 340 CFM (160 l/s)	AV251 (R/W)	Maximum airflow supplied to the zone when heating. Range: 40 to 800 CFM (19 to 377 l/s).
Reheat Flow (Maximum Reheat Airflow) Default Value: 340 CFM (160 l/s)	AV253 (R/W)	Maximum airflow supplied to the zone with duct reheat. Range: 40 to 800 CFM (19 to 377 l/s).

# BALANCING

## Pressure Independent

### Pressure Independent, continued.

Figure 33: Balancing PI 2 / 2 Display.

2/2 Balancing

Airflow level

0 CFM

Airflow setpoint

0 CFM

Damp. override

Minimum

Balometer

0 CFM

Min flow offset

0 CFM

Max flow offset

0 CFM

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Table 26: Pressure Independent Balancing Options Screen 2 of 2.

Configuration Parameter	BACnet	Function Description
<b>Airflow Level</b> Read Only	AV110 (R)	Measured (calibrated) airflow: Range: 0 to 20000 CFM (0 to 9440 l/s).
<b>Airflow Setpoint</b> Read Only	AI350 (R)	Current active airflow setpoint. Airflow Setpoint is not displayed when Damper Override is Open or Closed. Range: 0 to 10000 CFM (0 to 4720 l/s).
<b>Damp. Override (Damper Override)</b> Default Value: None	MV172 (R/W)	Force damper to selected position during balancing. 0 - None: No damper override. Damper under normal control. 1 - Minimum: Force damper to maintain minimum airflow setpoint. 2 - Max. cool: Force damper to maintain maximum cooling airflow setpoint. 3 - Close: Force damper closed. 4 - Reheat: Force damper to maintain maximum reheat airflow setpoint. 5 - Open: Force damper fully open. Choices: None, Minimum, Max. cool, Close, Reheat and Open.
<b>Balometer (Measured Airflow From Balometer)</b> Default Value: 0 CFM (0 l/s)	N/A	Measured value will be used to update calibration Offset and ensure measured Airflow level matches Balometer reading. Balometer is displayed when Damper Override is Minimum or Max. cool. Range: 0 to 20000 CFM (0 to 9440 l/s)
<b>Minflow Offset (Minimum Airflow Calibration Offset)</b> Default Value: 0 CFM (0 l/s)	AV258	Calibration offset applied to Airflow Level at Minimum flow. Min flow offset is displayed when Damper Override is Minimum. Range: -5000 to 5000 CFM (0 to 30932 l/s).
<b>Max Flow Offset (Maximum Airflow Calibration Offset)</b> Default Value: 0 CFM (0 l/s)	AV259	Calibration offset applied to Airflow Level at Maximum flow. Max flow offset is displayed when Damper Override is Max. cool. Range: -5000 to 5000 CFM (0 to 30932 l/s).

### Pressure Dependent

Before starting to Balance the system, check if the following parameters are correctly configured in the Configuration menu:

- VAV Box Type
- Actuator Type
- Floating Actuator Time

Air Flow Balancing settings can be found on the Balancing page of the Setup menu.

The recommended process for Balancing the system is:

1. On page "Balancing (PD)", set the approximate damper positions for Minimum, Maximum Cooling, Maximum Heating, Reheat, and Damper Override.
2. For each position, repeat the following process:
  - Set the Damper Override to the desired position (Minimum, Maximum Cooling, Maximum Heating or Maximum Reheat).
  - Allow time for damper to reach defined position.
  - Take reading of actual air flow using a calibrated Balometer.
  - Compare actual airflow to desired airflow and adjust the Damper Position accordingly by adjusting the % value of the position options on the Balancing (PD) page (see next page).
  - Repeat until measured airflow at the damper position matches the desired airflow.
3. On page "Balancing (PD)", revert the Damper Override to None to allow the system to return to normal operation.

Figure 34: Balancing PD Display.

The image shows a digital display interface for balancing a pressure-dependent system. The title 'Balancing' is at the top. Below it are five rows, each with a label and a value: 'Min. position' at 10 %, 'Max. cool pos.' at 100 %, 'Max. heat pos.' at 100 %, 'Reheat pos.' at 30 %, and 'Damp. override' set to 'None'. At the bottom are three navigation buttons: a home icon, a down arrow, and an up arrow.

Balancing	
Min. position	10 %
Max. cool pos.	100 %
Max. heat pos.	100 %
Reheat pos.	30 %
Damp. override	None

Home   Down Arrow   Up Arrow

# BALANCING

## Pressure Dependent

### Pressure Dependent, continued.

Table 27: Pressure Dependent Balancing Options Screen.

Configuration Parameter	BACnet	Function Description
<b>Min. Position (Minimum Damper Position)</b> Default Value: 10%	AV250 (R/W)	Range: 0 to 100%
<b>Max. Cool Pos. (Maximum Damper Position During Cooling)</b> Default Value: 100%	AV251 (R/W)	Range: 0 to 100%
<b>Max. Heat Pos. (Maximum Damper Position During Heating)</b> Default Value: 100%	AV252 (R/W)	Range: 0 to 100%
<b>Reheat Pos. (Damper Position During Reheating)</b> Default Value: 30%	AV253 (R/W)	Range: 0 to 100%
<b>Damp. Override (Damper Override)</b> Default Value: None	MV172 (R/W)	Force damper to selected position during balancing. 0 - None: No damper override. Damper under normal control. 1 - Minimum: Force damper to maintain minimum airflow setpoint. 2 - Max. cool: Force damper to maintain maximum cooling airflow setpoint. 3 - Close: Force damper closed. 4 - Reheat: Force damper to maintain maximum reheat airflow setpoint. 5 - Open: Force damper fully open. Choices: None, Minimum, Max. Cool, Close, Reheat and Open.

### Setpoints 1 / 2

Figure 35: Setpoints 1 / 2 Display.



Table 28: Setpoints 1 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Unocc. Cool (Unoccupied Cool Setpoint)</b> Default Value: 80°F (27°C)	Cooling Temperature setpoint used by the Room Controller when in Unoccupied mode. Range: 54 to 100°F (12.0 to 37.5°C)
<b>Standby Cool (Standby Cool Setpoint)</b> Default Value: 78°F (25.5°C)	Cooling Temperature setpoint used by the Room Controller when in Standby mode. Range: 54 to 100°F (12.0 to 37.5°C)
<b>Occ. Cool (Occupied Cool Setpoint)</b> Default Value: 75.0°F (24.0°C)	Cooling Temperature setpoint used by the Room Controller when in Occupied or Override mode. Range: 54 to 100°F (12.0 to 37.5°C)
<b>Occ. Heat (Occupied Heat Setpoint)</b> Default Value: 72.0°F (22.0°C)	Heating Temperature setpoint used by the Room Controller when in Occupied mode. Range: 40 to 90°F (4.5 to 32.0°C)
<b>Standby Heat (Standby Heating Setpoint)</b> Default Value: 69.0°F (20.5°C)	Heating Temperature setpoint used by the Room Controller when in Standby mode. Range: 40 to 90°F (4.5 to 32.0°C)
<b>Unocc. Heat (Unoccupied Heating Setpoint)</b> Default Value: 62.0°F (17°C)	Heating Temperature setpoint used by the Room Controller when in Unoccupied or Override mode. Range: 40 to 90°F (4.5 to 32.0°C)

# SETPOINTS SCREENS

## Setpoints 2 / 2

## Setpoints 2 / 2

Figure 36: Setpoints 2 / 2 Display.

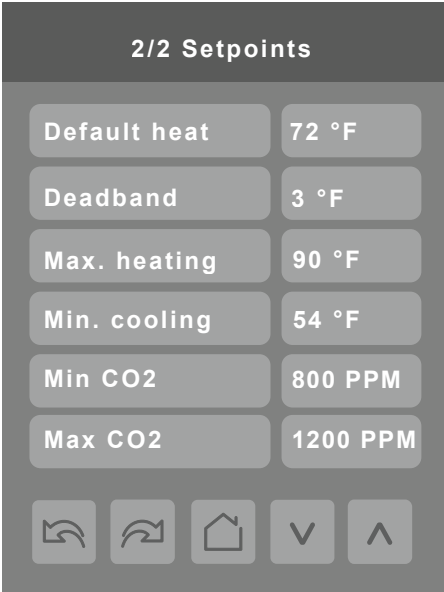


Table 29: Setpoints 2 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<p>Default Heat (Default Heating Setpoint) Default Value: 72°F (22°C)</p>	<p>Used for hospitality applications in stand-alone mode only to reset the occupied setpoints when a new guest enters the room.</p> <p>When the Room Controller is in unoccupied mode, any movement detected by a wired, wireless or local PIR sensor changes the occupancy mode to occupied modes and uses the “Default Heating Setpoint” as the new occupied setpoints.</p> <p><b>Note:</b> <i>This functionality is only valid when Stand-by mode = Offset. Refer to “Configuration 6 / 9” on page 38 to configure Standby mode.</i></p> <p>Range: 65 to 80°F (18.5 to 26.5°C).</p>
<p>Deadband) Default Value: 3°F (1.5°C)</p>	<p>Temperature offset between the Cooling and Heating setpoints to ensure that Cooling setpoint is always warmer than the Heating setpoint.</p> <p>Cooling setpoint ≥ (Heating setpoint + Deadband)</p> <p>Range: 2 to 5°F (1.0 to 2.5°C).</p>
<p>Max. Heating (Heating Setpoint Limit) Default Value: 90°F (32°C)</p>	<p>Maximum Occupied, Unoccupied, Standby and Override Heating setpoints maximum limit.</p> <p>Range: 40 to 90°F (4.5 to 32.0°C)</p>
<p>Min. Cooling (Cooling Setpoint Limit) Default Value: 54°F (12°C)</p>	<p>Maximum Occupied, Unoccupied, Standby and Override Cooling setpoint adjustment.</p> <p>Range: 54 to 100°F (12.0 to 37.5°C).</p>
<p>Min CO2 (Minimum CO2) Default Value: 800* PPM</p>	<p>Range: 0 and 4800 PPM, using increments of 10 PPM.</p>
<p>Max CO2 (Maximum CO2) Default Value: 1200 PPM</p>	<p>Range: 200 and 5000 PPM, using increments of 10 PPM.</p>

### Display Screen 1 / 3

Figure 37: Display Screen 1 / 3

The screenshot shows a dark grey interface titled "1/3 Display". It contains six rows of configuration parameters, each with a label and a value in a light grey box:

- User HMI: 0
- Color: White
- Main display: Temp.
- Standby screen: No
- Lock screen: No
- Contrast: 0

At the bottom, there are five navigation icons: a left arrow, a right arrow, a home icon, a down arrow, and an up arrow.

Table 30: Display Screen 1 / 3 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>User HMI</b> Default Value: 0	Sets layout of icons on the home screen for various applications. Refer to the "Customized User HMI Display" section starting on page 13 for more information. Range: 0 to 12.
<b>Color (HMI Color)</b> Default Value: White	Change background color of the display screen. Choices: White, Green, Blue, Grey, Dark Grey, Pink, Purple, Red, Orange, Black.
<b>Main Display</b> Default Value: Temp.	Shows temperature or setpoint on main display. Choices: Temp., Setpoint, T. + set.
<b>Standby Screen</b> Default Value: No	When the device is left unattended for 150 seconds, the standby image will appear. A custom image can be uploaded using the Uploader Tool. No: No Stand by image (Screen dims when no motion is detected). Yes: Stand by Image is displayed after 150 seconds. Occ. Only: Standby image displays after 150 seconds. Screen turns off after 30 minutes only in occupied or override mode. Screen: Standby image displays after 150 seconds. Screen turns off after 30 minutes only in unoccupied or standby mode. Choices: No, Yes, Occupied Only or Screen.
<b>Lock Screen</b> Default Value: No	Prevents the user from accessing the Room Controller until a password is entered. Screen lockout starts 150 seconds after no activity on the Room Controller (when standby image appears). This functionality is enabled only if the below conditions are met: <ul style="list-style-type: none"> <li>Standby image loaded.</li> <li>Standby Screen = "Yes" or "Screen Saver".</li> <li>User Password = not 0.</li> </ul> Choices: No or Yes.
<b>Contrast</b> Default Value: 0	Control screen contrast and brightness. Range: -5 to +5.

# DISPLAY SCREENS

## Display Screen 2 / 3

### Display Screen 2 / 3

Figure 38: Display Screen 2 / 3.



Table 31: Display Screen 2 / 3 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Language (Display Language)</b> Default Value: English	Select language for main display. Choices: English, French, Spanish, Chinese, Russian, Arabic, Bulgarian, Czech, Danish, Dutch, Finnish, German, Hebrew, Hungarian, Indonesian, Italian, Japanese, Norwegian, Polish, Portuguese, Slovak, Swedish and Turkish.
<b>Units (Temperature Scale)</b> Default Value: °C	Changes the local display units. Refer to Network Units to change the network units broadcasted over the network. Choices: °C for SI or °F for Imperial.
<b>Low Backlight</b> Default Value: 60%	Sets display backlight intensity. This feature is activated (screen dims) 150 seconds after no activity on the Room Controller. Adjustable: 0 to 100%.
<b>Night Backlight</b> Default Value: 5%	Sets backlight display intensity. Parameter only available for models with motion/light detectors. The screen backlight progressively decreases down to this setting when room is dark. This feature is used mostly in hospitality applications when a darker non obtrusive lighting level is desired when room is dark. Adjustable: 0 to 100%.
<b>RH Display (Relative Humidity)</b> Default Value: Disabled	Shows humidity level in room in %RH. On: Display %RH. Off: Do not display %RH. Choices: Enabled or Disabled.
<b>CO<sub>2</sub> Display (CO<sub>2</sub> Levels Display)</b> Default Value: Disabled	Shows carbon dioxide level in room in ppm. On: Display CO <sub>2</sub> level. Off: Do not display % CO <sub>2</sub> level  <b>Note:</b> <i>The CO<sub>2</sub> value will only be displayed on the Room Controller home screen if an optional CO<sub>2</sub> detection sensor module is installed or a ZigBee wireless CO<sub>2</sub> device is paired, and if there is a valid value.</i>  Choices: Enabled or Disabled.



Display Screen 3 / 3

Figure 39: Display Screen 3 / 3.

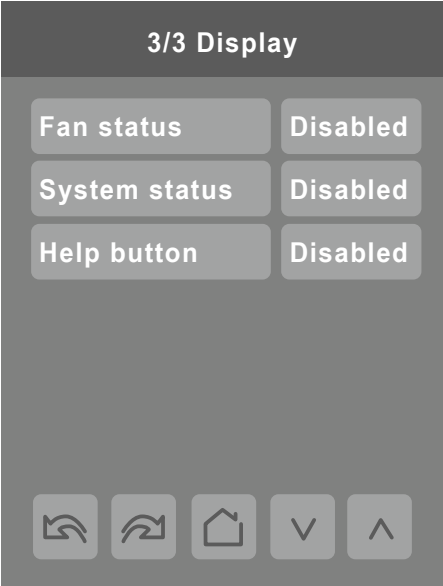


Table 32: Display Screen 3 / 3 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Fan Status (Fan Status Display) Default Value: Enabled	Hides the fan status in the upper right corner of the User HMI display. Applicable to all User HMI configurations where the fan status is shown. Refer to the User HMI Show / Hide Options on page 15. Choices: Enabled or Disabled.
System Status (System Status Display) Default Value: Enabled	Hides the system status in the upper right corner of the User HMI display. Applicable to all User HMI configurations where the system status is shown. Refer to the User HMI Show / Hide Options on page 15. Choices: Enabled or Disabled.
Help Button (Help Button Display) Default Value: Enabled	Hides the help button in the lower right corner of the User HMI display. Applicable to all User HMI configurations where the help button is shown. Refer to the User HMI Show / Hide Options on page 15. Choices: Enabled or Disabled.

# SERVICE VIEW SCREENS

## Service View Screen 1 / 9

### Service View Screens

The service view screens show the current status of certain points locally on the Room Controller. These points can also be viewed through the network. Service view values are “Read Only” values but allow a service contractor to visualize the status of key functionality to correctly diagnose operational system issues.

### Service View Screen 1 / 9

Figure 40: Service View Screen 1 / 9.

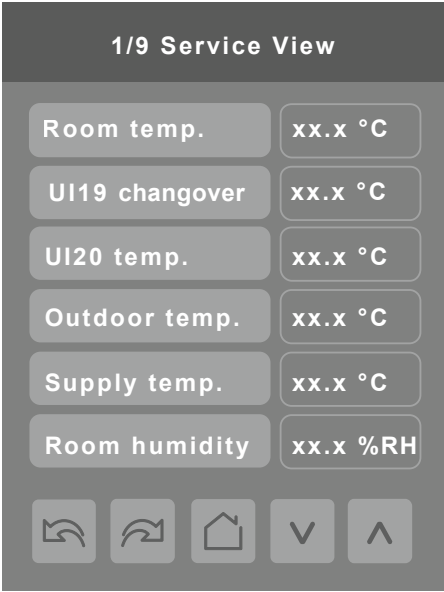


Table 33: Service View Screen 1 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Room Temp. (Room Temperature) Read Only	Shows the current room temperature from the configured temperature source.
UI19 Changeover (Changeover Temperature Sensor) Read Only	Shows the temperature of the changeover sensor connected to UI19 terminal.
UI20 Temp (Room Temperature Sensor) Read Only	Shows the temperature of the sensor connected to UI20 (RS) terminal.
Outdoor Temp. (Outdoor Temperature) Read Only	Shows the outdoor temperature on the main screen.
Supply Temp. (Supply Temperature) Read Only	Shows supply air temperature as measured by the sensor.
Room Humidity Read Only	Shows the current room humidity percentage from the configured humidity source. Refer to RH sensor parameter in “Configuration 8 / 9” on page 40-41 to select RH source.

### Service View Screen 2 / 9

Figure 41: Service View Screen 2 / 9.

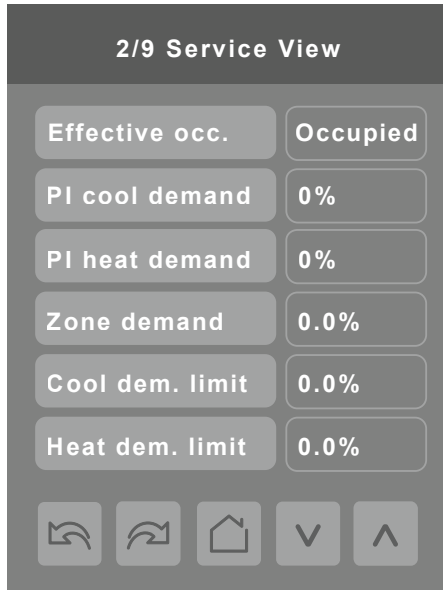


Table 34: Service View Screen 2 / 9 Parameter Details.

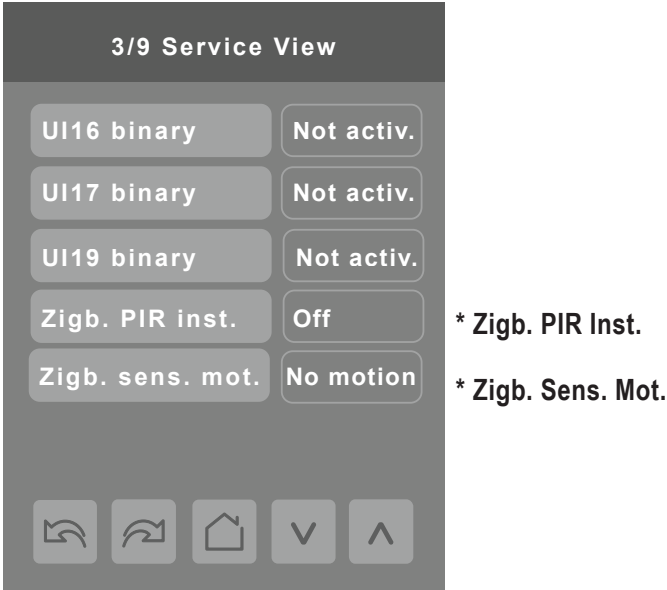
Configuration Parameters Default Value	Significance and Adjustments
<b>Effective Occ. (Effective Occupancy)</b> Read Only	Shows as occupied, unoccupied, standby or override. Display Readings: Occupied, Unoccupied, Override and Standby.
<b>PI Cool Demand (Proportional Integral Cooling Demand)</b> Read Only	Percentage of cooling capacity demanded by the zone. Display Readings: 0-100%.
<b>PI Heat Demand (Proportional Integral Heat Demand)</b> Read Only	Percentage of heating capacity demanded by the zone. Display Readings: 0-100%.
<b>Zone Demand</b> Read Only	Combined and weighted heating/cooling demand for the zone, where positive values indicate weighted heating demands, and negative values indicate weighted cooling demands. Display Readings: between -100% and +100%.
<b>Cool Dem. Limit (Cooling Demand Limit)</b> Read Only	Display Readings: 0-100%.
<b>Heat Dem. Limit (Heating Demand Limit)</b> Read Only	Display Readings: 0-100%.

# SERVICE VIEW SCREENS

## Service View Screen 3 / 9

### Service View Screen 3 / 9

Figure 42: Service View Screen 3 / 9.



Service View Screen 3 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
UI16 Binary (Universal Input Configuration No. 1) Read Only	Shows status of input. Display Readings: Activated or Not Activated.
UI17 Binary (Universal Input Configuration No. 2) Read Only	Shows status of input. Display Readings: Activated or Not Activated.
UI19 Binary (Universal Input Configuration No. 3) Read Only	Shows status of input. Display Readings: Activated or Not Activated.
Zigb. PIR Inst. (ZigBee Passive Infrared Sensor Installed) Read Only	Shows if ZigBee motion sensor is paired to a Room Controller or not.  <b>Note:</b> <i>This parameter is for ZigBee wireless motion sensors only.</i>  Display Readings: Off or On.
Zigb. Sens. Mot. (ZigBee Sensor Motion) Read Only	Shows if motion is detected by any of the ZigBee wireless motion sensors.  <b>Note:</b> <i>This parameter is for ZigBee wireless motion sensors only.</i>  Display Readings: Motion or No Motion.

### Service View Screen 4 / 9

Figure 43: Service View Screen 4 / 9.



Table 35: Service View Screen 4 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Window Alarm Read Only	Shows On if there is a Window alarm and shows Off if there is no Window alarm. This feature is for both wired and wireless sensors. Display Readings: On or Off.
Service Alarm Read Only	Shows On if there is a Service alarm and shows Off if there is no Service alarm. Display Readings: On or Off.
Filter Alarm Read Only	Shows On if there is a Filter alarm and shows Off if there is no Filter alarm. Display Readings: On or Off.
Recovery Status Read Only	Shows if Smart Recovery is active or not. Display Readings: On or Off.
Local Motion Read Only	Shows if Motion alarm is active or not. Display Readings: Motion or No Motion.

# SERVICE VIEW SCREENS

## Service View Screen 5 / 9

### Service View Screen 5 / 9

Figure 44: Service View Screen 5 / 9.

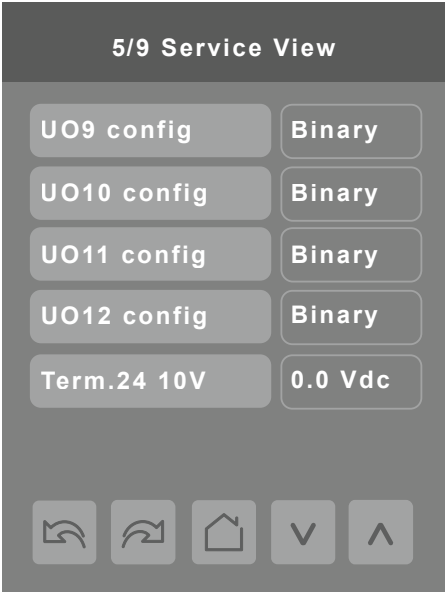


Table 36: Service View Screen 5 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
UO9 Config (UO9 Configuration) Read Only	Display Readings: Analog, Binary, Relay RC or Relay RH.
UO10 Config (UO10 Configuration) Read Only	Display Readings: Analog, Binary or Relay RC.
UO11 Config (UO11 Configuration) Read Only	Display Readings: Analog or Binary.
UO12 Config (UO12 Configuration) Read Only	Display Readings: Analog or Binary.
Term. 24 10V (Terminal 24 10 V) Read Only	Shows the analog value of the UI24 generic Universal Input (in Volts).

### Service View Screen 6 / 9

Figure 45: Service View Screen 6 / 9.

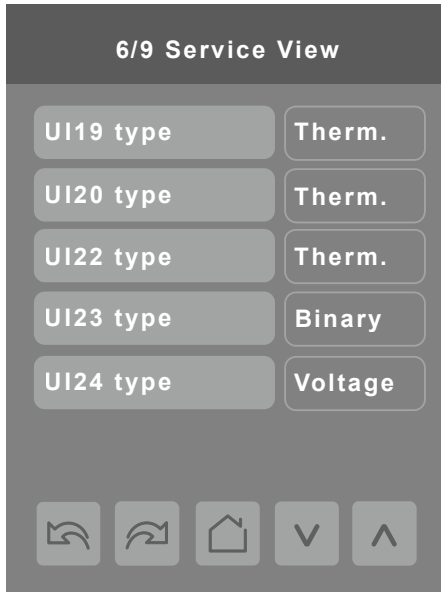


Table 37: Service View Screen 6 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
UI19 Type (UI19 Input Type) Read Only	Display Readings: Thermistor, Binary or Voltage.
UI20 Type (UI20 Input Type) Read Only	Display Readings: Thermistor, Binary or Voltage.
UI22 Type (UI22 Input Type) Read Only	Display Readings: Thermistor, Binary or Voltage.
UI23 Type (UI23 Input Type) Read Only	Display Readings: Thermistor, Binary or Voltage.
UI24 Type (UI24 Input Type) Read Only	Display Readings: Thermistor, Binary, Voltage or Reserved.

# SERVICE VIEW SCREENS

## Service View Screen 7 / 9

### Service View Screen 7 / 9

Figure 46: Service View Screen 7 / 9.

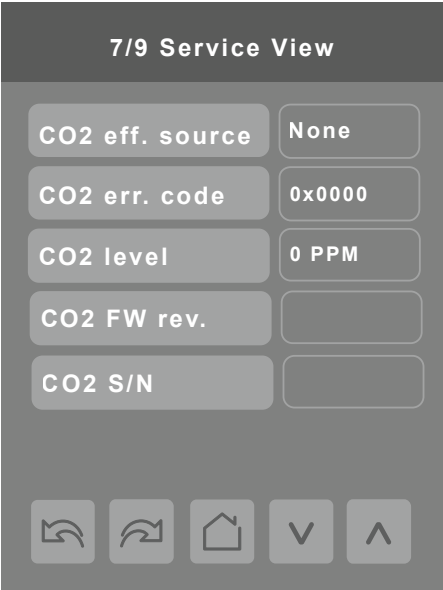


Table 38: Service View Screen 7 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
CO <sub>2</sub> Eff. Source (CO <sub>2</sub> Module) Read Only	Shows the configured source of the indoor CO <sub>2</sub> . Display Readings: None, Local or WL 1 to WL 20
CO <sub>2</sub> Err. Code (CO <sub>2</sub> Error Code) Default Value: 0 Read Only	Error code 0x0001 shows if there is an error with the sensor.
CO <sub>2</sub> Level Read Only	Shows CO <sub>2</sub> level in PPM. Display Readings: 0 to 5000 PPM.
CO <sub>2</sub> FW Rev. (CO <sub>2</sub> Firmware Revision) Read Only	Shows the Firmware version of the installed CO <sub>2</sub> sensor module.
CO <sub>2</sub> S/N (CO <sub>2</sub> Serial Number) Read Only	Shows the serial number of the installed CO <sub>2</sub> sensor module.



### Service View Screen 8 / 9

Figure 47: Service View Screen 8 / 9.

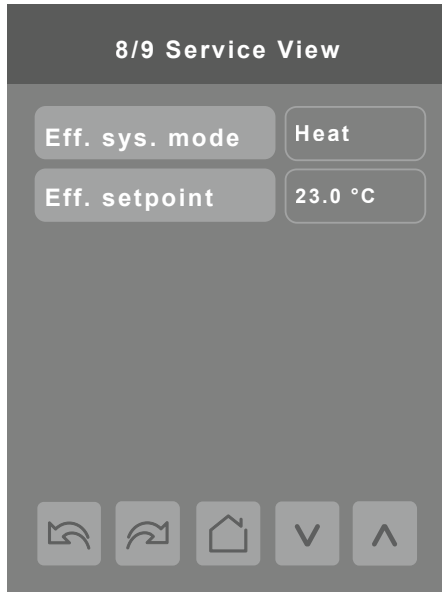


Table 39: Service View Screen 8 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Eff. Sys. Mode (Effective System Mode)</b> Read Only	Shows the current operating mode of the system. For example, when the system is in Auto mode, this parameter shows whether it is currently heating or cooling. Displayed Readings: Cool or Heat.
<b>Eff. Setpoint (Effective Temperature Setpoint)</b> Read Only	Shows the temperature setpoint value currently in use by the system.

# SERVICE VIEW SCREENS

## Service View Screen 9 / 9

### Service View Screen 9 / 9

Figure 48: Service View Screen 9 / 9.



The Device Name (BACnet name) consists of the model number followed by the COM address (MAC address). The BACnet name can be changed via the BACnet front end and the new name appears on the above screen.

For example, when a VUCQMS8250 Room Controller with a MAC address of 41 is connected to a network, its default Device Name is VUCQMS8250-41 and its default BACnet Device ID is 82041.

Firmware Revision shows the Firmware version currently installed on the Room Controller. Upgrading to a newer Firmware version deletes the previous Firmware version, however it is possible to set the Room Controller to an earlier Firmware version with the Uploader Tool.

ZigBee Revision shows the Firmware version of an onboard ZigBee or optional ZigBee add-on module.

## Test Outputs Screens

Figure 49: Test Binary Outputs Screens.

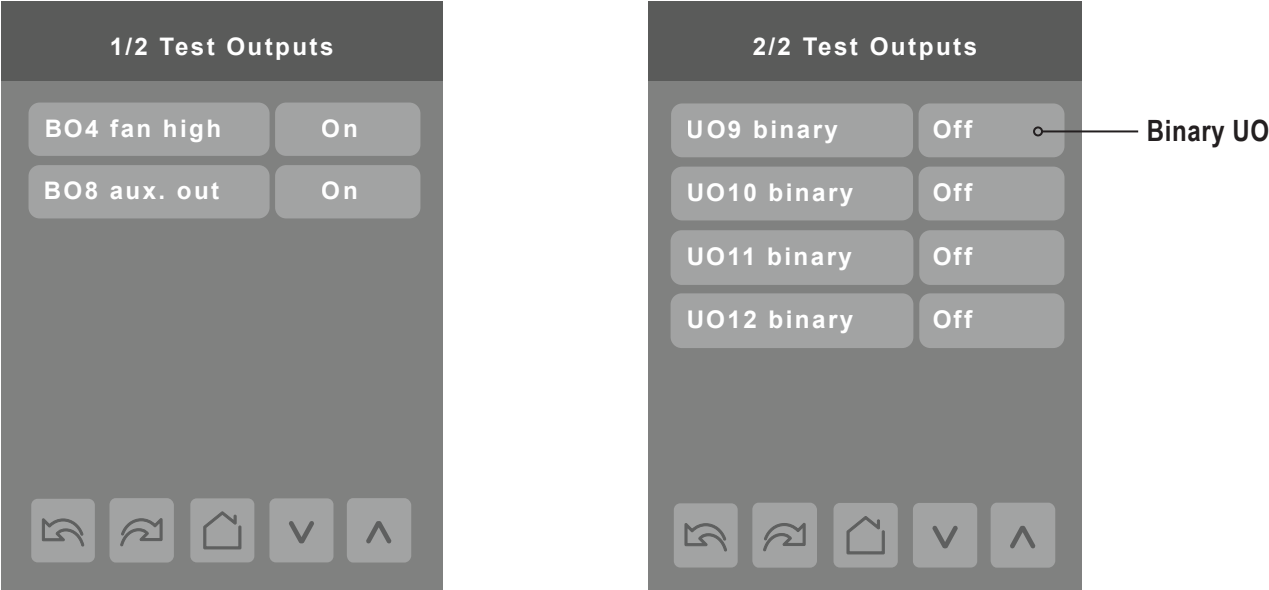
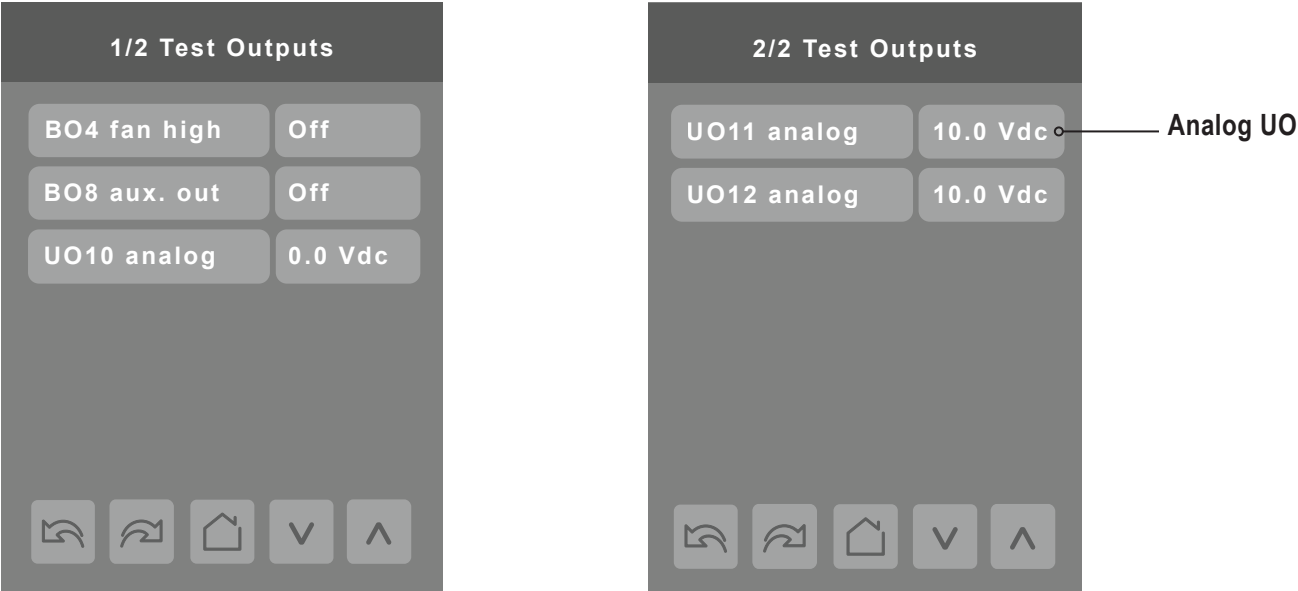


Figure 50: Test Analog Outputs Screens.



The Test Outputs screen allows manual override of specified outputs. After any output state is overridden, the command is cancelled after one (1) minute of screen inactivity (auto exit to main screen) or when page is exited.

### **⚠ WARNING**

Use high caution when manually enabling outputs. It is the responsibility of the Installer / Service Contractor to maintain a safe operation environment during usage. There is a risk of physical injury and / or death.

### **Note:**

Use high caution when manually enabling outputs so as to not cause damage to equipment. It is the responsibility of the Installer / Service Contractor to maintain a safe operation environment during usage.

# TEST OUTPUTS SCREENS

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## Test Outputs Screens, continued.

These parameters can also be changed via BACnet; the changed parameter background will turn red to indicate the parameter's value had been overridden. The overridden value remains even if the user exits the main screen.

Test Outputs values are LIVE. Any output gets displayed immediately for any value change according to the following:

1. If any BACnet priority array (1 - 16) includes a value, the displayed state background shows in red.
2. When toggling a value on the screen, the output directly energizes according to the selected value.
3. After any output state gets modified, all overrides get cancelled after one (1) minute of button inactivity, or if scrolling from one (1) screen to another screen.

Test Outputs U09 to U012 are dependent on control type configuration. Analog or Binary options may be shown depending on the configuration of Actuator type, Fan type, Reheat config and Duct heater outputs.

# LANGUAGE SELECTION SCREENS

Language Selection Screens 1 / 4 to 4 / 4

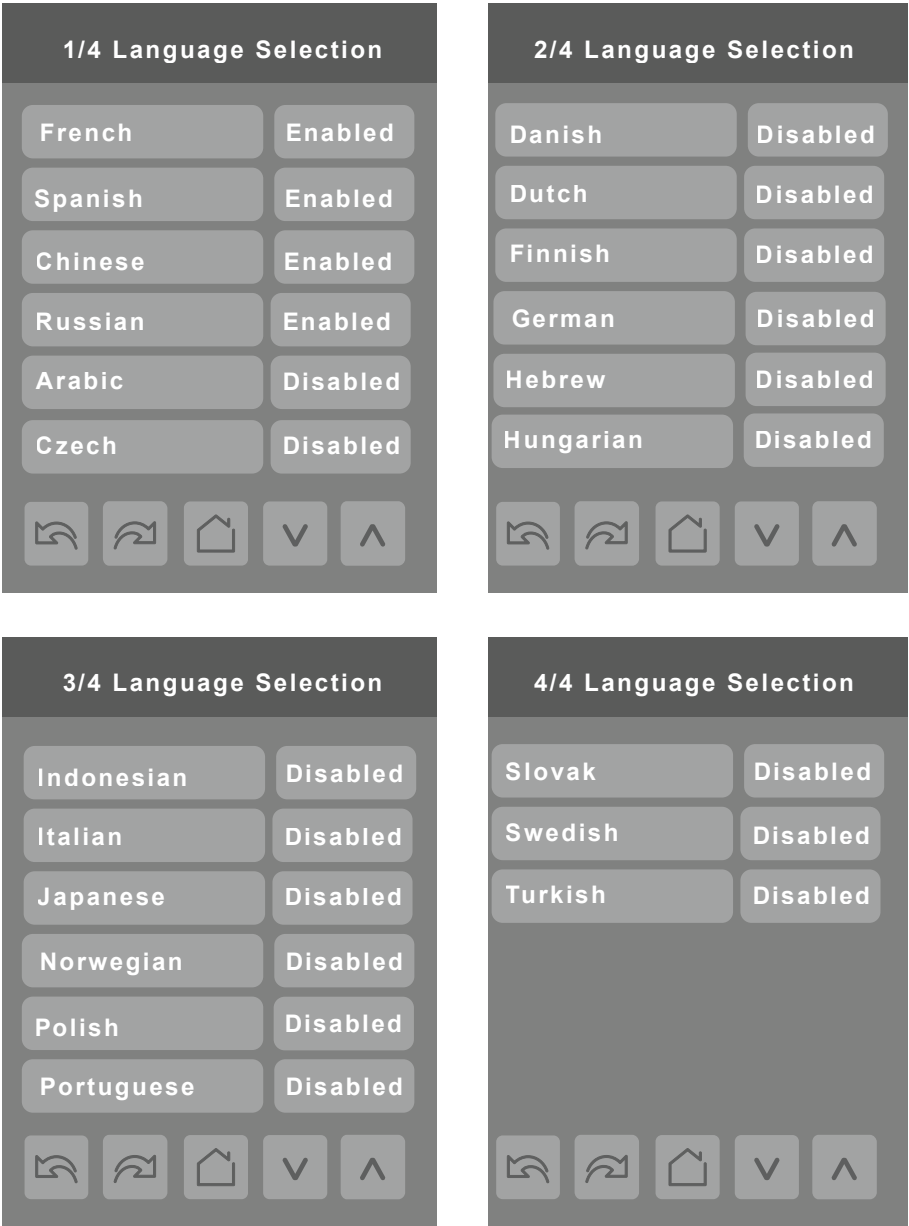
## Language Selection Screens 1 / 4 to 4 / 4

Only English, French, Spanish, Chinese, and Russian are enabled by default and are accessible to users cycling through languages on the display settings menu screen. To change the language selection settings, tap a language on the screen and then use the arrow buttons to disable or enable it.

**Note:**

*English is always enabled.*

Figure 51: Language Selection Screens 1 / 4 to 4 / 4.

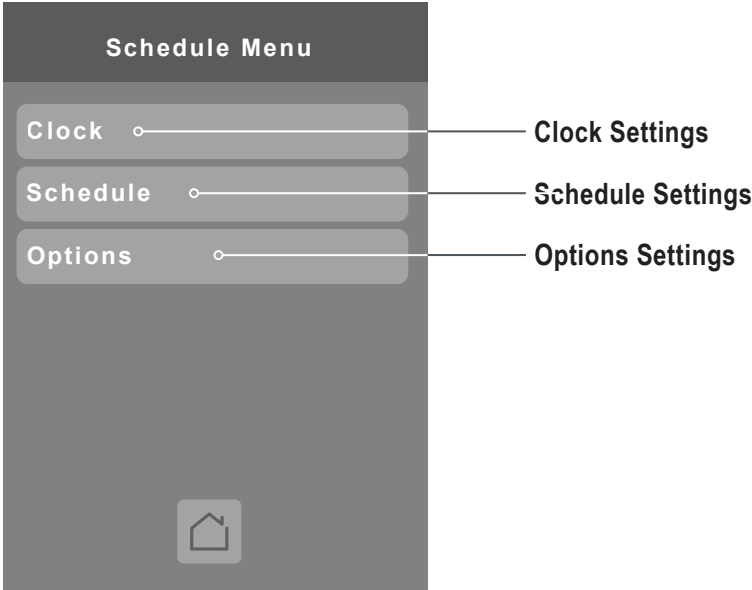


# SCHEDULE SCREENS

## Clock - Schedule Menu

### Clock - Schedule Menu

Figure 52: Clock - Schedule Menu Display.



**Note:**

The Clock - Schedule Menu screen is directly accessible from the main setup screen.

### Clock

The Clock settings screen allows the device's internal time settings to be changed (current time, day, month, year and weekday options), as well as to choose between a 12 hour AM / PM display or 24 hour display.

Figure 53: Clock Displays.

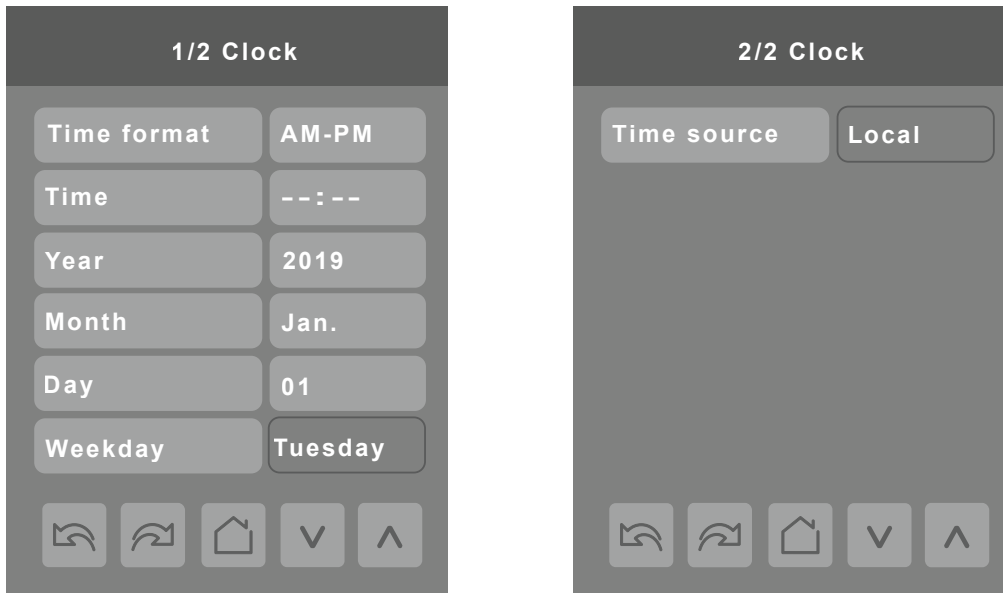


Table 40: Clock Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Time Format</b> Default Value: AM-PM	Current time display format. Choice between 12 hour (AM - PM) time format or 24 hour time format.  <b>Note:</b> <i>Changing the value of this parameter automatically changes the format of the displayed value of the time parameter.</i>  Choices: AM-PM or 24 Hours.
<b>Time</b> Default Value: Current time at power up	Standard time display, 12 hour AM-PM or 24 hour format determined by the Time Format parameter value.
<b>Year</b> Default value: 2019	Current year Range: 2000 - 2100.
<b>Month</b> Default Value: Jan.	Current month Range: Jan. - Dec.
<b>Day (Date)</b> Default Value: 1	Current date Range: 1 - 31.
<b>Weekday (Current Day)</b> Default value: Monday Read Only	Automatically set based on data received from Year/Month parameters. Range: Monday - Sunday.
<b>Time Source</b> Default Value: Local Read Only	Shows the source that most recently set the time on the Room Controller. Display Readings: None, Local, BACnet, NTP or Cloud.

# SCHEDULE SCREENS

## Schedule

### Schedule

There are seven (7) different schedule setting screens, one (1) for each day of the week. Each day can have different scheduled events where the Room Controller is set to Occupied status or back to Unoccupied status. The Room Controller can use the appropriate setpoints (back and forth) up to three (3) times per day.

Figure 54: Schedule Display.

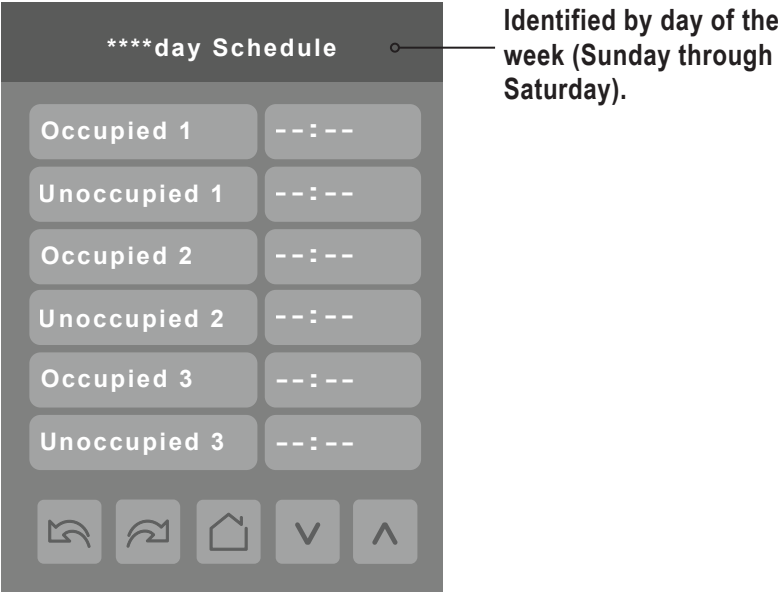


Table 41: Schedule Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Occupied 1 - 3 Default Value: None	Defines a time when the Room Controller is automatically set to use the Occupied setpoint.  <b>Note:</b> <i>There are three (3) separate Occupied parameter entries.</i>  Range: 00:00 - 23:59.
Unoccupied 1 - 3 Default Value: None	Defines a time when the Room Controller is automatically set to use the Unoccupied setpoint.  <b>Note:</b> <i>There are three (3) separate Unoccupied parameter entries.</i>  Range: 00:00 - 23:59.



Options

The options settings allow the Room Controller to function in Occupied or Unoccupied mode following a defined Schedule type set by the user.

Figure 55: Options Display.



Table 42: Options Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Occupancy Cmd (Occupancy Command) Default Value: Occupied	Loc occ: Occupancy is determined by local sequences (either PIR or schedule, as configured under Occ. source). Occupied: Force occupied mode. Unoccup: Force unoccupied mode. Choices: Loc occ, Occupied or Unocc.
Schedule Type Default Value: 7 days	7 days: Independent scheduling identified by day of the week (Sunday - Saturday). 5+1+1 days: Weekdays scheduling and Independent Weekend scheduling identified as Weekdays, Saturday and Sunday. 5+2 days: Weekdays scheduling and Weekend scheduling identified as Weekdays and Weekend. Choices: 7 days, 5+2 days or 5+1+1.

# ADR SCREEN

## Automatic Demand Response (ADR)

The ADR feature is used to reduce energy load when electric grid contingencies threaten supply-demand balance.

Figure 56: ADR Display.

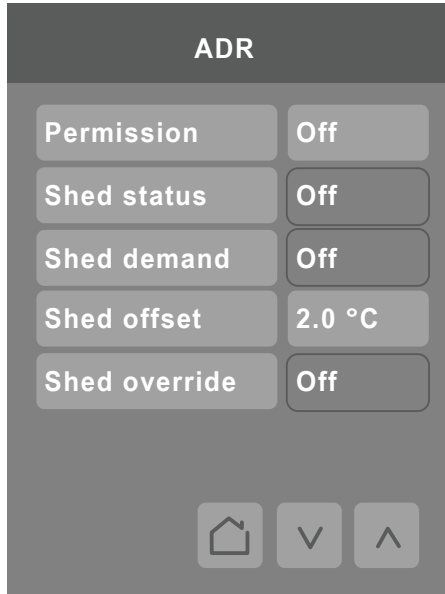


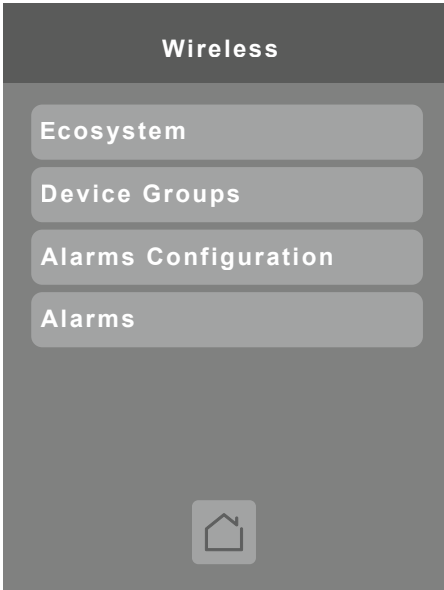
Table 43: ADR Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Permission (Automatic Demand Response Permission)</b> Default Value: Off	<ul style="list-style-type: none"> <li>Used to permit the ADR to be applicable or not to change the Room Controller setpoints setting or not.</li> <li>Off: The Load Shedding Demand will not be permitted.</li> <li>On: The Load Shedding Demand will be permitted.</li> <li>Choices: On or Off.</li> </ul>
<b>Shed Status (Load Shedding Status)</b> Default Value: Off Read Only	<ul style="list-style-type: none"> <li>Displays the status of the Load Shedding Demand, whether it is active (On) or not (Off).</li> <li>The Load Shedding status is On when the Permission is On, Shed demand is On, and the Shed Override is Off.</li> <li>Off: Load Shedding Demand is not activated.</li> <li>On: Load Shedding Demand is activated.</li> <li>Display Readings: On or Off.</li> </ul>
<b>Shed Demand (Load Shedding Demand)</b> Default Value: Off Read Only	<ul style="list-style-type: none"> <li>Sets the request to initiate Load Shedding. This demand can only be set through BACnet by the local Utility company, using the "Load Shedding Demand" Binary Object Value Properties.</li> <li>Off: No Load Shedding Demand is received or the Shedding demand is disabled.</li> <li>On: Received the Load Shedding Demand or received the signal to activate Load Shedding.</li> <li>Display Readings: On or Off.</li> </ul>
<b>Shed Offset (Load Shedding Offset)</b> Default Value: 4°F (2°C)	<ul style="list-style-type: none"> <li>Used to change the effective setpoints in occupied, standby and unoccupied modes.</li> <li>For example, when "Shed status" is On and Controller is in occupied mode:</li> <li>The cooling setpoint is calculated as follows: Occupied cooling setpoint = occupied cooling setpoint + Load shedding offset.</li> <li>The heating setpoint is calculated as follows: Occupied heating setpoint = occupied heating setpoint - Load shedding offset.</li> <li>Choices: 4°F to 10°F (2°C to 5.5°C).</li> </ul>
<b>Shed Override (Load Shedding Override)</b> Default Value: Off Read Only	<ul style="list-style-type: none"> <li>Displays whether the user disabled the ADR request by the utility company. When the demand shed is applied, the user can override the ADR settings from its original setpoints settings.</li> <li>On: Rejects or cancels shed load demand request from utility company (setpoints remain the same).</li> <li>Off: Allows shed load demand request from utility company (setpoint will change according to shed offset).</li> <li>Display Readings: On or Off.</li> </ul>

### Wireless Menu Options

The Wireless screen shows only in models with onboard ZigBee or optional ZigBee add-on module.

Figure 57: Wireless Menu Options Display.



# WIRELESS SCREENS

## Ecosystem Settings

### Ecosystem Settings

The Ecosystem Settings screens show the network status, the number of paired devices as well as information for each paired device. A maximum of twenty (20) ZigBee wireless devices can be paired to each Room Controller. Tap forward arrow to obtain information on each paired ZigBee device.

Figure 58: Ecosystem Settings Display.

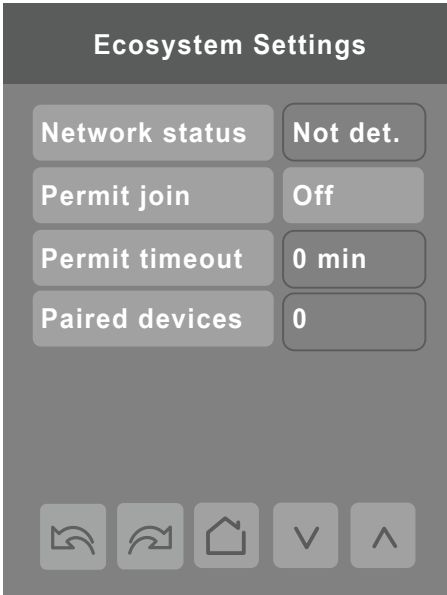


Table 44: Ecosystem Settings Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Network Status (ZigBee Network Status)</b> Default Value: Not det. Read Only	Shows current status of ZigBee network. Pwr on: ZigBee module detected but not configured. No NWK: ZigBee configured but no network joined. Joined: ZigBee network joined. Online: Communicating. Display Readings: Pwr on, No NWK, Joined and Online.
<b>Permit Join</b> Default Value: Off	Setting to “On” allows the Room Controller to pair with a ZigBee device. Value must be set to “On” to pair with initial device and then set to “Off” if user wants to prevent additional ZigBee devices from joining the network. Changing this value to “Off” on the Coordinator prevents any new ZigBee devices from joining the network. Permit join can be On/Off when the Room Controller is a coordinator, however the parameter is read only when the Room Controller is a router. Permit join stays On for three (3) hours. On: Allows Room Controller to pair with wireless ZigBee device. Off: Prevents Room Controller from pairing with wireless ZigBee device, or prevent any additional ZigBee devices from joining network. Choices: On or Off.
<b>Permit Timeout (Permit Join Timeout)</b> Default Value: 0 Read Only	Allows devices to join the Coordinator Controller for 180 minutes from the moment it is set to ON. Once the timer elapses, no devices will be able to join the network. <b>Note:</b> Permit Join parameter must be set to “On” to enable this feature. Range: 0 or 180 minutes
<b>Paired Devices (Paired ZigBee Devices)</b> Default Value: 0 Read Only	Shows the number of ZigBee wireless devices currently paired with the Room Controller. A maximum of twenty (20) ZigBee wireless devices can be paired with each Room Controller (total of twenty (20) paired devices per Room Controller). Display Readings: 0 to 20 devices.

### Device X

This screen is a subset of the Ecosystems screen and shows data for each paired ZigBee device. The Status, Temperature, Humidity and CO<sub>2</sub> values will only be visible if they are supported by the device.

Figure 59: Device X Display.



### Note:

Device X pages will only show up after devices have been paired.

Table 45: Device X Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Function (ZigBee Wireless Device Function)</b> Default Value: None	Shows status of installed ZigBee wireless device. None: No status reported to Room Controller. Window: Window sensor installed. Door: Door sensor installed. Motion: Device set to detect motion. Env. data: Temperature, Humidity, CO <sub>2</sub> sensor installed. Remove: Removes device from Device list. Water: Water leak sensor installed. Refrig.: Refrigerator temperature sensor installed. Freezer: Freezer temperature sensor installed. Choices: None, Window, Door, Motion, Env. data, Remove, Water, Refrig. and Freezer.
<b>Comm. Status (Communication Status)</b> Default Value: Offline Read Only	Shows if device is communicating with Room Controller. Not paired: Device not paired. Online: Device paired and online. Offline: Device paired but offline. Invalid: Device was paired and Room controller detected a communication error (selected function does not match paired sensor functionality). Display Readings: Not paired, Online, Offline and Invalid.
<b>Battery (Wireless Device Battery)</b> Default Value: None Read Only	Shows current status of battery in wireless device. Display Readings: None, Normal or Low.
<b>Address (Wireless Device Address)</b> Read Only	Shows unique IEEE (MAC) address of ZigBee wireless device.

# WIRELESS SCREENS

## Device X

### Device X, continued.

Table 46: Device X Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Device Values Read Only	Shows the ZigBee wireless device values. Values displayed will be different depending on type of device: <ul style="list-style-type: none"><li>• Door and Window Sensors: Closed or Open.</li><li>• Motion Sensor: No Motion or Motion.</li><li>• Water Leak Sensor: Normal or Leak.</li><li>• Temperature Sensor: XX.X°C.</li><li>• Humidity Sensor: XX %RH.</li><li>• CO<sub>2</sub> Sensor: XXX PPM.</li></ul>

### Device Groups

The Device Groups screen shows if a particular ZigBee wireless sensor is paired with the Room Controller.

Figure 60: Device Groups Display.

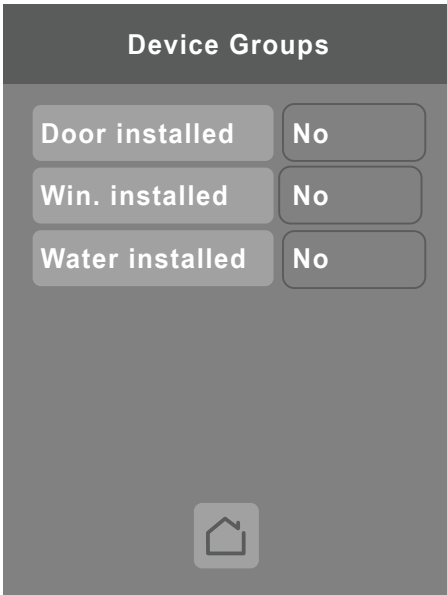


Table 47: Device Groups Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Door Installed (Door Contact Installed) Default Value: No Read Only	Shows if Door sensor is installed. Display Readings: Yes or No.
Win. Installed (Window Contact Installed) Default Value: No Read Only	Shows if Window sensor is installed. Display Readings: Yes or No.
Water Installed (Water Leak Sensor Installed) Default Value: No Read Only	Shows if Water Leak sensor is installed. Display Readings: Yes or No.

# WIRELESS SCREENS

## Temperature Alarms Configuration

### Temperature Alarms Configuration

The Temperature Alarms Configuration screens show the values that trigger an alarm only for ZigBee wireless sensors with temperature measurement.

Figure 61: Temperature Alarms Configuration Displays.

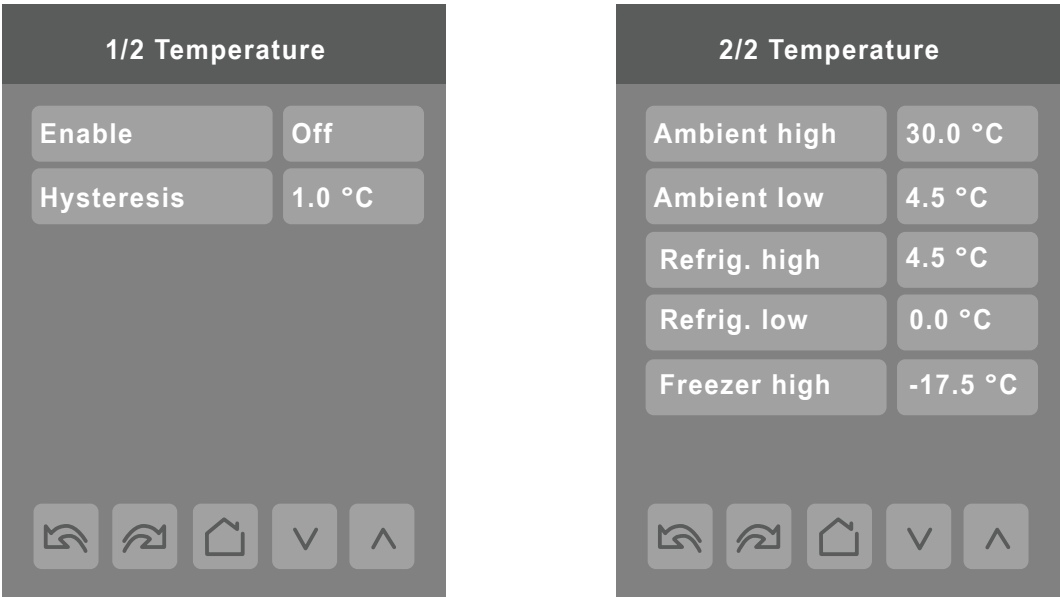


Table 48: Temperature Alarms Configuration Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Enable (Temperature Alarm Enabled) Default Value: Off	Enables wireless device to alert the Room Controller if temperature value reaches defined value in a particular paired device. Choices: On or Off.
Hysteresis (Temperature Alarm Hysteresis) Default Value: 2.0°F (1.0°C)	Choices: 0 to 10°F (0 to 5.5°C).
Ambient High (Temperature Alarm Ambient High) Default Value: 86.0°F (30.0°C)	Range: 75 to 122°F (24 to 50°C).
Ambient Low (Temperature Alarm Ambient Low) Default Value: 40.0 °F (4.5 °C)	Range: 32 to 45°F (0 to 7°C).
Refrig. High (Temperature Alarm Refrigerator High [only present if a refrigeration sensor is installed]) Default Value: 40.0 °F (4.5 °C)	Range: 32 to 50°F (0 to 10°C).
Refrig. Low (Temperature Alarm Refrigerator Low [only present if a Refrigeration sensor is installed]) Default Value: 32.0°F (0.0°C)	Range: 32 to 50°F (0 to 10°C).
Freezer High (Temperature Alarm Freezer High [only present if a freezer sensor is installed]) Default Value: 0.0°F (-17.5°C)	Range: -40 to +32°F (-40 to 0°C).



### Alarms

The Alarms screen shows data for paired ZigBee wireless devices.

Figure 62: Alarms Display.

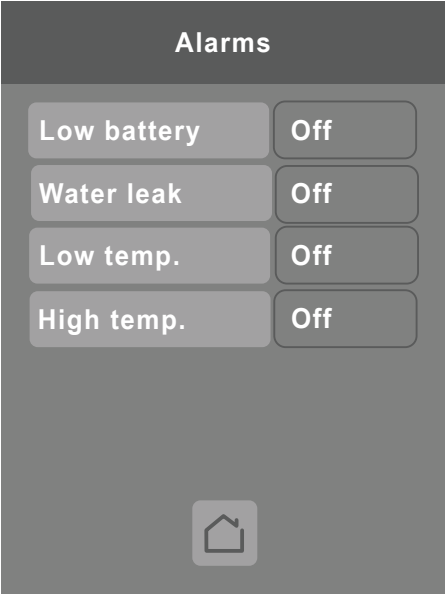


Table 49: Alarms Display Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Low Battery (Low Battery Alarm)</b> Default Value: Off Read Only	Shows if any wireless paired device has a low battery status (On) or no paired device has low battery (Off). Choices: On or Off.
<b>Water Leak (Water Leak Sensor Status)</b> Default Value: Off Read Only	Shows if any water sensor paired device has detected a water leak (On) or no leak detected in any of the water sensor paired devices (Off). Choices: On or Off.
<b>Low Temp. (Low Temperature Alarm)</b> Default Value: Off Read Only	Shows if any temperature sensor paired device has detected a low temperature (On) or no low temperature detected in any of the temperature sensor paired devices (Off). Display Readings: On or Off.
<b>High Temp. (High Temperature Alarm)</b> Default Value: Off Read Only	Shows if any temperature sensor paired device has detected a high temperature (On) or no high temperature detected in any of the temperature sensor paired devices (Off). Display Readings: On or Off.

# LUA SCREENS

## LUA Settings

### LUA Settings

The LUA settings screens show information about any custom LUA script uploaded to the Room Controller. LUA scripts are not programmable on the Room Controllers. LUA scripts can be uploaded to the Room Controller via the Uploader Tool or via BACnet.

Figure 63: LUA Settings Displays.

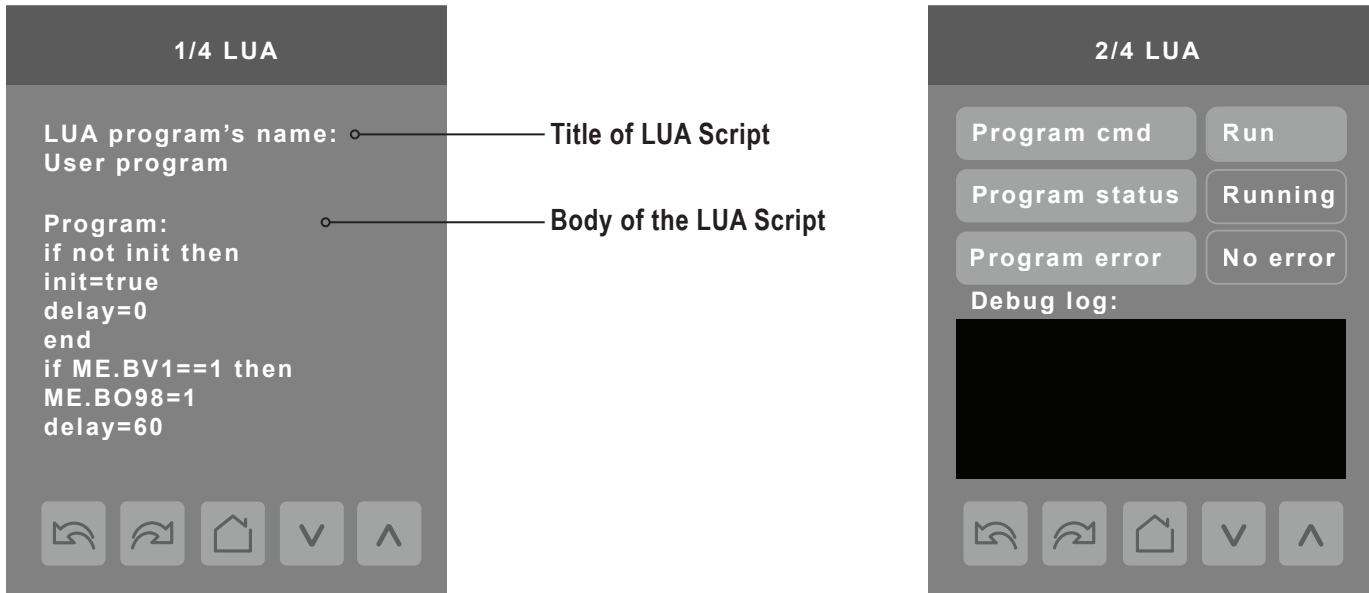


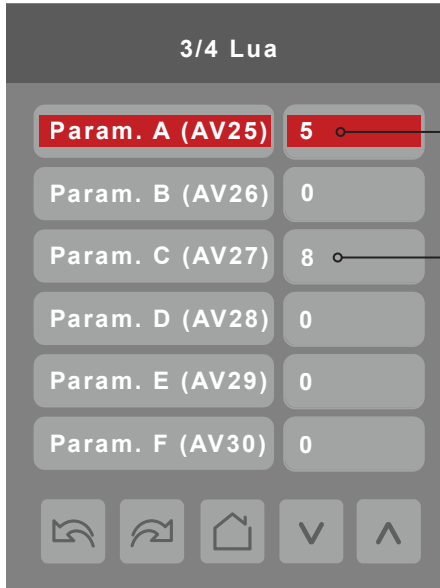
Table 50: LUA Settings Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
<b>Program cmd (Program Command)</b> Default Value: Run	Run: LUA script activated and runs continuously until deactivated. Stop: LUA script deactivated. Choices: Stop or Run.
<b>Program Status</b> Default Value: Idle Read Only	Running: LUA script active. Halted: LUA script stopped and not active. Idle: LUA script is running but not currently performing any actions. Waiting: LUA script running and waiting for a response. Uploading: LUA script currently unloading from the Room Controller. Loading: LUA script currently loading to the Room Controller. Display Readings: Idle, Loading, Running, Waiting, Halted, Unloading.
<b>Program Error</b> Default Value: No error Read Only	No error: No errors in LUA script. Syntax: Syntax error in LUA script detected. Runtime: Runtime error occurred while running LUA script. Memory: Device has run out of memory for the script. Display Readings: No error, Syntax, Runtime, Memory.

### LUA Generic Parameters

The LUA settings include twelve (12) generic parameters that do not have a specific function or pre-configured functions. These parameters can be used in custom LUA scripts to store a value. They are also user configurable in their default state, but when assigned a value via a LUA script or via BACnet (Priority 1-16), they become read only (not configurable locally by the user) and the display color of the parameter changes to red. These parameters can also be configured via ZigBee, however, they can still be modified locally by the user.

Figure 64: LUA Generic Parameters 3 / 3 Display.



Parameter defined by LUA script displays in red text.

Default value is normally 0, but can be configured to use a different default value.

Table 51: LUA Generic Parameters Details.

Configuration Parameters Default Value	Significance and Adjustments
Parameter A (AV25 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter B (AV26 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter C (AV27 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter D (AV28 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter E (AV29 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter F (AV30 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter G (AV225 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter H (AV226 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter I (AV227 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter J (AV228 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter K (AV229 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.
Parameter L (AV230 BACnet Analog Object Value Properties) Default Value: 0	The value of this parameter depends on what is assigned to it from a BAS or LUA script.

# LIMITED WARRANTY (USA)

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**“The product’s full Limited Warranty terms and conditions and arbitration requirements are available at <https://www.lghvac.com>.”**



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UM\_MultiSITE\_RoomController\_VAV\_MS8250\_02\_24  
Supersedes: UM\_MultiSITE\_RoomController\_VAV\_MS8250\_09\_20