MultiSITE™ MS8000 Series Room Controllers

USER MANUAL

MS8350
Model No. VUCQMS8350
Commercial and Hotel HVAC Fan Coil Controller

MS8650
Model No. VUCQMS8650
Rooftop Unit, Heat Pump, and Indoor Air Quality Controller

PROPRIETARY DATA NOTICE

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⃠ Do not throw away, destroy, or lose this manual.

Please read carefully and store in a safe place for future reference.
Content familiarity required for proper installation.

The instructions included in this manual 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. A summary of safety precautions begins on page 4.

For more technical materials such as submittals, engineering databooks, and catalogs, visit www.lghvac.com.

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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

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

This manual provides details on configuring the LG MultiSITE MS8000 Series Room Controllers to monitor and control LG HVAC equipment (Model Numbers: VUCQMS8350 and VUCQMS8650).

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 outdoor 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.

⚠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.

Introduction

This guide shows the User Interface instructions for the MS8350 Controller (Firmware Release version 2.1) and MS8650 Controller (Firmware Release version 2.1) for User and Integrators.

MS8350 Controllers

For Commercial and Hotel HVAC Fan Coil Applications.

Features

- Auto / Low / Med / High Fan Speeds
- Low-voltage 24 Vac
- Customizable color digital touch screen interface with Multi-language support
- BACnet® MS/TP or Modbus®
- 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 Room Controller
- Role based configuration (password protected)
- Function code settings
- Function Code Search Tool
- Date and Time Display only when a network time synchronization command is received
- Room temperature display
- On / Off Operation
- Auto / Cool / Heat / Fan Only Modes
- Occupied cooling and heating temperature setpoints
- Unoccupied cooling and heating temperature setpoints
- 7 day scheduling with mode
- Error code display during unit or system malfunction

MS8650 Controllers

For Rooftop Unit, Heat Pump and Indoor Air Quality Applications.

Features

- Auto / On / Smart Fan Speeds
- Low-voltage 24 Vac
- Customizable color digital touch screen interface with Multi-language support
- BACnet MS/TP or Modbus
- 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 Room Controller
- Role based configuration (password protected)
- Function code settings
- Function Code Search Tool
- Date and Time Display only when a network time synchronization command is received
- Room temperature display
- On / Off Operation
- Auto / Cool / Heat / Fan Only Modes
- Occupied cooling and heating temperature setpoints
- Unoccupied cooling and heating temperature setpoints
- 7 day scheduling with mode
- Error code display during unit or system malfunction

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

DISCLAIMER

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.*

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.

HMI DISPLAY AND SET UP

For MS8350 and MS8650

Enter Set-up Screen

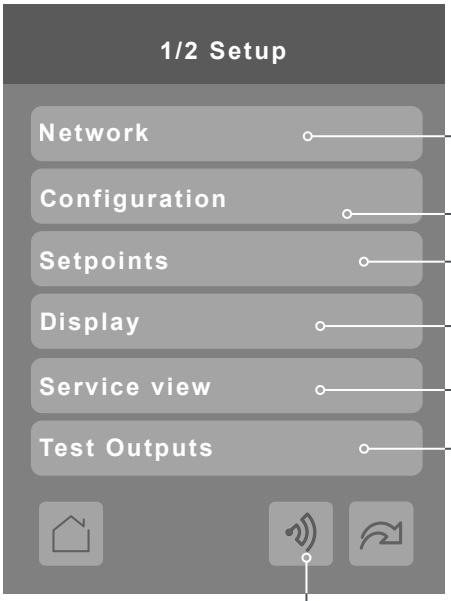
Figure 2: Enter Set-up Screen Display.

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 shows to prevent access to device configuration components.

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



BACnet MS/TP, Modbus and ZigBee® network settings

Parameter Configuration Menu

Setpoint Settings

Display Settings

Status Display (Read Only)

Test Outputs Settings

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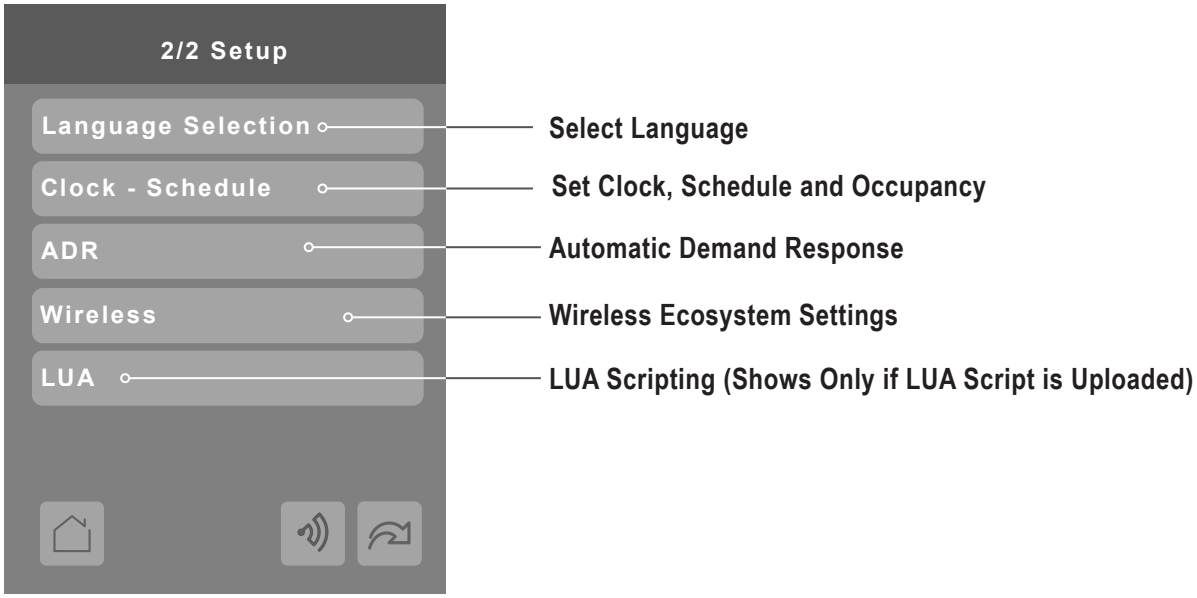
Return to Previous Menu

"Discover Mode" shows wireless ZigBee network.

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

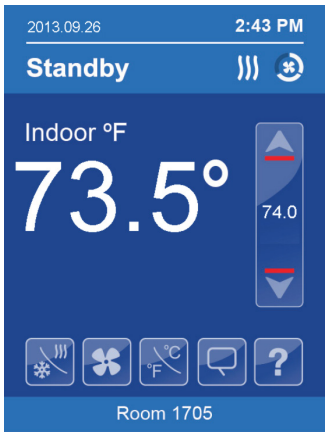


CUSTOMIZED SCREENS

User HMI for Hospitality

For MS8350 and MS8650

0 (Hospitality)



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

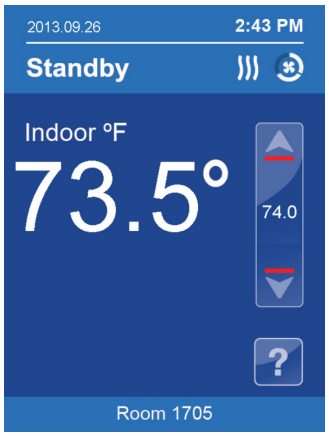
1 (Hospitality)

- Setpoint adjustment
- System mode setting
- Fan mode setting
- User help menu

2 (Hospitality)

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

3 (Hospitality)

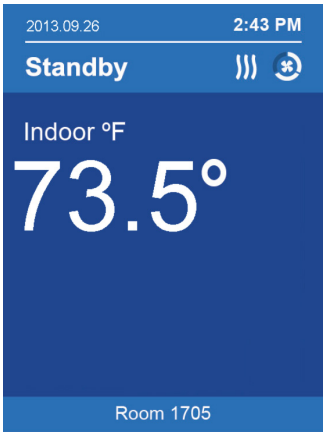


- Setpoint adjustment
- User help menu

Note:

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

4 (Hospitality)



- Fully locked interface with no user settings

5 (Hospitality)

- Setpoint adjustment
- System mode setting
- User help menu

6 (Hospitality)

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

7 (Commercial)

- Setpoint adjustment
- System mode setting
- Fan mode setting
- Unoccupied mode overdrive
- User help menu

CUSTOMIZED SCREENS

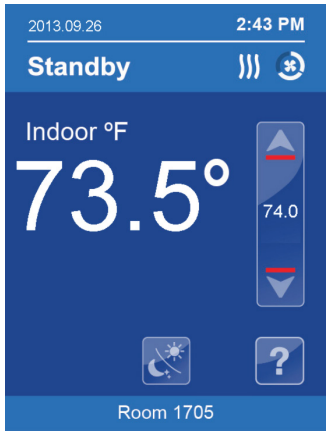
User HMI for Commercial

For MS8350 and MS8650

8 (Commercial)

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

9 (Commercial)



- Setpoint adjustment
- Unoccupied mode override
- User help menu

10 (Commercial)

- Unoccupied mode override

11 (Commercial)

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

12 (Commercial)

- Offset setpoints adjustment
- System 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 from 7 to 11 in HMI Commercial. If UI17 input is configured as "override", the day / night setback button does not show.*

CUSTOMIZED SCREENS

Other Functions / Setpoint Adjustment for Heating Mode

For MS8350 and MS8650

Other Functions

Figure 5: Other Function Displays.

Local humidity only shows on models with the humidity sensor present and when enabled by configuration property RH Display.

Outdoor temperature display is dependent on receiving a valid networked outdoor temperature value.

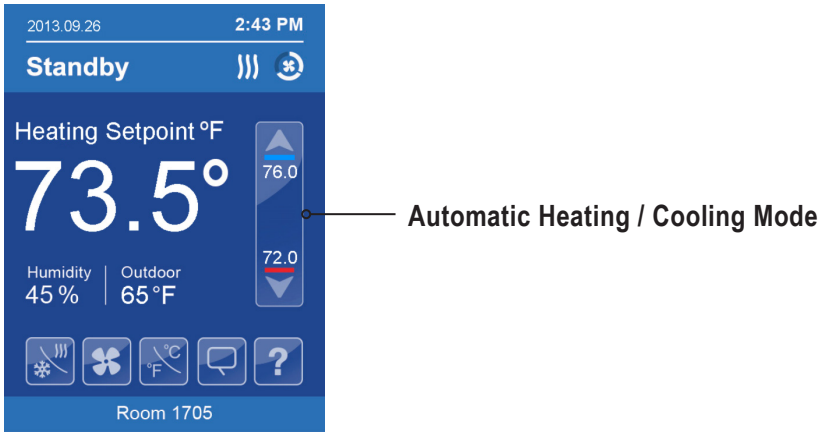
Setpoint Adjustment for Heating Mode

In automatic mode, setpoint showing at the top of the setpoint bar located directly under the blue line represents the actual occupied cooling setpoint.

During occupied setpoints adjustment, large digits are temporarily used to display the occupied Cooling Setpoint or occupied Heating Setpoint. The actual setpoint is dependent on the last effective demand (heating or cooling). The setpoint on top of the red line represents the actual occupied heating setpoint. The differential between the occupied heating and cooling setpoint is defined by the minimum deadband configuration parameter.

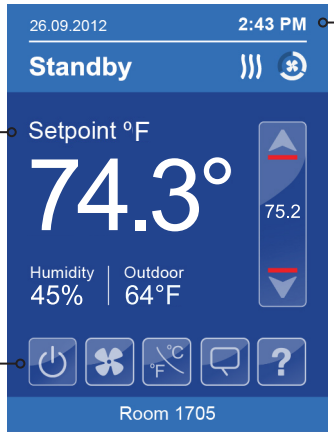
Normal temperature display resumes after setpoints are adjusted and the actual occupied heating and cooling setpoints show in the setpoint bar.

Figure 6: Setpoint Adjustment for Heating Mode Display.



Heating Only Configuration

Figure 7: Heating Only Configuration Display.



Time and Date show only when a network time synchronisation command is received.

Setpoint value shows if main display parameter is set to Setpoint.

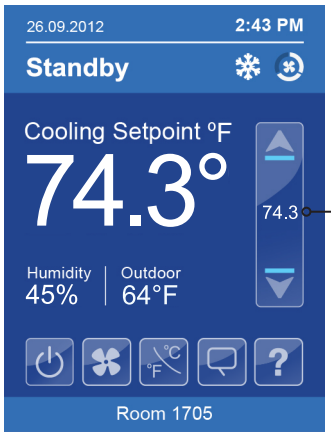
On / Off icon is used instead of system mode icon when sequence of operation is set to either heating on or cooling only.

Setpoint Adjustment for Cooling Mode

In Cooling mode, the setpoint displayed in the bar is the current occupied cooling setpoint. During occupied setpoint adjustment, the large digits are temporarily used to show occupied cooling setpoint while it is adjusted.

Normal temperature display resumes after setpoint is adjusted and actual occupied cooling setpoint shows in setpoint bar.

Figure 8: Setpoint Adjustment for Cooling Mode Display.



Cooling Mode or Cooling Only Sequence of Operation.

System Modes

The following apply in System Modes.

Table 1: System Mode Descriptions.

System Mode	Significance and Adjustments
Off	Heating, Cooling and Dehumidification demands are ignored.
Auto	Controller automatically toggles between Heating and Cooling modes to satisfy both Heating and Cooling demands. Dehumidification is allowed.
Cool	Controller only satisfies Cooling demands, Heating demands are ignored. Dehumidification is allowed.
Heat	Controller only satisfies Heating demands, Cooling demands are ignored. Dehumidification is allowed.

CUSTOMIZED SCREENS

Fan Mode Settings

For MS8350 or MS8650

MS8350 Fan Mode Settings

The Fan mode settings displayed on the home screen must be configured in the Fan menu tab of the Configuration menu.

The possible options are Low, Med, High, Auto, On.

Figure 9: MS8350 Fan Mode Settings Display.

MS8650 Fan Mode Settings

The Fan mode settings displayed on the home screen must be configured in the Fan menu tab of the Configuration menu.

The possible options are On, Auto, Smart.

Figure 10: MS8650 Fan Mode Settings Display.

Table 2: Fan Mode Setting Descriptions.

Fan Mode Setting	Significance and Adjustments
ON	Fan is on continuously, even when system mode is OFF.
Auto	Fan cycles on a call for heating or cooling for both occupied and unoccupied periods.
Smart	During occupied periods, fan is on continuously. In unoccupied mode, fan cycles on a call for heating or cooling.

Customizable Color Options

Figure 11: Display Color Options.

USER AND INTEGRATOR SCREENS

User and Integrator Screens

The Room Controllers have dynamic screens and parameters that only appear on certain models or based on the presence of a communication module (VCM). The LUA tab on the second menu screen will also only show if a LUA script is uploaded to the Room Controller.

Figure 12: MS8350 Screen Details.

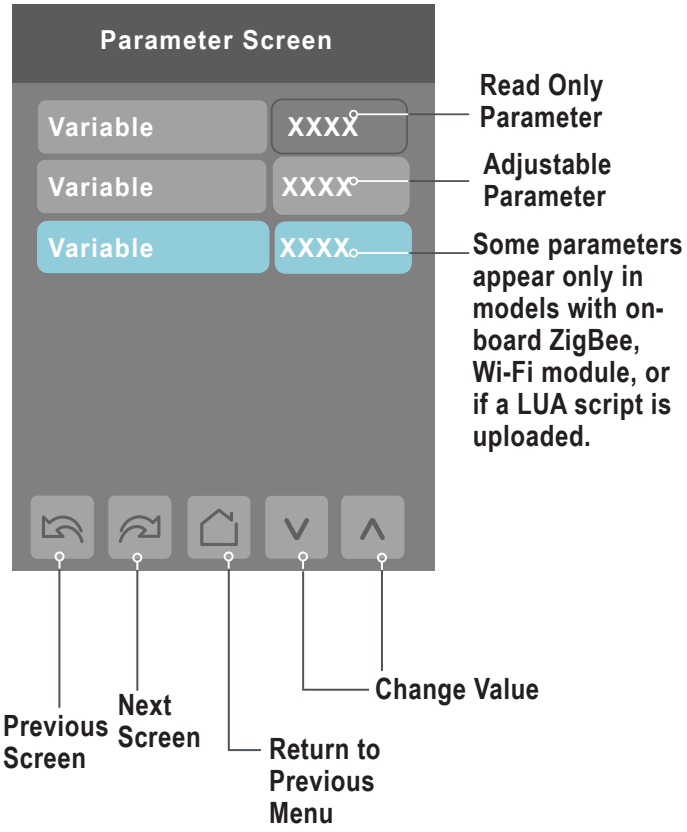
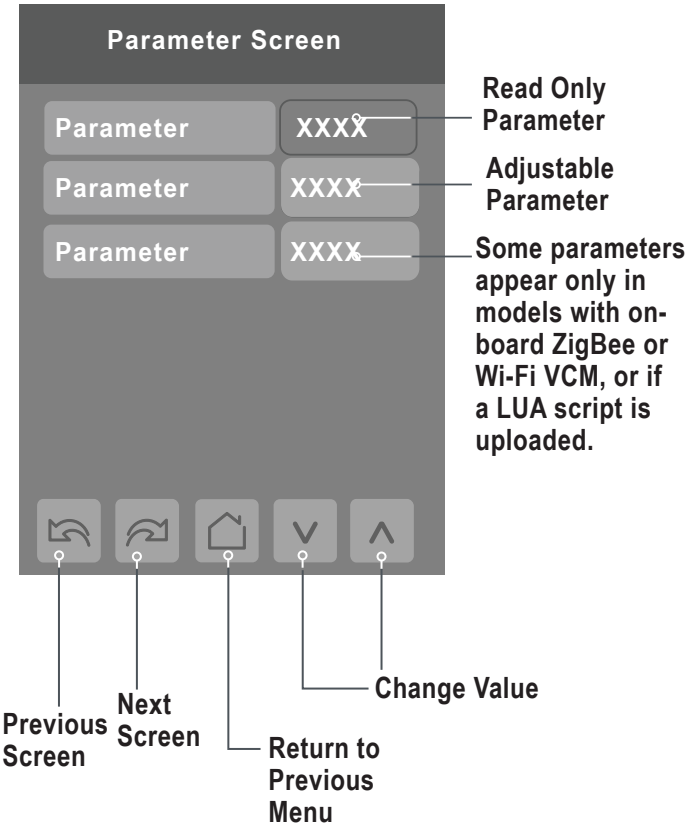


Figure 13: MS8650 Screen Details.



1. When any change is made to a parameter, the value is permanently saved in the database 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 permanent changes need to be done remotely through BACnet, use priority 1, 2 or 3, or write to relinquish default (priority 17).

2. The ZigBee® PRO communication module must be Revision 10 (R10) or later to support newly introduced ZigBee devices to the market.

3. The controller must be running Firmware version 1.7 or later to enable the Automatic Demand Response (ADR) feature.

ZigBee® PRO is a are registered trademarks of the ZigBee Alliance, Inc.

Network Settings

User can select wired BACnet / Modbus / ZigBee wireless protocol.

Figure 14: Network Settings Display.

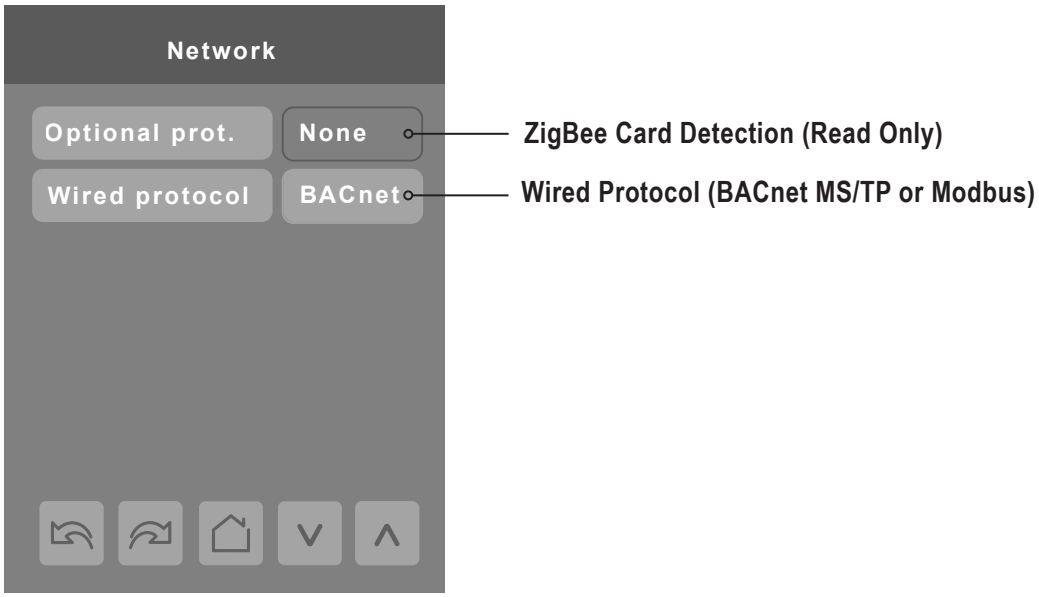


Table 3: Network Settings Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Wired Protocol **Default Value: BACnet**	None: No wired protocol configured BACnet: BACnet MS/TP network protocol Modbus: Modbus network protocol Choices: None, BACnet or Modbus

NETWORK SCREENS

ZigBee Network 1 / 2

For MS8350 and MS8650

ZigBee Network 1 / 2

When setting up a ZigBee network to bind with multiple devices, there must first be a Coordinator to manage the initial binding between the Router and the end devices. After successful binding, the Router becomes the parent to the end devices.

Note:

Before binding any ZigBee devices, the network must first be created by the Coordinator..

Figure 15: ZigBee Network 1 / 2 Display.

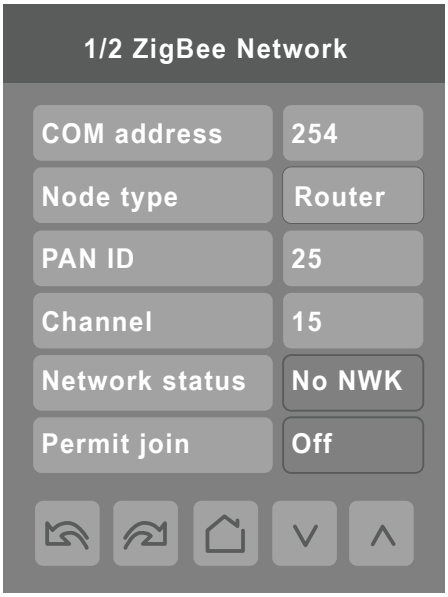


Table 4: ZigBee Network 1 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
COM Address Default Value: 254	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
Node Type Default: Router	Sets device to act as Router or Coordinator in a network. Coordinator: Creates the network and manages the binding of wireless devices. Router: Joins a network created by a coordinator (permit join must be set to “ON”). Choices: Coordinator or Router
Pan ID (ZigBee Pan ID) Default Value: 0	Personal Area Network Identification that links specific Controllers to specific ZigBee coordinators. For every Controller reporting to a coordinator, set the SAME PAN ID value both on the coordinator and the Controller. ***Note:*** • *The default value of 0 is NOT a valid PAN ID.* • *For Controllers running Firmware version 1.3 and earlier, the PAN ID must be set to 501-1000 for the Controller to act as a coordinator.* Range: 1 to 32767
Channel (ZigBee Channel) Default Value: 10	The frequency or channel 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. The valid range of available channel is from 11 to 25. Using channels 15 and 25 is recommended. Range: 10 to 25
Network Status (ZigBee Network Status) Read Only	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
Permit Join Default Value: On	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 3 hours. Choices: On or Off

ZigBee Network 2 / 2

Figure 16: ZigBee Network 2 / 2 Display.

Table 5: ZigBee Network 2 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
IEEE Address **Read Only**	The extended IEEE address (MAC address) is a unique worldwide identifier of the VCM Module.
Short Address (ZigBee Short Address) **Default Value: 0** **Read Only**	ZigBee® PRO short address. The unique address is generated once device joins a ZigBee network
ZigBee rev. (ZigBee Communication Module Revision Number) **Read Only**	Shows the revision number of the communication module.

Note:

• The ZigBee IEEE/MAC address of the RC is displayed at the bottom of the screen.

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

NETWORK SCREENS

BACnet Network Settings

For MS8350 and MS8650

BACnet Network Settings

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

Figure 17: BACnet Network Display.

Table 6: BACnet Network Parameter Details.

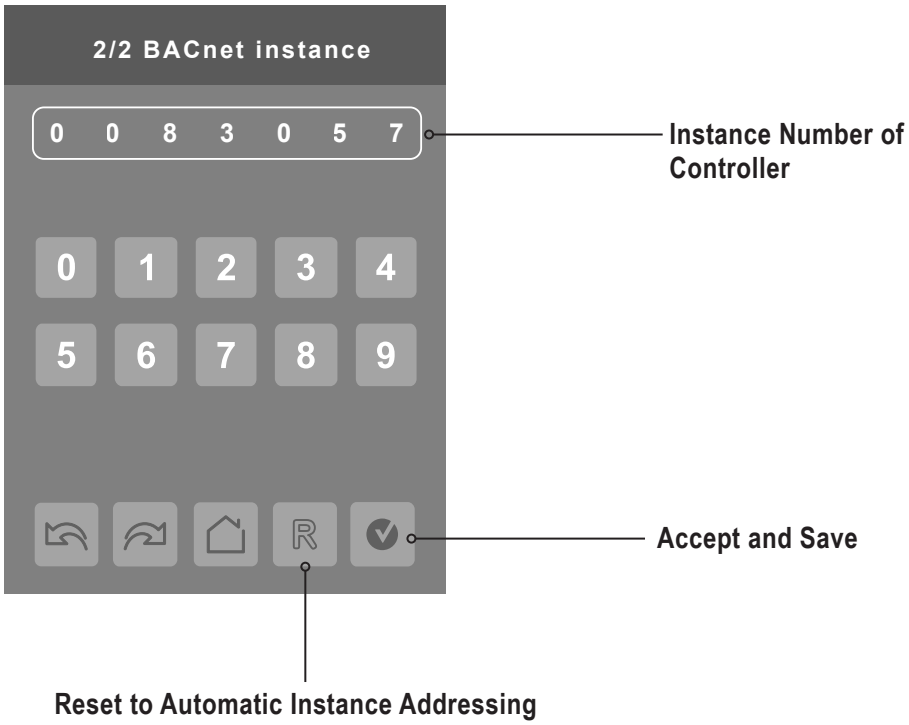
Configuration Parameters Default Value	Significance and Adjustments
Comm address **Default value: 254**	Controller networking address. Default value of 254 disables BACnet communication for the Controller. Range: 0 to 254
Network Units (Measurement Units) **Default Value: SI**	Network units transmitted over the BACnet network. ***Note:*** *Use the Temperature scale parameter to change the display units locally on the Controller.* Imperial: Network units shown as Imperial units. SI: Network units shown as International Metric units. Choices: Imperial or SI
Network Language **Default Value: English**	Network Language Network language/object names transmitted over network. Choices: English, French or Spanish
Baud Rate (BACnet Baud Rate) **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
BACnet Status **Read Only**	BACnet Status Read Only value shows if a BACnet Network is detected or not. Display Readings: Online or Offline

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 VUCQMS8350 with a COM address of 57 is generated as 83057.

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 18: BACnet Instance Setting Display.



NETWORK SCREENS

Modbus Network Settings

For MS8350 and MS8650

Modbus Network Settings

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

Figure 19: Modbus Network Setting Display.

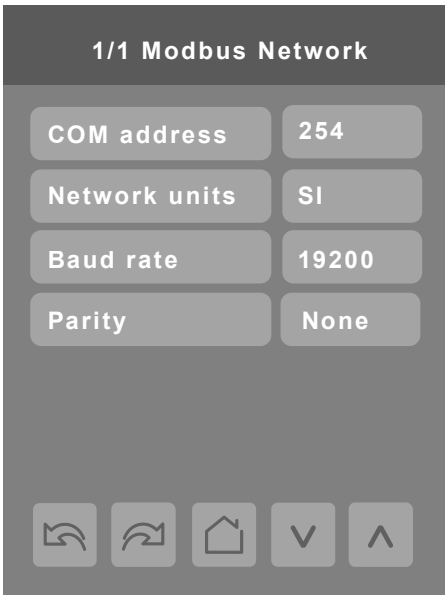


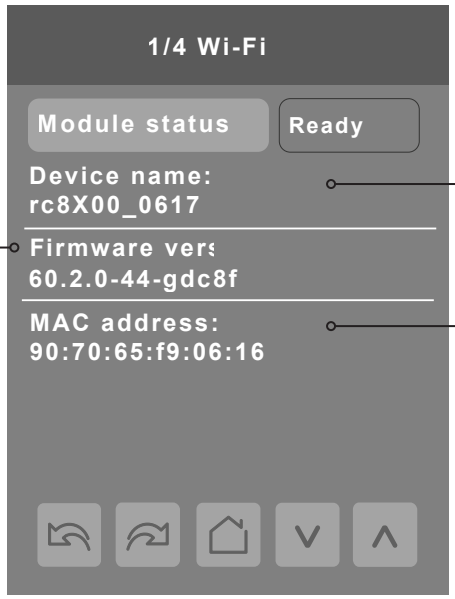
Table 7: Modbus Network Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Communication Address **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
Network Units (Measurement Units) **Default Value: SI**	Network units transmitted over the Modbus network. ***Note:*** *Use the Temperature scale parameter to change the display units locally on the Controller.* Imperial: network units shown as Imperial units. SI: network units shown as International Metric units. Choices: Imperial or SI
Baud rate (Modbus Baud Rate) **Default Value: 19200**	Automatically detects Modbus baud rate. Choices: 57600, 38400, 19200, 9600, and 4800
Parity **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

Wi-Fi Network 1 / 4

The Wi-Fi Network screen shows only in models with add-on module (VCM).

Figure 20: Wi-Fi Network 1 / 4 Display.



Firmware Version of the Wi-Fi Module

The Device Name can be set and edited from the Configuration web page.

MAC Address of the Wi-Fi module

Table 8: Wi-Fi Network 1 / 4 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Module Status **Read Only**	The status is always displayed as Ready when the Wi-Fi module is installed. Status value: Ready

NETWORK SCREENS

Wi-Fi Network 2 / 4

For MS8350 and MS8650

Wi-Fi Network 2 / 4

Figure 21: Wi-Fi Network 2 / 4 Display.

The Password is automatically displayed to allow commissioning of the Wi-Fi module via the Configuration web page.

The SSID is automatically displayed to allow commissioning of the Wi-Fi module via the Configuration web page.

Enter the IP address to access the Configuration web page.

Table 9: Wi-Fi Network 2 / 4 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

Wi-Fi Network 3 / 4

Figure 22: Wi-Fi Network 3 / 4 Display.

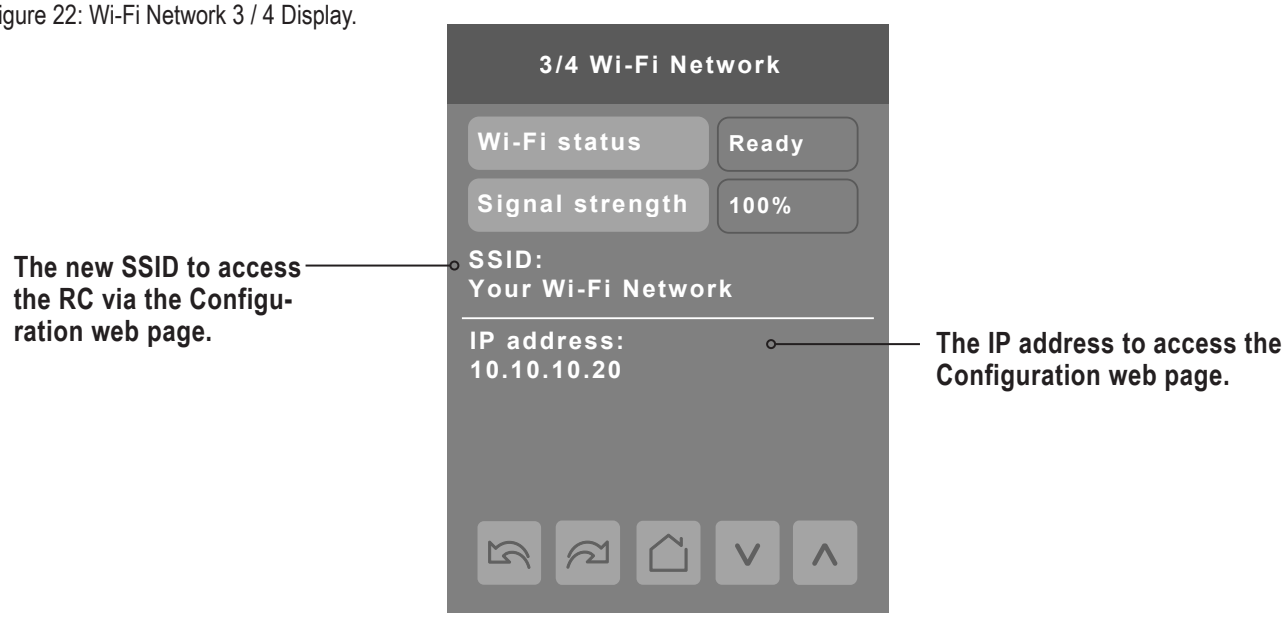


Table 10: Wi-Fi Network 3 / 4 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Wi-Fi Status **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. Status value: Ready or Idle
Signal Strength **Read Only**	Signal strength of the Wi-Fi network. Range: 0 to 100%

NETWORK SCREENS

Wi-Fi Network 4 / 4

For MS8350 and MS8650

Wi-Fi Network 4 / 4

Figure 23: Wi-Fi Network 4 / 4 Display.

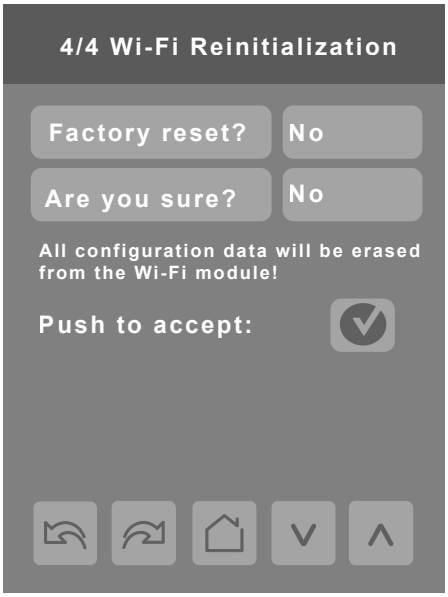


Table 11: Wi-Fi Network 4 / 4 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Factory reset? (Erase All) **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. ***Note:*** *If the password for the Configuration web page is lost or forgotten, a Factory reset of the Wi-Fi module must be performed.*
Are you sure? **Default Value: No**	

MS8350 Configuration 1 / 9

Figure 24: MS8350 Configuration 1 / 9 Display.

Table 12: MS8350 Configuration 1 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
UI16 Config (Universal Input Configuration No. 1) **Default Value: None**	None: No function will be associated with the input. Input can be used for remote network monitoring. 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. Motion NO and Motion NC: Advanced PIR occupancy functions using a Normally Open (NO) or Normally Closed (NC) remote PIR motion sensor. Window: Forces system to disable any current heating or cooling action by Controller when window is open. Fan lock: When (G) Fan output is activated, if this input is not activated after 10 seconds, the Controller disables Heat and Cool outputs and display “Fan Lock” alarm. Open contact = No airflow alarm. Closed contact = Airflow present, normal operation. Choices: None, Rem NSB, Motion NO, Motion NC, Window and Fan lock.
UI17 Config (Universal Input Configuration No. 2) **Default Value: None**	None: No function associated with input. Door Dry: 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” must be set to “Local Occupancy” and “Occupancy Source” must be set to “Motion”. Override: A closed contact forces the Controller to go in occupied mode. An open contact keeps the current occupancy mode. Filter: backlit flashing filter alarm shows on the Controller screen when input is energized. Service: backlit flashing Service alarm shows on Controller screen when input is energized. Choices: None, Door Dry, Override, Filter and Service.

CONFIGURATION SCREENS

MS8350 Configuration 1 / 9

For MS8350 Only

Table 13: MS8350 Configuration 1 / 9 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
UI19 Config (Universal Input Configuration No. 3) **Default Value: None**	None: No function associated with input though input can be used for remote network monitoring. COC/NH: change over dry contact normally heat. Used for hot/cold water or air change over switching in 2-pipe systems. COC/NC: change over dry contact normally cool. Used for hot/cold water or air change over switching in 2-pipe systems. COS: change over sensor. Used for hot/cold water or air changeover switching in 2 pipe systems. Choices: None, COC/NH, COC/NC and COS.
Occupancy src (Occupancy Source) **Default Value: Motion**	Motion: Occupancy status received from motion sensor. Schedule: Occupancy status determined by the schedule. Choices: Motion and Schedule.
Smart Recovery (Enable Smart Recovery) **Default Value: Off**	Off: No smart recovery. The occupied schedule time is the time at which the system will restart. On: Smart recovery active. The occupied schedule time is the time at which the desired occupied temperature will be attained. The Controller automatically optimizes the equipment start time. In any case, the latest a system will restart is 10 minutes prior to the occupied period time. Smart recovery is automatically disabled if BI16 is configured to remote NSB. Choices: Off or On.
Setpoint Func. (Setpoint Function) **Default Value: Dual SP**	Local setpoint settings to set the local setpoint interface for the User. Dual SP: “Minimum” Deadband, Heat and Cool Setpoints can be adjusted independently. Attach SP: “Fixed” Deadband, Heat and Cool setpoints always follow each other, separated by Deadband value (acts like a single setpoint). Choices: Dual SP or Attach SP.

MS8350 Configuration 2 / 9

Figure 25: MS8350 Configuration 2 / 9 Display.

Table 14: MS8350 Configuration 2 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Mode Button **Default Value: Normal**	Changes the behavior of the system mode button functionality and hides / shows temperature setpoints on main screen. Normal: System mode button switches between “Off”, “Auto”, “Cool” and “Heat”. Also displays temperature Setpoints on main screen. Off-Auto: System mode button switches between “Off” and “Auto”. Hides temperature Setpoints on main screen. ***Note:*** *Setting “Mode button” to “Off-Auto” forces the “Setpoint func.” parameter to “Attach SP”.* Choices: Normal or Off-Auto
Auto Mode (Auto Mode Enable) **Default Value: Disabled**	Enables auto function for the mode button. For sequences 2, 4, and 5 only Enabled: auto active (Off-Cool-Heat-Auto) Disabled: auto not active (Off-Cool-Heat) Choices: Enabled or Disabled
Standby Mode (Standby Mode Configuration) **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. Choices: Absolute or Offset
Standby Diff. (Standby Temperature Differential) **Default Value: 4°F (2°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. Range: 1 to 5°F (0.5 to 2.5°C)

CONFIGURATION SCREENS

MS8350 Configuration 3 / 9

For MS8350 Only

MS8350 Configuration 3 / 9

Figure 26: MS8350 Configuration 3 / 9 Display.

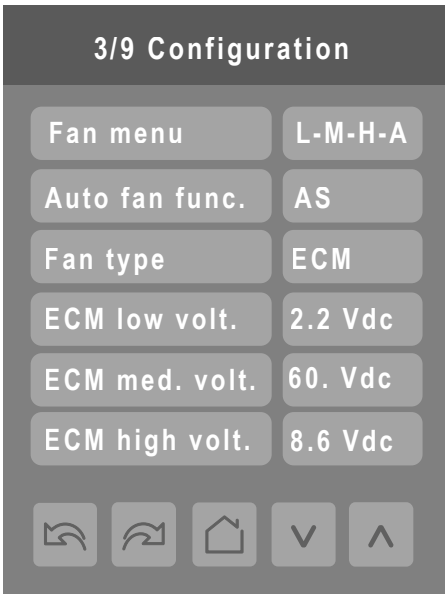


Table 15: MS8350 Configuration 3 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Fan Menu (Fan Sequence) **Default Value = L-H-A**	Fan Sequence configuration applies to “3 speed” and “ECM” fan type The selected fan sequence in this menu dictates the Fan button options displayed on the Home screen of the Room Controller. L-M-H: 3-Speed configuration L-H: 2-Speed configuration L-M-H-A: 3-Speed configuration with Auto fan speed. Auto Mode operation is dependent on Auto Fan parameter. L-H-A: 2-Speed configuration with Auto fan speed mode. Auto Mode operation is dependent on Auto Fan parameter. On-Auto: Single Speed configuration. Auto selection will activate fan on demand. On selection will keep the fan On in occupied, standby and override mode, and will activate fan based on demand in unoccupied mode. Choices: On-Auto, L-M-H, L-H, L-M-H-A and L-H-A
Auto Fan Func. (Automatic Mode Fan Function) **Default value: AS**	Fan Sequence configuration applies to “three (3) speed” and “ECM” fan type Auto Speed Fan Mode operation for Fan Menu (L-M-H-A) or (L-H-A). AS: In Occupied, Standby and Override modes, the Fan stays ON at low speed even if there is no demand for Heating or Cooling. In Unoccupied mode the Fan turns Off when there is no demand for Heating or Cooling. AS/AD: In any Occupancy mode, the Fan turns Off all speeds when there is no demand for Heating or Cooling. Choices: AS or AS/AD

Table 16: MS8350 Configuration 3 / 9 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Fan Type **Default Value: 3 speed**	Fan type configuration determines the fan control method for the fan coil unit. Three (3) Speed: Fan control using 3 binary outputs (Low, Medium, High). ECM: Fan control using 0-10 Vdc Modulating output.
ECM Low Volt. **Default Value: 2.2 Vdc**	Point only displayed if “Fan control” is set to “ECM”. Voltage to be applied on 0-10 Vdc output when Low fan speed is selected. The points are configurable in units of 0.1 Vdc. Range: 2.0 to 4.0 Vdc.
ECM Med. Volt. **Default Value: 6 Vdc**	Point only displayed if “Fan control” is set to “ECM”. Voltage to be applied on 0-10 Vdc output when Low fan speed is selected. The points are configurable in units of 0.1 Vdc. Range: 4.1 to 7.0 Vdc.
ECM High Volt. **Default Value: 8.6 Vdc**	Point only displayed if “Fan control” is set to “ECM”. Voltage to be applied on 0-10 Vdc output when Low fan speed is selected. The points are configurable in units of 0.1 Vdc. Range: 7.1 to 10.0 Vdc.

CONFIGURATION SCREENS

MS8350 Configuration 4 / 9

For MS8350 Only

MS8350 Configuration 4 / 9

Figure 27: MS8350 Configuration 4 / 9 Display.

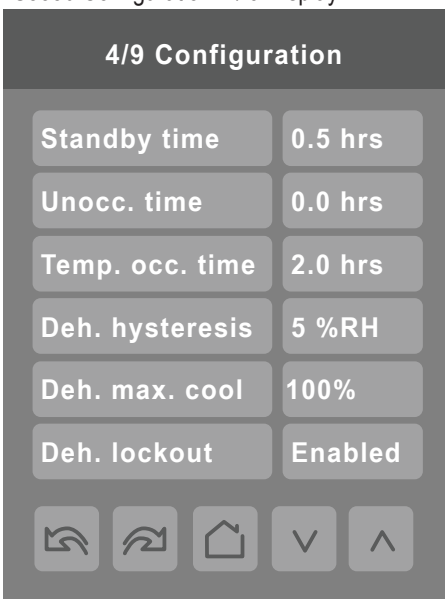


Table 17: MS8350 Configuration 4 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Standby Time **Default: 0.5 hours**	Time between the moment where the PIR cover detects last movement in the area, and the time which the Room Controller stand-by setpoints become active. ***Note:*** *This parameter is not active when the "Door" function is used (wired or wireless).* Range: 0.5 to 24.0 hours (0.5 hour increments)
Unocc. Time (Unoccupied Time) **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. ***Note:*** *Default value of 0.0 hours disables the unoccupied timer. This prevents the Room Controller from being able to switch from stand-by mode to unoccupied mode when PIR functions are used.* Range: 0.0 to 24.0 hours (0.5 hour increments)
Temp. Occ. Time (Temporary Occupancy Time) **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
Deh. hysteresis (Humidity Control Hysteresis) **Default Value: 5 % RH**	Used only if dehumidification sequence is enabled. Range: 2 to 20% RH
Deh. Max. Cool. (Dehumidification Maximum Cooling Limit) **Default value: 100 %**	Maximum cooling valve position when dehumidification is enabled. This can be used to balance smaller reheat loads installed in regards to the capacity of the cooling coil. Range: 20 to 100%
Deh. Lockout (Dehumidification Lockout) **Default value: Disabled**	Enables or disables dehumidification based on central network requirements from the BAS front end. Enabled: Dehumidification Authorized Disabled: Dehumidification Not Authorized Choices: Enabled or Disabled

MS8350 Configuration 5 / 9

Figure 28: MS8350 Configuration 5 / 9 Display.

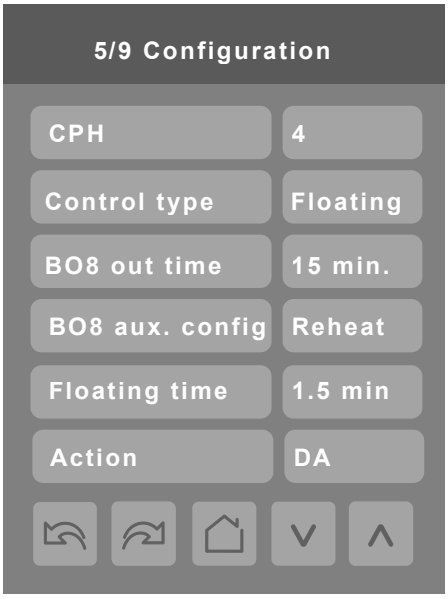


Table 18: MS8350 Configuration 5 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Cooling CPH (Cooling Output Cycles Per Hour) **Default Value: 4 CPH**	CPH is used to "modulate" On/Off outputs controlling equipment such as compressors. When the Room Temperature is within the Proportional Band, the output performs 3 or 4 CPH. A higher CPH represents a higher accuracy of control at the expense of wearing mechanical components faster. ***Note:*** *The CPH does not limit the number of Cycles Per Hour. It is limited by the "Anti short cycle" parameter. 4 CPH is typical for Rooftop applications.* Range: 3 to 4 CPH
Control Type (Control Output for FCU Valves) **Default Value: On/Off**	Defines type of control output for type of valves installed for the FCU application On / Off: normally opened or normally closed 24 Vac 2 position valves Floating: modulating 3 wires control of 24 Vac floating valves Analog: analog modulating control of 2-10 Vdc valves Choices: On/Off, Floating and Analog
BO8 Out Time (BO8 Aux Output Time Base) **Default Value: 15 minutes**	Sets reheat output time base. Valid only if reheat sequences are enabled. Choices: 10 sec or 15 min

CONFIGURATION SCREENS

MS8350 Configuration 5 / 9

For MS8350 Only

Table 19: MS8350 Configuration 5 / 9 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
BO8 Aux. Config (BO8 Aux Output Configuration) **Default Value: Reheat**	Aux contact function used for reheat if sequence is set to use BO8 for reheat through network or local. Output directly follows occupancy of Controller. Reheat: reheat through network or local Aux NO: Occ or St-By = Contact Closed / Unoccupied = Contact Opened Aux NC: Occ or St-By = Contact Opened / Unoccupied = Contact Closed. Output to follow directly main occupancy and Fan on command. Typically used for 2 position fresh air damper applications. Aux F&NO: Occ or St-By & Fan On = Contact Closed/Unoccupied and Fan On or Off = Contact Opened Aux NC: Occ or St-By & Fan On = Contact Opened/Unoccupied and Fan On or Off = Contact Closed Choices: Reheat, Aux NO, Aux NC, Aux F&NO and Aux F&NC
Floating Time (Floating Actuator Timing) **Default Value: 1.5 minutes**	Floating actuator stroke timing value. Maximum stroke time of floating valve actuator. Range: 0.5 to 9.0 minutes (0.5 minute increments)
Action **Default Value: DA**	Direct Acting and Reverse Acting For Analog Heating signals. Reverse Acting or Direct Acting signal for Analog Output signals. DA = 0 to 100% = 0 to 10 Vdc RA = 0 to 100% = 10 to 0 Vdc Choices: DA or RA

MS8350 Configuration 6 / 9

Figure 29: MS8350 Configuration 6 / 9 Display.

Table 20: MS8350 Configuration 6 / 9 Parameter Details.

<table>
<tr><th>Configuration Parameters Default Value</th><th>Significance and Adjustments</th></tr>
<tr><td>Prop. Band (Proportional Band Setting)
Default Value: 3.0</td><td>Adjusts proportional band used by the Room Controller PI control loop.

Note:
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 warranted in applications where Room Controller location is problematic and leads to unwanted cycling of the unit. A typical example is a wall mounted Room Controller installed between return and supply air feeds and is directly influenced by the supply air stream of unit.

Range: 3 to 10

<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</td><td>3</td><td>1.2</td></tr>
<tr><td>4</td><td>4</td><td>1.7</td></tr>
<tr><td>5</td><td>5</td><td>2.2</td></tr>
<tr><td>6</td><td>6</td><td>2.8</td></tr>
<tr><td>7</td><td>7</td><td>3.3</td></tr>
<tr><td>8</td><td>8</td><td>3.9</td></tr>
<tr><td>9</td><td>9</td><td>5.0</td></tr>
<tr><td>10</td><td>10</td><td>5.6</td></tr>
</table>
</td></tr>
<tr><td>No. of Pipes (Number of Pipes)
Default: 2 Pipes</td><td>Defines the type of system installed.
Choices: Two (2) pipe or Four (4) pipe</td></tr>
</table>

CONFIGURATION SCREENS

MS8350 Configuration 6 / 9

For MS8350 Only

Table 21: MS8350 Configuration 6 / 9 Parameter Details, continued.

<table>
<tr><th>Configuration Parameters Default Value</th><th>Significance and Adjustments</th></tr>
<tr><td>Operation Seq. (Sequence of Operation)
Default: Heat only</td><td>Selects the initial sequence of operation required by the installation type and the application.
<table>
<tr><th rowspan="2">Mode</th><th colspan="2">Number of Pipes</th></tr>
<tr><th>Two (2) Pipe</th><th>Four (4) Pipe</th></tr>
<tr><td>Cool only</td><td>Cooling only</td><td>Cooling only</td></tr>
<tr><td>Heat only</td><td>Heating only</td><td>Heating only</td></tr>
<tr><td>Cool-rht</td><td>Cooling with reheat</td><td>Cooling with reheat</td></tr>
<tr><td>Heat-rht</td><td>Heating with reheat</td><td>Heating with reheat</td></tr>
<tr><td>Cool/Heat</td><td>N/A</td><td>Cooling - Heating</td></tr>
<tr><td>Cl/Ht/rht</td><td>N/A</td><td>Cooling - Heating with reheat</td></tr>
</table>
When “Pipe Number” is set to 2 and UI19 is set to COC-NH, COC-NC or COS the “Sequence of operation” is as follows:
“Cool only” or “Heat only” will be determined by the UI19 contact status or sensor temperature.
For Two-Pipe application (no reheat): set “Sequence of operation” to “Cool only” or “Heat only”
For Two-Pipe application (with reheat): set “Sequence of operation” to “Cool-rht” or “Heat-rht”
Choices: Cool only, Heat only, Cool-rht, Heat-rht, Cool/Heat and Cl/ht/rht</td></tr>
<tr><td>Purge Sample (Purge Sample Period)
Default: 2 hrs</td><td>Time interval between valve samples. Will open valve for a short period adjusted by “Purge open” parameter to sample pipe temperature to decide between heating or cooling mode.
Adjustable: 0 to 4 hours (0 hours disables the function)</td></tr>
<tr><td>Purge Open (Purge Open)
Default: 2 min</td><td>Time the valve opens to sample pipe temperature to decide between heating or cooling mode.
Adjustable: 1 to 3 minutes</td></tr>
<tr><td>Temp. Sensor (Room Temperature Sensor)
Default Value: Wired</td><td>Sets the source of the indoor room temperature. This parameter allows the user to designate either the Room Controller or any of the bound wireless devices that support temperature to act as the source for the room temperature.
Wired: sets the thermistor connected to UI20 (RS) as the source to report room temperature.
Internal: sets the Room Controller as the source for the room temperature.
WL 1 to WL 10: sets the selected wireless ZigBee PRO device as the source for the room temperature. Only one device can be selected.

Note:
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 automatically disable its internal sensors (Internal, WL1 to WL10) and use the remote sensor as the control point. Disconnecting the sensor, or if the sensor is faulty, the Room Controller will automatically re-enable its internal temperature sensor.

Choices: Internal, Wired, WL1 to WL10</td></tr>
</table>

MS8350 Configuration 7 / 9

Figure 30: MS8350 Configuration 7 / 9 Display.

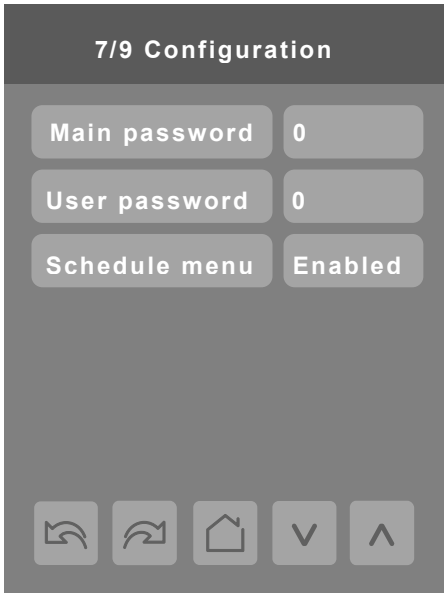


Table 22: MS8350 Configuration 7 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Main Password **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.
User Password **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.
Schedule Menu **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: Disabled, Enabled, Disabled no Clock and Enabled no Clock

CONFIGURATION SCREENS

MS8350 Configuration 8 / 9

For MS8350 Only

MS8350 Configuration 8 / 9

Figure 31: MS8350 Configuration 8 / 9 Display.

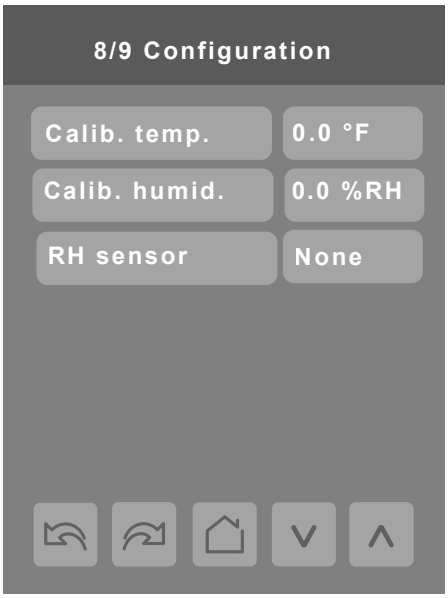


Table 23: MS8350 Configuration 8 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Calib. Temp. (Calibration Room Temperature Sensor) **Default Value: 0°F**	Room temperature sensor calibration. Offset can be added or subtracted to actual displayed room temperature. Range: ± 5.0°F (± 2.5°C)
Calib. Humid. (Calibrate Humidity Sensor) **Default Value: 0.0%RHF**	Offset that can be added or subtracted to actual displayed humidity. Range: ± 15.0% RH
RH Sensor (Relative Humidity Sensor) **Default Value: Internal**	Sets the source of the indoor room humidity. This parameter allows the user to designate either the Room Controller (only models supporting humidity) or any of the bound wireless devices that support humidity to act as the source for the room humidity. Internal: Sets the Room Controller as the source for the room humidity. WL 1 to WL 10: Sets the selected wireless ZigBee PRO device as the source for the room humidity. Only one device can be selected. Choices: None, Internal, WL1 to WL10

MS8350 Configuration 9 / 9

Figure 32: MS8350 Configuration 9 / 9 Display.

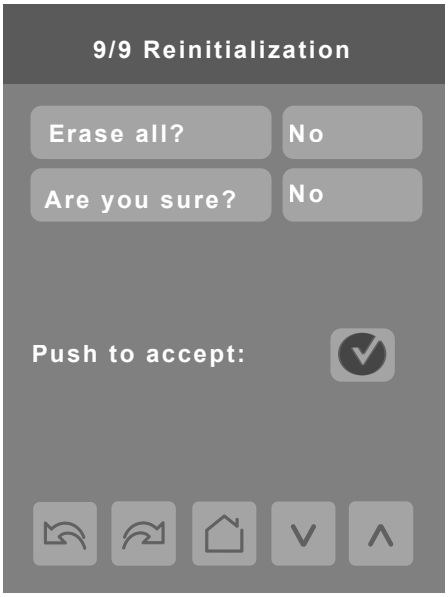


Table 24: MS8350 Configuration 9 / 9 Parameter Details.

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: • COM address • Network Units • Network Language • Baud Rate • BACnet Instance • Device Name • Screen Contrast • LUA Script ***Note:*** *Node type in ZigBee PRO menu returns to default value (Router).*
Are You Sure? **Default Value: No**	

CONFIGURATION SCREENS

MS8650 Configuration 1 / 11

For MS8650 Only

MS8650 Configuration 1 / 11

Figure 33: MS8650 Configuration 1 / 11 Display.

Table 25: MS8650 Configuration 1 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
UI16 Config (Universal Input Configuration No. 1) **Default Value: None**	None: No function will be associated with the input. Input can be used for remote network monitoring. 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. Motion NO and Motion NC: Advanced PIR occupancy functions using a Normally Open (NO) or Normally Closed (NC) remote PIR motion sensor. Window: Forces system to disable any current heating or cooling action by Room Controller when window is open. Fan lock: When (G) Fan output is activated, if this input is not activated after 10 seconds, the Room Controller disables Heat and Cool outputs and display “Fan Lock” alarm. Open contact = No airflow alarm Closed contact = Airflow present, normal operation Choices: None, Rem NSB, Motion NO, Motion NC, Window and Fan lock
UI17 Config (Universal Input Configuration No. 2) **Default Value: None**	None: No function associated with input. 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” must be set to “Local Occupancy” and “Occupancy Source” must be set to “Motion”. Override: A closed contact forces the Room Controller to go in occupied mode. An open contact keeps the current occupancy mode. Filter: Backlit flashing filter alarm shows on the Room Controller screen when input is energized. Service: Backlit flashing Service alarm shows on Room Controller screen when input is energized. Choices: None, Door Dry, Override, Filter and Service.

MS8650 Configuration 1 / 11

Table 26: MS8650 Configuration 1 / 11 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
UI19 Config (Universal Input Configuration No. 3) **Default Value: None**	This input is used for a wired CO_2 sensor. None: No function associated with input, however input can be used for remote network monitoring. CO_2: Using the CO_2 level measured by a wired CO_2 sensor (0~2,000 ppm = 0~10 Vdc), the Outside Air damper (Econo) will modulate between "Econo min pos" to "Econo max pos" following the "Min CO_2" and "Max CO_2" setpoints. Choices: None or CO_2
Smart Recovery (Enable Smart Recovery) **Default Value: Off**	Off: No smart recovery. The occupied schedule time is the time at which the system will restart. 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 10 minutes prior to the occupied period time. Smart recovery is automatically disabled if BI16 is configured to remote NSB. Choices: Off or On
Setpoint Func. (Setpoint Function) **Default Value: Dual SP**	Local setpoint settings to set the local setpoint interface for the User. Dual SP: "Minimum" Deadband, Heat and Cool Setpoints can be adjusted independently. Attach SP: "Fixed" Deadband, Heat and Cool setpoints always follow each other, separated by Deadband value (acts like a single setpoint). Choices: Dual SP or Attach SP
Mode Button **Default Value: Normal**	Changes the behavior of the system mode button functionality and hides/shows temperature setpoints on main screen. Normal: System mode button switches between "Off", "Auto", "Cool" and "Heat". Also displays temperature Setpoints on main screen. Off-Auto: System mode button switches between "Off" and "Auto". Hides temperature Setpoints on main screen. ***Note:*** Setting "Mode button" to "Off-Auto" forces the "Setpoint func" parameter to "Attach SP". Choices: Normal or Off-Auto

CONFIGURATION SCREENS

MS8650 Configuration 2 / 11

For MS8650 Only

MS8650 Configuration 2 / 11

Figure 34: MS8650 Configuration 2 / 11 Display.

Table 27: MS8650 Configuration 2 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Fan Cont. Heat (Fan Control in Heating Mode) **Default Value: On**	On: Room Controller always controls the fan (terminal G). Valid for On or Auto fan mode. Off: Fan (terminal G), when heating stages (terminals W1 and W2) are solicited, will not be energized. The fan is controlled by the equipment fan limit control. Valid only for Auto fan mode. On fan mode leaves the fan always on. For multi-stage models, fan control applies to W1 and W2. Choices: On or Off
Fan Delay **Default Value: On**	On: fan mode will leave the fan always on and extends fan operation by 60 seconds after the call for heating or cooling ends. Valid only for Auto fan mode. Off: fan delay not operational Choices: On or Off
Standby Mode (Standby Mode Configuration) **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. Choices: Absolute or Offset
Standby Diff. (Standby Temperature Differential) **Default Value: 4°F (2°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. Range: 1 to 5°F (0.5 to 2.5°C)
Power-up Delay **Default Value: 10 seconds**	On initial power up of the Room Controller there is a delay before any operation is authorized (fan, cooling or heating). This can be used to sequence the start up of multiple Room Controllers in one location. Range: 10 to 120 seconds
Occupancy Src (Occupancy Source) **Default Value: Motion**	Motion: Occupancy status is received from a motion sensor from a wired, wireless or local PIR sensor. Schedule: Occupancy status is determined by the schedule Choices: Motion or Schedule

MS8650 Configuration 3 / 11

Figure 35: MS8650 Configuration 3 / 11 Display.

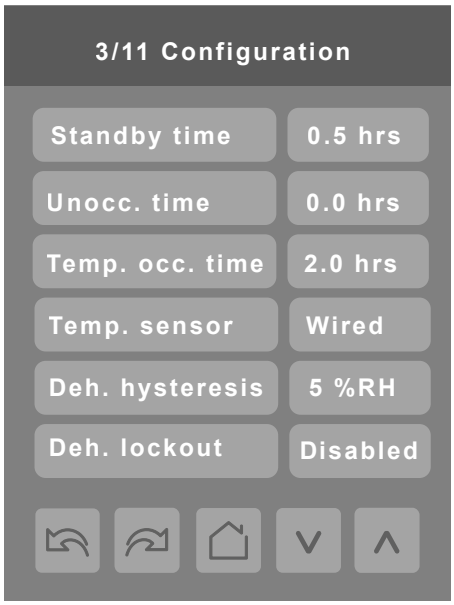


Table 28: MS8650 Configuration 3 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Standby time **Default: 0.5 hours**	Time between the moment where the PIR cover detects last movement in the area, and the time which the Controller stand-by setpoints become active. ***Note:*** *This parameter is not active when the "Door" function is used (wired or wireless).* Range: 0.5 to 24.0 hours (0.5 hour increments)
Unocc. Time (Unoccupied Time) **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. ***Note:*** *Default value of 0.0 hours disables the unoccupied timer. This prevents the Room Controller from being able to switch from stand-by mode to unoccupied mode when PIR functions are used.* Range: 0.0 to 24.0 hours (0.5 hour increments)
Temp. Occ. Time (Temporary Occupancy Time) **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 SCREENS

MS8650 Configuration 3 / 11

For MS8650 Only

Table 29: MS8650 Configuration 3 / 11 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Temp. Sensor (Room Temperature Sensor) **Default Value: Wired**	Sets the source of the indoor room temperature. This parameter allows the user to designate either the Room Controller or any of the bound wireless devices that support temperature to act as the source for the room temperature. Wired: sets the thermistor connected to UI20 (RS) as the source to report room temperature. Internal: sets the Room Controller as the source for the room temperature. WL 1 to WL 10: sets the selected wireless ZigBee PRO device as the source for the room temperature. Only one device can be selected. ***Note:*** *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 automatically disable its internal sensors (Internal, WL1 to WL10) and use the remote sensor as the control point. Disconnecting the sensor, or if the sensor is faulty, the Room Controller will automatically re-enable its internal temperature sensor.* Choices: Internal, Wired, WL1 to WL10
Deh. Hysteresis (Humidity Control Hysteresis) **Default Value: 5% RH**	Used only if dehumidification sequence is enabled. Range: 2 to 20% RH
Deh. Lockout (Dehumidification Lockout) **Default Value: Disabled**	Enables or disables dehumidification based on central network requirements from the BAS front end. Enabled: Dehumidification Authorized Disabled: Dehumidification Not Authorized Choices: Enabled or Disabled

MS8650 Configuration 4 / 11

Figure 36: MS8650 Configuration 4 / 11 Display.

Table 30: MS8650 Configuration 4 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Cooling CPH (Cooling Output Cycles Per Hour) **Default Value: 4 CPH**	CPH is used to "modulate" On/Off outputs controlling equipment such as compressors. When the Room Temperature is within the Proportional Band, the output performs 3 or 4 CPH. A higher CPH represents a higher accuracy of control at the expense of wearing mechanical components faster. ***Note:*** *The CPH does not limit the number of Cycles Per Hour. It is limited by the "Anti short cycle" parameter. 4 CPH is typical for Rooftop applications.* Range: 3 to 4 CPH
Heating CPH (Heating Stages Cycles per Hour) **Default Value: 4 CPH**	CPH is used to "modulate" On / Off outputs controlling equipment such as compressors. When the Room Temperature is within the Proportional Band, the output performs 3 to 8 CPH. A higher CPH represents a higher accuracy of control at the expense of wearing mechanical components faster. For multi-stage models, heat cph applies to W1 and W2. A CPH value between 6 - 8 is recommended for applications with electric heating. For gas applications set CPH to 4 and for oil applications set CPH to 3. Range: 3 to 8 CPH
Frost protec. (Frost Protection) **Default Value: Off**	Stops the ventilation of the rooftop unit when room temperature reaches 42°F (5.6°C) and resumes automatically when room temperature exceeds 15°F (-9°C). Off: No room frost protection On: Room frost protection enabled in all system modes at 42°F (5.6°C). Frost protection is enabled even if System mode is "Off". Choices: Off or On
BO1 Aux. Config (Binary Auxiliary Output Configuration) **Default Value: NO**	Output to directly follow the main Occupancy and Fan On commands. 1. NO: Occ or St-By = Contact Closed / Unoccupied = Contact Opened 2. NC: Occ or St-By = Contact Opened / Unoccupied = Contact Closed. Choices: NO or NC

CONFIGURATION SCREENS

MS8650 Configuration 4 / 11

For MS8650 Only

Table 31: MS8650 Configuration 4 / 11 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Anti Short Cycle (Anti Short Cycle Time) **Default Value: 2 minutes**	Minimum On time and minimum Off time of operation time for stages. ***Note:*** *Anti-short cycling can be set to 0 minutes for equipment that possess their own anti cycling timer.* ⃠ *Do not use this value unless the equipment is equipped with an internal timer. Failure to do so can damage the equipment.* Range: 0 to 5 minutes
Min. Sup. Heat (Minimum Supply Heat) **Default Value: 64°F (18°C)**	Controls the modulating heating output to maintain the supply air temperature setpoint (min. sup. heat). Apply if “Heat Stages” parameter is set to 0 (Analog Heat on UO11). In Occupied or Override mode, the output will modulate to maintain a minimum Supply Air temperature. Conditional to SAT sensor installed, System Mode = Heat or Auto and OAT < SH Lockout. Range: 50°F to 72°F (10°C to 22°C)

MS8650 Configuration 5 / 11

Figure 37: MS8650 Configuration 5 / 11 Display.

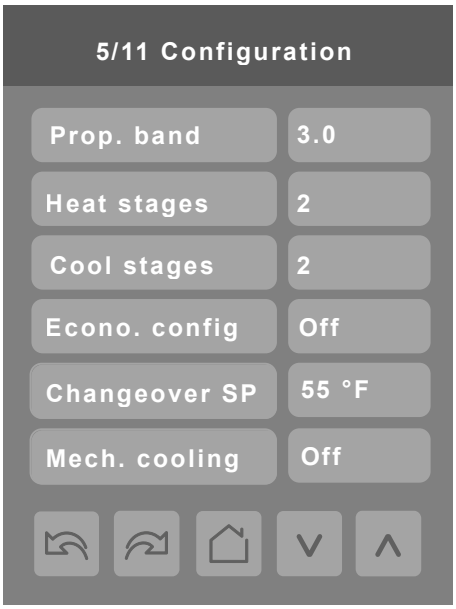


Table 32: MS8650 Configuration 5 / 11 Parameter Details.

<table>
<tr><th>Configuration Parameters Default Value</th><th>Significance and Adjustments</th></tr>
<tr><td>Prop. Band (Proportional Band Setting)
Default Value: 3</td><td>Adjusts proportional band used by Room Controller PI control loop.

Note:
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 warranted in applications where Room Controller location is problematic and leads to unwanted cycling of the unit. A typical example is a wall mounted Room Controller installed between return and supply air feeds and is directly influenced by the supply air stream of unit.

Range: 3 to 10
<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</td><td>3</td><td>1.2</td></tr>
<tr><td>4</td><td>4</td><td>1.7</td></tr>
<tr><td>5</td><td>5</td><td>2.2</td></tr>
<tr><td>6</td><td>6</td><td>2.8</td></tr>
<tr><td>7</td><td>7</td><td>3.3</td></tr>
<tr><td>8</td><td>8</td><td>3.9</td></tr>
<tr><td>9</td><td>9</td><td>5.0</td></tr>
<tr><td>10</td><td>10</td><td>5.6</td></tr>
</table>
</td></tr>
<tr><td>Heat Stages (Number of Heating Stages)
Default Value: 2 stages</td><td>Sets number of Heating Stages applicable to 2 stage models only.
0 Stages: Only (UO11) modulating 0-10 Vdc output is used for Heating. W1 and W2 are disabled.
1 Stage: Only W1 (BO8) terminal is used. W2 is disabled.
2 Stages: Both W1 (BO8) and W2 (UO9) terminals are used in sequence.
Choices: 0, 1 or 2 stages</td></tr>
</table>

CONFIGURATION SCREENS

MS8650 Configuration 5 / 11

For MS8650 Only

Table 33: MS8650 Configuration 5 / 11 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Cool Stages (Number of Cooling Stages) **Default Value: 2 stages**	Sets number of Cooling Stages. 1 Stage: Only Y1 (BO3) terminal is used. Y2 is disabled. 2 Stages: Both Y1 (BO3) and Y2 (BO2) terminals are used in sequence. Choices: 1 or 2 stages
Econo. Config (Economizer Configuration) **Default Value: Off**	Enables or disables the economizer functionality. On: Economizer activated Off: Economizer deactivated Choices: On or Off
Changeover SP (Changeover Setpoint) **Default Value: 55°F (13°C)**	In Cooling mode, the outside air temperature value at which the cooling gets switched over from mechanical (compressor) to free cooling (economizer). Range: 14°F to 70°F (-10°C to 21°C)
Mech. Cooling (Mechanical Cooling Allowed) **Default Value: Off**	Allows operation of mechanical cooling if free cooling (economizer) cannot maintain the cooling setpoint. Off: Applies when the mixed air temperature sensor is installed after the mechanical cooling refrigeration coils. In this case, mechanical cooling never operates at the same time as free cooling. On: Applies when the mixed air temperature sensor is installed before the mechanical cooling refrigeration coils in the mixing plenum. In this case, mechanical cooling is allowed when the free cooling (economizer operation) cannot maintain the cooling setpoint. Range: Off or On

MS8650 Configuration 6 / 11

Figure 38: MS8650 Configuration 6 / 11 Display.

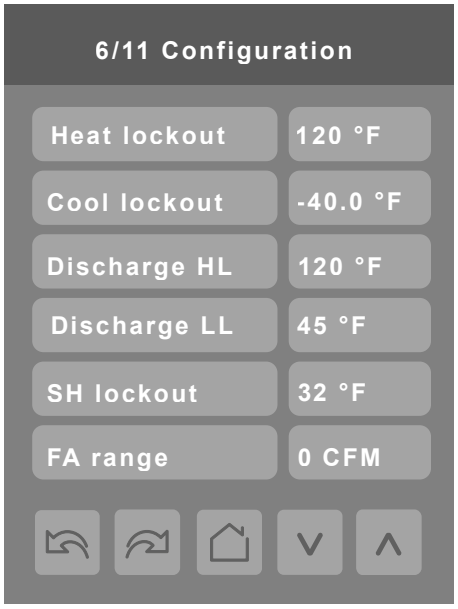


Table 34: MS8650 Configuration 6 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Heat Lockout (Heating Lockout from Outside Air Temperature) **Default Value: 120°F (49°C)**	Disables mechanical heating operation when Outdoor Temperature is higher than the "Heating Lockout" value. The Outdoor Temperature value could be received from a sensor connected directly to the Room Controller (UI23) or via a BACnet front end (network). Range: -15°F to +120°F (-26°C to +49°C)
Cool Lockout (Cooling Lockout from Outside Air Temperature) **Default Value: -40°F (-40°C)**	Disables mechanical cooling operation when Outdoor Temperature is lower than the "Cool Lockout" value. The Outdoor Temperature value could be received from a sensor connected directly to the Room Controller (UI23) or via a BACnet front end (network). The Economizer functionality (Free-cooling) can still be enabled during the Cooling Lockout. Range: -40°F to +95°F (-40°C to +35°C)
Discharge HL (Discharge High Limit) **Default Value: 120°F (49°C)**	Discharge air high temperature value at which the heating stages get locked out. Range: 70°F to 150°F (21°C to 65°C)
Discharge LL (Discharge Low Limit) **Default Value: 45°F (7°C)**	Discharge air low temperature value at which the cooling stages get locked out. Range: 35°F to 65°F (2.0°C to 19.0°C)
SH Lockout (Supply Heat Lockout) **Default Value = 32°F (0°C)**	Disables heating operation if Outdoor Air Temperature (OAT) is higher than "SH Lockout" temperature. The Outdoor Temperature value could be received from a sensor connected directly to the Room Controller or via a BACnet front end (network). ***Note:*** *Valid only if "Heat Stages" parameter is set to 0 (Analog Heat on UO11).* Range: -15°F to +120°F (-26°C to +49°C)
FA Range (Fresh Air Range) **Default Value: 0 CFM**	Sets the upper limit (reading range) of the "airflow measuring station" (eg. for 0~1,000 CFM station, set "FA Range" to 1,000). If set to 0 CFM, this function is disabled, and the fresh air damper control will be based on the "Min/Max CO2" and "Econo Min/Max Pos" values if set to a value other than 0. ***Note:*** ⃠ *Do not change Econo Min/Max Pos if FA range is set to a value greater than 0.* Range: 0 to 20,000 CFM (±10 increments).

CONFIGURATION SCREENS

MS8650 Configuration 7 / 11

For MS8650 Only

MS8650 Configuration 7 / 11

Figure 39: MS8650 Configuration 7 / 11 Display.

Table 35: MS8650 Configuration 7 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Econo Min Pos (Economizer Minimum Position) **Default Value: 0%**	Minimum Outside Air damper position when the Room Controller is in Occupied, Standby or Override mode and Fan status is ON. If the Room Controller is in Unoccupied mode and/or the Fan is Off, Outside Air damper position goes to 0%. Range: 0% to 100%
Econo Max Pos (Economizer Maximum Position) **Default Value: 100%**	Maximum Outside Air damper position when the Room Controller is in Occupied, Standby or Override mode and Fan status is ON. This is valid only for Economizer, CO_2 and Airflow functions. Range: 0% to 100%

Note:

The Room Controller air damper position and output signal is based on a 0-10 Vdc analog actuator application. Many installations utilize 2-10 Vdc actuators, which cannot be switched to 0-10 Vdc control logic. The following chart indicates the appropriate equivalent damper positions for use with 2-10 Vdc actuators.

Outside air percentage	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Setting for 0-10 Vdc Actuator	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Setting for 2-10 Vdc Actuator	20%	24%	28%	32%	36%	40%	44%	48%	52%	56%	60%

Outside air percentage	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Setting for 0-10 Vdc Actuator	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Setting for 2-10 Vdc Actuator	64%	68%	72%	76%	80%	84%	88%	92%	96%	100%

Table 36: MS8650 Configuration 7 / 11 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Min Fresh Air (Minimum Fresh Air) **Default Value: 0 CFM**	Minimum fresh air required (minimum outside airflow setpoint). Effective only in Occupied, Standby or Override mode and Fan status is ON. If FA Range is set to value other than 0 CFM, the fresh air damper position control will be based on the Min/Max CO_2 and Min/Max Fresh Air values. If Room Controller is in Unoccupied mode and/or the Fan is Off, the damper position goes to 0%. Range: 0 to 20,000 CFM (±10 increments). The value set cannot exceed the value of FA Range parameter.
Max Fresh Air (Maximum Fresh Air) **Default Value: 0 CFM**	Maximum fresh air allowed (maximum outside airflow setpoint). Effective only in Occupied, Standby or Override mode and Fan status is ON. If FA Range is set to value other than 0 CFM, the fresh air damper position control will be based on the Min/Max CO_2 and Min/Max Fresh Air values. Range: 0 to 20,000 CFM (±10 increments). The value set cannot exceed the value of FA Range parameter.
Min CO_2 (Minimum CO_2) **Default Value: 800 ppm**	Minimum CO_2 level setpoint. Effective only in Occupied, Standby or Override mode and Fan status is ON. The Outside Air damper modulates to maintain the CO_2 level between "Min CO_2" and "Max CO_2". If the Controller is in Unoccupied mode and/or the Fan is Off, Outside Air damper position goes to 0%. Range: 0 to 2,000 ppm
Max CO_2 (Maximum CO_2) **Default Value: 1200 ppm**	Maximum CO_2 level setpoint. Effective only in Occupied, Standby or Override mode and Fan status is ON. The Outside Air damper modulates to maintain the CO_2 level between "Min CO_2" and "Max CO_2". Range: 0 to 2,000 ppm

CONFIGURATION SCREENS

MS8650 Configuration 8 / 11

For MS8650 Only

MS8650 Configuration 8 / 11

Figure 40: MS8650 Configuration 8 / 11 Display.

Table 37: MS8650 Configuration 8 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Application **Default Value: Rooftop**	Sets Room Controller operating logic for either a Rooftop or a Heat Pump application. ***Note:*** *If the Heat Pump Unit (HPU) does not have an O/B terminal (reversing valve), set this parameter to Rooftop.* Choices: Rooftop or Heat Pump
High BP (High Balance Point) **Default Value: 90°F**	In Heating or Auto mode, it is the outside air temperature value at which the auxiliary heat is cut off. If the temperature exceeds this value, only the heat pump is used to maintain the heating setpoint. ***Note:*** *Function enabled only if outside air temperature value is populated (not -40°F/°C). The Outdoor Temperature value could be received from a sensor connected directly to the Room Controller or via a BACnet front end (network).* Range: 34°F to 90°F (1.0°C to 32.0°C)
Low BP (Low Balance Point) **Default Value: -12°F**	In Heating, Cooling or Auto mode, it represents the outside air temperature value at which the heat pump operation will be cut off. If the temperature falls below this value, only the auxiliary heat is used to maintain the heating setpoint. ***Note:*** *Function enabled only if outside air temperature value is populated (not -40°F/°C). The Outdoor Temperature value could be received from a sensor connected directly to the Controller or via a BACnet front end (network).* Range: -40°F to +30°F (-40°C to -1.0°C)

Table 38: MS8650 Configuration 8 / 11 Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Comf. or Econ. (Comfort or Economy Mode) **Default Value: Comfort**	Sets the operation and interaction mode of the heat pump with the auxiliary heat. Comfort mode: In Heating mode, if the heat pump is not able to satisfy the heating setpoint, the auxiliary heat gets energized to satisfy the same heating setpoint. Economy mode: In Heating mode, if the heat pump is not able to satisfy the heating setpoint, the auxiliary heat gets energized to satisfy only when the temperature drops 2.0°F (1.1°C) below the heating setpoint. Selecting economy mode adds a deadband between the heat pump and auxiliary heat in heating mode. The actual temperature maintained will be lower than the true heating setpoint to maximize the heat pump operation. When the outdoor air temperature drops below the low balance point, the deadband gets eliminated and the auxiliary heat maintains the true heating setpoint alone. Choices: Comfort or Economy
Rev. Valve (Reversing Valve Operation) **Default Value: O**	Heat pump reversing valve operation. O: energize valve in cooling operation. B: energize valve in heating operation. Choices: O or B
Comp. Interlock (Compressor Auxiliary Interlock) **Default Value: Off**	Sets the operation and interaction mode of the heat pump with the auxiliary heat. Off: In Heating mode, if the heat pump is not able to satisfy the heating setpoint, the auxiliary heat gets energized at the same time as the heat pump stage. Typically applies when the air handler heat pump coil is installed before the auxiliary heat (all electric systems). On: In Heating mode, if the heat pump is not able to satisfy the heating setpoint, the auxiliary heat gets energized and the heat pump is cut off. Typically applies when the air handler heat pump coil is installed after the auxiliary heat (add on systems) There is a 2 minute delay to restart the heat pump when the auxiliary heat is shut down. Choices: Off or On

CONFIGURATION SCREENS

MS8650 Configuration 9 / 11

For MS8650 Only

MS8650 Configuration 9 / 11

Figure 41: MS8650 Configuration 9 / 11 Display.

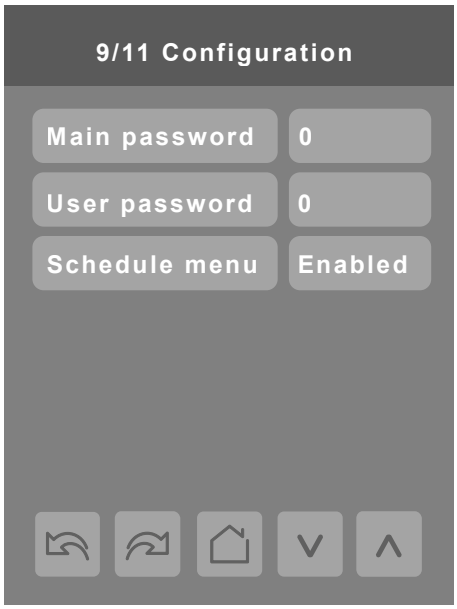
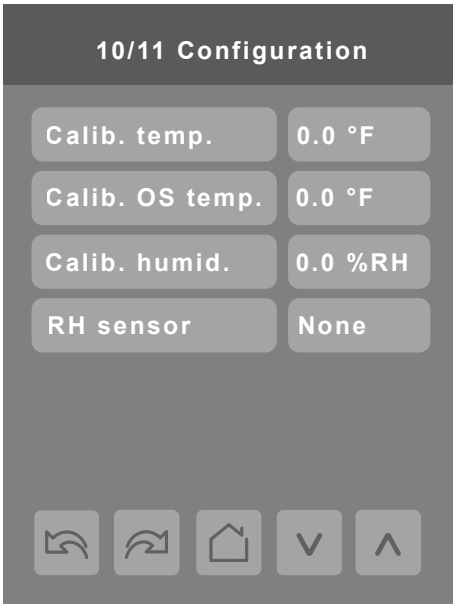


Table 39: MS8650 Configuration 9 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Main Password **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.
User Password **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.
Schedule Menu **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: Disabled, Enabled, Disabled no Clock and Enabled no Clock

MS8650 Configuration 10 / 11

Figure 42: MS8650 Configuration 10 / 11 Display.



Note:

Calib. humid. configuration is only for models with humidity sensor.

Table 40: MS8650 Configuration 10 / 11 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Calib. Temp. (Calibration Room Temperature Sensor) **Default Value: 0°F**	Room temperature sensor calibration. Offset can be added or subtracted to actual displayed room temperature. Range: ±5.0°F (±2.5°C)
Calib. OS Temp. (Calibration Outside Temperature Sensor) **Default Value: 0°F**	Outside air temperature sensor calibration. Offset that can be added or subtracted to the actual displayed outdoor temperature. Range: ±5.0°F (±2.5°C)
Calib. Humid. (Calibrate Humidity Sensor) **Default Value: 0.0%RH**	Offset that can be added or subtracted to actual displayed humidity. Range: ±15.0%RH
RH Sensor (Relative Humidity Sensor) **Default Value: Internal**	Sets the source of the indoor room humidity. This parameter allows the user to designate either the Room Controller (only models supporting humidity) or any of the bound wireless devices that support humidity to act as the source for the room humidity. Internal: Sets the Room Controller as the source for the room humidity. WL 1 to WL 10: Sets the selected wireless ZigBee PRO device as the source for the room humidity. Only one device can be selected. Choices: None, Internal, WL1 to WL10

CONFIGURATION SCREENS

MS8650 Configuration 11 / 11

For MS8650 Only

MS8650 Configuration 11 / 11

Figure 43: MS8650 Configuration 11 / 11 Display.

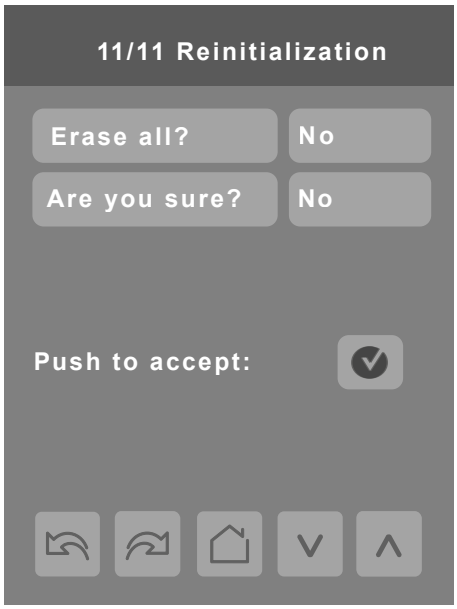


Table 41: MS8650 Configuration 11 / 11 Parameter Details.

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: • COM address • Network Units • Network Language • Baud Rate • BACnet Instance • Device Name • Screen Contrast • LUA Script ***Note:*** *Node type in ZigBee PRO menu returns to default value (Router).*
Are You Sure? **Default Value: No**	

MS8350 Setpoints 1 / 2

Figure 44: MS8350 Setpoints 1 / 2 Display.

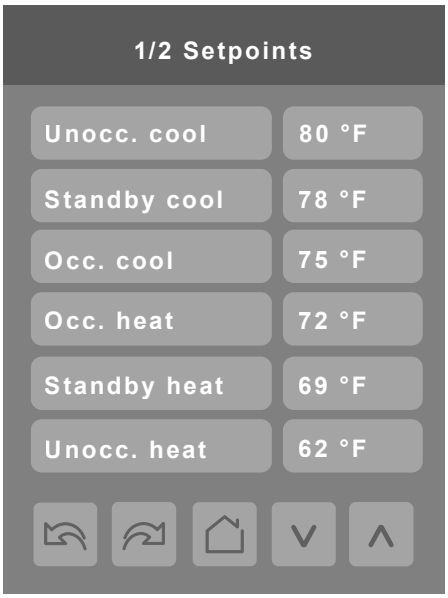


Table 42: MS8350 Setpoints 1 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Unocc. Cool (Unoccupied Cool Setpoint) 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)
Standby Cool (Standby Cool Setpoint) 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)
Occ. Cool (Occupied Cool Setpoint) Default Value: 75°F (24°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)
Occ. Heat (Occupied Heat Setpoint) Default Value: 72°F (22°C)	Heating Temperature setpoint used by the Room Controller when in Occupied mode. Range: 40 to 90°F (4.5 to 32.0°C)
Standby Heat (Standby Heat Setpoint) Default Value: 69°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)
Unocc. Heat (Unoccupied Heat Setpoint) Default Value: 62°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

MS8350 Setpoints 2 / 2

For MS8350 Only

MS8350 Setpoints 2 / 2

Figure 45: MS8350 Setpoints 2 / 2 Display.

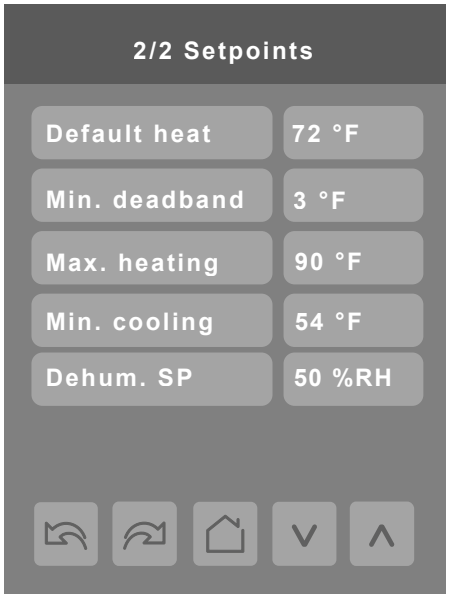


Table 43: MS8350 Setpoints 2 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Default Heat (Default Heating Setpoint) **Default Value: 72°F (22°C)**	Used for hospitality applications in stand-alone mode only to reset the occupied setpoints when a new guest enters the room. 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. ***Note:*** *This functionality is only valid when Stand-by mode = Offset and "Setpoint Func" is set to "Attached".* Range: 65 to 80°F (18.5 to 26.5°C)
Min. Deadband (Minimum Deadband) **Default Value: 3°F (1.5°C)**	Temperature offset between the Cooling and Heating setpoints to ensure that Cooling setpoint is always warmer than the Heating setpoint. Cooling setpoint ≥ (Heating setpoint + Deadband) Range: 2 to 5°F (1.0 to 2.5°C)
Max. Heating (Heating Setpoint Limit) **Default Value: 90°F (32°C)**	Maximum Occupied, Unoccupied, Standby and Override Heating setpoints maximum limit. Range: 40 to 90°F (4.5 to 32.0°C)
Min. Cooling (Cooling Setpoint Limit) **Default Value: 54°F (12°C)**	Maximum Occupied, Unoccupied, Standby and Override Cooling setpoint adjustment. Range: 54 to 100°F (12.0 to 37.5°C)
Dehum. SP (Dehumidification Setpoint) **Default Value: 50%RH**	Used only if dehumidification sequence is enabled. Range: 30 to 95%RH

MS8650 Setpoints 1 / 2

Figure 46: MS8650 Setpoints 1 / 2 Display.

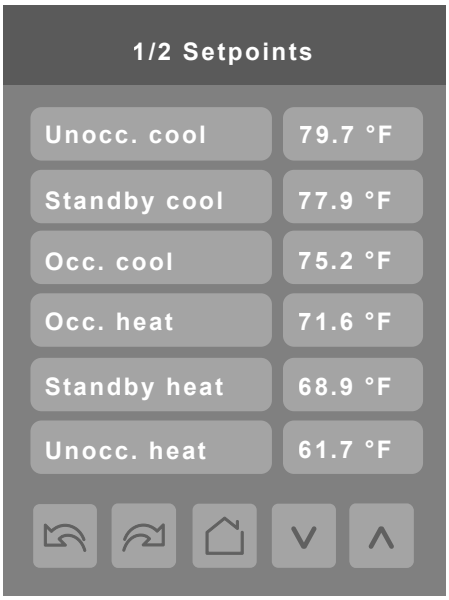


Table 44: MS8650 Setpoints 1 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Unocc. Cool (Unoccupied Cool Setpoint) 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)
Standby Cool (Standby Cool Setpoint) 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)
Occ. Cool (Occupied Cool Setpoint) Default Value: 75°F (24°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)
Occ. Heat (Occupied Heat Setpoint) Default Value: 72°F (22°C)	Heating Temperature setpoint used by the Room Controller when in Occupied mode. Range: 40 to 90°F (4.5 to 32.0°C)
Standby Heat (Standby Heat Setpoint) Default Value: 69°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)
Unocc. Heat (Unoccupied Heat Setpoint) Default Value: 62°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

MS8650 Setpoints 2 / 2

For MS8650 Only

MS8650 Setpoints 2 / 2

Figure 47: MS8650 Setpoints 2 / 2 Display.

Table 45: MS8650 Setpoints 2 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Default Heat (Default Heating Setpoint) **Default Value: 72°F (22°C)**	Used for hospitality applications in stand-alone mode only to reset the occupied setpoints when a new guest enters the room. 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. ***Note:*** *This functionality is only valid when Stand-by mode = Offset and "Setpoint Func" is set to "Attached".* Range: 65 to 80°F (18.5 to 26.5°C)
Min. Deadband (Minimum Deadband) **Default Value: 3°F (1.5°C)**	Temperature offset between the Cooling and Heating setpoints to ensure that Cooling setpoint is always warmer than the Heating setpoint. Cooling setpoint ≥ (Heating setpoint + Deadband) Range: 2 to 5°F (1.0 to 2.5°C)
Max. Heating (Heating Setpoint Limit) **Default Value: 90°F (32°C)**	Maximum Occupied, Unoccupied, Standby and Override Heating setpoints maximum limit. Range: 40 to 90°F (4.5 to 32.0°C)
Min. Cooling (Cooling Setpoint Limit) **Default Value: 54°F (12°C)**	Maximum Occupied, Unoccupied, Standby and Override Cooling setpoint adjustment. Range: 54 to 100°F (12.0 to 37.5°C)
Supply Air SP (Supply Air Setpoint) **Default Value: 55°F (12°C)**	Free cooling supply air setpoint when economizer mode is enabled. Range: 50 to 90°F (10.0 to 32.0°C)
Dehum. SP (Dehumidification Setpoint) **Default Value: 50%RH**	Used only if dehumidification sequence is enabled. Range: 30 to 95%RH

Display Screen 1 / 2

Figure 48: Display Screen 1 / 2.

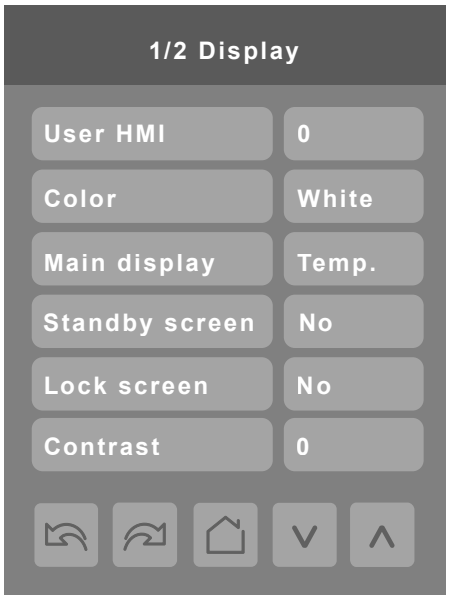


Table 46: Display Screen 1 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
User HMI **Default Value: 0**	Sets layout of icons on the home screen for various applications. Refer to the “Customized Screens” section for more information. Range: 0 to 12
Color (HMI Color) **Default Value: White**	Change background color of the display screen. Choices: White, Green, Blue, Grey or Dark Grey
Main Display **Default Value: Temp.**	Shows temperature or setpoint on main display. Choices: Temperature or Setpoint
Standby Screen **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 saver: 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 Saver
Lock Screen **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: • Standby image loaded • Standby Screen = “Yes” or “Screen Saver” • User Password = not 0 Choices: No or Yes
Contrast **Default Value: 0**	Control screen contrast and brightness. Range: -5 to +5

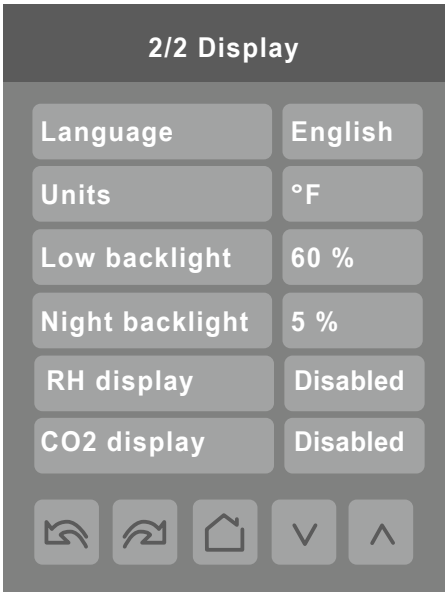
DISPLAY SCREENS

Display Screen 2 / 2

For MS8350 and MS8650

Display Screen 2 / 2

Figure 49: Display Screen 2 / 2.



*** RH Display**

*** CO_2 Display**

Note:

The RH Display and the CO_2 Display parameters are only displayed on models with built-in humidity sensor

Table 47: Display Screen 2 / 2 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Language (Display Language) **Default Value: English**	Select language for main display. Choices: English, French, Spanish, Chinese, Russian, Arabic, Czech, Danish, Dutch, Finnish, German, Hebrew, Hungarian, Indonesian, Italian, Japanese, Norwegian, Polish, Portuguese, Slovak, Swedish and Turkish
Units (Temperature Scale) **Default Value: °C**	Changes the local display units. Refer to Network Units to change the network units broad-casted over the network. Choices: °C for SI or °F for Imperial.
Low Backlight **Default Value: 60%**	Sets display backlight intensity. This feature is activated (screen dims) 150 seconds after no activity on the Controller. Adjustable: 0 to 100%.
Night Backlight **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%.
RH Display (Relative Humidity) **Default Value: Disabled**	Shows humidity level in room in %RH. On: Display %RH Off: Do not display %RH Choices: Enabled or Disabled
CO_2 Display (CO_2 Levels Display) **Default Value: Disabled**	Shows carbon dioxide level in room in ppm. On: Display CO_2 level Off: Do not display % CO_2 level Choices: Enabled or Disabled

MS8350 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.

MS8350 Service View Screen 1 / 8

Figure 50: MS8350 Service View Screen 1 / 8.

Table 48: MS8350 Service View Screen 1 / 8 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Firmware Rev. (Firmware Revision) **Read Only**	Shows 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 Controller to an earlier Firmware version with the Uploader Tool.
Room Temp. (Room Temperature) **Read Only**	Shows the current room temperature. The user can set one of the following temperature inputs to act as the source for the room temperature's present value: Wired: Sensor across UI20 (RS) and common Internal: Controller's internal temperature sensor WL 1 to WL 10: Wireless ZigBee end devices Display Readings: Wired, Internal, WL1 to WL10
UI19 changeover (Universal Input Changeover Sensor) **Read Only**	Shows the changeover sensor connected to UI20 (RS) 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.
Room Humidity **Read Only**	Shows percentage of humidity in room from selected local or wireless devices. Refer to RH sensor parameter to select RH source. Display Readings: %RH

SERVICE VIEW SCREENS

MS8350 Service View Screen 2 / 8

For MS8350 Only

MS8350 Service View Screen 2 / 8

Figure 51: MS8350 Service View Screen 2 / 8.

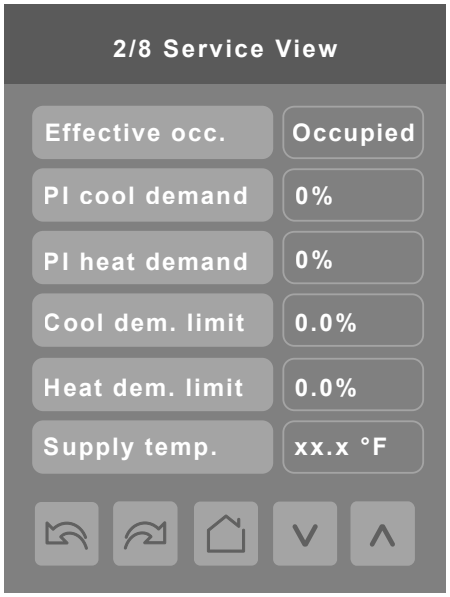
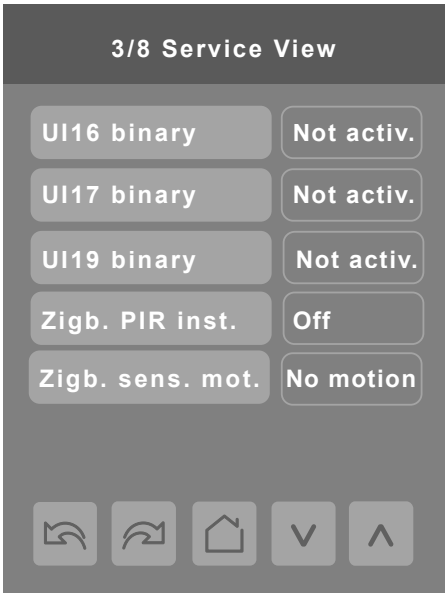


Table 49: MS8350 Service View Screen 2 / 8 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Effective Occ. (Effective Occupancy) Read Only	Shows as occupied, unoccupied, standby or override. Display Readings: Occupied, Unoccupied, Override and Standby
PI Cool Demand (Cooling Demand) Read Only	Display Readings: 0-100%
PI Heat Demand (Heat Demand) Read Only	Display Readings: 0-100%
Cool Dem. Limit (Outdoor Temperature) Read Only	Display Readings: 0-100%
Heat Dem. Limit (Supply Temperature) Read Only	Display Readings: 0-100%
Supply Temp. (Supply Temperature) Read Only	Shows supply air temperature as measured by the sensor.

MS8350 Service View Screen 3 / 8

Figure 52: MS8350 Service View Screen 3 / 8.



*** Zigb. PIR Inst.**

*** Zigb. Sens. Mot.**

Note:

The Zigb. PIR Inst. and Zigb. Sens. Mot. are only for models with the ZigBee PRO communication module.

Service View MS8350 Screen 3 / 8 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 scaled percentage level of wired CO_2 sensor. 0% = 0ppm, 100% = 2000ppm Display Readings: 0-100%
Zigb. PIR Inst. (ZigBee Passive Infrared Sensor Installed) **Read Only**	Shows if ZigBee motion sensor is paired to a Controller or not. ***Note:*** *This parameter is for ZigBee Motion Sensors only.* Display Readings: Off or On
Zigb. Sens. Mot. (ZigBee Sensor Motion) **Read Only**	Shows if motion is detected by any of the wireless ZigBee motion sensors. ***Note:*** *This parameter is for ZigBee Motion Sensors only.* Display Readings: Motion or No Motion

SERVICE VIEW SCREENS

MS8350 Service View Screen 4 / 8

For MS8350 Only

MS8350 Service View Screen 4 / 8

Figure 53: MS8350 Service View Screen 4 / 8.

Table 50: MS8350 Service View Screen 4 / 8 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 Frost Alarm active or not. Display Readings: On or Off
Local Motion **Read Only**	Shows if Frost Alarm active or not. Display Readings: Motion or No Motion
Deh. Status (Dehumidification Status) **Read Only**	Shows if dehumidification is active or not. Display Readings: On or Off

MS8350 Service View Screen 5 / 8

Figure 54: MS8350 Service View Screen 5 / 8.

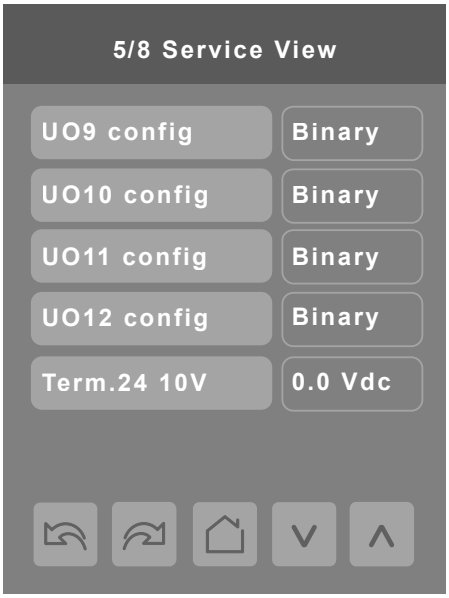


Table 51: MS8350 Service View Screen 5 / 8 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
UO9 Config (UO9 Configuration) Read Only	Shows Analog, Binary, Relay RC or Relay RH
UO10 Config (UO10 Configuration) Read Only	Shows Analog, Binary or Relay RC
UO11 Config (UO11 Configuration) Read Only	Shows Analog or Binary
UO12 Config (UO12 Configuration) Read Only	Shows Analog or Binary
Term. 24 10V (Terminal 24 10 V) Read Only	Terminal 24 10 V

SERVICE VIEW SCREENS

MS8350 Service View Screen 6 / 8

For MS8350 Only

MS8350 Service View Screen 6 / 8

Figure 55: MS8350 Service View Screen 6 / 8.

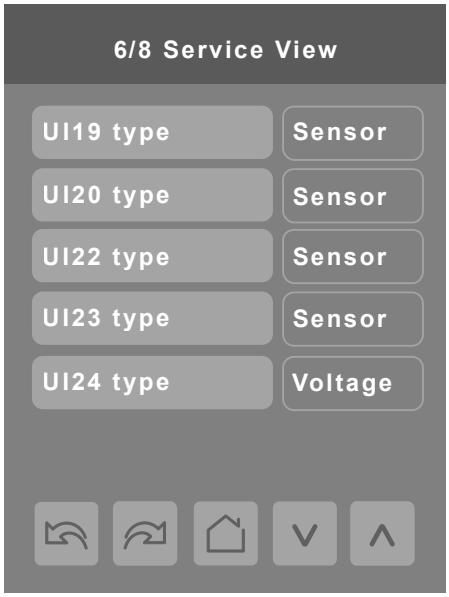


Table 52: MS8350 Service View Screen 6 / 8 Parameter Details.

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

MS8350 Service View Screen 7 / 8

Figure 56: MS8350 Service View Screen 7 / 8.

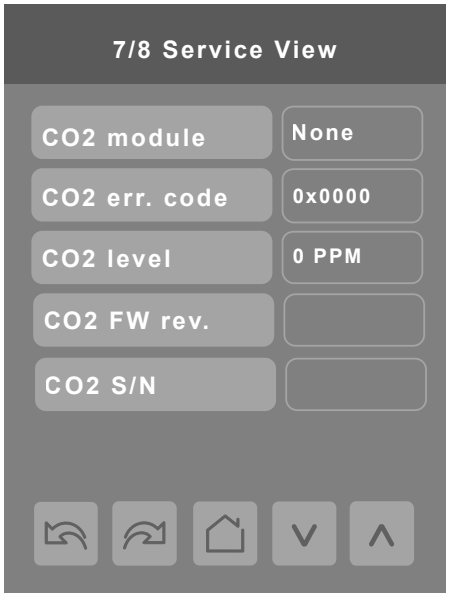


Table 53: MS8350 Service View Screen 7 / 8 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
CO_2 Module **Read Only**	Shows if CO_2 value is being readied from internal sensor, wired sensor or CO_2 sensor module. Display Readings: None, Local, Error and Wireless
CO_2 Err. Code (CO_2 Error Code) **Read Only**	Error code 0x0001 shows if there is an error with the sensor.
CO_2 Level **Read Only**	Shows CO_2 level in ppm. Display Readings: 0 to 2000
CO_2 FW Rev. (CO_2 Firmware Revision) **Read Only**	Shows the Firmware version of the installed CO_2 sensor module.
CO_2 S/N (CO_2 Serial Number) **Read Only**	Shows the serial number of the installed CO_2 sensor module.

SERVICE VIEW SCREENS

MS8350 Service View Screen 8 / 8

For MS8350 Only

MS8350 Service View Screen 8 / 8

Figure 57: MS8350 Service View Screen 8 / 8.

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 the VUCQMS8350 Controller with a MAC address of 41 is connected to a network, its default Device Name is VUCQMS8350-41 and its default BACnet Device ID is 83041

MS8650 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.

MS8650 Service View Screen 1 / 9

Figure 58: MS8650 Service View Screen 1 / 9.

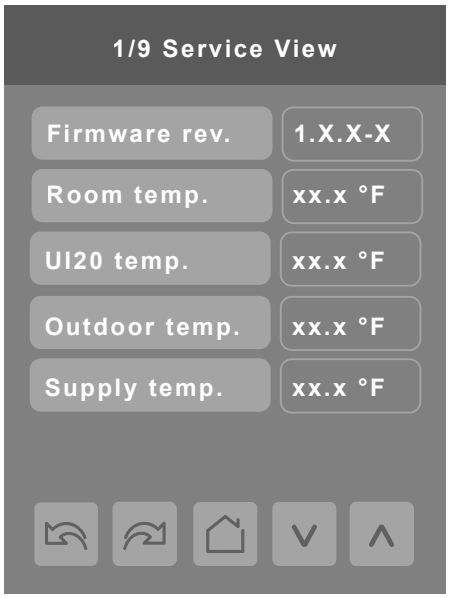


Table 54: MS8650 Service View Screen 1 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Firmware Rev. (Firmware Revision) **Read Only**	Shows 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 Controller to an earlier Firmware version with the Uploader Tool.
Room Temp. (Room Temperature) **Read Only**	Shows the current room temperature. The user can set one of the following temperature inputs to act as the source for the room temperature's present value: Wired: Sensor across UI20 (RS) and common Internal: Room Controller's internal temperature sensor WL 1 to WL 10: Wireless ZigBee end devices Display Readings: Wired, Internal, WL1 to WL10
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.

SERVICE VIEW SCREENS

MS8650 Service View Screen 2 / 9

For MS8650 Only

MS8650 Service View Screen 2 / 9

Figure 59: MS8650 Service View Screen 2 / 9.

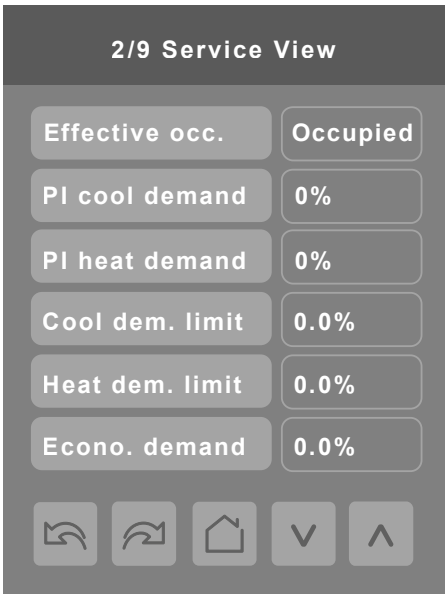


Table 55: MS8650 Service View Screen 2 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Effective Occ. (Effective Occupancy) Read Only	Shows as occupied, unoccupied, standby or override. Display Readings: Occupied, Unoccupied, Override and Standby
PI Cool Demand (Cooling Demand) Read Only	Display Readings: 0-100%
PI Heat Demand (Heat Demand) Read Only	Display Readings: 0-100%
Cool Dem. Limit (Outdoor Temperature) Read Only	Display Readings: 0-100%
Heat Dem. Limit (Supply Temperature) Read Only	Display Readings: 0-100%
Econo. Demand (Supply Temperature) Read Only	Display Readings: 0-100%

MS8650 Service View Screen 3 / 9

Figure 60: MS8650 Service View Screen 3 / 9.

*** Zigb. PIR Inst.**

*** Zigb. Sens. Mot.**

Note:

The Zigb. PIR Inst. and Zigb. Sens. Mot. are only for models with the ZigBee PRO communication module.

Service View MS8650 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 Analog (Universal Input Configuration No. 3) **Read Only**	Shows scaled percentage level of wired CO_2 sensor. 0% = 0ppm, 100% = 2000ppm Display Readings: 0-100%
Airflow Level **Read Only**	Shows the amount of air (in cubic feet/minute) that flows through a particular device. Display Readings: 0-100%
Zigb. PIR Inst. (ZigBee Passive Infrared Sensor Installed) **Read Only**	Shows if ZigBee motion sensor is paired to a Controller or not. ***Note:*** *This parameter is for ZigBee Motion Sensors only.* Display Readings: Off or On
Zigb. Sens. Mot. (ZigBee Sensor Motion) **Read Only**	Shows if motion is detected by any of the wireless ZigBee motion sensors. ***Note:*** *This parameter is for ZigBee Motion Sensors only.* Display Readings: Motion or No Motion

SERVICE VIEW SCREENS

MS8650 Service View Screen 4 / 9

For MS8650 Only

MS8650 Service View Screen 4 / 9

Figure 61: MS8650 Service View Screen 4 / 9.

Table 56: MS8650 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
Fan Lock Alarm **Read Only**	Shows On if there is a problem detected on the Fan. Display Readings: On or Off
CO_2 Alarm **Read Only**	Shows On if the CO_2 level (local, wired or wireless) is higher than the “Max CO_2” setpoint. Display Readings: On or Off
Low Air Alarm **Read Only**	Shows if the fresh air flow is lower than the “min fresh air” setpoint. Display Readings: On or Off

MS8650 Service View Screen 5 / 9

Figure 62: MS8650 Service View Screen 5 / 9.

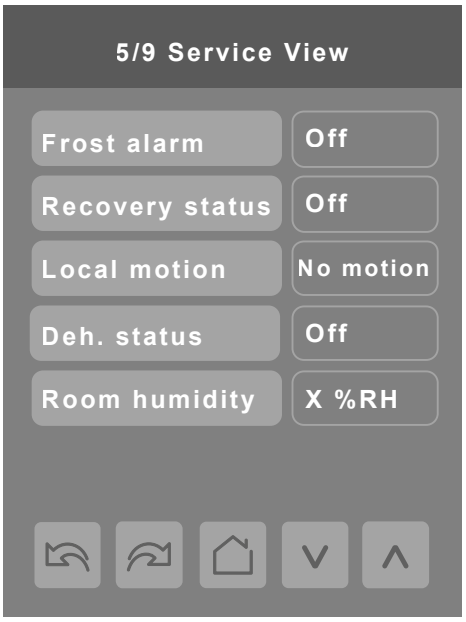


Table 57: MS8650 Service View Screen 5 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Frost Alarm **Read Only**	Shows if Frost Alarm active or not. Display Readings: On or Off
Recovery Status **Read Only**	Shows if Frost Alarm active or not. Display Readings: On or Off
Local Motion **Read Only**	Shows if Frost Alarm active or not. Display Readings: Motion or No Motion
Deh. Status (Dehumidification Status) **Read Only**	Shows if dehumidification is active or not. Display Readings: On or Off
Room Humidity **Read Only**	Shows percentage of humidity in room from selected local or wireless devices. Refer to RH sensor parameter to select RH source. Display Readings: %RH

SERVICE VIEW SCREENS

MS8650 Service View Screen 6 / 9

For MS8650 Only

MS8650 Service View Screen 6 / 9

Figure 63: MS8650 Service View Screen 6 / 9.

Table 58: MS8650 Service View Screen 6 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
UO9 Config (UO9 Configuration) Read Only	Shows Analog, Binary, Relay RC or Relay RH
UO10 Config (UO10 Configuration) Read Only	Shows Analog, Binary or Relay RC
UO11 Config (UO11 Configuration) Read Only	Shows Analog or Binary
UO12 Config (UO12 Configuration) Read Only	Shows Analog or Binary

MS8650 Service View Screen 7 / 9

Figure 64: MS8650 Service View Screen 7 / 9.

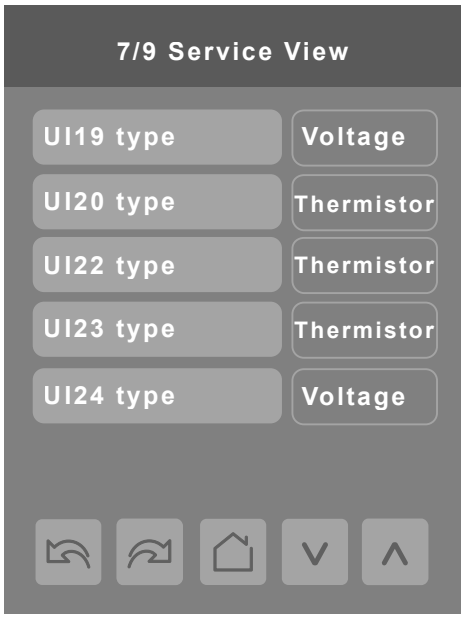


Table 59: MS8650 Service View Screen 7 / 9 Parameter Details.

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

SERVICE VIEW SCREENS

MS8650 Service View Screen 8 / 9

For MS8650 Only

MS8650 Service View Screen 8 / 9

Figure 65: MS8650 Service View Screen 8 / 9.

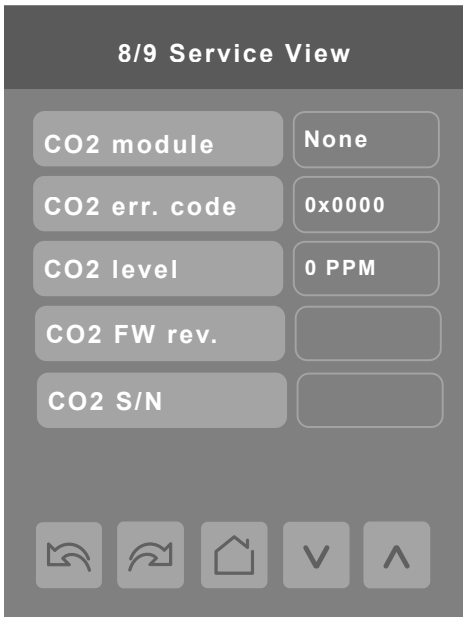


Table 60: MS8650 Service View Screen 8 / 9 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
CO_2 Module **Read Only**	Shows if CO_2 value is being readied from internal sensor, wired sensor or CO_2 sensor module. Display Readings: None, Local, Error and Wireless
CO_2 Err. Code (CO_2 Error Code) **Read Only**	Error code 0x0001 shows if there is an error with the sensor.
CO_2 Level **Read Only**	Shows CO_2 level in ppm. Display Readings: 0 to 2000
CO_2 FW Rev. (CO_2 Firmware Revision) **Read Only**	Shows the Firmware version of the installed CO_2 sensor module.
CO_2 S/N (CO_2 Serial Number) **Read Only**	Shows the serial number of the installed CO_2 sensor module.

MS8650 Service View Screen 9 / 9

Figure 66: MS8650 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 the VUCQMS8650 Controller with a MAC address of 41 is connected to a network, its default Device Name is VUCQMS8650-41 and its default BACnet Device ID is 86041.

TEST OUTPUTS SCREENS

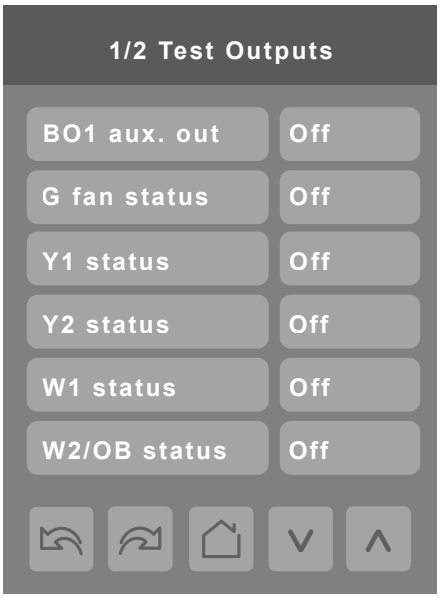
Test Outputs Screen 1 / 2

For MS8350 and MS8650

Test Outputs Screen 1 / 2

Figure 67: MS8350 Test Outputs Screen 1 / 2.

Figure 68: MS8650 Test Outputs Screen 1 / 2.



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.

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 Screen 2 / 2

Figure 69: MS8350 Test Outputs Screen 2 / 2.

Figure 70: MS8650 Test Outputs Screen 2 / 2.

Note:

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 screen to another screen.

Case A

Screen 2/2 display is dependent on Control type configuration. If mode is set to Floating or On/Off, binary options show.

Case B

Screen 2/2 display is dependent on Control type configuration. If mode is set to Analog, analog options show.

LANGUAGE SELECTION SCREENS

Language Selection Screens 1 / 4 to 4 / 4

For MS8350 and MS8650

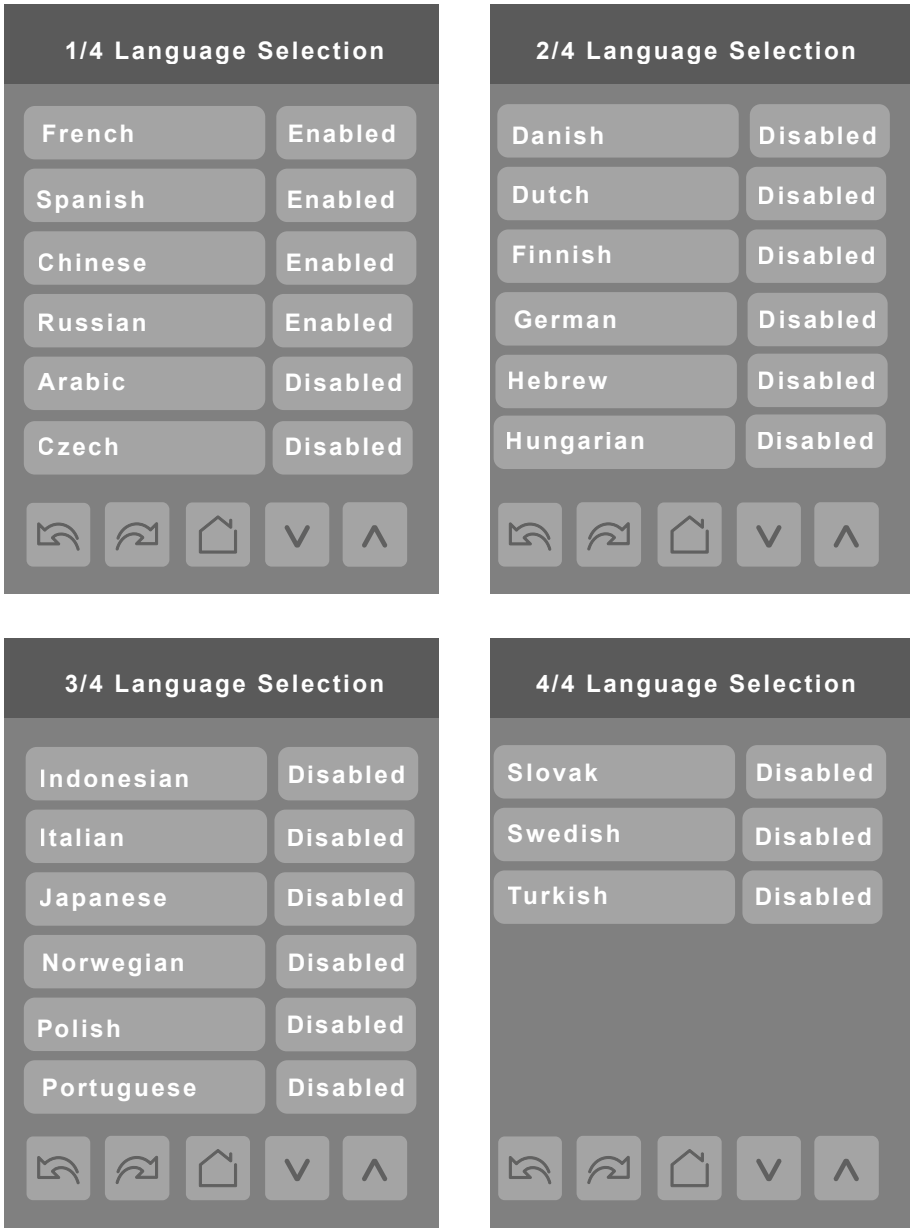
Language Selection Screens 1 / 4 to 4 / 4

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:

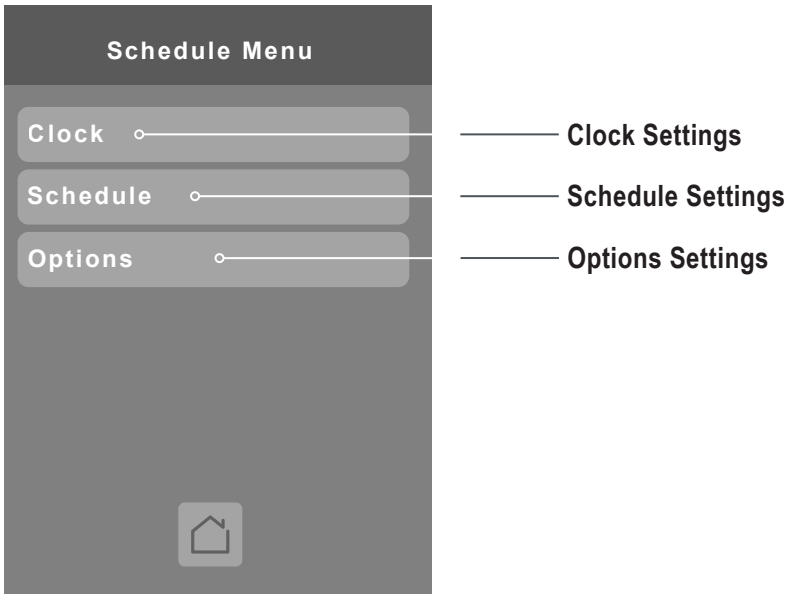
English is always enabled.

Figure 71: Language Selection Screens 1 / 4 to 4 / 4.



Clock - Schedule Menu

Figure 72: Clock - Schedule Menu Display.



Note:

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

SCHEDULE SCREENS

Clock

For MS8350 and MS8650

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 73: Clock Display.

Table 61: Clock Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Time Format **Default Value: AM-PM**	Current time display format. Choice between 12 hour (AM - PM) time format or 24 hour time format. ***Note:*** *Changing the value of this parameter automatically changes the format of the displayed value of the time parameter.* Choices: AM-PM or 24 Hours
Time **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.
Year **Default value: 2014**	Current year Range: 2000 - 2100
Month **Default Value: Jan.**	Current month Range: Jan. - Dec.
Day (Date) **Default Value: 1**	Current date Range: 1 - 31
Weekday (Current Day) **Default value: Monday** **Read Only**	Automatically set based on data received from Year/Month parameters. Range: Monday - Sunday

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 74: Schedule Display.

Table 62: Schedule Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Occupied 1 - 3 **Default Value: None**	Defines a time when the Controller is automatically set to use the Occupied setpoint. ***Note:*** *There are three (3) separate Occupied parameter entries.* Range: 00:00 - 24:00
Unoccupied 1 - 3 **Default Value: None**	Defines a time when the Controller is automatically set to use the Unoccupied setpoint. ***Note:*** *There are three (3) separate Unoccupied parameter entries.* Range: 00:00 - 24:00

SCHEDULE SCREENS

Options

For MS8350 and MS8650

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 75: Options Display.

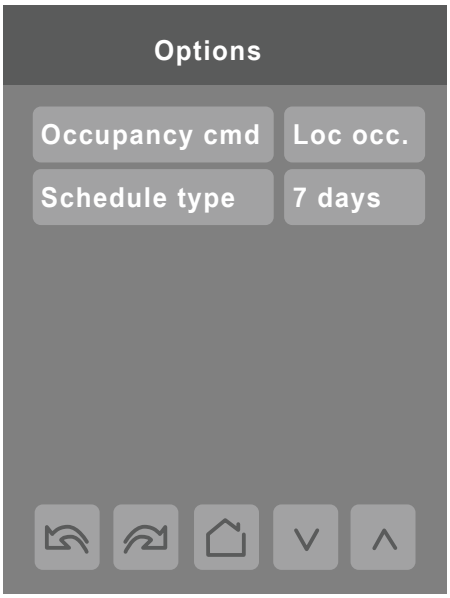


Table 63: Options Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Occupancy Cmd (Occupancy Command) **Default Value: Local occ**	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

Automatic Demand Response (ADR)

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

Figure 76: ADR Display.

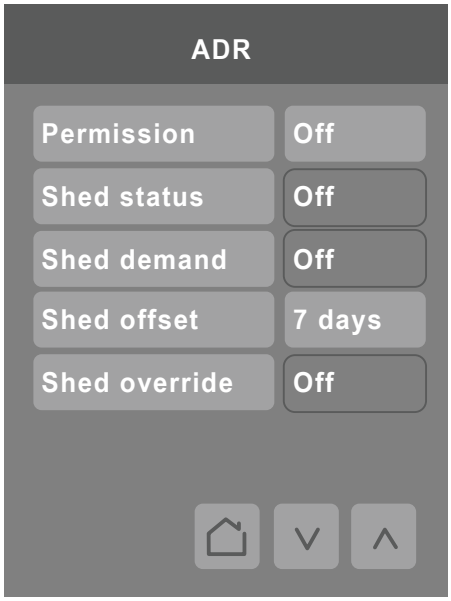


Table 64: ADR Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Permission (Automatic Demand Response Permission) **Default Value: Off**	Used to permit the ADR to be applicable or not to change the Room Controller setpoints setting or not. Off: The Load Shedding Demand will not be permitted. On: The Load Shedding Demand will be permitted. Choices: On or Off
Shed Status (Load Shedding Status) **Default Value: Off** **Read Only**	Displays the status of the Load Shedding Demand, whether it is active (On) or not (Off). The Load Shedding status is On when the Permission is On, Shed demand is On, and the Shed Override is Off. Off: Load Shedding Demand is not activated. On: Load Shedding Demand is activated. Display Readings: On or Off
Shed Demand (Load Shedding Demand) **Default Value: Off** **Read Only**	Sets the request to initiate Load Shedding. This demand can only be set through BACnet by the local Utility company. Off: No Load Shedding Demand is received or the Shedding demand is disabled. On: Received the Load Shedding Demand or received the signal to activate Load shedding. Display Readings: On or Off
Shed Offset (Load Shedding Offset) **Default Value: 4°F (2°C)**	Used to change the effective setpoints in occupied, standby and unoccupied modes. For example, when “Shed status” is On and Controller is in occupied mode: The cooling setpoint is calculated as follows: Occupied cooling setpoint = occupied cooling setpoint + Load shedding offset. The heating setpoint is calculated as follows: Occupied heating setpoint = occupied heating setpoint - Load shedding offset. Choices: 4°F to 10°F (2°C to 5.5°C)
Shed Override (Load Shedding Override) **Default Value: Off** **Read Only**	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. On: Rejects or cancels shed load demand request from utility company (setpoints remain the same). Off: Allows shed load demand request from utility company (setpoint will change according to shed offset). Display Readings: On or Off

WIRELESS SCREENS

Wireless Menu Options

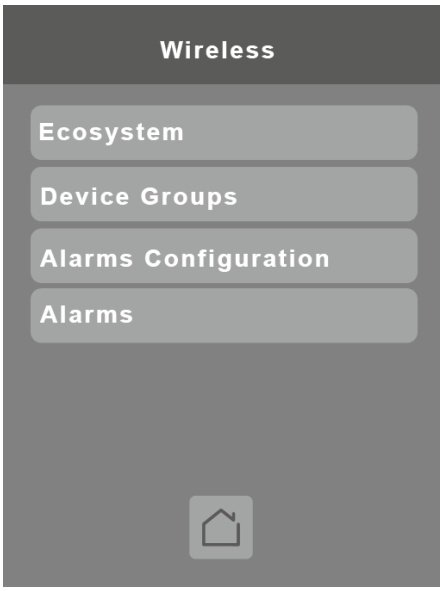
For MS8350 and MS8650

Wireless Menu Options

The Wireless screen shows only if the ZigBee communication module is installed. Up to ten (10) devices can be added to the Device Groups for each Controller.

Figure 77: MS8350 Wireless Menu Options Display.

Figure 78: MS8650 Wireless Menu Options Display.



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 ten (10) devices can be paired to each Room Controller. Tap forward arrow to obtain information on each paired ZigBee device.

Figure 79: Ecosystem Settings Display.

Table 65: Ecosystem Settings Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Network Status (ZigBee Network Status) **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
Permit Join **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 Room 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 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
Permit Timeout (Permit Join Timeout) **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. ***Note:*** *Permit Join parameter must be set to “On” to enable this feature.* Range: 0 or 180 minutes
Paired Devices (Paired ZigBee Devices) **Default Value: 0** **Read Only**	Shows the number of ZigBee devices currently paired with the Room Controller. A maximum of ten (10) ZigBee PRO devices can be paired with each Room Controller (total of ten [10] paired devices per Room Controller). Display Readings: 0 to 10 devices

WIRELESS SCREENS

Device Groups

For MS8350 and MS8650

Device Groups

This screen is a subset of the Ecosystems screen and shows if a particular sensor is paired with the Room Controller.

Figure 80: Device Groups Display.

Table 66: 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

Device X

This screen is a subset of the Ecosystems screen and shows data for each paired ZigBee device. The temperature parameter is only visible for ZigBee devices capable of measuring temperature readings. Up to ten (10) Device screens can show.

Note:

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

Figure 81: Device X Display.

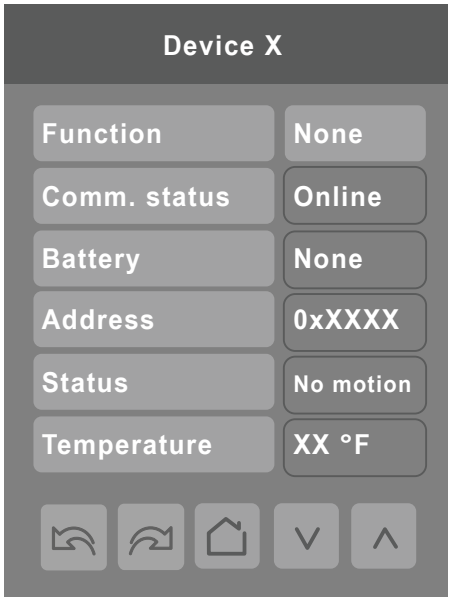


Table 67: Device X Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Function (ZigBee Device Function) **Default Value: None**	Shows status of installed ZigBee device. None: No status reported to the Room Controller Window: Window sensor installed Door: Door sensor installed Motion: Device set to detect motion Status: Updates the BACnet status of the sensor. No action is taken by the Room Controller. Remove: Removes device from Device list Water: Water Leak sensor installed Choices: None, Window, Door, Motion, Status, Remove and Water
Comm. Status (Communication Status) **Default Value: Offline** **Read Only**	Shows if device is communicating with the 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: Nor paired, Online, Offline and Invalid
Battery (Wireless Device Battery) **Default Value: None** **Read Only**	Shows current status of battery in wireless device. Display Readings: None, Normal or Low

Table 68: Device X Parameter Details, continued.

Configuration Parameters Default Value	Significance and Adjustments
Address (Wireless Device Address) **Read Only**	Shows short address of ZigBee PRO end device.
Status (Wireless Device Status) **Read Only**	Shows the following status of ZigBee end device: • None: N/A • Closed: Door and Window Sensors • Opened: Door and Window Sensors • No Motion: Motion Sensor only • Motion: Motion Sensor only • Normal: Water Leak Sensor only • Leak: Water Leak Sensor only
Temperature (Wireless Device Temperature) **Read Only**	Displays the temperature value received from the wireless device. If the wireless device does not support temperature measurement, this object is not displayed.

Temperature Alarm Configuration

This screen is a subset of the Ecosystems screen and triggers an alarm only for the Water sensors with temperature measurement.

Figure 82: Temperature Alarm Configuration Display.

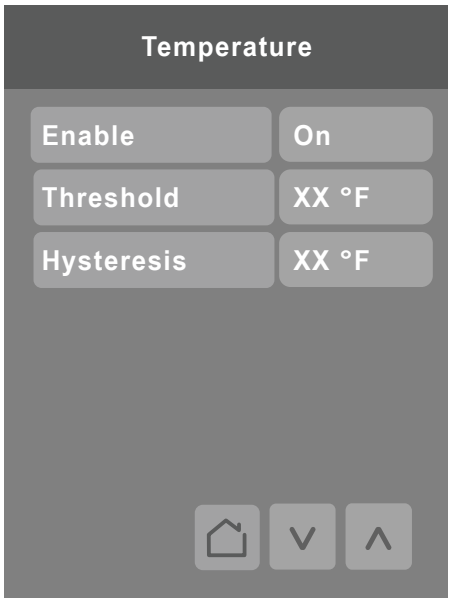


Table 69: Temperature Alarm Configuration Parameter Details.

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. Choices: On or Off
Threshold (Temperature Alarm Threshold) **Default Value: 40 °F (4.5 °C)**	Sets alarm threshold for system temperature sensors. Range: 32° to 45°F (0° to 7°C)
Hysteresis (Temperature Alarm Hysteresis) **Default Value: 4°F (2°C)**	Choices: 0° to 10°F (0° to 5.5°C)

WIRELESS SCREENS

Alarms

For MS8350 and MS8650

Alarms

This screen is a subset of the Ecosystems screen and shows data for each paired ZigBee device.

Figure 83: Alarms Display.

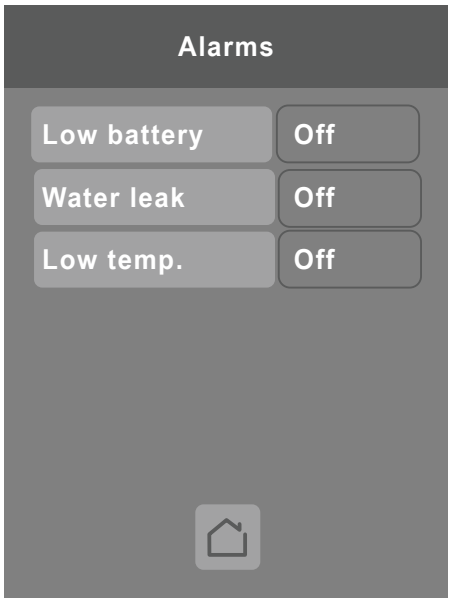


Table 70: Alarms Display Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Low Battery (Low Battery Alarm) **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
Water Leak (Water Leak Sensor Status) **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
Low Temp.(Low Temperature Alarm) **Read Only**	Shows if any water sensor paired device has detected a low temperature (On) or no low temperature detected in any of the water sensor paired devices (Off). Choices: On or Off

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 84: LUA Settings 1 / 3 and 2 / 3 Displays.

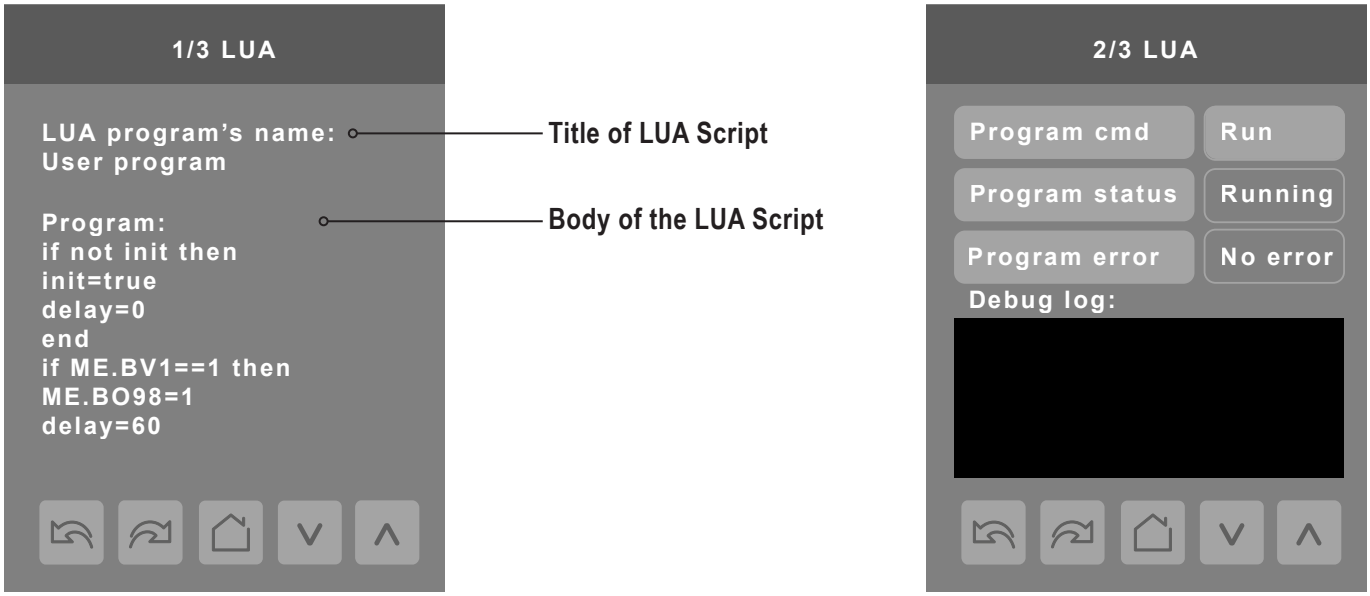


Table 71: LUA Settings Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Program cmd (Program Command) **Default Value: Run**	Run: LUA script activated and runs continuously until deactivated Stop: LUA script deactivated Choices: Stop or Run
Program Status (Program Status) **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
Program Error **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 SCREENS

LUA Generic Parameters 3 / 3

For MS8350 and MS8650

LUA Generic Parameters

The LUA settings include six (6) 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 85: LUA Generic Parameters 3 / 3 Display.

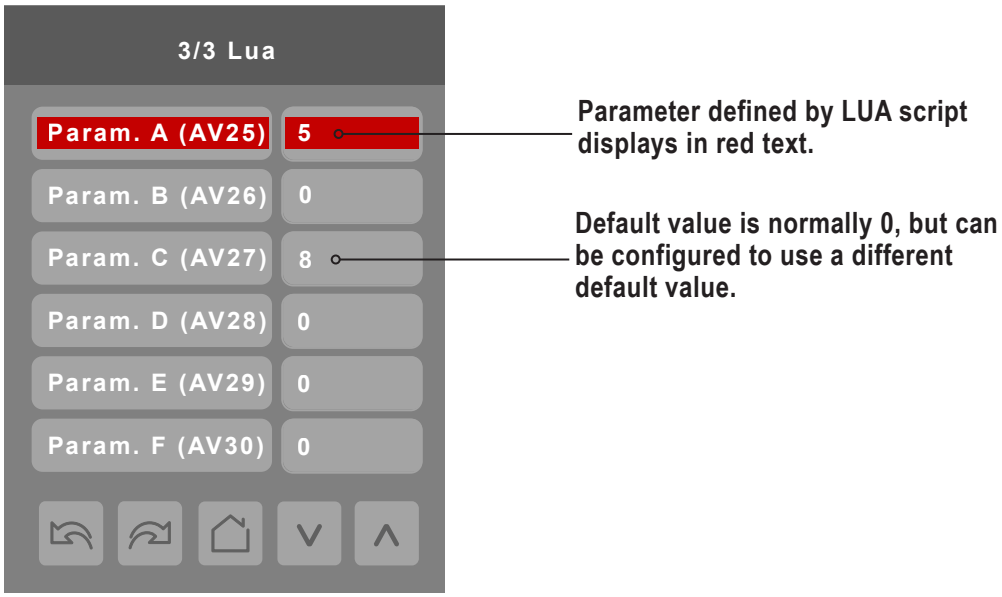


Table 72: LUA Generic Parameters 3 / 3 Parameter Details.

Configuration Parameters Default Value	Significance and Adjustments
Parameter A (AV25) **Default Value: 0**	Default value can be changed by user. The value(s) of this parameter depends on what is assigned to it using the LUA script function.
Parameter B (AV26) **Default Value: 0**	Default value can be changed by user. The value(s) of this parameter depends on what is assigned to it using the LUA script function.
Parameter C (AV27) **Default Value: 0**	Default value can be changed by user. The value(s) of this parameter depends on what is assigned to it using the LUA script function.
Parameter D (AV28) **Default Value: 0**	Default value can be changed by user. The value(s) of this parameter depends on what is assigned to it using the LUA script function.
Parameter E (AV29) **Default Value: 0**	Default value can be changed by user. The value(s) of this parameter depends on what is assigned to it using the LUA script function.
Parameter F (AV30) **Default Value: 0**	Default value can be changed by user. The value(s) of this parameter depends on what is assigned to it using the LUA script function.

LIMITED WARRANTY (USA)

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

LG Electronics, U.S.A., Inc.
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UM_MultiSITE_RoomControllers_MS8000Series_02_24
Supersedes: UM_MultiSITE_RoomControllers_MS8000Series_10_19