



ClimaVision

MYSTAT

Installation & Operations Manual

NOTE: The Installations & Operations Manual is assembled from articles found on the ClimaVision Infohub (infohub.carrierclimavision.com)

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01-MyStat - Product Overview

| What is the MyStat thermostat?

The MyStat thermostat enables demand-controlled conditioning of a specific zone using occupancy, temperature, and humidity sensors. It is compatible with most HVAC systems that operate with standalone heating and cooling.

Additionally, the MyStat:

- Can manage single-stage heating or cooling with a fan, two stages of cooling, and up to three stages of heating
- Can function in standalone mode programmable through a Central Control Unit (CCU)
- Uses ClimaVision proprietary RF communication for use with existing ClimaVision solutions



| Specifications

Power	24V AC/DC (+/-15%) with nominal power consumption of less than 0.3W
Inputs	1 Input which can accept Thermistor (NTC 10K Type 2), 0-10VDC, or Dry Contact. Supports: Supply Air Temp, Generic Alarm NO or NC, Key Card Sensor, or Door/Window Sensor.
Outputs	1 0-10V DC or 4-20mA analog outputs (factory setting) 4 relays rated at 0.3A, 120V AC or 1.0A, 24 V AC/DC resistive load
Sensors	Temperature — Operating range between 32–122° F (0–50° C); typical accuracy of +/- 1° F or 0.2° C Humidity — Sensing range between 0 to 100% RH; Typical accuracy of +/- 2% RH Occupancy — Passive Infra Red (PIR) with detection range of 4m with 110° angle
Communication	Bluetooth — Bluetooth (BLE 4.1) for commissioning, location analysis, or communication to wireless sensors Wireless mesh — 902-928 MHz IEEE 802.15.4-compliant for communication to CCU Wired — Industry Standard RS485 for Modbus or BACnet (coming soon). Mode - server/slave
Screen	TFT LCD, 1.33 in
Dimensions	Diameter — 3-3/8 in (86mm) Depth — 1-1/4 in (32mm)
Mounting	Wall mount

| Compatible Applications

- 2 Pipe Fan Coil Unit
- 4 Pipe Fan Coil Unit (coming soon)
- Rooftop Package Unit
- Heat Pump Unit





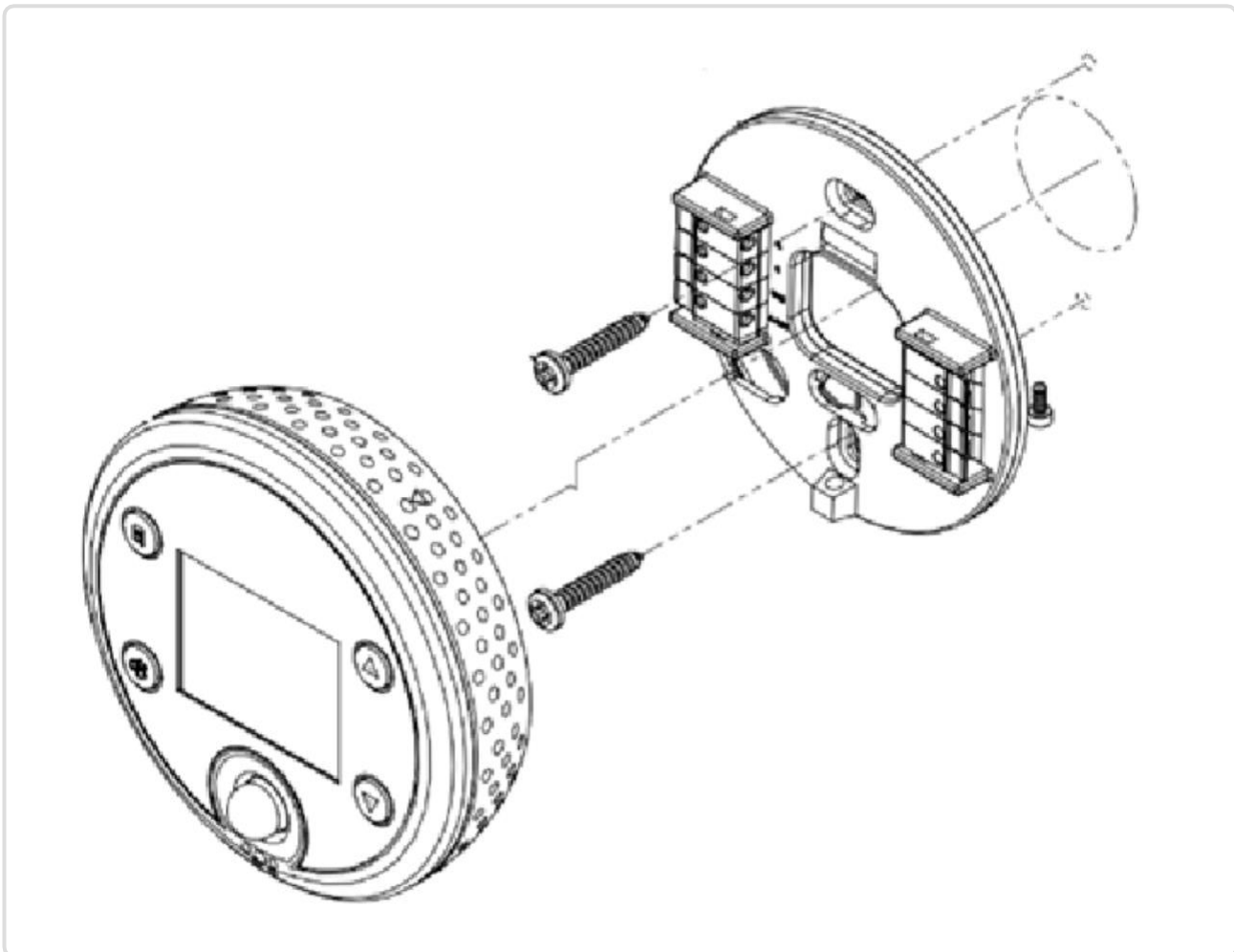
02- MyStat Installation

| Precautions

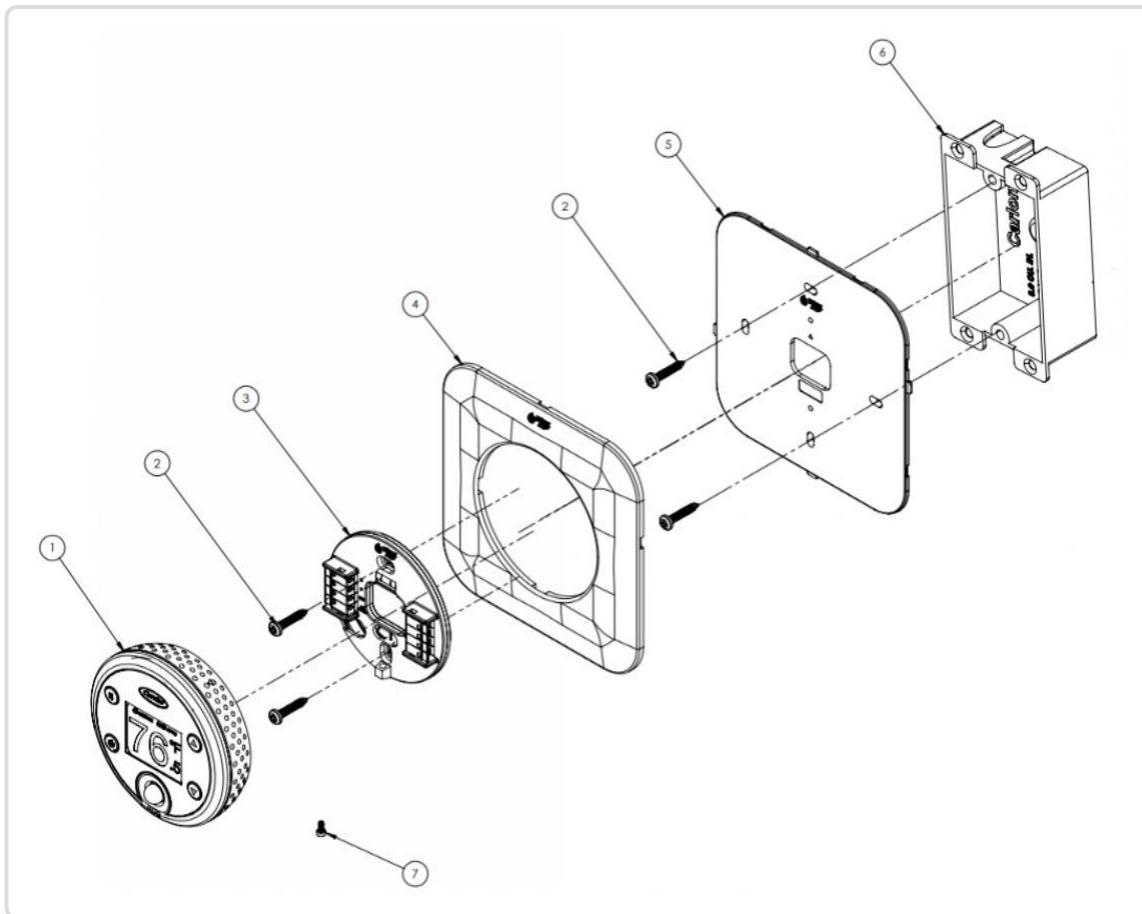
- **Polarity Warning:** Incorrect polarity wiring with a shared transformer can damage powered devices.
- **Power Safety:** Always turn off the power before connecting or disconnecting wiring.
- **Circuit Board Protection:** Ensure powered wires do not touch the circuit boards.
- **Code Compliance:** Install in accordance with all state and local codes.
- **Assembly Caution:** Do not assemble the front to the back plate while the device is powered on.
- **Auto-Calibration:** MyStat requires seven days to auto-calibrate and reach a steady state.
- **Sensor Care:** Avoid mechanical stress on the CO₂ sensor for accurate readings.

| To Mount the MyStat

1. Position the MyStat mounting plate and the back plate over the vertically fixed gang box. Ensure the back plate fully covers the gang box. Then secure both plates to the gang box using the provided Phillips screws.
2. Align the top plastic of the MyStat with the mounting plate. Push gently until it locks into place.
3. Use the provided socket head screw to secure the MyStat to the mounting plate.

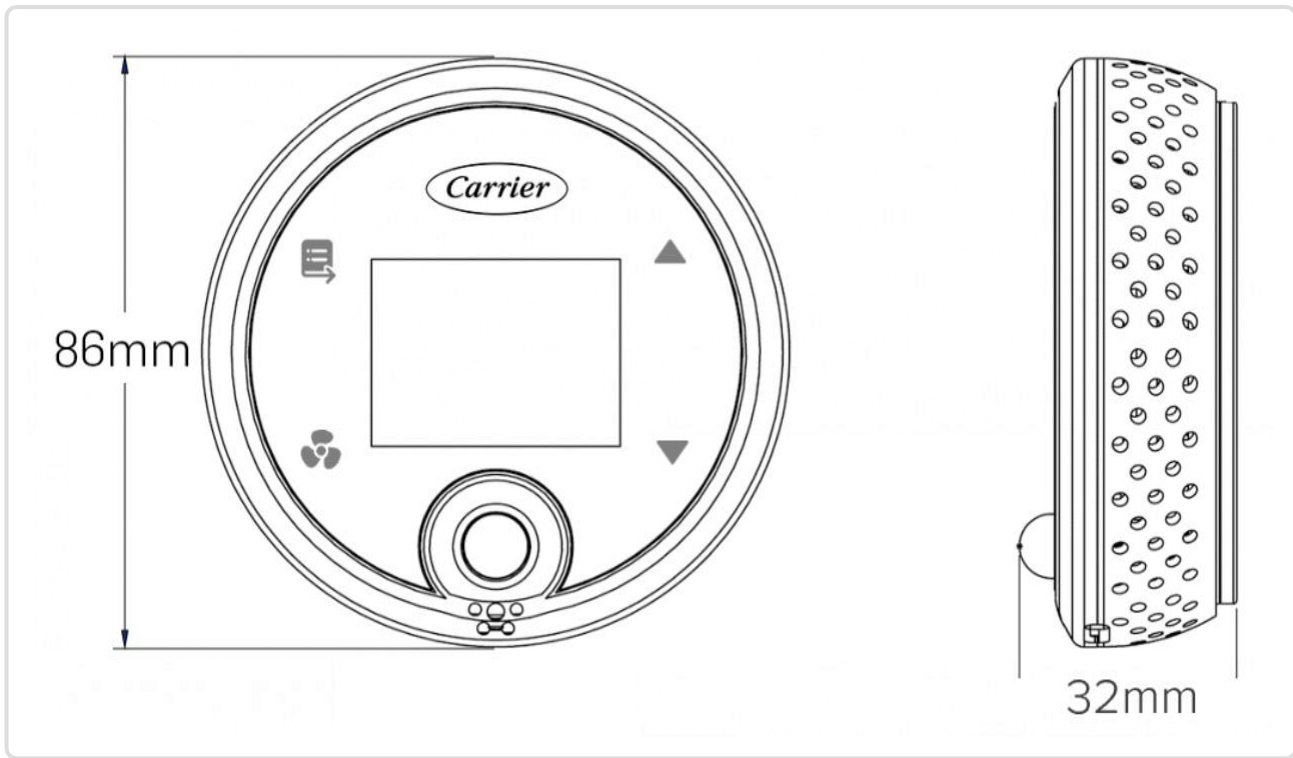


Drywall mounting illustration



Electrical box mounting illustration

1. MyStat (included in box)	4. Gang Plate 1 (included in box)
2. Mounting Screws (included in box)	5. Gang Plate 2 (included in box)
3. Mounting Plate (included in box)	6. Gang Box (NOT included in box)

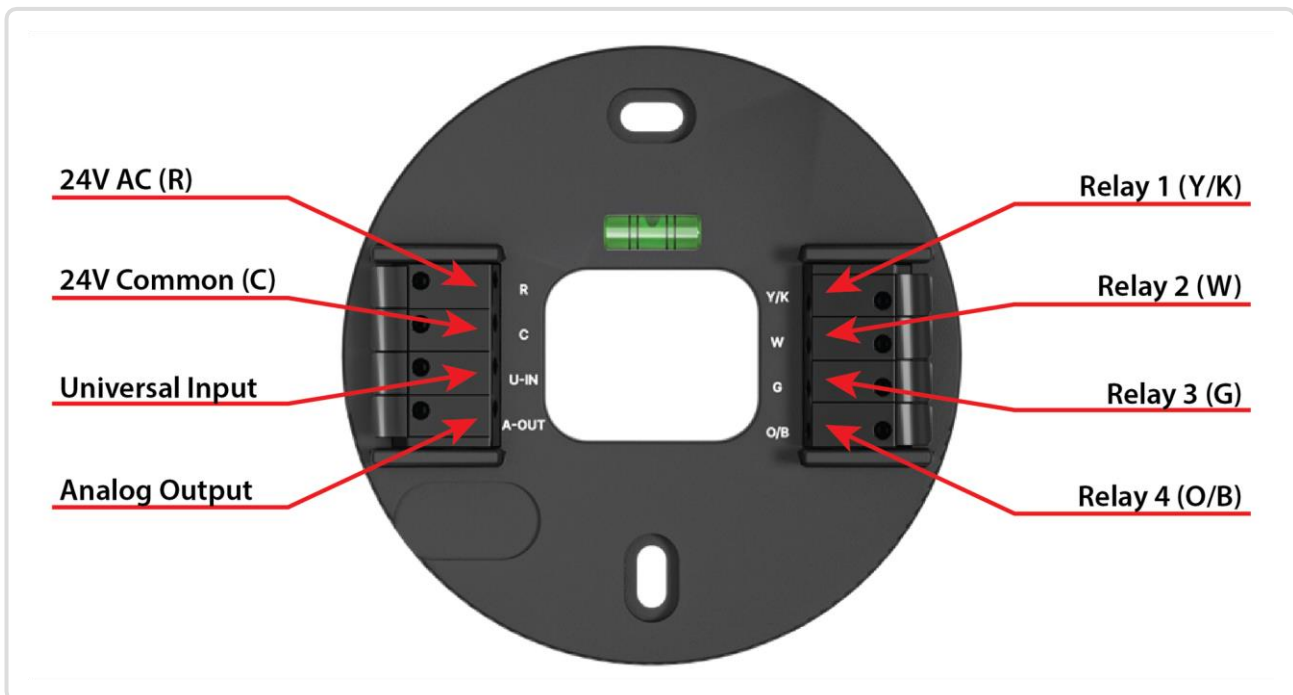


| To Disassemble the MyStat

Remove the socket head screw. If the MyStat is wall-mounted, grasp the front plastic and gently pull it away from the wall.

| To Wire the MyStat

Recommended wiring: 18 gauge solid or stranded



| Conventional Package Unit (CPU) Profile - I/O Configuration Options

I/O Type	Purpose	Default Configuration	Configuration Options
Relay 1	To enable staged conditioning controls	Cooling Stage 1	Cooling Stage 1 Cooling Stage 2 Heating Stage 1 Heating Stage 2 Fan Low Speed Fan High Speed Fan Enable Occupied Enable Humidifier Dehumidifier Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Fan Low Speed	
Relay 3	To enable staged conditioning controls	Heating Stage 1	
Relay 4	To enable staged conditioning controls	Fan High Speed	
Analog Out	To enable modulating conditioning controls	Water Modulating Valve	Cooling Linear Fan Speed Heating Staged Fan Speed Externally Mapped DCV Modulating Damper
Universal In	To enable the supply water temperature measurement	Key Card Sensor (AI)	Supply Air Temperature Generic Alarm NO Generic Alarm NC Key Card Sensor (AI) Door/Window (N/C) - Title 24 Door/Window (AI) - Title 24

| 2-Pipe Fan Coil Unit Profile - Configuration Options

I/O Type	Purpose	Default Configuration	Configuration Options
Relay 1	To enable staged conditioning controls	Water Valve	Fan Low Speed Fan High Speed Aux Heating Water Valve Fan Enable Occupied Enable Humidifier Dehumidifier Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Fan Low Speed	
Relay 3	To enable staged conditioning controls	Aux Heating	
Relay 4	To enable staged conditioning controls	Fan High Speed	

Analog Out	To enable modulating conditioning controls	Water Modulating Valve	WaterModulating Valve Fan Speed Externally Mapped DCV Modulating Damper
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I/O Type	Purpose	Default Configuration	Configuration Options
Universal In	To enable the supply water temperature measurement	Supply Water Temperature	Supply Water Temperature

| Heat Pump Profile - I/O Configuration Options

I/O Type	Purpose	Default Configuration	Configuration Options
Relay 1	To enable staged conditioning controls	Compressor Stage 1	Compressor Stage 1 Compressor Stage 2 Aux Heating Fan Low Speed Fan High Speed Fan Enable Occupied Enable Humidifier Dehumidifier 0 - Energize in Cooling B - Energize in Heating Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Aux Heating	
Relay 3	To enable staged conditioning controls	Fan Low Speed	
Relay 4	To enable staged conditioning controls	0 - Energize in Cooling	
Analog Out	To enable modulating conditioning controls	Compressor Speed	Compressor Speed Fan Speed Externally Mapped DCV Modulating Damper
Universal In	To enable the supply water temperature measurement	Key Card Sensor (AI)	Supply Air Temperature Generic Alarm NO Generic Alarm NC Key Card Sensor (AI) Door/Window (N/C) - Title 24 Door/Window (AI)

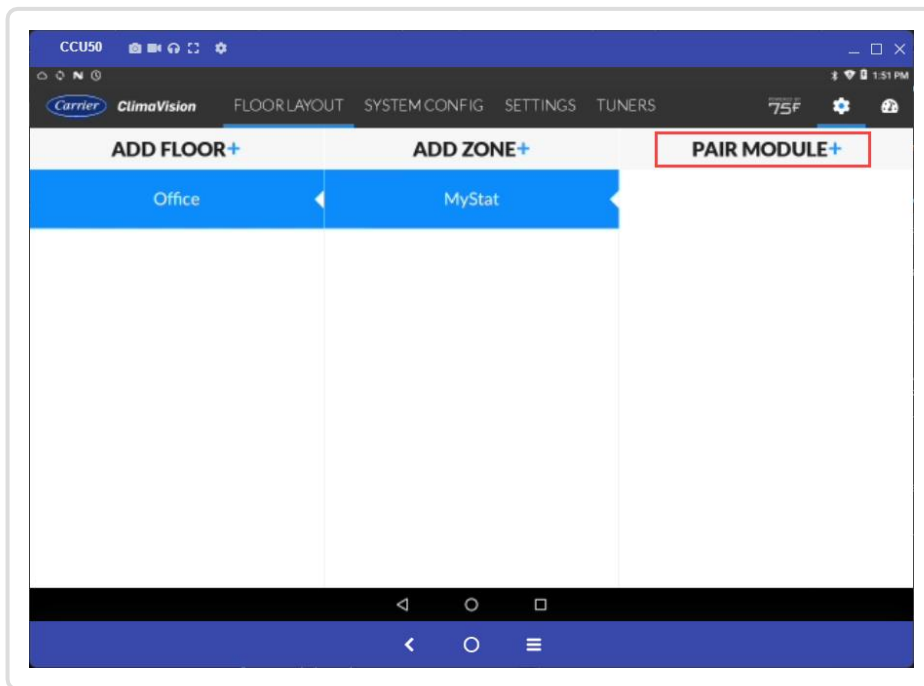
03-MyStat Startup

| Pairing to CCU

Pairing the MyStat with the Central Control Unit (CCU) allows it to communicate with the CCU and terminal-level equipment in the ClimaVision system.

Steps For Pairing

1. In the CCU interface, in the **Floor Layout** tab, add a floor and a zone. Then click **Pair Module** to pair a module as a MyStat terminal profile.



1. On the **Select Device Type** screen, select the MyStat.
2. On the **Select Module Type** screen, select a profile.
3. On the MyStat, press and hold both the up and down arrow buttons for 3 seconds. Then press



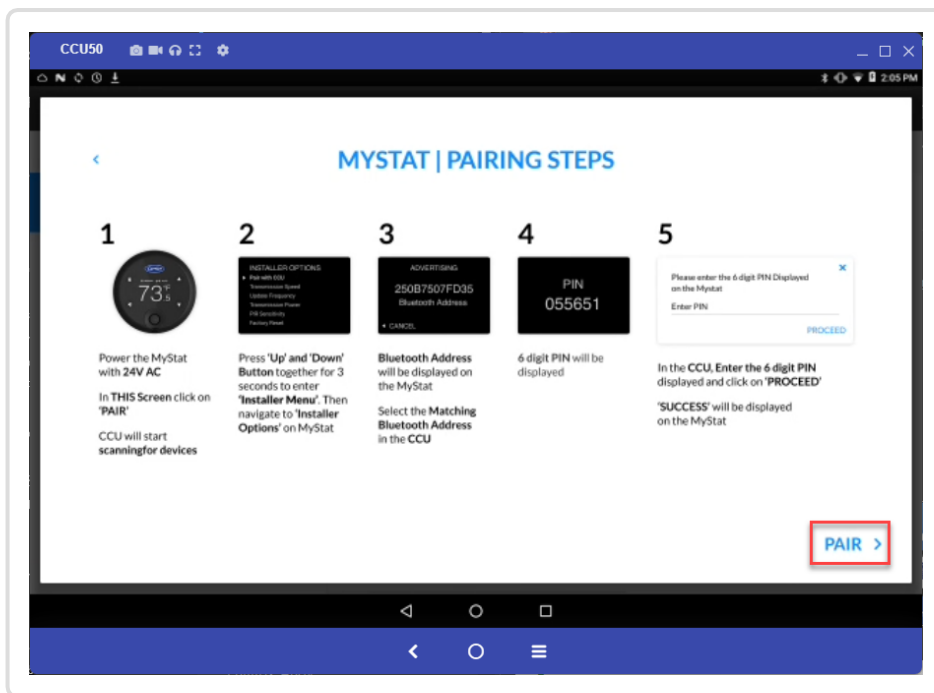
to navigate to the **Installer Options** screen.

4. Use the up and down arrow buttons to navigate to **Pair with CCU**. Then press



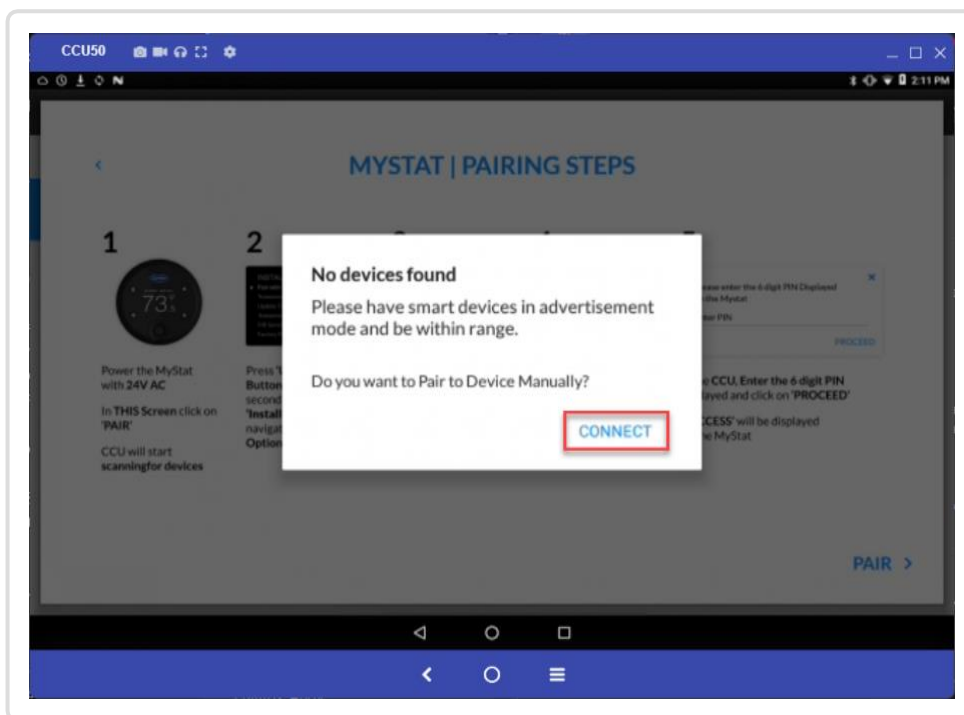
to select.

5. In the CCU interface, select the Bluetooth address that matches the one shown on the MyStat's **Advertising** screen.
6. In the CCU interface, enter the 6-digit PIN shown on the MyStat's **Advertising** screen and click **Proceed**.
7. On the **Pairing Steps** screen, click **Pair**.

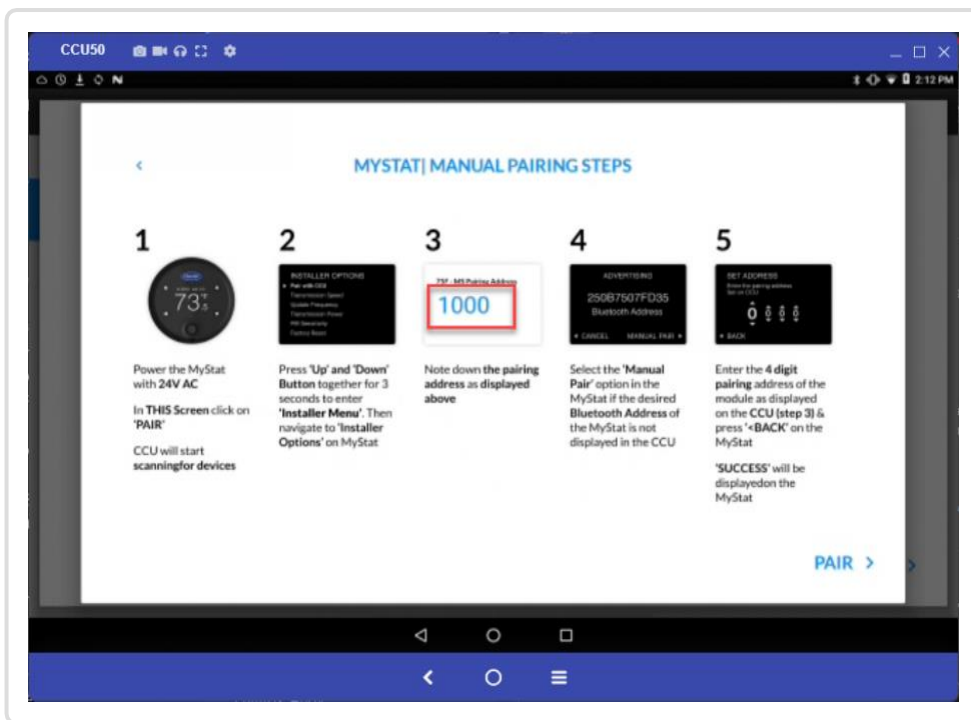


Alternate Pairing Method (Not Using Bluetooth)

If there are no devices found after attempting to pair, or the desired device does not appear as an available device, click **Connect** to pair the MyStat manually.



Note the pairing address displayed in step 3 of the **Manual Pairing Steps** screen shown below. You will enter this address into the MyStat.



1. On the MyStat, press and hold both the up and down arrow buttons for 3 seconds. Then press



to navigate to the **Installer Options** screen.

2. Use the up and down arrow buttons to navigate to **Pair with CCU**. Then press



to select.

3. Wait 15 seconds. When the **Manual Pair** option appears on the **Advertising** screen, press the down arrow button to select it.

4. On the **LwMesh Address** screen, enter the pairing address displayed on the **Manual Pairing Steps** screen in the CCU interface. Use the down arrow button to adjust the value and press



to select the next digit.

5. Press the



button on the MyStat to confirm the pairing address.

6. In the CCU interface **Manual Pairing Steps** screen, click **Pair**.

Once paired, choose and configure a profile.

| Choosing the right profile

The following profiles (control algorithms) are available for the MyStat:

- [Conventional Package Unit \(CPU\)](#)
- [2 Pipe Fan Coil Unit](#)

- [Heat Pump Unit \(HPU\)](#)

- 4 Pipe Fan Coil Unit - Coming soon

| Conventional Package Unit (CPU) Profile - I/O Configuration Options

I/O Type	Purpose	Default Configuration	Configuration Options
Relay 1	To enable staged conditioning controls	Cooling Stage 1	Cooling Stage 1 Cooling Stage 2 Heating Stage 1 Heating Stage 2 Fan Low Speed Fan High Speed Fan Enable Occupied Enable Humidifier Dehumidifier Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Fan Low Speed	
Relay 3	To enable staged conditioning controls	Heating Stage 1	
Relay 4	To enable staged conditioning controls	Fan High Speed	
Analog Out	To enable modulating conditioning controls	Water Modulating Valve	Cooling Linear Fan Speed Heating Staged Fan Speed Externally Mapped DCV Modulating Damper
Universal In	To enable the supply water temperature measurement	Key Card Sensor (AI)	Supply Air Temperature Generic Alarm NO Generic Alarm NC Key Card Sensor (AI) Door/Window (N/C) - Title 24 Door/Window (AI) - Title 24

| 2-Pipe Fan Coil Unit Profile - I/O Configuration Options

I/O Type	Purpose	Default Configuration	Configuration Options
Relay 1	To enable staged conditioning controls	Water Valve	Fan Low Speed Fan High Speed Aux Heating Water Valve Fan Enable Occupied Enable Humidifier Dehumidifier Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Fan Low Speed	
Relay 3	To enable staged conditioning controls	Aux Heating	
Relay 4	To enable staged conditioning controls	Fan High Speed	

Analog Out	To enable modulating conditioning controls	Water Modulating Valve	WaterModulating Valve Fan Speed Externally Mapped DCV Modulating Damper
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I/O Type	Purpose	Default Configuration	Configuration Options
Universal In	To enable the supply water temperature measurement	Supply Water Temperature	Supply Water Temperature

| Heat Pump Unit Profile - I/O Configuration Options

I/O Type	Purpose	Default Configuration	Configuration Options
Relay 1	To enable staged conditioning controls	Compressor Stage 1	Compressor Stage 1 Compressor Stage 2 Aux Heating Fan Low Speed Fan High Speed Fan Enable Occupied Enable Humidifier Dehumidifier 0 - Energize in Cooling B - Energize in Heating Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Aux Heating	
Relay 3	To enable staged conditioning controls	Fan Low Speed	
Relay 4	To enable staged conditioning controls	0 - Energize in Cooling	
Analog Out	To enable modulating conditioning controls	Compressor Speed	Compressor Speed Fan Speed Externally Mapped DCV Modulating Damper
Universal In	To enable the supply water temperature measurement	Key Card Sensor (AI)	Supply Air Temperature Generic Alarm NO Generic Alarm NC Key Card Sensor (AI) Door/Window (N/C) - Title 24 Door/Window (AI)

| Scheduling

See [Schedules and Schedule States](#) for information on scheduling in the ClimaVision web interface.





| Alerts

See [Managing Alerts in ClimaVision Web UI Portal](#) and [Managing Alerts in the ClimaVision Web UI Mobile App](#).

| MyStat User Interface - Basic Functions

See the steps below to perform basic functions on the MyStat.

To...	Do the following...
Adjust the setpoint	Press the up or down arrow buttons.

Change the conditioning mode	<p>Press the</p>  <p>button to enter the Conditioning Modes screen, then press</p>  <p>again to select a mode.</p> <p>The MyStat automatically switches back to the home screen after a few seconds.</p>
Change the fan mode	<p>Press the</p>  <p>button to enter the Fan Speed screen, then press</p>  <p>again to select a mode.</p> <p>The MyStat automatically switches back to the home screen after a few seconds.</p>

Note: If the MyStat zone is assigned to a named schedule, setpoint adjustments only remain in effect until the next schedule change. If a zone schedule is assigned, the setpoint adjustments are permanent.

| MyStat User Interface - Installer Options

You can view and configure certain parameters in the MyStat. See the steps below.

1. On the MyStat, press and hold both the up and down arrow buttons for 3 seconds. Then press



to navigate between the option screens.

2. Use the up and down arrow buttons to navigate to a menu item. Then press



to select.

3. Press the up and down arrow buttons to change the setting.

4. Press



to exit the selection.

5. Press



to navigate back to the home screen.

Screen	Menu item and description	States
Inputs	Room Temp - MyStat's onboard temperature sensor	deg F or C
	Humidity - MyStat's onboard humidity sensor	% RH
	Occupancy - MyStat's onboard occupancy (PIR) sensor	0 or 1
	Universal IN - This input can be configured as an Analog or Thermistor input based on the sensor connected.	Depends on configuration and sensor type. See I/O configuration table above.
Outputs	Relays 1-4 - Outputs to control external devices like HVAC stages or fans	
	Analog Out - Provides analog output signal for external control	
Version	Room - Displays the zone name	Zone name
	Pairing Address - Unique address used for device pairing	Example: 1001
	FW Version - Firmware version	Example: 1.6
	Serial Number - Unique identifier for the device	6 digits
HVAC Options	Temp Offset - Adjusts displayed temperature by a set value	
	Temp Mode - Heating, cooling, or auto mode selection	
	Temp Unit - Fahrenheit or Celsius	Fahrenheit or Celsius
	Humidify Over - Activates humidification above setpoint	
	Dehumidify Under - Activates dehumidification below setpoint	
Installer Options	Pair with CCU - Initiates the Advertising screen	
	Transmission Speed - Transmission speed setting of 900 mHz mesh network	Low (default) or Medium
	Transmission Power - Power setting of 900 mHz mesh network	11 dBm (default), 8, 5, 2, -1
	Factory Reset - Initiates factory reset of MyStat	
	Configure PIN - Allows an installer to set a PIN to lock out a user from making configuration changes	4-digit PIN (0000) default
HVAC Profile	Select Profile - Choose a predefined operating profile	
	Configure Profile - Customize settings for a selected profile	

04- MyStat Troubleshooting

| Communication

- [Why is my device not pairing?](#)
- [I can pair to the MyStat, but it doesn't communicate to the CCU on the 900 MHz network](#)
- [Learn about the 900MHz wireless mesh network](#)

| I/O Issues

- [Checkout inputs and output on the MyStat installer screens \(see MyStat UI Navigation\)](#)

| To get the serial number and software version

1. On the MyStat, press and hold both the up and down arrow buttons for 3 seconds.
2. Press



repeatedly until you reach the **Version** screen.

3. Locate the **Serial Number** and **FW Version** fields.

| To revert to default settings (factory reset)

1. On the MyStat, press and hold both the up and down arrow buttons for 3 seconds.
2. Press










repeatedly until you reach the **Installer Options** screen.

3. Use the up and down arrow buttons to navigate to **Factory Reset**. Then press



to select.

05-MyStat Compliance

Certifications							
	UL Listed for Canada and North America	UL Fire tested under UL2043	Federal Communications Commission	Industry Canada	Conformité Européenne	And Digital Government Regulatory	California Energy Commission
Stats and Node							
SmartNode	✓	✓	✓	✓			
Smart Node v2	In progress	In progress	✓	✓	In progress	Planned	
HelioNode	✓						
HyperStat	✓		✓	✓			
Tablet - XR			✓	✓	Planned		✓
CM - XR			✓	✓		Planned	
HyperSense *	✓						
MyStat	In progress				In progress	Planned	
HyperStat Split - HyperLite	✓		✓	✓			✓
Connect Module	✓	In progress					
Tablet - IProda			✓	✓	In progress		✓
CM4.2							
Sensors							
Wall Sensor							
Ceiling Sensor							
Sensor		✓					
Differential Pressure		Planned					
Sensor v2							
Duct Sensor V2		✓					
Multi sensor							
Multi sensor v2							
MySense							
Wireless Multi Sensor							
Universal Sensor Platform		In progress					
1							

06-Updating the software or profile

Before contacting support, note the software version of your MyStat.

To locate the MyStat software version

1. On the MyStat, press and hold both the up and down arrow buttons for 3 seconds.
2. Press



repeatedly until you reach the **Version** screen.

3. Locate the **FW Version** field.

To update the MyStat to a new version, follow the instructions in this article:

[Updating Device Software Revision](#)

07-MyStat Sequence of Operations

[MyStat Conventional Package Unit \(CPU\)](#)

[MyStat 2 Pipe Fan Coil Unit](#)

[MyStat Heat Pump Unit \(HPU\)](#)

MyStat Conventional Package Unit (CPU)

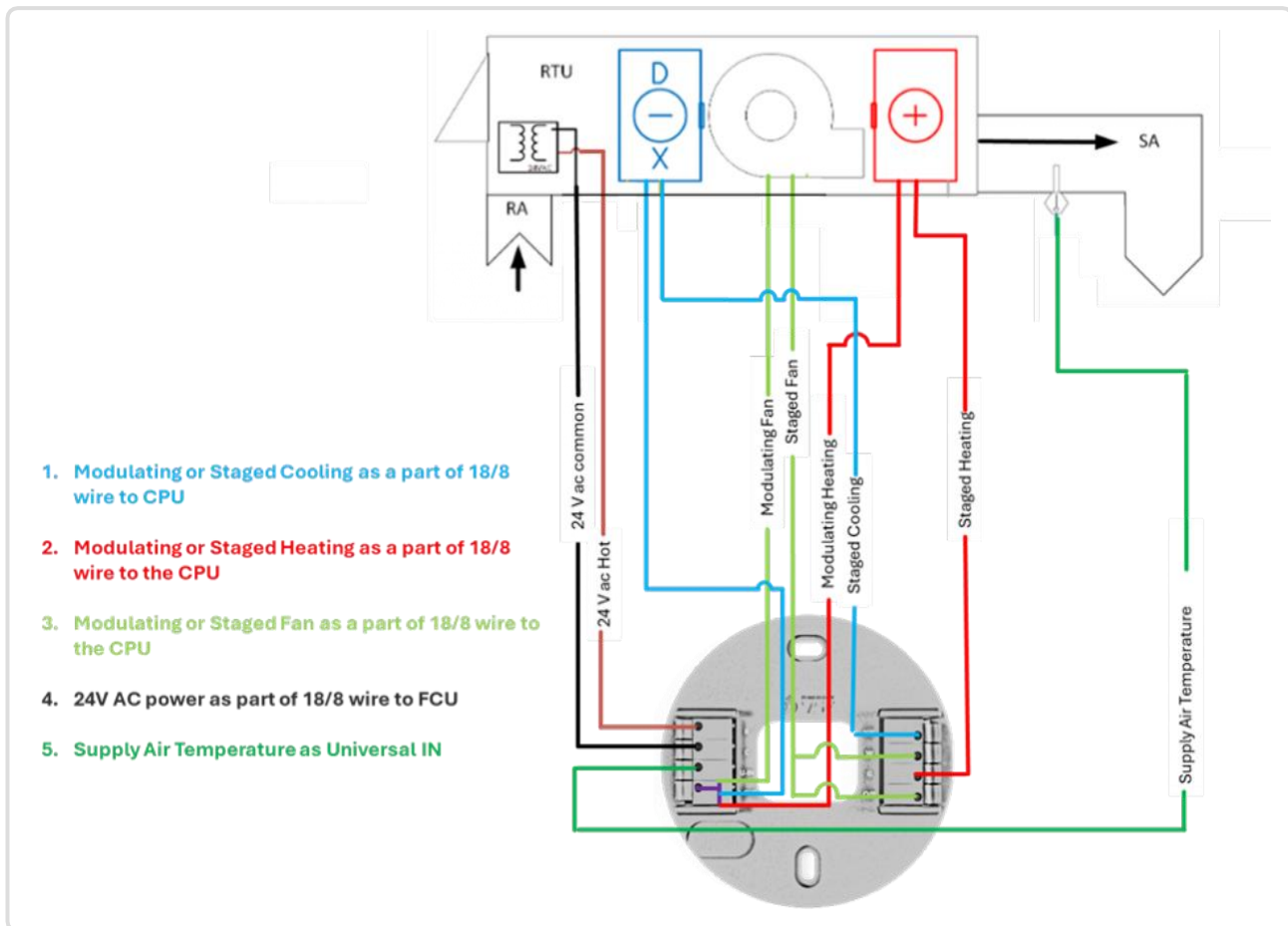
| Overview

The Carrier ClimaVision MyStat Conventional Package Unit profile is a standalone profile that provides heating and cooling equipment controls for conditioning.

The Mystat provides the flexibility to choose between fully modulating and staged equipment control. Possible equipment configurations include:

- 2-stage cooling equipment control
- 2-stage heating equipment control
- 2-stage fan speed control
- Linear and staged fans for cooling and heating equipment control
- 1 universal input
- Fan Enabled and Occupied Enable
- Humidifier and dehumidifier controls

| Wiring



Configuration Steps

Before configuring the profile, you must first pair the MyStat to the CCU. See "Pairing to CCU" in [MyStat Start-up](#).

Once paired, configure the profile parameters. See the table below. Then click **Save**.

CONVENTIONAL PACKAGE UNIT

Temperature Offset

-0.1

0.0

0.1

Auto Force Occupied ☐

Auto Away ☐

Y

W

G

O/B

ENABLE

MAPPING

TEST SIGNAL

☒ Relay 1

Cooling Stage 1

OFF

☒ Relay 2

Fan Low Speed

OFF

☒ Relay 3

Heating Stage 1

OFF

AO

UI

☒ Relay 4

Fan High Speed

OFF

☒ Analog-Out

Cooling

0.0

☒ Universal-In

Key Card Sensor (AI)

CO2 Control ☐

Analog-out at Min Cooling 2 V

Analog-out at Max Cooling 10 V

SAVE

Parameter	Purpose	Default Value	Values in the drop-down list
Temperature Offset	To set the temperature offset value for the profile.	0 (° F)	Range from -10 to + 10 in . 1 increments
Auto Force Occupied	To enable Auto force occupied Note: Auto Forced occupied/forced occupied and Auto-Away cannot work together.	Disabled	Enable

Auto-Away	To enable auto-away Note: Auto Forced occupied/forced occupied and Auto-Away cannot work together.	Disabled	NA
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Relay 1	To enable staged conditioning controls	Cooling Stage 1	Cooling Stage 1 Cooling Stage 2 Heating Stage 1 Heating Stage 2 Fan Low Speed Fan High Speed Fan Enable Occupied Enable Humidifier Dehumidifier Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Fan Low Speed	
Relay 3	To enable staged conditioning controls	Heating Stage 1	
Relay 4	To enable staged conditioning controls	Fan High Speed	
Analog Out	To enable modulating conditioning controls	Water Modu - lating Valve	Cooling Linear Fan Speed Heating Staged Fan Speed Externally Mapped DCV Modulating Damper
Universal In	To enable the supply water temperature measurement	Key Card Sensor (AI)	Supply Air Temperature Generic Alarm NO Generic Alarm NC Key Card Sensor (AI) Door/Window (N/C) - Title 24 Door/Window (AI) - Title 24

| Control System Object List

Object Name	Type	Input/Output Type/Default Value
Heating Desired Temp	User Intent	NA
Cooling Desired Temp	User Intent	NA
Current Temp	Input	MyStat
Humidity	Input	MyStat
User Cooling Max Limit	User Intent	NA
User Cooling Min Limit	User Intent	NA
User Heating Max Limit	User Intent	NA
User Heating Min Limit	User Intent	NA
Conditioning Mode	User Intent	NA
Operation Mode	Input	NA
Fan Mode	User Intent	NA
Occupancy Mode	Input	MyStat Onboard
Cooling Stage 1	Output	MyStat Relay
Cooling Stage 2	Output	MyStat Relay
Fan Low Speed	Output	MyStat Relay
Fan High Speed	Output	MyStat Relay
Heating Stage 1	Output	MyStat Relay
Heating Stage 2	Output	MyStat Relay
Fan Enabled	Output	MyStat Relay
Humidifier	Output	MyStat Relay
Dehumidifier	Output	MyStat Relay
Modulating Cooling	Output	MyStat AnalogOut
Modulating Heating	Output	MyStat AnalogOut
Modulating Linear Fan Speed	Output	MyStat AnalogOut
Modulating Staged Fan Speed	Output	MyStat AnalogOut
Keycard Sensor	Input	MyStat Analog In
Door/Window Sensor	Input	MyStat Analog In
analogFanSpeedMultiplier	Tuner	1

standalonehumidityHyteresis	Tuner	5 %RH
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Note: For a comprehensive list of tuners and their details, refer to the [Tuners Complete List](#).

| Sequence of Operation

The sequence of operation is driven based on **Occupancy mode**, **Space Current Temperature**, and the set **Cooling and Heating Desired Temperatures**.

The sections below describe the sequence of operations based on the occupancy modes, and how the other factors contribute to the sequence of operations during different types of occupancy modes.

| Occupancy Modes

The occupancy mode (Occupied or Unoccupied) is determined through a user-adjustable, graphical, seven-day schedule with a holiday schedule, alongside the configurable auto-away and forced occupied options (external schedule influencers) for optimized controls and enhanced energy savings.

Based on the above aspects factoring into the occupancy, the following can be the possible applicable occupancy modes:

- Pre-conditioning
- Occupied
- Unoccupied
- Auto-away
- Forced Occupied

| Sequence of Operation During Pre-conditioning

Warm-up:

If the space temperature is below the occupied heating temperature setpoint, the pre-conditioning initiates the morning warm-up via **HeatingLoopOutput**.

The FanLoopOutput is enabled based on **HeatingLoopOutput** ($\text{FanLoopOutput} = \text{HeatingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$).

The **DCVLoopOutput** based on the zone CO2 levels is disabled if configured.

Pre-cooling:

Suppose the space temperature is above the occupied space cooling temperature setpoint, the pre-conditioning shall initiate the morning pre-cooling via **CoolingLoopOutput**

The FanLoopOutput is enabled based on **HeatingLoopOutput** ($\text{FanLoopOutput} = \text{HeatingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$)

The **DCVLoopOutput** based on the zone CO2 levels is disabled if configured.

| Sequence of Operation During Occupied

At all occupied times: (based on a set schedule)

The device maintains a space temperature within the Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

- A minimum fan speed is maintained
- The minimum fan analog voltages are set to 2V (customizable) for linear fans
- A recirculation fan speed voltage for staged fans

During Heating:

- When the space current temperature falls below the Heating Desired Temperature the **HeatingLoopOutput** is enabled based on the difference in the space current temperature and heating desired temperature.
- The FanLoopOutput is enabled based in **HeatingLoopOutput**
(**FanLoopOutput=HeatingLoopOutput* analogFanSpeedMultiplier(1))**

During Cooling:

- When the space current temperature is above Cooling Desired Temperature the **CoolingLoopOutput** is enabled based on the difference in the space current temperature and cooling desired temperature.
- The FanLoopOutput is enabled based on **CoolingLoopOutput**
(**FanLoopOutput=CoolingLoopOutput* analogFanSpeedMultiplier(1))**
- When the space CO2 level is above the CO2 threshold set, the dcvLoopOutput is enabled with the **dcvCalculatedDamperPos** is determined by the loop calculated using the MyStat Co2 sensor & **zoneCO2Threshold**, modulating between the analogOutxAtMinDCVDamperPos and analogOutxAtMaxDCVDamperPos

Humidifier:

The humidifier modulates to maintain a return air humidity setpoint of 45% (adjustable), subject to the duct's high limit setpoint of 90% (adjustable). Humidification is locked out whenever the fan is de-energized or the duct humidity exceeds the high limit setpoint.

| Sequence of Operation During Autoaway

- The range of Heating Desired Temperature and Cooling Desired Temperature drifts further away.
- The device maintains a space temperature within the newly set Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

FanLoopOutput, **HeatingLoopOutput**, & **CoolingLoopOutput**, are disabled

During Heating:

- When the space current temperature falls below the heating autoaway setback temperature, the **HeatingLoopOutput** is enabled. based on the difference in the space's current temperature and the heating autoaway setback temperature.
- The **FanLoopOutput** is enabled based on **HeatingLoopOutput** ($\text{FanLoopOutput} = \text{HeatingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$)
- The **DCVLoopOutput** based on the zone CO2 levels is disabled if configured.

During Cooling:

- When the space current is above the cooling autoaway setback temperature, the **CoolingLoopOutput** is enabled. based on the difference in the space's current temperature and the cooling autoaway setback temperature
- The **FanLoopOutput** is enabled based on **CoolingLoopOutput** ($\text{FanLoopOutput} = \text{CoolingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$)
- The **DCVLoopOutput** based on the zone CO2 levels is disabled if configured.

| Sequence of operation during unoccupied

- The range of Heating Desired Temperature and Cooling Desired Temperature drifts further away.
- The device maintains a space temperature within the newly set Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

FanLoopOutput, **HeatingLoopOutput**, & **CoolingLoopOutput**, are disabled

During Heating:

- When the space current temperature falls below the heating unoccupied setback temperature, the **HeatingLoopOutput** is enabled based on the difference in the space's current temperature and the heating unoccupied setback temperature.
- The **FanLoopOutput** is enabled based on **HeatingLoopOutput** ($\text{FanLoopOutput} = \text{HeatingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$)
- The **DCVLoopOutput** based on the zone CO2 levels is disabled if configured.

During Cooling:

- When the space current temperature is above the cooling unoccupied setback temperature, the **CoolingLoopOutput** is enabled based on the difference in the space's current temperature and the cooling unoccupied setback temperature.
- The **FanLoopOutput** is enabled based on **CoolingLoopOutput** ($\text{FanLoopOutput} = \text{CoolingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$)
- The **DCVLoopOutput** based on the zone CO2 levels is disabled if configured.

| Sequence of Operation During Forced Occupied

The device maintains a space temperature within the Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

A minimum **FanLoopOutput** is enabled regardless of no conditioning.

During Heating:

- When the space current temperature falls below the Heating Desired Temperature the **HeatingLoopOutput** is enabled based on the difference in the space current temperature and heating desired temperature.
- The FanLoopOutput is enabled based on **HeatingLoopOutput (FanLoopOutput= HeatingLoopOutput* analogFanSpeedMultiplier(1))**
- When the space CO2 level is above the CO2 threshold set, the **dcvLoopOutput** is enabled with the **dcvCalculatedDamperPos** is determined by the loop calculated using the sensor **MyStatCo2 & zoneCO2Threshold**, modulating between the **analogOutxAtMinDCVDamperPos** and **analogOutxAtMaxDCVDamperPos**

During Cooling:

- When the space current temperature is above the Cooling Desired Temperature the **CoolingLoopOutput** is enabled, based on the difference in the space current temperature and cooling desired temperature.
- The FanLoopOutput is enabled based on **CoolingLoopOutput (FanLoopOutput= CoolingLoopOutput* analogFanSpeedMultiplier(1))**
- When the space CO2 level is above the CO2 threshold set, the **dcvLoopOutput** is enabled. based on the following if enabled.
- If the **Zone CO2 value > zoneCO2Threshold** then the DCV damper control triggers based on the DCV loop output.
- If the **Zone CO2 value < zoneCO2Threshold** there will be no DCV damper trigger, and the relay will be set to OFF.
- When the space CO2 level is above the CO2 threshold set, the **dcvLoopOutput** is enabled with the **dcvCalculatedDamperPos** is determined by the loop calculated using the **MyStatCo2 & zoneCO2Threshold**, modulating between the **analogOutxAtMinDCVDamperPos** and **analogOutxAtMaxDCVDamperPos**

| Sequence of Operation During Emergency Dead

When building limits are violated, and the recorded temperature is within the building limit plus leeway the conditioning will happen in the direction of zone load.

| Sequence of Operation During Temp Dead

When the building temperature breaches the building limits beyond the leeway limits all the following loops are disabled:

- CoolingLoopOutput
- HeatingLoopOutput

- FanLoopOutput
- dcvLoopOutput

| Humidifier Control

The humidifier is turned **ON** whenever the humidity level for the system drops below the **targetMinInsideHumidty** set. The humidifier is turned **OFF** after being turned on when the humidity levels go **humidityHysteresis** above the **targetMinInsideHumidty**. Humidity control will not be maintained during **UNOCCUPIED** or **VACATION** modes.

| DeHumidifier Control

If the dehumidifier is selected, it turns **ON** whenever the humidity level for the system goes above the **targetMaxInsideHumidty** set. The dehumidifier will be turned **OFF** after being turned on when the humidity drops **humidityHysteresis** below the **targetMaxInsideHumidty**. Dehumidifier control will not be maintained during **UNOCCUPIED** or **VACATION** modes.

Note: The humidity level for the system is either the average level reported by all the zones serviced by the RTU/AHU.

| Control Mode Summary

Modes & Operation	Pre-Conditioning	Occupied	AutoAway
Auto	(HeatingLoopOutput FanLoopOutput) / (CoolingLoopOutput FanLoopOutput	(HeatingLoopOutput FanLoopOutput dcvLoopOutput) / (CoolingLoopOutput FanLoopOutput dcvLoopOutput	(HeatingLoopOutput FanLoopOutput) / (CoolingLoopOutput FanLoopOutput)
Heat Only	HeatingLoopOutput FanLoopOutput	HeatingLoopOutput FanLoopOutput dcvLoopOutput	HeatingLoopOutput FanLoopOutput
Cool Only	CoolingLoopOutput FanLoopOutput	CoolingLoopOutput FanLoopOutput dcvLoopOutput	CoolingLoopOutput FanLoopOutput
Off	All Loops Deactivated		

Modes & Operation	Unoccupied	Forced Occupied
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Auto	(HeatingLoopOutput FanLoopOutput) / (CoolingLoopOutput FanLoopOutput	(HeatingLoopOutput FanLoopOutput dcvLoopOutput) / (CoolingLoopOutput FanLoopOutput dcvLoopOutput)
Heat Only	HeatingLoopOutput FanLoopOutput	HeatingLoopOutput FanLoopOutput dcvLoopOutput
Cool Only	CoolingLoopOutput FanLoopOutput	CoolingLoopOutput FanLoopOutput dcvLoopOutput
Off	All Loops Deactivated	

| Notes

- When the **Fan Enabled** is configured alongside the AnalogOut-based Staged fan speeds, or Relay-based fan speeds.
- The minimum Fan speed in an Analog-based fan configuration, or low fan speed in a Relay-based fan configuration is turned ON when the **Fan loop output is <10%** without considering the **relay activation hysteresis**.
- When the door/window sensor is enabled, a minimum fan speed is operated when the door/window is open, and conditioning is OFF.
- In an Analog-based fan configuration, the fan is operated at the AnalogoutatMin, and in a staged fan speed configuration the fan is operated at the **AnalogOutatRecirculate** speed.
- A tuner parameter **Minfanruntimepostconditioning** defines the period for which the last known fan speed, in an analog-based fan configuration / minimum fan speed in a relay-based fan configuration, needs to run after the conditioning is turned off.

MyStat 2 Pipe Fan Coil Unit

| Overview

The Carrier ClimaVision MyStat 2 Pipe Fan Coil Unit (2PFCU) is a unique profile that provides both heating and cooling conditioning.

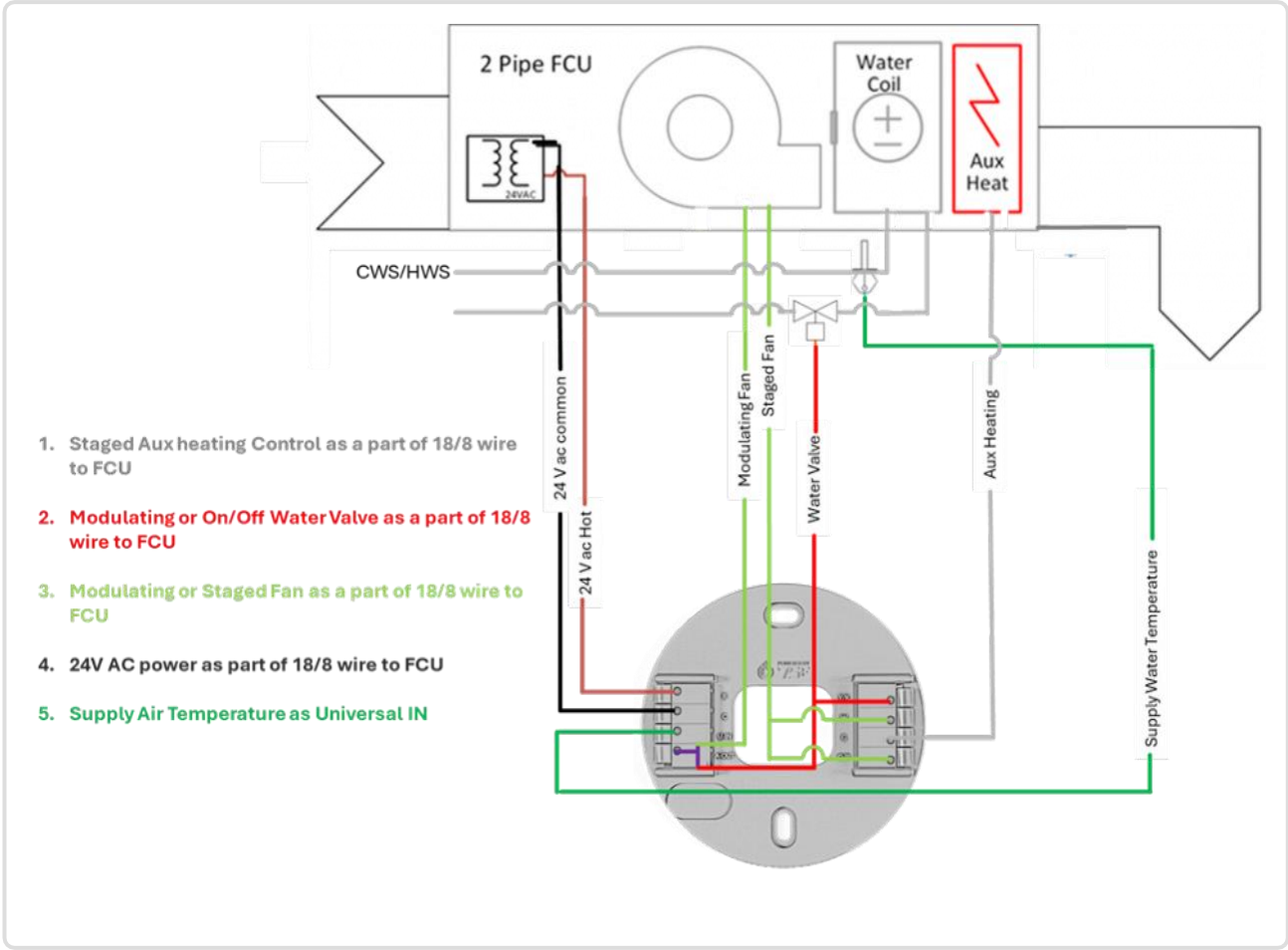
Based on the system's conditioning and fan modes, and the temperature of the supply water from the chiller, the heating and cooling operations are triggered and the corresponding actions and conditioning are achieved.

The reheat capability is enabled with the auxiliary heating stage, which is only triggered during Auto and Heat Only mode (where additional heat is required).

The MyStat 2 Pipe Fan Coil Unit (2PFCU) provides the flexibility to choose between fully modulating and staged equipment control. Possible equipment configurations include:

- 2-stage fan speed control
- Single-stage auxiliary heating control
- Single-stage water valve control
- Single-stage DCV damper control
- Humidifier and dehumidifier controls
- Fan enable and occupied enable
- Modulating fan, water valve, and DCV damper control
- Universal input for supply water temperature measurement (10k type 2 thermistor required)

| Wiring



| Configuring the Profile

Before configuring the profile, you must first pair the MyStat to the CCU. See "Pairing to CCU" in [MyStat Start-up](#). Once paired, configure the profile parameters. See the table below. Then click **Save**.

2 PIPE FCU

Temperature Offset

-0.1

0.0

0.1

Auto Force Occupied

Auto Away

Y

W

G

O/B

AO

UI

CO2 Control

ENABLE

Relay 1

Relay 2

Relay 3

Relay 4

Analog-Out

Universal-In

MAPPING

Water Valve

Fan Low Speed

Aux Heating

Fan High Speed

Water Modulating Valve

Supply Water Temperature

TEST SIGNAL

OFF

OFF

OFF

OFF

0.0

SAVE

Parameter	Purpose	Default Value	Values in the drop-down list
Temperature Offset	To set the temperature offset value for the profile.	0 (° F)	Range from -10 to + 10 in .1 increments
Auto Force Occupied	To enable Auto force occupied Note: Auto Forced occupied/forced occupied and Auto-Awayc cannot work together.	Disabled	Enable
Auto-Away	To enable auto-away Note: Auto Forced occupied/forced occupied and Auto-Away cannot work together.	Disabled	NA
Relay 1	To enable staged conditioning controls	Water Valve	Fan Low Speed Fan High Speed Aux Heating Water Valve Fan Enable Occupied Enable Humidifier Dehumidifier Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Fan Low Speed	
Relay 3	To enable staged conditioning controls	Auxillary Heating	
Relay 4	To enable staged conditioning controls	Fan High Speed	

Analog Out	To enable modulating conditioning controls	Water Modulat - ing Valve	WaterModulating Valve Fan Speed Externally Mapped DCV Modulating Damper
Universal In	To enable the supply water temperature measurement	Supply Water Temperature	NA

| Control System Object List

Object Name	Type	Input/Output Type/Default Value
Heating Desired Temp	User Intent	NA
Cooling Desired Temp	User Intent	NA
Current Temp	Input	MyStat Onboard
Humidity	Input	MyStat Onboard
User Cooling Max Limit	User Intent	NA
User Cooling Min Limit	User Intent	NA
User Heating Max Limit	User Intent	NA
User Heating Max Limit	User Intent	NA
Conditioning Mode	User Intent	NA
Operation Mode	Input	NA
Fan Mode	User Intent	NA
Occupancy Mode	Input	MyStat Onboard
Auxiliary Heating	Output	MyStat Relay
Water Valve	Output	MyStat Relay
Fan Low Speed	Output	MyStat Relay
Fan High Speed	Output	MyStat Relay
Humidifier	Output	MyStat Relay
Dehumidifier	Output	MyStat Relay
Modulating Water Valve	Output	MyStat Analog Out
Modulating Fan Speed	Output	MyStat Analog Out
Modulating DCV Damper	Output	MyStat Analog Out
Supply Water Temperature	Input	MyStat Universal In
waterValveSampleingWaitTime	Tuner	58 Mins
waterValveSamplingOnTime	Tuner	2 Mins
waterValveSampling DuringLoopDeadband WaitTime	Tuner	5 Mins

waterValveSamplingDuring LoopDeadband OnTime	Tuner	2 Mins
auxHeatingActivate	Tuner	3F

| Sequence of operation

The sequence of operation is driven based on **Occupancy mode**, **Space Current Temperature**, set **Cooling and Heating Desired Temperatures**, **Supply Water**

temperature, and Space CO2 levels.

The sections below describe the sequence of operations based on the occupancy modes, and how the other factors contribute to the sequence of operations during different types of occupancy modes.

| Occupancy modes

The occupancy mode (occupied or unoccupied) is determined through a user-adjustable, graphical, seven-day schedule with a holiday schedule, alongside the configurable auto-away and forced occupied options (external schedule influencers) for optimized controls and enhanced energy savings.

Based on the above aspects factoring into the occupancy the following can be the possible applicable occupancy modes:

- Pre-conditioning
- Occupied
- Unoccupied
- Auto-away
- Forced occupied

| Sequence of Operation During Pre-Conditioning

Warm-up:

If the space temperature is below the occupied heating temperature setpoint, the pre-conditioning initiates the morning warm-up via **HeatingLoopOutput / Auxiliary Heating Stages**, as shown below.

If	Then
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	The HeatingLoopOutput is mapped to the Water valve loop output The FanLoopOutput is enabled based on HeatingLoopOutput (FanLoopOutput= HeatingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.
Supply water temperature is below the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	The Auxiliary heating is enabled. Fan speeds are enabled based on the Auxiliary Heating.

<p>Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)</p>	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table><tr><td data-bbox="502 224 1023 394"><p>If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</p></td><td data-bbox="1023 224 1505 394"><p>Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</p></td></tr></table>	<p>If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</p>	<p>Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</p>
<p>If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</p>	<p>Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</p>		

Supply water temperature is between 2-pipe Fancoil Cooling Threshold (65F) & 2-pipe Fancoil Heating Threshold (85F) (Tuner)	During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.	
	If the Heating Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)	Then the Heating Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)

The **dcvLoopOutput** is disabled.

Pre-cooling:

If the space temperature is below the occupied heating temperature setpoint, the pre-conditioning initiates the morning pre-cooling via **CoolingLoopOutput**. See below.

If	Then	
Supply water temperature is below the 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<ul style="list-style-type: none"> The CoolingLoopOutput is mapped to the Water valve loop output The FanLoopOutput is enabled based on CoolingLoopOutput (FanLoopOutput= CoolingLoopOutput* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds. 	
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (65F) (Tuner)	The FanLoopOutput and WaterValveLoopOutput, Auxiliary heating stages are disabled.	
Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.	
	If the Cooling Water Valve has not been turned on for the last waterValveSamplingWaitTime (Minutes) (Tuner)	Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)

Supply water temperature is between 2-pipe Fancoil Cooling Threshold (65F) & 2-pipe Fancoil Heating Threshold (85F) (Tuner)	During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.	
	If the Cooling Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)	Then the Cooling Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)

The **dcvLoopOutput** is disabled.

| Sequence of Operation During Occupied

At all occupied times: (based on a set schedule)

The device maintains a space temperature within the Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

A minimum fan speed is maintained, and the minimum fan analog voltages are set to 2V (customizable) for linear fans, and a recirculation fan speed voltage for staged fans.

During Heating:

When the space current temperature falls below the HeatingDesiredTemperature the **HeatingLoopOutput** is enabled as shown below.

If	Then
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none"> • The HeatingLoopOutput is mapped to the Water valve loop output • The FanLoopOutput is enabled based on HeatingLoopOutput (FanLoopOutput= HeatingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.
Supply water temperature is below the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none"> • The Auxiliary heating is enabled. • Fan speeds are enabled based on the Auxiliary Heating.

Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table> <tr> <td>If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</td><td>Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</td></tr> </table>	If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)	Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)
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When the space **CO2** level is above the CO2 threshold set, the **dcvLoopOutput** is enabled with the **dcvCalculatedDamperPos** = $(\text{sensorHyperStatCo2} - \text{zoneCO2Threshold}) / \text{zoneCO2DamperOpeningRate}$, modulating between the analogOutxAtMinDCVDamperPos and analogOutxAtMaxDCVDamperPos

During Cooling:

When the space current temperature is above the Cooling Desired Temperature the **CoolingLoopOutput** is enabled as shown below.

If	Then
Supply water temperature is below the 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<ul style="list-style-type: none"> The CoolingLoopOutput is mapped to the Water valve loop output The FanLoopOutput is enabled based on CoolingLoopOutput (FanLoopOutput= CoolingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (65F) (Tuner)	The FanLoopOutput and WaterValveLoopOuptut, Auxiliary heating stages are disabled.

<p>Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)</p>	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table><tr><td data-bbox="502 226 1023 398"><p>If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</p></td><td data-bbox="1023 226 1505 398"><p>Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</p></td></tr></table>	<p>If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</p>	<p>Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</p>
<p>If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</p>	<p>Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</p>		

<p>Supply water temperature is between 2-pipe Fancoil Cooling Threshold (65F) & 2-pipe Fancoil Heating Threshold (85F) (Tuner)</p>	<div> <p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table border="1"> <tr> <td data-bbox="501 241 968 546"> <p>If the Cooling Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)</p> </td><td data-bbox="968 241 1505 546"> <p>Then the Cooling Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)</p> </td></tr> </table> </div>	<p>If the Cooling Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)</p>	<p>Then the Cooling Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)</p>
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When the space **CO2** level is above the CO2 threshold set, the **dcvLoopOutput** is enabled with the **dcvCalculatedDamperPos** = **(sensorHyperStatCo2 - zoneCO2Threshold)/zoneCO2DamperOpeningRate**, modulating between the analogOutxAtMinDCVDamperPos and analogOutxAtMaxDCVDamperPos

| Sequence of Operation During Autoaway

- The range of Heating Desired Temperature and Cooling Desired Temperature drifts further away.
- The device maintains a space temperature within the newly set Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

FanLoopOutput, **HeatingLoopOutput**, **Auxiliary Heating Stages** & **CoolingLoopOutput**, are disabled.

During Heating:

When the space current temperature falls below the heating auto-away setback temperature, the **HeatingLoopOutput** is enabled as shown below.

If	Then		
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none"> • The HeatingLoopOutput is mapped to the Water valve loop output • The FanLoopOutput is enabled based on HeatingLoopOutput (FanLoopOutput= HeatingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds. 		
Supply water temperature is below the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none"> • The Auxiliary heating is enabled. • Fan speeds are enabled based on the Auxiliary Heating. 		
Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table border="1"> <tr> <td>If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</td><td>Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</td></tr> </table>	If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)	Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)
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During Cooling:

When the space current is above the cooling auto-away setback temperature, the **CoolingLoopOutput** is enabled as shown below.

If	Then
Supply water temperature is below the 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<ul style="list-style-type: none"> • The CoolingLoopOutput is mapped to the Water valve loop output • The FanLoopOutput is enabled based on CoolingLoopOutput (FanLoopOutput= CoolingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.

Supply water temperature is above the 2-pipe Fancoil Heating Threshold (65F) (Tuner)	The FanLoopOutput and WaterValveLoopOuptut, Auxiliary heating stages are disabled.			
Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below. <table><tr><td>If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</td><td>Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</td></tr></table>		If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)	Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)
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Supply water temperature is between 2-pipe Fancoil Cooling Threshold (65F) & 2-pipe Fancoil Heating Threshold (85F) (Tuner)	During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below. <table><tr><td>If the Cooling Water Valve has not been turned on for the last waterValveSampling DuringLoopDeadband WaitTime (Minutes) (Tuner)</td><td>Then the Cooling Water Valve is turned on for the last waterValveSamplingDuring LoopDeadband OnTime (Minutes) (Tuner)</td></tr></table>		If the Cooling Water Valve has not been turned on for the last waterValveSampling DuringLoopDeadband WaitTime (Minutes) (Tuner)	Then the Cooling Water Valve is turned on for the last waterValveSamplingDuring LoopDeadband OnTime (Minutes) (Tuner)
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| Sequence of Operation During Unoccupied

- The range of Heating Desired Temperature and Cooling Desired Temperature drifts further away.
- The device maintains a space temperature within the newly set Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

FanLoopOutput, HeatingLoopOutput, Auxilliary Heating Stages & CoolingLoopOutput, are disabled

During Heating:

When the space's current temperature falls below the heating unoccupied setback temperature, the **HeatingLoopOutput** is enabled as shown below.

If	Then
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none"> • The HeatingLoopOutput is mapped to the Water valve loop output • The FanLoopOutput is enabled based on HeatingLoopOutput (FanLoopOutput= HeatingLoopOutput* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.

Supply water temperature is below the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none">• The Auxiliary heating is enabled.• Fan speeds are enabled based on the Auxiliary Heating.			
Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table><tr><td>If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</td><td>Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</td></tr></table>		If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)	Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)
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Supply water temperature is between 2-pipe Fancoil Cooling Threshold (65F) & 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table><tr><td>If the Heating Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)</td><td>Then the Heating Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)</td></tr></table>		If the Heating Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)	Then the Heating Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)
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The **dcbLoopOutput** is disabled

During Cooling:

When the space current temperature is above the cooling unoccupied setback temperature, the **CoolingLoopOutput** is enabled as shown below.

If	Then
Supply water temperature is below the 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<ul style="list-style-type: none"> • The CoolingLoopOutput is mapped to the Water valve loop output • The FanLoopOutput is enabled based on CoolingLoopOutput (FanLoopOutput= CoolingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (65F) (Tuner)	The FanLoopOutput and WaterValveLoopOuptut, Auxiliary heating stages are disabled.

Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled. See below.</p> <table> <tr> <td>If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</td><td>Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</td></tr> </table>	If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)	Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)
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<p>If the Cooling Water Valve has not been turned on for the last waterValveSampling DuringLoopDeadband WaitTime (Minutes) (Tuner)</p>	<p>Then the Cooling Water Valve is turned on for the last waterValveSamplingDuring LoopDeadband OnTime (Minutes) (Tuner)</p>		

The **dcvLoopOutput** is disabled.

| Sequence of Operation During Forced Occupied

The device maintains a space temperature within the Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

A minimum **FanLoopOutput** is enabled regardless of no conditioning.

During Heating:

When the space current temperature falls below the Heating Desired Temperature the **HeatingLoopOutput** is enabled as shown below.

If	Then
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none"> • The HeatingLoopOutput is mapped to the Water valve loop output • The FanLoopOutput is enabled based on HeatingLoopOutput (FanLoopOutput= HeatingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.
Supply water temperature is below the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	<ul style="list-style-type: none"> • The Auxiliary heating is enabled. • Fan speeds are enabled based on the Auxiliary Heating.

Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled as shown below.</p> <table> <tr> <td>If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)</td><td>Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)</td></tr> </table>	If the Heating Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)	Then the Heating Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)
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The **dcvLoopOutput** is disabled.

During Cooling:

When the space current temperature is above the Cooling Desired Temperature the **CoolingLoopOutput** is enabled as shown below.

If	Then
Supply water temperature is below the 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	<ul style="list-style-type: none"> The CoolingLoopOutput is mapped to the Water valve loop output The FanLoopOutput is enabled based on CoolingLoopOutput (FanLoopOutput= CoolingLoopOuptut* analogFanSpeedMultiplier(1)), which is mapped to the relay or analog-based fan speeds.
Supply water temperature is above the 2-pipe Fancoil Heating Threshold (85F) (Tuner)	The FanLoopOutput and WaterValveLoopOutput, Auxiliary heating stages are disabled.

Supply water temperature is greater than 2-pipe Fancoil Heating Threshold (85F) (Tuner) & less than 2-pipe Fancoil Cooling Threshold (65F) (Tuner)	During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled as shown below.	
	If the Cooling Water Valve has not been turned on for the last waterValveSampleingWaitTime (Minutes) (Tuner)	Then the Cooling Water Valve is turned on for the last waterValveSamplingOnTime (Minutes) (Tuner)

<p>Supply water temperature is between 2-pipe Fancoil Cooling Threshold (65F) & 2-pipe Fancoil Heating Threshold (85F) (Tuner)</p>	<p>During this condition, to ensure that the water is flowing and the water temperature is not measured for stagnant water, the Water Sampling Process is enabled as shown below.</p> <table border="1" data-bbox="501 241 1506 546"> <tr> <td data-bbox="501 241 968 546"> <p>If the Cooling Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)</p> </td><td data-bbox="968 241 1506 546"> <p>Then the Cooling Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)</p> </td></tr> </table>	<p>If the Cooling Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)</p>	<p>Then the Cooling Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)</p>
<p>If the Cooling Water Valve has not been turned on for the last waterValveSamplingDuringLoopDeadbandWaitTime (Minutes) (Tuner)</p>	<p>Then the Cooling Water Valve is turned on for the last waterValveSamplingDuringLoopDeadbandOnTime (Minutes) (Tuner)</p>		

The **dcvLoopOutput** is disabled.

| Sequence of Operation During Emergency Conditioning

When the building limits are violated, and the recorded temperature is within the building limit plus leeway the conditioning occurs in the direction of the zone load.

| Sequence of Operation During Temp Dead

When the building temperature breaches the building limits beyond the leeway limits all of the following loops are disabled:

- CoolingLoopOutput
- HeatingLoopOutput
- Auxiliary Heating
- FanLoopOutput
- dcvLoopOutput

| Humidifier Control

The humidifier is turned **ON** whenever the humidity level for the system drops below the **targetMinInsideHumidty** set. The humidifier is turned **OFF** after being turned on when the humidity levels go **humidityHysteresis** above the **targetMinInsideHumidty**. Humidity control is not maintained during **UNOCCUPIED** or **VACATION** modes.

| DeHumidifier Control

If the dehumidifier is selected, it turns **ON** whenever the humidity level for the system goes above the **targetMaxInsideHumidty** set. The dehumidifier is turned **OFF** after being turned on when the humidity drops **humidityHysteresis** below the **targetMaxInsideHumidty**. Dehumidifier control is not maintained during **UNOCCUPIED** or **VACATION** modes.

| Control Mode Summary

User Intent Modes & Operation based on Setpoint & Setback	Pre-Conditioning	Occupied	AutoAway
Auto	<div> <div> <div>(HeatingLoopOutput FanLoopOutput) /</div> <div>(HeatingLoop Output + Auxiliary Heating FanLoopOutput) /</div> <div>(CoolingLoopOutput FanLoopOutput)</div> </div> </div>	<div> <div> <div>(HeatingLoopOutput FanLoopOutput) /</div> <div>(HeatingLoop Output + Auxillary Heating FanLoopOutput)</div> <div>dcvLoopOutput) /</div> <div>(CoolingLoopOutput FanLoopOutput)</div> <div>dcvLoopOutput</div> </div> </div>	<div> <div> <div>(HeatingLoopOutput FanLoopOutput)/</div> <div>(HeatingLoop Output + Auxillary Heating FanLoopOutput) /</div> <div>(CoolingLoopOutput FanLoopOutput)</div> </div> </div>
Heat Only	<div> <div> <div>(HeatingLoopOutput FanLoopOutput) /</div> <div>(HeatingLoop Output + Auxillary Heating FanLoopOutput)</div> </div> </div>	<div> <div> <div>(HeatingLoopOutput FanLoopOutput) /</div> <div>(HeatingLoop Output + Auxillary Heating FanLoopOutput)</div> <div>dcvLoopOutput</div> </div> </div>	<div> <div> <div>(HeatingLoopOutput FanLoopOutput) /</div> <div>(HeatingLoop Output + Auxillary Heating FanLoopOutput)</div> </div> </div>
Cool Only	<div> <div> <div>CoolingLoopOutput</div> <div>FanLoopOutput</div> </div> </div>	<div> <div> <div>CoolingLoopOutput</div> <div>FanLoopOutput</div> <div>dcvLoopOutput</div> </div> </div>	<div> <div> <div>CoolingLoopOutput</div> <div>FanLoopOutput</div> </div> </div>
Off	All Loops Deactivated		

User Intent Modes & Operation based on Setpoint & Setback	Unoccupied	Forced Occupied
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Auto	$\frac{(\text{HeatingLoopOutput} \text{ FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating FanLoopOutput}) / (\text{CoolingLoopOutput FanLoopOutput})}$	$\frac{(\text{HeatingLoopOutput} \text{ FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating FanLoopOutput}) / (\text{CoolingLoopOutput FanLoopOutput})}$
Heat Only	$\frac{(\text{HeatingLoopOutput} \text{ FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating FanLoopOutput})}$	$\frac{(\text{HeatingLoopOutput} \text{ FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating FanLoopOutput})}$
Cool Only	$\frac{\text{CoolingLoopOutput}}{\text{FanLoopOutput}}$	$\frac{\text{CoolingLoopOutput}}{\text{FanLoopOutput dcvLoopOutput}}$
Off	All Loops Deactivated	

MyStat Heat Pump Unit (HPU)

| Overview

The Carrier ClimaVision MyStat Heat Pump Unit is a unique profile that provides both heating and cooling conditioning.

Based on whether the unit is in the heating operation or cooling operation, the reversing valve is set to reverse the direction of the flow of the refrigerant switching the condenser and the evaporator coil of the system to provide the necessary conditioning.

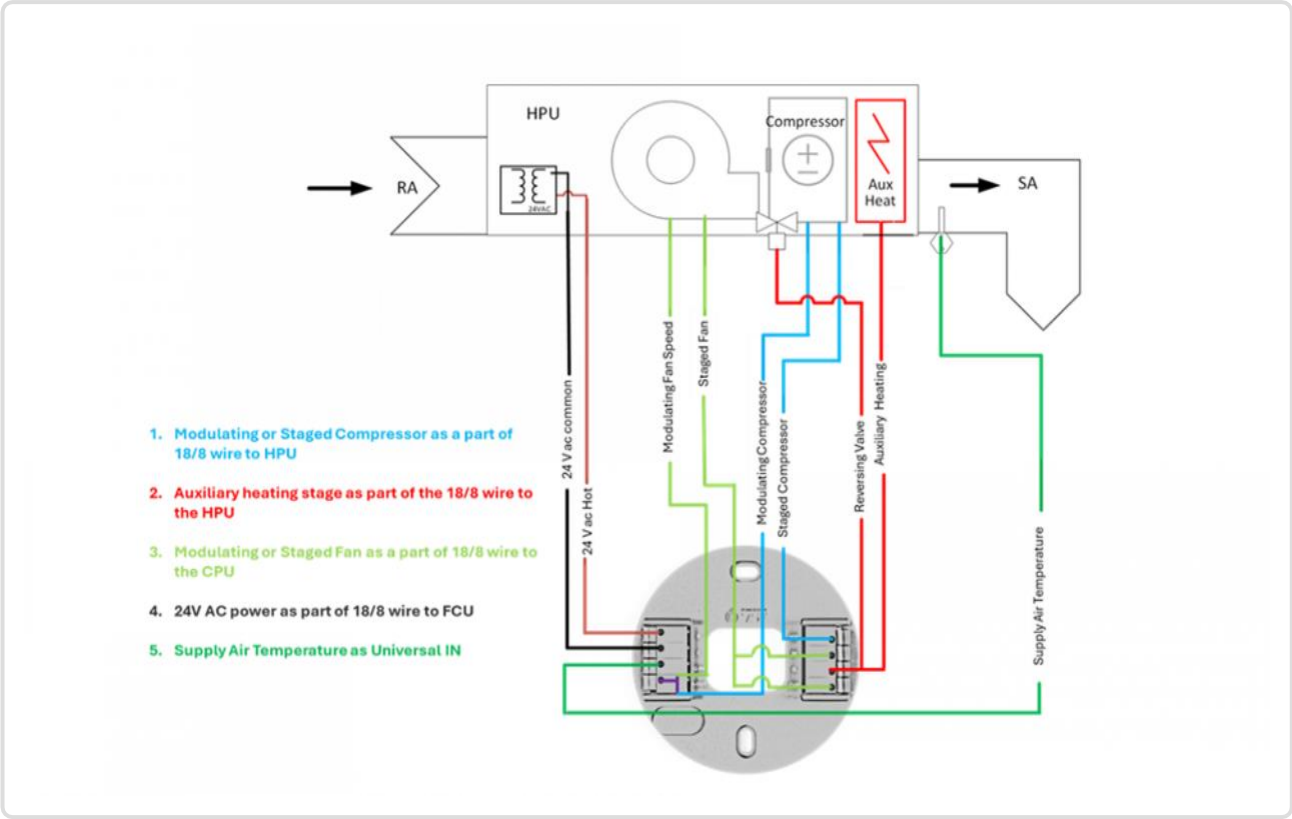
The reheat capability is enabled with the auxiliary heating stages which only gets triggered during the Auto and Heat Only mode when the compressor-provided heat is not sufficient (where additional heat is required).

The MyStat Heat Pump Unit (HPU) provides the flexibility to choose between fully modulating and staged equipment control. Possible equipment configurations include:

- 2-stage compressor control
- Single-stage auxiliary heating control
- 2-stage fan speed control
- Changeover (Type O or Type B)
- 1 universal input
- Fan Enabled and Occupied Enable
- Humidifier and dehumidifier controls

Note: Not all outputs shown can be configured at the same time.

| Wiring



| Configuring the Profile

Before configuring the profile, you must first pair the MyStat to the CCU. See "Pairing to CCU" in [MyStat Start-up](#). Once paired, configure the profile parameters. See the table below. Then click **Save**.

HEAT PUMP UNIT

Temperature Offset

-0.1

0.0

0.1

Auto Force Occupied

Auto Away

Y

W

G

O/B

AO

UI

ENABLE

Relay 1

Relay 2

Relay 3

Relay 4

Analog-Out

Universal-In

MAPPING

Compressor Stage 1

Aux Heating

Fan Low Speed

O - Energize in Cooling

Compressor Speed

Key Card Sensor (AI)

TEST SIGNAL

OFF

OFF

OFF

OFF

0.0

CO2 Control

SAVE

Parameter	Purpose	Default Value	Values in the drop-down list
Temperature Offset	To set the temperature offset value for the profile.	0 (° F)	Range from -10 to + 10 in . 1 increments
Auto Force Occupied	To enable Auto force occupied Note: Auto Forced occupied/forced occupied and Auto-Away cannot work together.	Disabled	Enable
Auto-Away	To enable auto-away Note: Auto Forced occupied/forced occupied and Auto-Away cannot work together.	Disabled	NA
Relay 1	To enable staged conditioning controls	Compressor Stage 1	Compressor Stage 1 Compressor Stage 2 Aux Heating Fan Low Speed Fan High Speed Fan Enable Occupied Enable Humidifier Dehumidifier 0 - Energize in Cooling B - Energize in Heating Externally Mapped DCV Damper
Relay 2	To enable staged conditioning controls	Aux Heating	
Relay 3	To enable staged conditioning controls	Fan Low Speed	
Relay 4	To enable staged conditioning controls	0 - Energize in Cooling	

Analog Out	To enable modulating conditioning controls	Compressor Speed	Compressor Speed Fan Speed Externally Mapped DCV Modulating Damper
Universal In	To enable the supply water temperature measurement	Key Card Sen - sor (AI)	Supply Air Temperature Generic Alarm NO Generic Alarm NC Key Card Sensor (AI) Door/Window (N/C) - Title 24 Door/Window (AI) - Title 24

| Control System Object List

Object Name	Type	Input/Output Type/Default Value
Heating Desired Temp	User Intent	NA
Cooling Desired Temp	User Intent	NA
Current Temp	Input	MyStat/ OWI Sensor
Humidity	Input	MyStat/ OWI Sensor
User Cooling Max Limit	User Intent	NA
User Cooling Min Limit	User Intent	NA
User Heating Max Limit	User Intent	NA
User Heating Max Limit	User Intent	NA
Conditioning Mode	User Intent	NA
Operation Mode	Input	NA
Fan Mode	User Intent	NA
Occupancy Mode	Input	MyStat Onboard
Compressor Stage 1	Output	MyStat Relay
Compressor Stage 2	Output	MyStat Relay
Aux Heating Stage 1	Output	MyStat Relay
Fan Low Speed	Output	MyStat Relay
Fan High Speed	Output	MyStat Relay
Humidifier	Output	MyStat Relay
Dehumidifier	Output	MyStat Relay
Modulating Compressor Speed	Output	MyStat Analog Out
Modulating Fan Speed	Output	MyStat Analog Out
Modulating DCV Damper	Output	MyStat Analog Out
Airflow Temperature	Input	MyStat Thermistor
analogFanSpeedMultiplier	Tuner	1
auxHeating1Activate	Tuner	3F

Note: For a comprehensive list of tuners and their details, see [Tuners Complete List](#).

| Sequence of Operation

The sequence of operation is completely driven based on **Occupancy mode**, **Space Current Temperature**, the set **Cooling and Heating Desired Temperatures**, and **Space CO2 levels**.

The sections below describe the sequence of operations based on the occupancy modes, and how the other factors contribute to the sequence of operations during different types of occupancy modes.

| Occupancy Modes

The occupancy mode (occupied or unoccupied) shall be determined through a user-adjustable, graphical, seven-day schedule with a holiday schedule, alongside the configurable auto-away and forced occupied options (external schedule influencers) for optimized controls and enhanced energy savings.

Based on the above aspects factoring into the occupancy the following can be the possible applicable occupancy modes:

- Pre- Conditioning
- Occupied
- Unoccupied
- Auto-Away
- Forced Occupied

| Sequence of Operation During Pre-Conditioning

Warm-up:

If the space temperature is below the occupied heating temperature setpoint, the pre-conditioning shall initiate the morning warm-up via **HeatingLoopOutput** as shown below.

If	Then
The compressor stages with Fan stages meet the zone load	<ul style="list-style-type: none">• The HeatingLoopOutput is mapped to the Analog-based Compressor Speed/ relay-based Compressor Speed.• The FanLoopOutput is enabled based on HeatingLoopOutput (FanLoopOutput= HeatingLoopOutput* analogFanSpeedMultiplier(1)) the FanLoopOutput is mapped to the Analog- based / relay-based fan speeds.
The compressor stages with the fan stages do not meet the zone load	<ul style="list-style-type: none">• Auxiliary heating is enabled.• Fan speeds are enabled based on the Auxiliary Heating.

The **dcvLoopOutput** is disabled.

Pre-cooling:

- If the space temperature exceeds the occupied cooling temperature setpoint, the pre-conditioning initiates the morning pre-cooling through **CoolingLoopOutput**. The **CoolingLoopOutput** is mapped to the **Analog-based Compressor Speed/ relay-based Compressor Speed**.
- The **FanLoopOutput** is enabled based on **CoolingLoopOutput** ($\text{FanLoopOutput} = \text{CoolingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$) the **FanLoopOutput** is mapped to the Analog- based / relay-based fan speeds.
- The **dcvLoopOutput** is disabled.

Note: Fan control (for user intent) is configured as modulating using analog out the percentages for the low, medium, and high are altered to 70% 80%, and 100% respectively.

| Sequence of Operation During Occupied

At all occupied times: (based on a set schedule)

The device maintains a space temperature within the Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

A minimum fan speed is maintained, and the minimum fan analog voltages are set to 2V (customizable) for linear fans, and a recirculation fan speed voltage for relay based fans.

During Heating:

When the space current temperature falls below the HeatingDesiredTemperature the **HeatingLoopOutput** is enabled as shown below.

If	Then
The compressor stages with Fan stages meet the zone load	<ul style="list-style-type: none">• The HeatingLoopOutput is mapped to the Analog-based Compressor Speed/ relay-based Compressor Speed.• The FanLoopOutput is enabled based on HeatingLoopOutput ($\text{FanLoopOutput} = \text{HeatingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$) the FanLoopOutput is mapped to the Analog-based / relay-based fan speeds.
The compressor stages with the fan stages do not meet the zone load	<ul style="list-style-type: none">• Auxiliary heating is enabled.• Fan speeds are enabled based on the Auxiliary Heating.

When the space **CO2** level is above the CO2 threshold set, the **dcvLoopOutput** is enabled with the $\text{dcvCalculatedDamperPos} = (\text{sensorMyStatCo2} - \text{zoneCO2Threshold}) / \text{zoneCO2DamperOpeningRate}$, modulating between the analogOutAtMinDCVDamperPos and analogOutAtMaxDCVDamperPos

During Cooling:

- If the space temperature exceeds the occupied cooling temperature setpoint, the pre-conditioning initiates the morning pre-cooling via **CoolingLoopOutput**. The **CoolingLoopOutput** is mapped to the **Analog-based Compressor Speed/ relay-based Compressor Speed**.

- The **FanLoopOutput** is enabled based on **CoolingLoopOutput** ($\text{FanLoopOutput} = \text{CoolingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$) the **FanLoopOutput** is mapped to the Analog- based / relay-based fan speeds.

- When the space **CO2** level is above the CO2 threshold set, the **dcvLoopOutput** is enabled with the **dcvCalculatedDamperPos** = $(\text{sensorMyStatCo2} - \text{zoneCO2Threshold}) / \text{zoneCO2DamperOpeningRate}$, modulating between the analogOutxAtMinDCVDamperPos and analogOutxAtMaxDCVDamperPos

Note: Fan control (for user intent) is configured as modulating using analog out the percentages for the low, medium, and high are altered to 70% 80%, and 100% respectively.

| Sequence of Operation During AutoAway

- The range of Heating Desired Temperature and Cooling Desired Temperature drifts further away.
- The device maintains a space temperature within the newly set Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

CoolingLoopOutput, **HeatingLoopOutput**, **FanLoopOutput**, and **Auxiliary Heating Stages** are disabled.

During Heating:

When the space current temperature falls below the heating autoaway setback temperature, the **HeatingLoopOutput** is enabled as shown below.

If	Then
The compressor stages with Fan stages meet the zone load	<ul style="list-style-type: none"> • The HeatingLoopOutput is mapped to the Analog-based Compressor Speed/ relay-based Compressor Speed. • The FanLoopOutput is enabled based on HeatingLoopOutput ($\text{FanLoopOutput} = \text{HeatingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$) the FanLoopOutput is mapped to the Analog- based / relay-based fan speeds.
The compressor stages with the fan stages do not meet the zone load	<ul style="list-style-type: none"> • Auxiliary heating is enabled. • Fan speeds are enabled based on the Auxiliary Heating.

During Cooling:

- If the space temperature exceeds the cooling **autoaway setback** temperature, the pre-conditioning shall initiate the morning pre-cooling via **CoolingLoopOutput**. The **CoolingLoopOutput** is mapped to the **Analog-based Compressor Speed/ relay-based Compressor Speed**.
- The **FanLoopOutput** is enabled based on **CoolingLoopOutput** ($\text{FanLoopOutput} = \text{CoolingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$) the **FanLoopOutput** is mapped to the Analog- based / relay-based fan speeds.
- The **dcvLoopOutput** is disabled.

Note: Fan control (for user intent) is configured as modulating using analog out the percentages for the low, medium, and high are altered to 70% 80%, and 100% respectively.

| Sequence of Operation During UnOccupied

- The range of Heating Desired Temperature and Cooling Desired Temperature drifts further away.
- The device maintains a space temperature within the newly set Heating Desired Temperature and Cooling

Desired Temperature Range.

During Deadband:

CoolingLoopOutput, **HeatingLoopOutput**, **FanLoopOutput**, and **Auxiliary Heating Stages** are disabled.

During Heating:

When the space's current temperature falls below the heating unoccupied setback temperature, the **HeatingLoopOutput** is enabled as shown below.

If	Then
The compressor stages with Fan stages meet the zone load	<ul style="list-style-type: none">• The HeatingLoopOutput is mapped to the Analog-based Compressor Speed/ relay-based Compressor Speed.• The FanLoopOutput is enabled based on HeatingLoopOutput ($\text{FanLoopOutput} = \text{HeatingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$) the FanLoopOutput is mapped to the Analog- based / relay-based fan speeds.
The compressor stages with the fan stages do not meet the zone load	<ul style="list-style-type: none">• Auxiliary heating is enabled.• Fan speeds are enabled based on the Auxiliary Heating.

The **dcvLoopOutput** is disabled

During Cooling:

- If the space temperature exceeds the cooling unoccupied setback temperature, the pre-conditioning shall initiate the morning pre-cooling via **CoolingLoopOutput**. The **CoolingLoopOutput** is mapped to the **Analog-based Compressor Speed/ relay-based Compressor Speed**
- The **FanLoopOutput** is enabled based on **CoolingLoopOutput** ($\text{FanLoopOutput} = \text{CoolingLoopOutput} * \text{analogFanSpeedMultiplier}(1)$) the **FanLoopOutput** is mapped to the Analog- based / relay-based fan speeds.
- The **dcvLoopOutput** is disabled.

Note: Fan control (for user intent) is configured as modulating using analog out the percentages for the low, medium, and high are altered to 70% 80%, and 100% respectively.

| Sequence of Operation During Forced Occupied

The device maintains a space temperature within the Heating Desired Temperature and Cooling Desired Temperature Range.

During Deadband:

A minimum **FanLoopOutput** is enabled regardless of no conditioning.

During Heating:

When the space current temperature falls below the Heating Desired Temperature the **HeatingLoopOutput** is enabled as shown below.

If	Then
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The compressor stages with Fan stages meet the zone load.	<ul style="list-style-type: none"> • The HeatingLoopOutput is mapped to the Analog-based Compressor Speed/ relay-based Compressor Speed. • The FanLoopOutput is enabled based on HeatingLoopOutput (FanLoopOutput= HeatingLoopOutput* analogFanSpeedMultiplier(1)) the FanLoopOutput is mapped to the Analog- based / relay-based fan speeds.
The compressor stages with the fan stages do not meet the zone load	<ul style="list-style-type: none"> • Auxiliary heating is enabled. • Fan speeds are enabled based on the Auxiliary Heating.

The **dcvLoopOutput** is disabled.

During Cooling:

- If the space temperature exceeds the occupied cooling temperature setpoint, the pre-conditioning initiates the morning pre-cooling through **CoolingLoopOutput**. The **CoolingLoopOutput** is mapped to the **Analog-based Compressor Speed/ relay-based Compressor Speed**
- The **FanLoopOutput** is enabled based on **CoolingLoopOutput** (FanLoopOutput= CoolingLoopOutput* analogFanSpeedMultiplier(1)) the **FanLoopOutput** is mapped to the Analog- based / relay-based fan speeds.
- The **dcvLoopOutput** is disabled.

Note: Fan control (for user intent) is configured as modulating using analog out the percentages for the low, medium, and high are altered to 70% 80%, and 100% respectively.

| Sequence of Operation During Emergency Conditioning

When building limits are violated and the recorded temperature is within the building limit plus leeway the conditioning occurs in the direction of zone load.

| Sequence of Operation During Temp Dead

When the Building temperature breaches the building limits beyond the leeway limits all of the following loops are disabled:

- CoolingLoopOutput
- HeatingLoopOutput
- Auxiliary Heating Stages
- FanLoopOutput
- dcvLoopOutput

| Humidifier Control

The humidifier is turned **ON** whenever the humidity level for the system drops below the **targetMinInsideHumidity** set. The humidifier will be turned **OFF** after being turned on when the humidity levels go **humidityHysteresis** above the **targetMinInsideHumidity**. Humidity control will not be maintained during **UNOCCUPIED** or **VACATION** modes.

| DeHumidifier Control

If the dehumidifier is selected, it turns **ON** whenever the humidity level for the system goes above the **targetMaxInsideHumidity** set. The dehumidifier is turned **OFF** after being turned on when the humidity drops **humidityHysteresis** below the **targetMaxInsideHumidity**. Dehumidifier control is not maintained during **UNOCCUPIED** or **VACATION** modes.

Note: The humidity level for the system is either the average level reported by all the zones serviced by the RTU/AHU.

| Control Mode Summary

User intent Modes & Operation based on Setpoint & Setback	Pre-Conditioning	Occupied	AutoAway
Auto	(HeatingLoopOutput FanLoopOutput) / (HeatingLoop Output +Auxillary Heating Stages FanLoopOutput) / (CoolingLoopOutput FanLoopOutput)	(HeatingLoopOutput FanLoopOutput) / (HeatingLoop Output +Auxillary Heating Stages FanLoopOutput) dcvLoopOutput) / (CoolingLoopOutput FanLoopOutput) dcvLoopOutput	(HeatingLoopOutput FanLoopOutput)/ (HeatingLoop Output +Auxillary Heating Stages FanLoopOutput) / (CoolingLoopOutput FanLoopOutput)
Heat Only	(HeatingLoopOutput FanLoopOutput) / (HeatingLoop Output +Auxillary Heating Stages FanLoopOutput)	(HeatingLoopOutput FanLoopOutput) / (HeatingLoop Output +Auxillary Heating Stages FanLoopOutput) dcvLoopOutput	(HeatingLoopOutput FanLoopOutput) / (HeatingLoop Output +Auxillary Heating Stages FanLoopOutput)
Cool Only	CoolingLoopOutput FanLoopOutput	CoolingLoopOutput FanLoopOutput dcvLoopOutput	CoolingLoopOutput FanLoopOutput

Off	All Loops Deactivated
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User intent Modes & Operation based on Setpoint & Setback	Unoccupied	Forced Occupied
Auto	$\frac{(\text{HeatingLoopOutput} - \text{FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating Stages} - \text{FanLoopOutput})}$	$\frac{(\text{HeatingLoopOutput} - \text{FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating Stages} - \text{FanLoopOutput})}$ dcvLoopOutput/ $\frac{(\text{CoolingLoopOutput} - \text{FanLoopOutput})}{\text{dcvLoopOutput}}$
Heat Only	$\frac{(\text{HeatingLoopOutput} - \text{FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating Stages} - \text{FanLoopOutput})}$	$\frac{(\text{HeatingLoopOutput} - \text{FanLoopOutput})}{(\text{HeatingLoop Output} + \text{Auxillary Heating Stages} - \text{FanLoopOutput})}$ dcvLoopOutput
Cool Only	$\frac{\text{CoolingLoopOutput} - \text{FanLoopOutput}}{\text{FanLoopOutput}}$	$\frac{\text{CoolingLoopOutput} - \text{FanLoopOutput}}{\text{FanLoopOutput} - \text{dcvLoopOutput}}$
Off	All Loops Deactivated	