



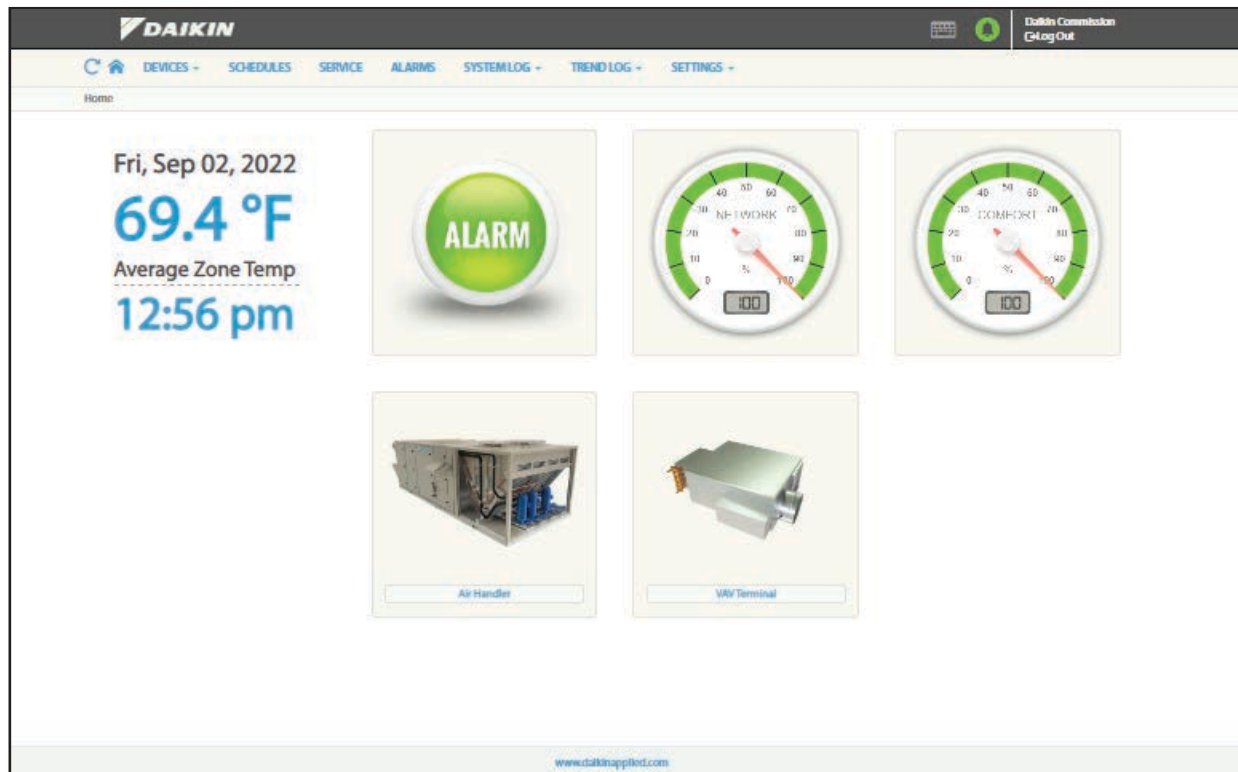
# Installation and Operation Manual

# IOM 1336

Group: **Controls**  
Part Number: **IOM 1336**  
Date: **October 2022**

## Daikin System Manager

Use with SiteLine™ for Pre-Programmed BAS



Introduction . . . . .	3	Scheduling . . . . .	14
Limited Warranty . . . . .	3	Creating Schedules on Local System Manager . . . . .	14
General Information . . . . .	3	Assign Devices to a Schedule. . . . .	14
Hazardous Information Messages . . . . .	3	Removing Users . . . . .	15
Installer Responsibilities . . . . .	3	Changing or Resetting User Passwords . . . . .	15
Communication Network Wiring . . . . .	4	Saving the Configuration. . . . .	17
Daikin System Manager BACnet MS/TP Wiring . . . . .	4	The System Manager — Page-by-Page . . . . .	18
Control Panel (System Manager) . . . . .	7	Devices . . . . .	20
System Manager Shut Down/Restart . . . . .	8	Scheduling . . . . .	21
Power Up . . . . .	8	Service Utilities Page . . . . .	23
Shut Down and Restart . . . . .	8	Alarms . . . . .	25
Windows Features . . . . .	9	System Log . . . . .	26
On-Screen Keyboard . . . . .	9	Trend . . . . .	26
Updating Local Time . . . . .	9	Settings . . . . .	27
Cellular Connection . . . . .	9	Troubleshooting . . . . .	34
Utilizing Wired (Ethernet) Connections . . . . .	9	Troubleshooting . . . . .	37
Networking . . . . .	10	System Log Troubleshooting. . . . .	37
Startup. . . . .	10		
User Access Levels . . . . .	10		
Discovery Mode . . . . .	10		
System-Level Device Configuration . . . . .	11		
Service Utilities . . . . .	11		

## Limited Warranty

Consult your local Daikin Applied representative for warranty details. To find your local Daikin Applied representative, go to [www.DaikinApplied.com](http://www.DaikinApplied.com)



## General Information

The System Manager is a Linux Ubuntu 20.04 Core based PC with integrated touch-screen display and a web-based interface that allows you to monitor and control compatible BACnet MS/TP capable HVAC devices in a building's HVAC system. The Daikin cloud maybe accessed via built in cell modem or Ethernet Cable. When cloud enabled, the System Manager can be securely accessed by any authorized user with any major web browser (Chrome®, Microsoft Edge®, Safari®, Firefox®, etc.), and its responsive UI design means content will adapt to any screen size, including desktop and laptop computers, tablets, and smart phones. This remote access allows you to receive alerts and notifications and access building controls and information from anywhere in the world.

## Hazardous Information Messages

**⚠ CAUTION**  
 Cautions indicate potentially hazardous situations, which can result in personal injury or equipment damage if not avoided.

**⚠ WARNING**  
 Warnings indicate potentially hazardous situations, which can result in property damage, severe personal injury, or death if not avoided.

**⚠ DANGER**  
 Dangers indicate a hazardous situation which will result in death or serious injury if not avoided.

**ⓘ NOTICE**  
 Notices give important information concerning a process, procedure, special handling or equipment attributes.

**⚠ CAUTION**  
**Static sensitive components. Can cause equipment damage.**  
 Discharge any static electrical charge by touching the bare metal inside the control panel before performing any service work. Never unplug cables, circuit board terminal blocks, or power plugs while power is applied to the Manager.

## Receiving Inspection

When the device is received, all items should be carefully checked against the bill of lading to be sure all packages have been received. Inspect the System Manager for any shipping damage. Report all shipping damage to the carrier and file a claim.

## Installer Responsibilities

The installation of this equipment shall be in accordance with the regulations of authorities having jurisdiction and all applicable codes. It is the responsibility of the installer to determine and follow the applicable codes

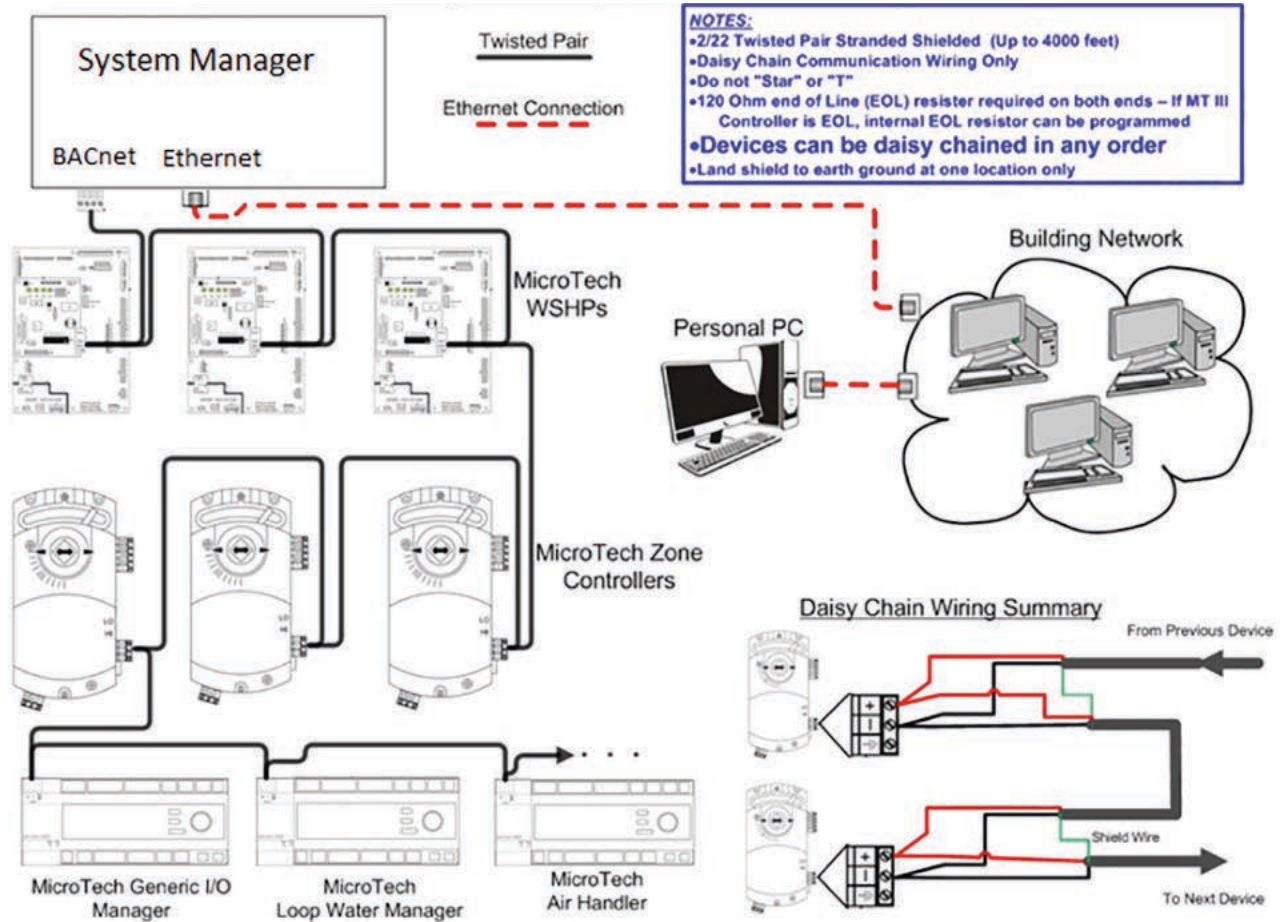


## Included Items

- A. System Manager
- B. Two 1/4 watt 120 Ohm end of line (EOL) termination resistors
- C. 120AC-12VDC adapter with screw lug power connector  
 \*\*Wall-mounting screws and anchors are not included
- D. Antenna

# Daikin System Manager BACnet MS/TP Wiring

Figure 1: SiteLine Field Wiring Details



Communication wires to all devices on the network, including the System Manager, shall be installed per standard BACnet MS/TP wiring guidelines. All devices in the network shall be daisy chained in any order using 18 to 22 AWG twisted pair stranded shielded wire. For lengths over 4000 feet a repeater shall be used, however minimize wire length when possible. Do not "Star" or "T" the network wire. See Figure 1 for a detailed diagram. It is recommended to trace the wiring network on the building layout and upload to the System Manager and to keep a copy for your records.

**NOTE:** The ethernet cable is optional

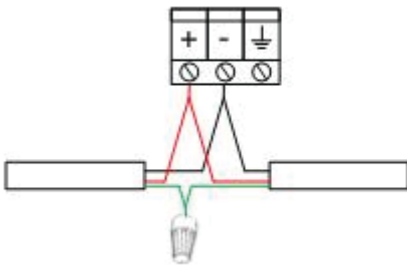
To properly connect the communication wires to the appropriate terminal block follow these steps:

1. Cut off 1 inch of the outer jacket of the cable, being cautious to not nick the inner insulation.
2. For each inner wire strip off 0.25 inches of the insulation.
3. Ensure the polarity (+/-) for each conductor is maintained throughout all devices.
4. When wiring two cables to the controller, twist together the shield wires from both cables and secure with a wire nut, shown in Figure 3. Twist the wire nut in the same direction the wires were twisted together. Land shield to earth ground at ONE END ONLY to prevent ground currents from being created as seen in Figure 5. **Ensure that the shield wire does not ground against the case.**
5. Insert the wires into the appropriate terminal block. The bare communication wire shall not extend beyond 0.125 inches, shown in Figure 4.

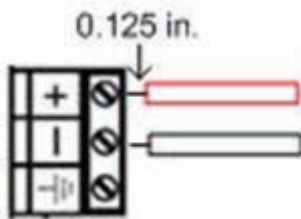
**NOTE:** If bare communication wire contacts the cable's foil shield, shield wire, or a metal surface other than the terminal block, communications may fail.

**Figure 2: SiteLine Field Wiring Details**

**Figure 3: Twisted Pair Wiring with The Shields Twisted Together. Use a Wire-Nut on the Shield Connection**

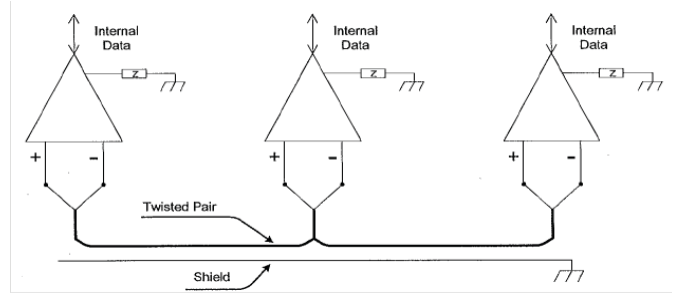


**Figure 4: Communication Wires Inserted into Terminal Block**



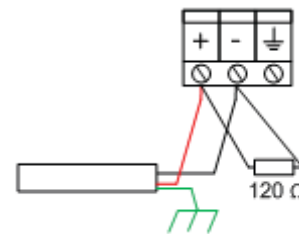
In Figure 5 all of the non-isolated devices use two-wire connections with the reference level between devices established by an internal earth ground connection made through some impedance (Z) at each device. This is generally the lowest cost solution and is sufficient for installations where electrical noise, ground noise, and stray fields are low. EIA-485 is designed to operate with voltages on the signaling wires between -7 and +12 volts.

**Figure 5: Twisted Pair Wiring with Devices and Shield Grounded at One Location**



A 120 ohm end of line (EOL) resistor, also known as a termination resistor, is required on both ends of the physical network, as seen in Figure 6. This will reduce bounce back interference when the MS/TP token gets to the end of the trunk. If a MicroTech III controller is EOL, an internal EOL resistor can be enabled, however if this unit needs to be powered down for maintenance, the software EOL resistor will no longer be applied. Therefore, it is highly recommended to use a physical EOL resistor.

**Figure 6: Wiring at EOL Device. Only Ground Shield at One Location**



Hardware improvements include bias resistors built into the System Manager.

Up to one additional set of bias resistors ( $510\Omega \pm 5\%$ ) may be added if desired. Refer to Figure 7 for wiring details.

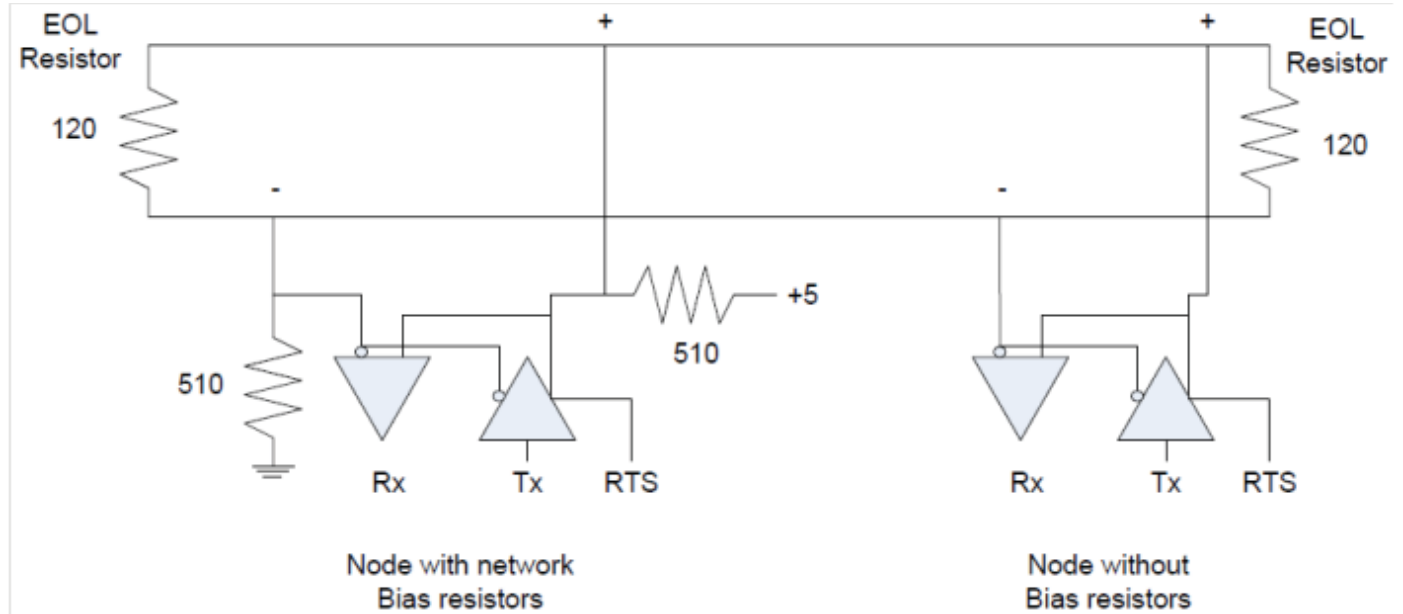
If the System Manager is at the end of the physical network, a  $120\Omega$  resistor should be inserted into the terminal in addition to the twisted pair.

### Avoid Signal Noise

For best communication avoid running communication wires or sensor input wires next to AC power wires, VFDs, or the controller's relay output wires. These can be sources of noise that can affect signal quality. Devices that could cause noise include:

- Spark igniters
- Radio transmitter
- VFD
- Electric motor > 1 hp
- Generator
- Relays
- Transformers
- Induction heaters
- Large conductors
- Video display devices

**Figure 7: Bias Resistors and EOL Resistors on Network**



## Control Panel (System Manager)

The System Manager shall be located in a conditioned space that is easily accessible. Allow for space around the System Manager for air flow circulation, this is needed for rejection of heat. It is recommended to install surge protection and an uninterruptible power supply (UPS) to protect the System Manager from a hard shutdown due to building power failure.

The System Manager comes with a factory wall mount. If desired this may be removed and replaced with a VESA mount.

**NOTE:** The wall mounting screws and anchors are not included.

1. Connect the BACnet MS/TP twisted pair wire to the BACnet MS/TP terminal maintaining polarity throughout the daisy chain, refer to [Figure 9](#).

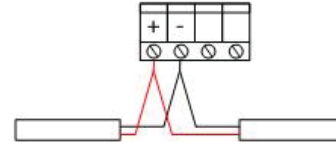
**NOTE:** SiteLine for Pre-Programmed BAS automatically starts when the System Manager has power and the BACnet MS/TP network is run appropriately. **System Manager Vesa Mounted on the Touch Screen Monitor (monitor stand not included)**

2. Connect the power supply cable
3. Connect antenna

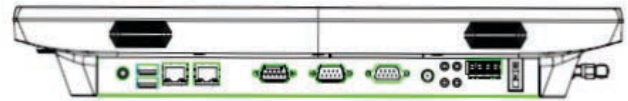
**Figure 8: System Manager**



**Figure 9: Wiring to the System Manager**



**Figure 10: Bottom of System Manager**



## All Units

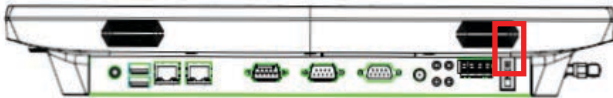
All units must be installed and started up per their Installation Manuals. Duct and building pressure tubing shall be run to pressure transducers per unit Installation Manual. VAV units shall be installed per their Installation Manual in the proper location. All VAV controllers shall have their space sensor wired with the provided cat3 cable. WSHP and fan coil units shall be installed per their Installation Manual in the proper location.



## Power Up

It is recommended to power-up, connect and configure all HVAC devices before you power-up the System Manager for the first time. When complete, confirm that all necessary communication wires connect the System Manager to all devices in your building's HVAC system, and check to ensure that all necessary sensors and power cables are hooked up properly. You can then proceed to power-up the System Manager by connecting it to a power source. When plugged in, the System Manager will automatically begin start-up and the power button will light up. If power-up does not occur after applying power to the System Manager, press the power button on the bottom right of the System Manager PC. Refer to [Figure 10](#).

Figure 11: Power Switch



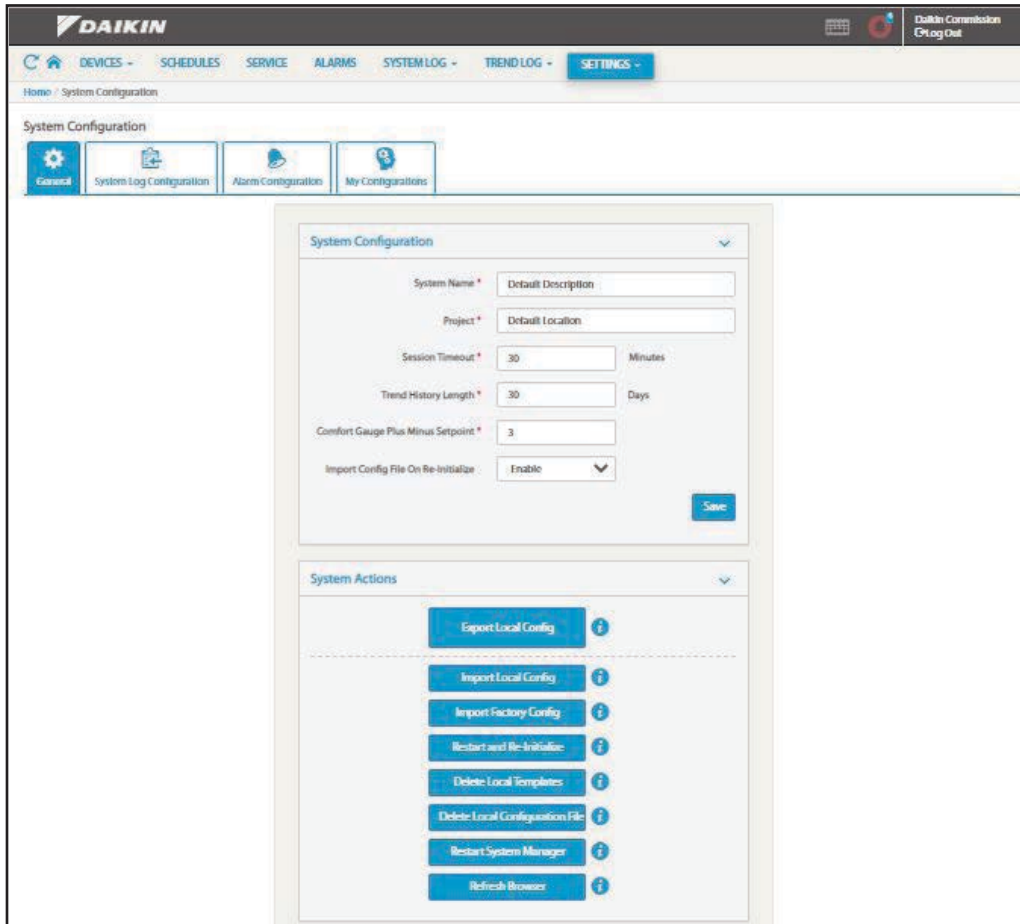
## Shut Down and Restart

**CAUTION**

Not following the proper shut down methods can result in corruption to the System Manager database

The System Manager can be shutdown using the power switch located on the controller. Refer to [Figure 10](#). The System Manager application may need to be restarted for multiple reasons. Navigate to Settings > System Configurations for restart options. Refer to [Figure 11](#).

Figure 12: System Shutdown and Restart Buttons

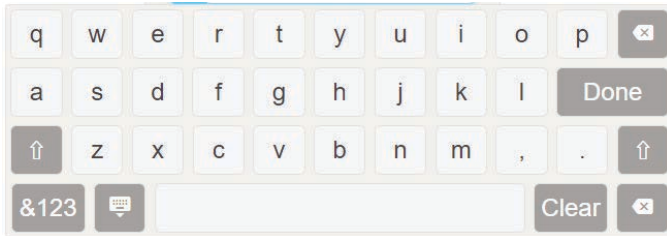




## On-Screen Keyboard

To type within the System Manager, use the embedded keyboard as seen in [Figure 13](#). By selecting the keyboard icon next to the small alarm notification icon in the top right corner, a notification saying “virtual keyboard enabled” or “virtual keyboard disabled” will appear. If it is enabled, the icon will be lit up, and whenever an interactive text box is selected, the virtual keyboard will appear.

Figure 13: On-Screen Keyboard



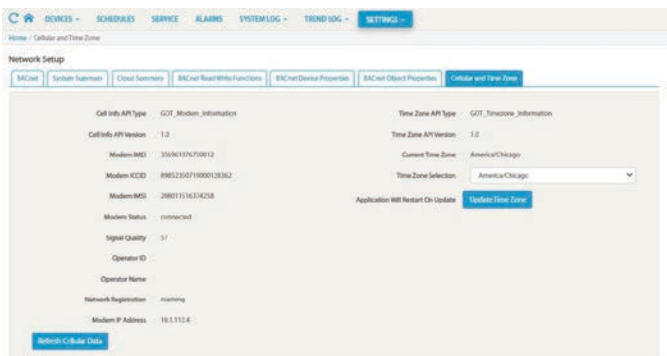
## Updating Local Time

### NOTICE

You must restart the System Manager for Time/Date changes to apply.

Your System Manager should come from the factory with the correct Time Zone Selected. If changing the Time Zone is necessary Navigate to Settings>Network Setup> Locate the Cellular and Time Zone tab. See [Figure 13](#).

Figure 14: Date and Time Properties



## Cellular Connection

The system has a built-in cellular network adapter. The Cellular provider provisions the device in a Daikin IoT private network within their service and configures that network to not allow interaction between IoT Devices. It does permit connections to a restricted-access set of hosts allowing field support to remotely access/configure the System Manager. The cellular network adapter is configured to prioritize wired connections for all traffic except for the support network. When a wired connection is established and configured, cloud traffic will transmit via the wired connection.

## Utilizing Wired (Ethernet) Connections

The System Manager reserves two non-routable address ranges for the support network: 172.16.0.0/24 and 10.1.112.0/20. It can not be attached to a network with either of those address ranges in use.

The System Manager only supports configuration via DHCP.

The network being attached to needs a DHCP server configured to provide a default gateway with a route to the internet.

The System Manager will use the wired interface for all cloud traffic.

Support will still have access via the Cellular Modem and the Cellular Modem will be available as a backup to the wired Ethernet.

### Dynamic DNS

When the System Manager is issuing a DHCP request, it is providing a hostname of the systems serial number (ie SOLU201000001). If your DHCP/DNS configuration supports dynamic DNS updates, you can reach the device by browsing to: <https://solu200100001/> You may receive a certificate warning, depending upon your web browser. You can ignore that warning.

## User Access Levels

Commissioner level access will be needed during start-up for some of the actions required. Select the “login” button in the upper right corner of the screen and enter the appropriate user name and password. The default user names, passwords, and settings are shown in [Table 1](#).

**Table 1: Access Levels, User Names, Passwords for Default Users and Settings**

Access Level	User Name	Password	Settings Menu Access (Tabs/Buttons)
Guest (Default User)	N/A	N/A	Manage Users (View Only), System Configuration (View Only), Manage Documents
Tenant	Tenant	daikin123	See Guest
Maintenance	Maintenance	daikin123	Manage Users (may add), System Configuration, Network Setup, Manage Documents
Owner	Owner	daikin123	Maintenance level plus access to Service and System Log tabs
Commissioning	Commission	daikin72639	Owner level plus access to Ancillary Control, Device Templates

## Discovery Mode

After installation and power-up, the Discovery Mode is the first stage for the System Manager. During this time all the devices and their associated points will be discovered if wired, powered, and addressed properly. At the top of the screen, in the Daikin banner, “Discovery Mode” will be displayed. Allow 10 minutes, plus 3-5 minutes per device, for the System Manager to go through the process. It is recommended to not interact with the System Manager during the Discovery Mode. See [Figure 13](#).

If you expected to see a device, and it is not appearing, there are two main things to check. Wiring tends to be the most common issue. Check the BACnet MS/TP connections of the particular device and double check it is daisy-chained appropriately, if applicable. Also, check to make sure the wiring is not wrapped around any source of power, as this may introduce noise into the signal and prevent proper communication with the device. If the wiring is fine, also check that the MAC address of the device is in the 0 to 127 range and the Device Instance number is in the 3101000 to 3101999 range. Many types of Daikin equipment will already have this addressing completed, and the Device Instance number will have its last three digits match the MAC address (e.g. 3101047 and 47).

**NOTE:** If the System Manager was purchased with equipment, the System Manager will be preprogrammed with all of the associated equipment information. If the System Manager was purchased separately from the equipment, this will not be the case. The installer must give each device a unique address.

You will want to review the device list carefully to be sure each device in your HVAC system is included. Although most devices will be listed in plain text fields, you may notice that some devices are highlighted in blue or in red. You may also notice that one or more of your building’s HVAC device(s) are not listed at all. Please review [Table 2](#) to understand what these differences mean.

**Figure 15: Discovery Mode**



**Table 2: Colors**

Device Listed In:	Plain Black Text	Blue Highlight	Red Highlight	Grey Highlight
What this means:	The System Manager has established communication with this HVAC device, and it was pre-programmed to expect to find it.	The System Manager has established communication with this HVAC device, and it was not pre-programmed to expect to find it.	The System Manager was not able to establish communication with this HVAC device, but it was pre-programmed to expect to find it.	The device was ignored.
Additional Information	These devices are properly wired, powered, and pre-addressed.  These devices will require minimal system level configuration.	These devices are properly wired, powered, and pre-addressed.  These devices will require some system level configuration.	See Step 3 to learn more.  Check power, network wiring, the MAC address, and the Device Instance Number. If there are no conflicts with addressing or wiring, contact Daikin Applied.	Possible causes: an error occurs while reading the objects. This will occur if the network is physically not operating correctly; duplicate addresses; wiring issues; electrical interference; or other disruptive situations that prevent proper discovery.  Try deleting the device and letting it re-discover, it will be assigned the appropriate template.

Referencing Table 2, if you have one or more system devices that are either highlighted in red or missing from the device list, these devices are not communicating with the System Manager. The following are a list of the 3 primary reasons why communication errors may happen and what to do in each case to establish communication.

- 1. The device is not powered or connected properly.** Communication wiring issues are the most common cause of communication failures. Be sure to check that the HVAC device is plugged in, powered on, and wired properly to the System Manager. Also, check for loose or damaged communication wires. If the wiring issue was

the only issue, the System Manager will automatically discover the device once the wiring issue is solved. If the device is still missing from the list or highlighted in red after the wiring issues have been solved, see the second and third possible reasons listed below.

2. **The device is a Daikin brand Water Source Heat Pump (WSHP) or fan coil unit (FCU).** The System Manager has a separate ATS Auto Assignment wizard that is designed to address and establish communication with all Daikin Brand WSHPs and FCUs. Please see the section, ATS Auto Assignment for WSHPs and FCUs to learn more. WSHPs and FCUs manufactured by all other brands must be manually addressed.
3. **The device has not been addressed or is addressed improperly.** HVAC devices cannot communicate with the System Manager unless they are properly addressed. Each device must have a unique MAC address and device instance number. The device instance number, by default, must be between 3101000 and 3101999. The MAC Address must be unique between 0 and 127. All preprogrammed Daikin equipment will have the last three digits of their device instance number match their MAC Address – for example the System Manager default is 3101010 and MAC Address of 10. All unaddressed devices, including WSHPs and FCUs manufactured by brands other than Daikin, must be manually addressed. See the Addressing section for more information.

## System-Level Device Configuration

When devices are expected by the System Manager, they will often be pre-configured at the factory. However, it's not unusual for some of your HVAC devices to need some system-level configuration. System-level configuration includes addressing devices manually, checking whether devices have templates available, assigning templates, assigning devices to schedules, and setting up proper parent-child associations. These system-level configurations will be addressed in various sections – Addressing is in the Start-up section, Templates are under the Devices section, Schedules is in its own section, and Parent-Child associations are also in the Devices section.

### Addressing

All BACnet MS/TP HVAC devices can communicate with the System Manager regardless of brand, but these devices must first be addressed. Most Daikin brand devices will be pre-addressed in the factory, but the factory cannot pre-address devices from any other brand. All other devices remaining undiscovered after the Discovery Mode completes must be manually addressed. Each device must have a unique address in the Daikin device address range (the MAC Address range is between 0–127 and the default Device Instance range is between 3101000–3101999).

### Addressing Devices Manually

To enable the System Manager to communicate with any BACnet MS/TP HVAC device, the device must be given an

appropriate unique MAC Address and Device Instance number. To manually address any system device, please refer to the Operating Manual for the particular device.

### To determine an available address:

When manually addressing a device, you may need to determine an available address by following the steps below.

Log in at Commission user access level.

Select “**Settings**” from the main menu bar beneath the Daikin banner.

Select “**Network Setup**” from the Settings drop-down menu.

Select the “**System Summary**” tab, which will display a list of all communicating devices on the network.

To sort this list by order of Device Instance number or by order of MAC address number, select either the “Device Instance” heading or the “MAC Address” heading.

Selecting either heading multiple times will toggle the display between listing numbers in ascending and descending order.

Toggle the “MAC Address” or “Device Instance” to list numbers in ascending order, and go to the end of the list to view the last used address. This list includes all addresses currently communicating.

Choose an unused MAC address between 0–127 and a device instance between 3101000–3101999.

**NOTE:** Devices with a MAC Address between 0–127 but with an incorrect Device Instance range will still pass the BACnet MS/TP token on the network trunk, but the device will not be displayed on the System Manager.

## Service Utilities

Use the Service tab for Global Actions, Balancing, and Network Actions.

### Global Actions

The **System Stop** button will set all VAVs to unoccupied and the AHUs and WSHPs to “App Mode: OFF”. Selecting **Start** will set the VAVs back to occupied and AHUs and WSHPs to “App Mode: Auto”.

The tabular list shows all devices connected to the System Manager. In this list you may update a particular device's set-points, parents, or even schedules. This list makes it easy to change a large number of devices all at once rather than one at a time. If more control over a single device is desired, select the **pencil icon** at the end of a particular device on the list, and you may edit all three properties (set points, parents, and schedule) of a single device.

### Balancing

Enable the Manual Mode - this will override critical control points. Once enabled, the page allows the user to select either a single air handler unit, or all known air handlers, and then select an action.

- **Max Flow:** The air handling unit's associated VAVs' control flow setpoint will be overridden to 100% to maintain maximum design cfm.
- **Min Flow:** The air handling unit's associated VAVs' control flow setpoint will be overridden to the minimum percentage (Flow Minimum/Flow Maximum) to maintain the minimum design cfm.
- **Open Dampers:** The air handling unit's associated VAV's damper command setpoint will be overridden to 100%.

After selecting an action to perform press **Go** to command all the VAVs connected to the indicated air handler. This override will remain as long as the System Manager remains in Manual Mode. To stop the override, select **Automatic**. This will return VAVs back to local control.

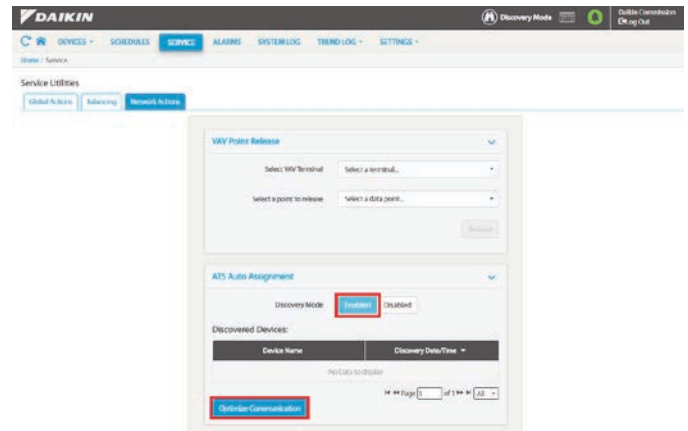
Depending on the physical location and construction of the VAV box, the Flow Coefficient may need adjusting. Scrolling down on the Balancing Tab, a Flow Coefficients table lists all of the VAV terminals recognized by the System Manager along with their Current Flow Coefficient and Displayed Air Volume. To edit a particular VAV's flow coefficient, select the pencil icon under **Action** column. Upon selection, you will have the ability to enter the Actual Air Volume for the VAV, and based on that the New Flow Coefficient will be calculated. This Flow Coefficient is limited in value between 0 and 2.55. Before exiting this page, remember to select Update to save any changes that have been made.

## ATS Auto Assignment for WSHPs and FCUs

ATS Auto Assignment is a wizard that will assist locating, addressing, and establishing a connection with the various Daikin-branded WSHP and fan coil units within the building. To begin this process select the "Service" tab, then select the "Network Actions" subtab. The "ATS Auto Assignment" section is found under the "VAV Point Release" box. To enable the system to discover the WSHP and fan coil units within your building, you must enable the Discovery Mode by selecting "Enabled" next to Discovery Mode, see [Figure 16](#). Once the discovery mode has been enabled, the System Manager is ready for incoming communication.

Each WSHP and/or fan coil unit will initiate communication when it's associated space sensor is held in for more than 10 seconds. When this is done, the System Manager will signal that it has discovered the device by listing it under "Discovered Devices" in the ATS Auto Assignment section, along with the date and time of discovery. The newly discovered devices will be listed in order of the first-discovery on top, to the latest discovery on the bottom. The date and time of each discovery can be helpful in identifying each device in the list. This is because each device is given a generic name by the System Manager according to default settings, and these generic, default names can make it difficult to determine which device each name refers to. It is suggested to use the following strategy:

Figure 16: ATS Auto Assignment



After enabling the Discovery Mode, initiate communication with the first WSHP or fan coil unit by pressing and holding its tenant override button for more than 10 seconds.

4. Record the time you initiated communication with this device, before moving on to the next device.
5. In this way, go zone to zone, initiating communication with each device in the building and recording the time and order communication with each device was initiated.
6. Return to the System Manager. Use the order and time as a guide to identify which device, each default device name is referring to.
7. It is recommended to change the default device names when the initial identification is complete. This will help keep devices organized later.
8. After confirming and possibly renaming each WSHP and fan coil unit on the discovered devices list, press the "Optimize Communication" button. Once pressed, the System Manager will scan the entire Max Master range and identify the lowest, open MAC Address and assign it to the first discovery. It will iterate this process until all newly discovered devices have been optimized.
9. Optimize Communications will be complete when the System Manager displays a notification. Once complete, disable the discovery mode by selecting the "Disable" button to end the process. (**NOTE:** This will clear the Discovered Devices list, so be sure you are done interacting with this list. Devices can still be interacted with through their respective Device Property page.)

**NOTE:** As with other newly discovered devices, some system level configuration may need to be done. See the associated section for more information.



## Network Actions

To remove an override on a VAV point, select the Network Actions tab. In the **VAV Point Release** submenu, first select one or many VAV terminals, then select one or many points to release on those VAV terminals. Once selections have been made, press the **Release** button to release selected points on selected VAV terminals. This **Release** function is also useful if any overrides were done through the WCIS Software Tool (described in the next section) at the VAV actuator and will release all of the overrides.

## WCIS Software Tool for VAVs

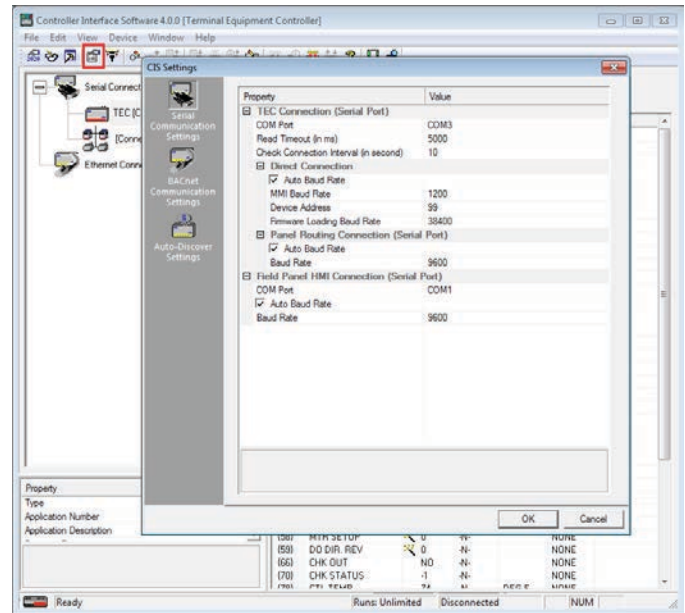
### CAUTION

Adjusting the application software, addressing, or setpoints on the controller can be harmful – affecting system operation and communication. Software should only be used by trained technicians experienced with the particular equipment.

WCIS is a BACnet VAV controller software that allows for gathering or manipulating setpoints and information directly on the BACnet VAV controllers through a personal computer. This can be particularly useful during balancing, or in the troubleshooting of a particular VAV terminal unit, because it is an unfiltered steady stream of data directly from the VAV controller itself. Also, it eliminates the typical communication delays that are present when reading data over the network. The WCIS Software Tool is used in conjunction with the WCIS cable (part number 250804701). Personal computers without a male serial connection need a serial to USB adapter. The WCIS program can be obtained by contacting the Daikin Applied Controls group. Run the setup.exe file and follow the wizard instructions.

The WCIS cable RJ-11 connector can be plugged into the bottom of the room sensor connected to the VAV actuator, or directly into the VAV actuator room sensor input. Open the WCIS Software Tool on your PC. Select Device and then Connection Settings to configure the software, see [Figure 17](#). Select the appropriate COM port on your PC that has the WCIS cable connected, and use the default Baud Rate (1200). Use a Device Address of 99 and select OK. Select Device and then Connect, a pop-up screen will appear, press OK. The software should have a highlighted row scrolling through the continuously updating data points.

Figure 17: Connection Settings in WCIS



Applications and setpoints can be viewed and manipulated in the software. To change point values double-click on the value to open a new screen. The pop-up screen will give a brief description of the data point, and the value can be adjusted in the text box. After adjustments, select OK to save configurations. Some convenient data points to view and configure are: controller address, cooling and heating setpoints, flow minimums and maximums, air volume, flow coefficient, and duct area. For more information on data points, refer to OM 1063 BACnet VAV Actuator Operation Manual.

**NOTE:** Anytime you make a manual change to a data point in WCIS, you are overriding that point and disabling the internal logic that generally governs it. This will be indicated to you in the WCIS tool, under the stats column. **You must release that point again before the controller will return to normal operation!** Right click on the column to release the point in WCIS, or this can be done globally at the System Manager under the service tab. Also, if a point has failed because of an input that doesn't exist or a hardware issue, it will show up as red, and this will be indicated in the status column as well.

## Creating Schedules on Local System Manager

To create a schedule, select the “**Schedule**” tab. A window labeled “**Manage Schedules**” will appear with a list of existing schedules. To create a new schedule, select the “**Add New Schedule**” button. A weekly schedule will appear with a default setting of occupied times on Monday through Friday and unoccupied on the weekend. Occupied is represented in blue and Unoccupied is represented in white.

Give the schedule a unique name at the top of the window. If the name matches another schedule, a notification at the top saying, “**A schedule by this name already exists,**” will appear. Set up the desired schedule by sliding the slider tabs to adjust times, or by pressing the clock button to the right of the times to manually enter the desired time, shown in [Figure 18](#). For each day a maximum of 4 slider bars is allowed. To add a slider bar, select “+”. To remove the last slider bar added, select “X”. To switch the occupied and unoccupied times in a day select “**Toggle Occupancy**”.

Holiday schedules can be added by selecting the “**Holiday Schedule**” subtab. Here the user can add holidays assigned for special hours of operation on a specific day.

## Assign Devices to a Schedule

With a new schedule being created, the user must specify which devices are going to follow the new schedule. By selecting the “**Devices**” subtab, a dropdown box appears listing all of the connected devices, shown in [Figure 19](#). To select a device, select it from the dropdown box and a checkmark will appear to the left of the device name. In addition, the device’s name will now appear below the “**Assign Devices to Schedule**” menu. To remove a device from the schedule, select the “**X**” next to the device name below “**Assign Devices to Schedule**” or go into the dropdown box and select the device name again to remove the checkmark. When finished, click “**Save**” and SiteLine will display a notification confirming the action.

To quickly reference what devices are following which schedule, select the “**Schedules**” tab. On the list of saved schedules, a black arrow will be next to any schedule with assigned devices. Toggle the arrow to see what devices are currently assigned to the schedule, along with a room temperature measurement for each device, shown in [Figure 18](#). The device listings are also linked back to their respective device information and settings page.

Figure 18: Adjusting Schedule Times

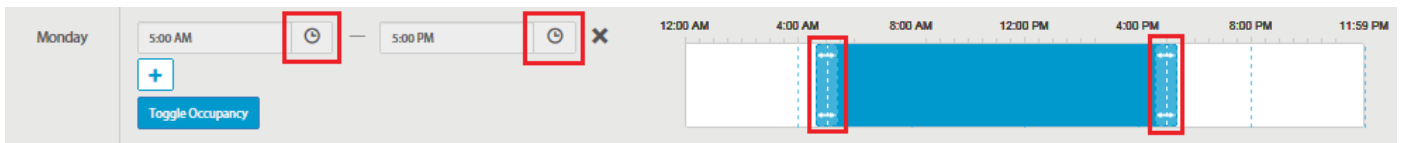


Figure 19: Assign Devices to Schedule

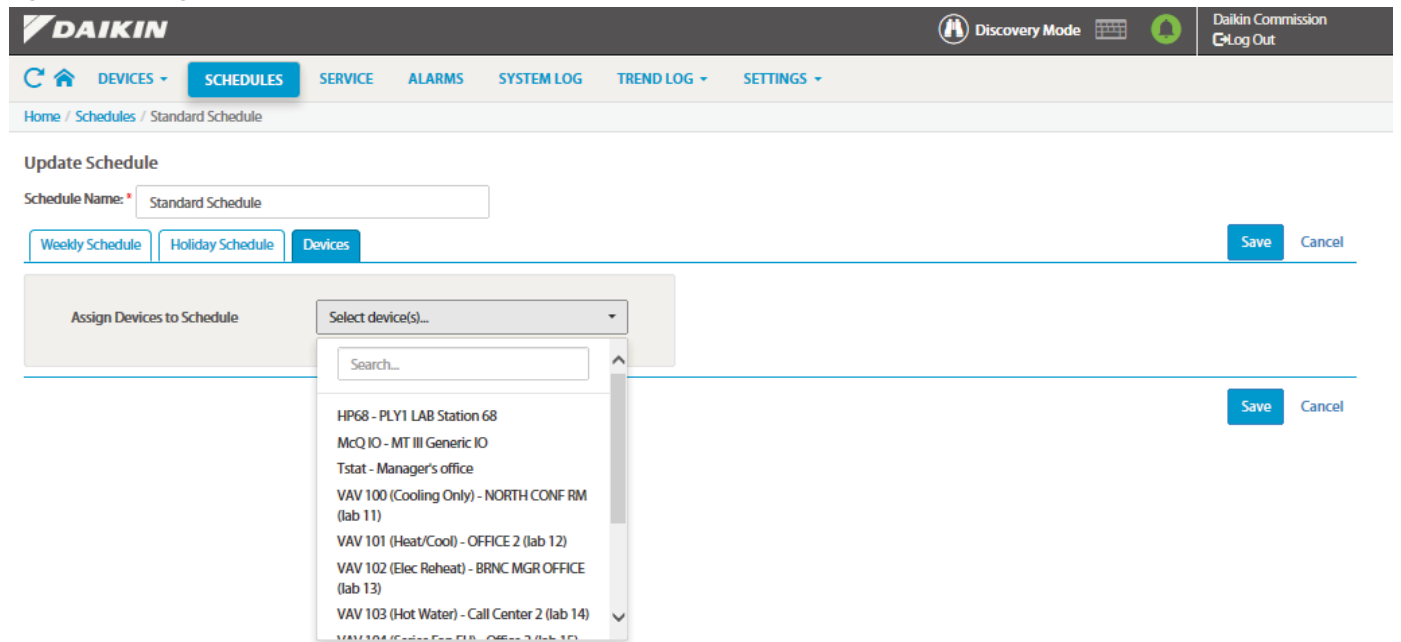
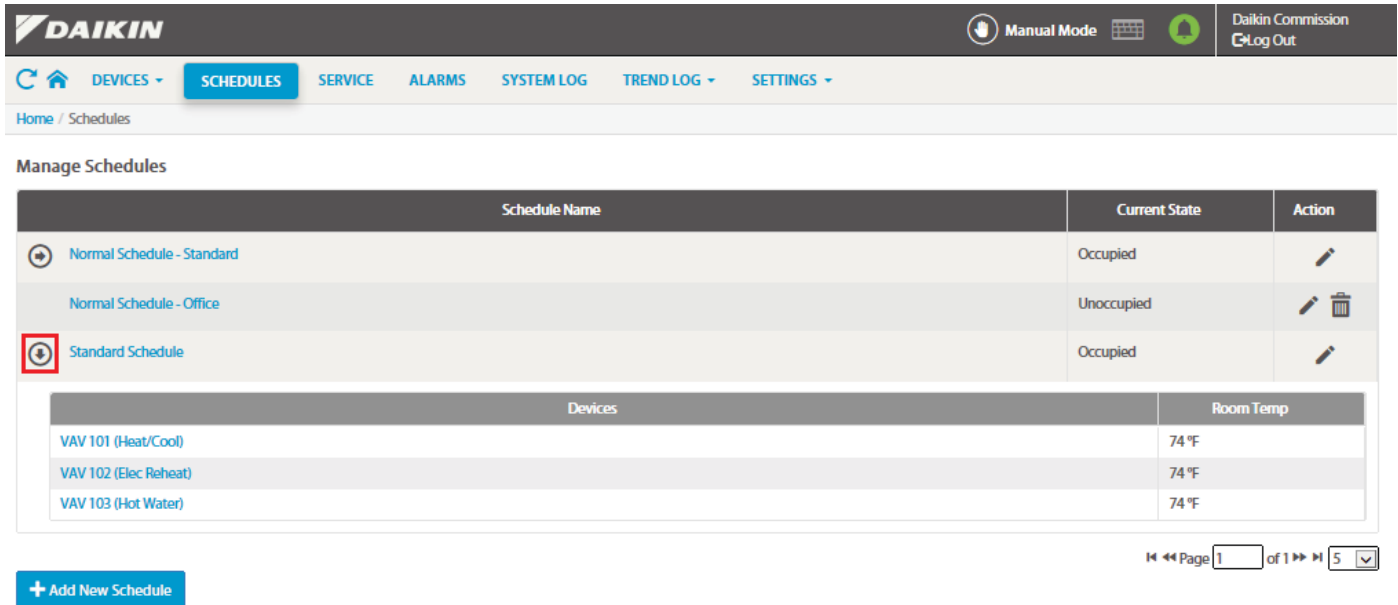


Figure 20: Schedule Device Quick Reference

6. Delete User



## Adding Users

1. Login as Maintenance access level or higher
2. Select the “Settings” tab
3. Select “Manage Users” (NOTE)
4. Select the “New User” button
5. Input the required information into the “Add User” window: First Name, Last Name, User Name, Security Level\*, Password that meets listed criteria, and confirmed Password. (Figure 22)
6. Once all information has been entered, select “Add”

**NOTE:** \*The access level at which you login will dictate the level of access you may provide to the new user. Table 3 lists the access levels from lowest to highest. For example, since a commissioner is the highest access level, they can create a new user with any access. An owner, though, cannot create a commissioner level but can create a user with any other access level.

## Removing Users

1. Login at Maintenance access level or above.
2. Select the “Settings” tab from the main menu bar.
3. Select “Manage Users” from the drop-down “Settings” menu.
4. Select the “Delete” icon under the **Action** heading for the user you would like to remove from the system.
4. A pop-up message will appear to ensure you want to delete the selected user from the system. Select the “OK” button to complete the deletion process.
5. A message will inform you that the user deletion was successful.

## Changing or Resetting User Passwords

Users can change their own passwords at any time. In the event that a user loses or forgets their password, another user at a higher access level will be required to log in and reset the user’s password to the default password. These processes will be explained in the following sections.

Passwords are case sensitive. Usernames are not case sensitive.

### Resetting a Password

1. Login at Maintenance access level or above.
2. Select the “Settings” tab and then select “Manage Users” from the drop-down menu.
3. Select the “Edit” icon (see the edit icon or pencil in Figure 20) under the action heading for the appropriate user.
4. The edit icon will open the “Update User” page. Select the “Reset Password\*” button.
5. A pop-up message will verify that you want to reset the chosen user’s password. Select the “OK” button, to complete the process.

**NOTE:** You cannot reset your own password, the reset button will not be available when selecting the user name you are currently logged in under.

6. After a user’s password is reset. A user should change their password from the default to a new personalized password by following the steps for “Changing a Password.”



**Table 3: Access Levels, User Names, Passwords for Default Users and Settings**

Access Level	User Name	Password	Settings Menu Access (Tabs/Buttons)
Guest (Default User)	N/A	N/A	Manage Users (View Only), System Configuration (View Only), Manage Documents
Tenant	Tenant	daikin123	See Guest
Maintenance	Maintenance	daikin123	Manage Users (may add), System Configuration, Network Setup, Manage Documents
Owner	Owner	daikin123	Maintenance level plus access to Service and System Log tabs
Commissioning	Commission	daikin72639	Owner level plus access to Ancillary Control, Device Templates

**NOTE:** For security purposes, it is recommended to change the default passwords from what is published. Be sure to record them somewhere for safe keeping. Passwords cannot be reset again without higher level access.

**Figure 21: Manage Users Page**

The screenshot shows the 'Manage Users' page. At the top, there is a navigation bar with 'DAIKIN' logo, 'Manual Mode', and 'Log Out' options. Below the navigation bar, there are tabs for 'DEVICES', 'SCHEDULES', 'SERVICE', 'ALARMS', 'SYSTEM LOG', 'TREND LOG', and 'SETTINGS'. The main content area is titled 'Manage Users' and contains a table with the following data:

User Name	First Name	Last Name	Security Level	Action
Commission	Daikin	Commission	Commission	[Edit]
Guest	Daikin	Guest	Guest	[Edit]
Maintenance	Daikin	Maintenance	Maintenance	[Edit]
Owner	Daikin	Owner	Owner	[Edit]
Tenant	Daikin	Tenant	Tenant	[Edit]

At the bottom left, there is a '+ New User' button. At the bottom right, there is a pagination control showing 'Page 1 of 1'.

**Figure 22: Add User Page**

The screenshot shows the 'Add User' page. At the top, there is a navigation bar with 'DAIKIN' logo, 'Manual Mode', and 'Log Out' options. Below the navigation bar, there are tabs for 'DEVICES', 'SCHEDULES', 'SERVICE', 'ALARMS', 'SYSTEM LOG', 'TREND LOG', and 'SETTINGS'. The main content area is titled 'Add User' and contains a form with the following fields:

- First Name \*
- Last Name \*
- User Name \*
- Security Level \* (Dropdown menu with 'Guest' selected)
- Password \*
- Confirm Password \*

Below the Password field, there are instructions:
 

- Password must be between 8 and 20 characters long.
- Password must contain characters from at two of the following groups:
  - Lowercase letters
  - Uppercase letters
  - Numbers
  - Special Characters

At the bottom right, there are 'Add' and 'Cancel' buttons.

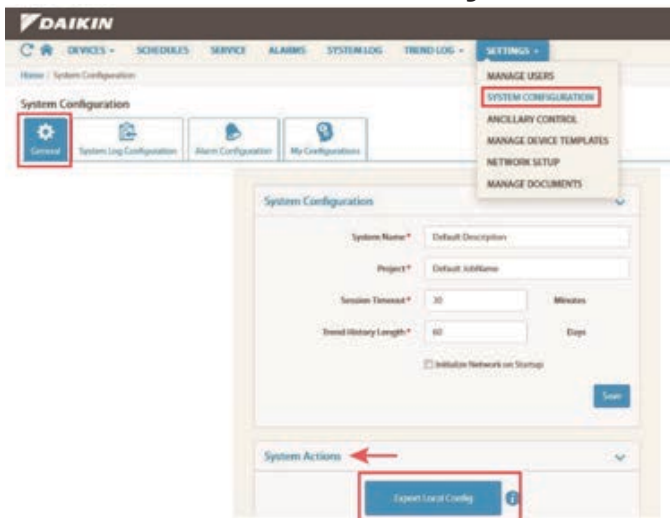
## Saving the Configuration

After completing the setup for the System Manager, save the configuration file. This will create a configuration file with all settings on the local PC and in the Cloud. To create the configuration file, follow these steps (refer to [Figure 230](#)):

1. Go to the “Settings” tab → “System Configuration”
2. Under “System Actions” press the “Export Local Config” button

The configuration is now saved in case of future need to upload the file to return to the systems original settings. The configuration is automatically saved to the Daikin cloud weekly. Contact Daikin Controls TRC for additional information.

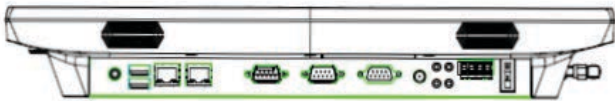
Figure 23: Saving the Configuration System



## Manager Connections

See the System Manager in [Figure 24](#).

Figure 24: System Manager



## LED Indicators

Four LED indicators provide diagnostic information.

- **LED PC TX** – Flashes each time the Communication Module sends a message to the host PC
- **LED PC RX** – Flashes each time the Communication Module receives a message from the host PC
- **LED Net TX** – Flashes each time the Communication Module sends a message to the MS/TP network
- **LED Net RX** – Flashes each time the Communication Module receives a message from the MS/TP network

## MS/TP Network Connector

A four pin plug connector is used to connect to the MS/TP network. For troubleshooting purposes, the start-up LED sequence may be useful:

### On power-up:

1. All LEDs ON.
2. **LED D1** OFF immediately after power, then short pulse about every 4 seconds. This is a request to the System Manager computer to send configuration data to the BACnet module. The other three LEDs remain ON until the BACnet module is configured by the SiteLine application.

### When the SiteLine Application starts:

1. **LED PC RX** short pulse indicating the SiteLine application is sending configuration data to the BACnet module.
2. **LED Net TX** starts fast flicker as the BACnet module is now sending Poll for Master (PFM) requests to the BACnet network.
3. **LED Net RX** remains ON steady indicating no network traffic received.
4. **LED PC RX** flickers about every 8 seconds as SiteLine sends Who-IS requests attempting to wake up devices that may connect to the MS/TP network.

## LAN 1/LAN 2 & USB

RJ-45 or Ethernet connections used to connect the System Manager to the Internet. The other port may be used for troubleshooting or other applications.

The USB ports are there for uses such as: Keyboard, Mouse, external storage, etc.

## VGA

The VGA is not used.

## Power Connection (PWR)

This pin connection is used to deliver power to the System Manager. The actual power button is found on the front plate on the left side.

## Headphone & Microphone Jack

Although there is no sound currently being emitted by the System Manager, these ports are also included on the back of the device (it is a computer with internet access, so it could potentially need sound).

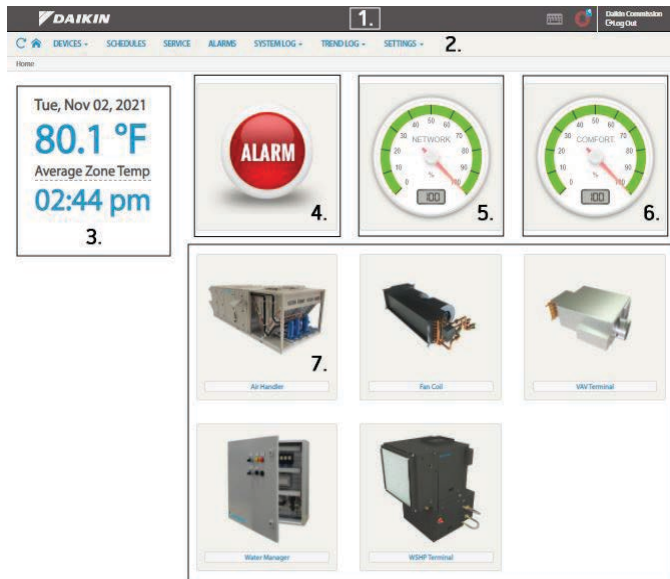
## The System Manager — Page-by-Page

The System Manager program was designed to be responsive to different screen sizes. This allows viewing the pages remotely from a device with a smaller screen size. The pages may look slightly different than the following described view based on the System Manager’s full screen size. However, each page’s main components will remain the same.

### Home Page

The Home Page, seen in [Figure 25](#), is designed to give you an at-a-glance, overall status of your building’s HVAC system. Your System Manager will load to this page each time it starts, and you can reach this page from any other page or tab in the System Manager application by clicking on the home icon in the System Manager’s main menu bar. The following list will briefly detail the home page’s alarms, gauges, and other display features, since these are paramount to navigating the System Manager and understanding the current status of your system. The numbers in the following sections will correspond with [Figure 25](#).

**Figure 25: Home Page Items**



1. **Daikin Banner** – the Daikin banner spans the top of each browser page in the System Manager SiteLine application program. This banner will include information about what mode SiteLine is in. The far right portion of the banner displays a “Log In” or “Log Out” option and will display the name of the user currently logged in. To the left of the log-in area, two icons are displayed:

- a. **Keyboard Icon** – The keyboard icon allows you to enable and disable the virtual keyboard that can be used, when needed, in any input area of the System Manager’s SiteLine application.
- b. **Alarm Bell Icon** – The alarm bell icon signifies the current alarm status of your building’s HVAC system. The bell will always have a colored circle around it which signifies the existence and severity-level of current alarms. Please see [Table 4](#) to learn more about alarm status colors. A small number above the alarm bell icon will indicate how many alarms are currently active. When the alarm bell icon is in a green circle and has no number displayed above it, there are no alarms currently active. The alarm status icon can be viewed from any page and selecting it will take you to the Manage Alarms page where you can access more detailed information if desired.

2. **The Main Menu Bar** – Like the Daikin banner, the main menu bar will always be found spanning the top of the screen of each page in the System Manager program. The Main Menu bar is the System Manager’s Main Navigation tool. You can navigate to any page or section in the System Manager program by selecting options from the Main Menu bar and its drop-down sub-menus.

**NOTE:** When accessing the System Manager remotely from a device with a smaller screen, the main menu bar may be displayed in the Daikin banner at the top of the screen as a “menu icon” or three horizontal bars. You can click on this menu icon to open a drop-down version of the main menu that will optimally fit a smaller screen size.

3. **Time, Date, and Average Temp Display** – In this section you will find the current date and time displayed, along with the average building temperature. The average building temperature is an average of the current temperature readings in all zones or areas of your building.

4. **Alarm Status Button** – The Alarm status button alerts users to current active alarms by changing color from green to yellow or red, based on alarm severity. A yellow alarm status button indicates one or more alarms are currently active, but none are above the yellow severity level. A red alarm status button indicates that one or more alarms are currently active and at least one is at the red severity level. To learn more about alarm severity colors see [Table 4](#).

- a. **Flashing Status Button** – When alarms are activated, the alarm status button will show yellow, red, or flashing red. A flashing alarm signifies that the alarm has not been acknowledged by a user. A user can choose to acknowledge an alarm to let other users know the alarm has been noticed.
- b. **Static Status Button** – When all active alarms are acknowledged, the alarm status button will stop flashing but remain yellow or red to indicate that the alarm is still active.

Clicking on the alarm status button on the home page will take you to the “Manage Alarms” page, which will give you more detailed information about the alarm type and cause. To learn more, see the section, [Manage Alarms Page](#).

5. **Network Gauge** – This gauge is an indication of whether the network is working well or not. The number indicated by the dial is the percentage of networked HVAC devices that have a solid connection with the System Manager. Those that have a spotty connection or no connection at all will decrease the overall network efficiency number and change the gauge color from green to yellow or red, depending on the connection problems’ severity.




Network Gauge color explanations:

- Green** – the network is working well
- Yellow** – there are some interruptions on the network
- Red** – there are major interruptions on the network, or SiteLine is no longer communicating with a device

6. **Comfort Gauge** – This gauge indicates the overall comfort level of your building by indicating the percentage of building areas or zones that are currently within two degrees of their temperature set-points. For example: if your building has 4 main zones or areas, but only 3 are within 2 degrees of their targeted set-points, the comfort gauge dial would read 75% because 75% of all building zones are within the comfort range.

7. **Device Type Link Buttons** – each of these buttons represents a particular HVAC device-type that is part of your building’s HVAC system. Each device-type in your building will have its own device-type button on the “Home” page and its own corresponding device-type tab on the “Manage Devices” page. When a specific device-type button is selected, it will open the corresponding device-type tab on the “Manage Devices” page. This device-type tab will list each individual device in your building that is of the device-type chosen, along with the alarm status of each device and other associated information. Choosing any individual device from this list will take you to that particular device’s property page.

**Table 4: Alarm Severity Color Explanation**

Alarm Status Color	What it means for the Alarm Status Button and Icon	What it means for an Individual Device
	Indicates all HVAC system devices are in proper working order. No current or active alarms exist.	This HVAC device has no alarm issues and is in proper working order.
	A yellow alarm status button and icon signifies one or more alarms are currently active, but none are at the red alarm severity level.  Yellow alarms signify less-serious issues. Some (not all) yellow alarm conditions may limit device operation, but they will not result in a complete device shut-down.	This device has an alarm issue that may or may not limit its operation. However yellow alarm issues will NOT cause the device to shut-down completely.  Issue or problem needs to be fixed. Some yellow alarms must be manually cleared while others will clear on their own.
	A red alarm status button and icon signifies one or more alarms are currently active and at least one is at the red alarm severity-level.  A red alarm signifies a more-immediate and serious problem. A red alarm condition results in device shut-down.	This device has an alarm issue or problem that is serious enough to cause device shut-down or a loss of communication with the System Manager.  Problem must be fixed and alarm must be manually cleared before this device can operate once again.

## Devices

There are many ways to navigate to the Manage Devices Page. You can select any device-type button on the home page or you can select any device-type option from the dropdown menu that appears when you select “Devices” from the main menu bar. The tabs on the Manage Devices page will include a tab for each device-type discovered in your system and a tab called “Device Dependencies.”

This Device Dependencies tab will list all the devices in your building’s system. You can choose to view this list in one of two different ways by selecting either “Group by Association” or “Group by Schedule.” If you select “Group by Association,” the list of system devices will be displayed according to the Parent/Child relationships between them. The Devices that generate or supply heated or cooled air or water are called parent devices. Beneath each Parent device is a list of its corresponding “child devices.” The distinction will be seen in a tabbed list, as seen in [Figure 26](#).

Alternatively, you can display the list of devices according to the schedule they are set to follow by selecting “Group by Schedule.” When this option is selected, the title of each schedule that currently exists in the system will be listed with the devices set to that particular schedule listed below it. From either view option, you can select an individual device from the list and this will bring you to that particular device’s Device Property page.

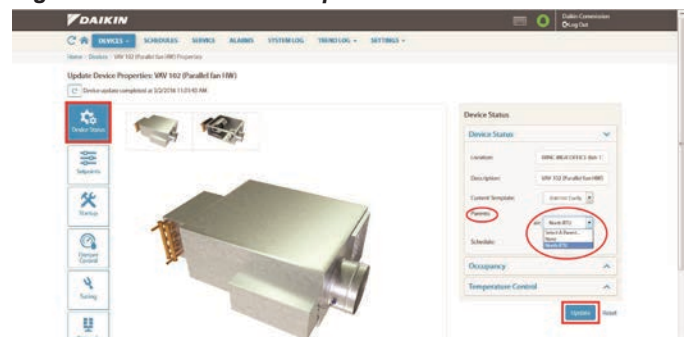
Parent/Child relationships are not automatic. To set parent relationships for consumer devices, you may either go to each Device Property page and set parents on the Device Status tab, as seen in [Figure 27](#), or you can use the Global Actions option by opening the Services tab in the main menu bar. The Global Actions tab will allow you to assign multiple child devices at one time to a single parent device by using the “Update Parent” button. To learn more about Global Actions, see the section titled, [See Service Utilities – Global Actions on page 23](#).

**Figure 26: Parent/Child Relationship**



Next to the “Device Dependencies” tab, you will find tabs that list various device-types, such as “Air Handler” or “VAV terminal.” There will be one tab for each device-type in your building. Selecting any of these tabs will display a list of each device of that type in your system. To access a device’s Device Property page directly, select the associated device tag. The rest of the device-type list provides information for each device on the list. The information included about each device will vary depending on the device-type, but all device-types will include the alarm status of each device, the current occupancy setting of each device, the location of each device, and two more actions associated with each device. These actions will include a “Delete” icon (Trash Can) and an “Update Device Configuration” icon (Wrench and Gear). Some of the additional information per device can be customized with the “Change Columns” option found directly above the Device Tag column.

**Figure 27: Parent/Child Dropdown List**



Selecting the “Delete” icon for any device will completely delete that device from the System Manager. If you choose to delete a device from the system by selecting the “Delete” icon, a pop-message will ask you to confirm before proceeding with the deletion. If you delete a device that is still connected to the network, after a brief moment the System Manager will automatically enter Discovery Mode and “rediscover” the deleted device. This can sometimes be a useful troubleshooting tool.

Selecting the “Update Device Configuration” icon (Wrench and Gear) for any device will bring you to the “Update Device Configuration” page for that specific device. This page will have a list of associated objects for that device and each object can be edited by selecting the “Action” icon (Pencil) under the “Actions” heading. Selecting the “Edit” icon will bring you to a new Edit Object page. This includes object settings such as the object description, refresh rate, trend enable, alarm settings, and other event properties. If more settings are desired, you may go to the associated device template. More information on templates can be found in the following sections: [Display Templates on page 32](#) and [Managing Device Templates on page 32](#).



## Default Device Properties Tabs

When accessing the Device Properties page of a device, by default there will be at least three tabs: Device Status, Network, and Miscellaneous. As mentioned previously, the device status page can be accessed through a number of ways. This will by default include information about the device such as its description, location, current template, and schedule. If it is a consumer device (child) it will also have a parent selection option. As with any of the other Device Property tabs, if any changes are made, make sure to select **Update** before changing to a different page. Selecting Update tells the System Manager to write any updated values to the device. The network tab will contain information such as the Device Instance number, Model Name, Vendor ID, MAC address and so on. If the device is a parent, it will have an option for direct scheduling. This will allow the device to be assigned to a schedule, rather than utilizing the schedule or schedules of its associated children.

If the device is a child, it will have an option for “rogueZone.” RogueZone causes the device to be excluded from Changeover or Pressure Reset algorithms. For more information on these algorithms, please see the Ancillary Control section under Settings. The last default tab is the Miscellaneous tab. If no template exists for the device, all BACnet objects that can be read will be found there. Typically logic or objects important to ancillary control algorithms will reside here. Any other tabs aside from the default three exist as a result of the device’s template. Templates allow the user to define reading and writing security for each object in addition to providing the organization information on the Device Property page. If you would like to create a template for a device, please see the [Managing Device Templates](#) on page 32.

## Scheduling

Creating schedules keeps your building comfortable while conserving energy and saving money by only running your HVAC system devices when and where they are needed. The System Manager allows you to maintain comfortable temperatures for times when building areas are occupied by people (called occupied set-points) and maintain temperatures that conserve energy for times when building areas are unoccupied (called unoccupied set-points). Schedules tell each HVAC device when it should be maintaining its occupied and unoccupied set-points.

When setting up building schedules for the first time, it’s important to understand that schedules are set based on building zones (or areas) and the HVAC system devices that serve those zones. How you divide your building into zones depends on how many areas of your building have occupancy times that differ from other areas in building. Users often set up one schedule for each building area that has its own separate occupancy times. For example, if your building has a front office that opens earlier and closes later than other areas in the building, then this would be one building zone that could have its own schedule, called “front office.”

After you determine the number of zones in your building, you

will need to determine which HVAC system devices service each zone. The devices that service each zone will be child devices such as VAV boxes, WSHPs, and fan coil units (child devices are supplied cooled or heated air or water by a main parent device). Parent devices automatically follow the schedules of their child devices unless direct scheduling is enabled.

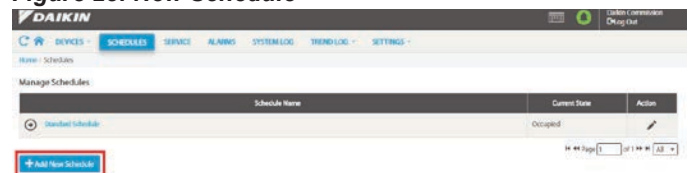
Once you know the building zones you intend to create schedules for, and you have determined which HVAC child devices service each of these zones, you are ready to create your schedules.

**NOTE:** To Manage Schedules, including creating, editing, and removing schedules, you must be logged in at the Maintenance user access level or higher.

## Creating New Schedules

1. Select the “**Schedule**” tab from the main menu bar.
2. To create a new schedule, select the “**Add New Schedule**” button, shown in [Figure 28](#), at the bottom of the schedules list.

**Figure 28: New Schedule**



3. Change the default schedule name.

**NOTE:** If you choose a name that matches the name of another schedule, the System Manager will warn you with a pop-up message.

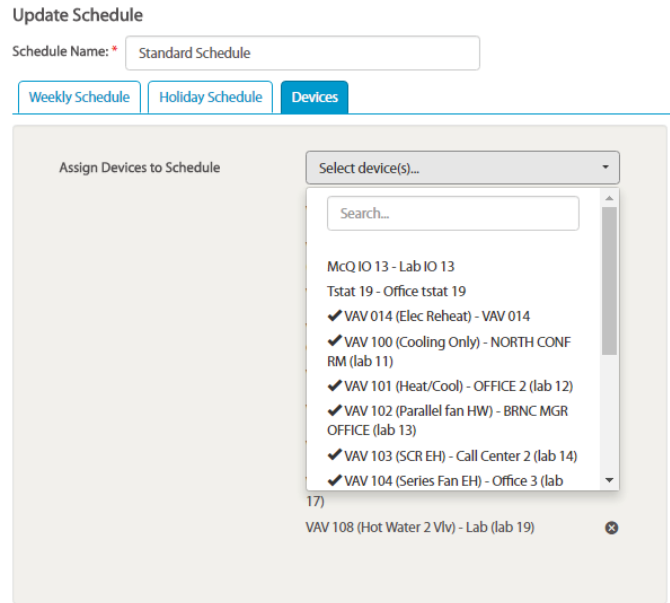
4. There are **two different ways to adjust the times** that the area will be occupied and unoccupied for each day of the week.
  - a. **Sliders** are available for each day of the week. You may add up to two sets of sliders to a particular day by using the + button above the “Toggle Occupancy” button – meaning there will be two sections of occupied time in a given day. The slider tabs show where occupancy time begins and ends. Select and drag the left tab to the occupied start time. Then select and drag the right tab to the occupied end time.
  - b. **The Clock** to the right of the start and end time boxes will also change the occupied times. This will open a small drop-down window that allows you to adjust the start and end occupied time. If there are two sets of sliders, there will be two sets of time ranges.

**NOTE:** The occupied times are represented in blue. The unoccupied times are represented in white. You can

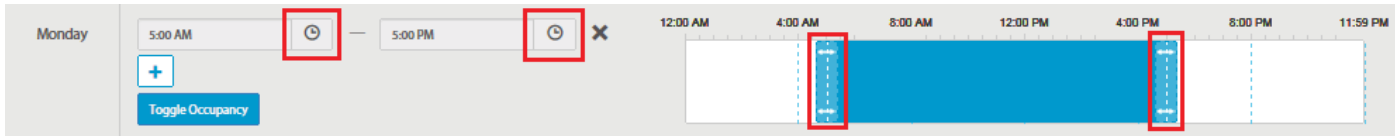
switch the occupied and unoccupied times for any day by selecting the “Toggle Occupancy” button, refer to [Figure 30](#).

5. After the main weekly schedule times have been set, you can add a holiday schedule to the main schedule by selecting the “**Holiday Schedule**” tab and following the directions for [Holiday Schedules on page 23](#).
6. The final step in creating a new schedule is assigning devices that will follow the new schedule. Remember, schedules are designed to control the HVAC system devices that service a particular building zone or area.
  - a. To add system devices to the schedule, select the “Devices” tab. A dropdown box is available in the “Devices” tab which lists all of the connected devices. When a device is selected from the dropdown box, a checkmark will appear to the left of the device name, as shown in [Figure 29](#), and the device name will appear below the “Assign Devices to Schedule” dropdown box.
  - b. To remove a system device from the schedule, select the grey “X” next to the device name in the list of devices below the “Select device(s)...” dropdown box or go into the dropdown box and select the device name again to remove the checkmark.
7. When finished assigning devices to the new schedule, select the “**Save**” button in the upper right corner to save all changes and complete the process of creating the new schedule. A message will appear to confirm your save was successful.

**Figure 29: Assigning Devices to Schedule**



**Figure 30: Adjusting Schedule Occupancy**

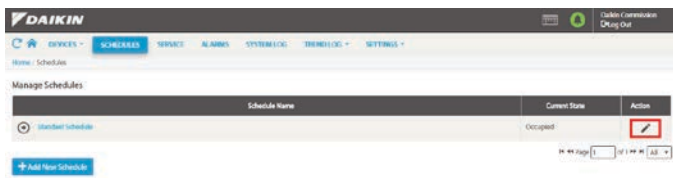




## Editing Schedules

1. To edit a saved schedule, select the “**Schedule**” tab from the main menu bar.
2. The Manage Schedules page will list each schedule currently in the system. Select the pencil icon to edit, shown in [Figure 31](#), next to the name of the schedule you would like to edit.
3. When the “Update Schedule” page opens, you have the option to change the name of the schedule and change the occupancy times. By selecting the Holiday Schedule tab, you can add new holidays or edit and delete current holidays that are attached to the main schedule selected. By selecting the Devices tab, you can assign devices to the schedule and remove devices from the schedule.
4. After all desired edits have been made, select the “**Save**” button to save your changes. A pop-up message will confirm the save was successful.

Figure 31: Edit Schedule



## Holiday Schedules

1. You can add a holiday schedule to any regular schedule during the process of creating a new schedule or editing an existing schedule, by selecting “**Holiday Schedules.**”
2. Then select the “**+ Add New Holiday**” button which opens a default holiday schedule on today’s date with occupied time of 5AM to 5PM.
3. Adjust the start and end dates for the holiday period you are scheduling.
  - a. If the holiday spans multiple days, and each holiday day will have different occupancy times, then you will need to add a new holiday using the “+ Add New Holiday” button for each day of the holiday period. Adjust each day as desired.
  - b. If the holiday spans multiple days, but all days will have the exact same occupancy times, then one holiday, with the start and end dates spanning the entire holiday, will suffice.
3. Adjust the occupied times using the sliders or clocks.
4. After holiday date and occupied times are set, select the “**Save**” button to save changes.

## Service Utilities Page

The services tab gives users a way to do bulk processes – changing setpoints, assigning parents, VAV manual damper control, and other networking activities.

### Service Utilities – Global Actions

The “Global Actions” tab, on the “Service Utilities” page lists all HVAC devices in the building’s network, along with each device’s location, assigned parent device, assigned schedule, and occupied and unoccupied set-points. You can choose to display the whole list by selecting “Show: All” or you can select a group of devices and then select the “Show: Selected Only” option to display a list of selected devices.

The tabular list shows all devices connected to the System Manager. In this list you may update a particular device’s set-points, parents, or even schedules. This list makes it easy to change a large number of devices all at once, rather than one at a time. If more control over a single device is desired, select the pencil icon at the end of a particular device on the list, and you may edit all three properties (set-points, parents, and schedule) of a single device.

The “System Start/Stop” button will either display as “System Start” or “System Stop” depending on current device settings. The “System Stop” button will set all VAVs to unoccupied and all AHUs and WSHPs to “App Mode: OFF”. Selecting the “System Start” button will set the VAVs back to the appropriate occupancy setting and AHUs and WSHPs to “App Mode: Auto”.

Depending on the group of devices you select, a particular setting change may or may not be available. To make a group change, each device in the group you select must be able to have the chosen change applied. For example, if you plan to change a group’s parent device, the group must include all child devices of the same type (such as all VAV boxes). If you include a parent device or different kind of consumer in your child device group, the “Update Parent” option will no longer be available.

### Service Utilities - Balancing

The System Manager controls the dampers and the air volume of VAV terminals to maintain the occupied and unoccupied temperature set-points. Depending on the physical location and construction of a VAV terminal, the air flow registered by the System Manager, may or may not be the actual air flow produced. When the System Manager is registering the airflow volume of a VAV terminal incorrectly, the VAV terminal’s flow coefficient can be adjusted to correct this problem. This is called balancing and can be done on the “Service Utilities” page under the tab, “Balancing.”

To learn whether the System Manager is registering the air flow volume of all VAV terminals accurately, a professional will need to measure the actual airflow volume of each VAV terminal while they are maintaining a constant airflow rate.

To keep the airflow rate constant for balancing measurements, go to the “Service Utilities” page and select the “Balancing” tab. Then, select the “Manual” option in

the “Device Status” area to enable the manual VAV control mode. The manual mode will allow you to choose a single parent air handling unit or all the parent air handling units communicating with the System Manager and then choose an action to apply. This will apply the action to all the VAV terminals connected to the air handling unit or units chosen.

The three actions available are:

- **Max Flow:** The air handling unit’s associated VAVs’ control flow set point will be overridden to 100% to maintain maximum design cfm.
- **Min Flow:** The air handling unit’s associated VAVs’ control flow set point will be overridden to the minimum percentage to maintain the minimum design cfm.
- **Open Dampers:** The air handling unit’s associated VAV’s damper command set point will be overridden to 100%.

After an airflow rate is chosen and VAV dampers are set to open, press “Go” to apply these changes to the air handler chosen and its associated VAV terminals.

After airflow measurements are taken, check whether the measured airflow volume matches the airflow volumes that are currently registered by the System Manager. The airflow volume that the System Manager currently registers for each VAV box can be found in the “Flow Coefficients” table under “Displayed Air Volume.”

If the measured airflow volume differs from what the System Manager registers as the current airflow volume for that VAV terminal, then you will need to change the actual air volume which can be used to automatically calculate the new flow coefficient. This will balance the airflow volume registered by the System Manager with the actual airflow volume measured at the VAV terminal.

To manage and change displayed air volumes and flow coefficients, in the “Flow Coefficients” table, select the “Edit” button (pencil icon) with the desired VAV terminal. This will open a new page (Figure 32) that allows you to enter the actual measured airflow volume if it’s different from the current displayed air volume. Once you have the Actual Air Volume entered, you would then press the calculate button next to the “New Flow Coefficient” entry field. After the “Actual Air Volume” and “New Flow Coefficient” are entered and/or calculated, select the “Update” button to apply these changes. When all VAV boxes are balanced correctly, you can return the system to its automatic mode by selecting the “Automatic” control mode once again and selecting “Go.”

**NOTE:** You can also adjust flow coefficients for any particular VAV by visiting that particular VAV terminal’s device page and selecting the “Startup” tab.

## Service Utilities – Network Actions

The “Network Actions” tab of the “Service Utilities” page is where you can find the ATS Auto Assignment tool and release VAV set-points. The ATS Auto Assignment tool assists in locating, identifying, and establishing communication with the various Daikin-branded WSHP and fan coil units within the building. To learn more about this tool please see the previous section “ATS Auto Assignment” on [page 10](#).

The “VAV Point Release” section of the “Network Actions” tab allows you return VAV points back to their previously configured point settings after any temporary override. For example, VAV points are often overridden during VAV balancing to keep airflow volume settings stable and dampers set to open. VAV point overrides might also be done through WCIS at the VAV actuator.

To release VAV points and return them to their previous settings, select one or more VAV terminals from the dropdown list. Then select one or more corresponding points to release on the VAV terminals you’ve selected. When your selections have been made, press the “Release” button to release the selected points on selected VAV terminals, and return these points to their previous settings.

**Figure 32: VAV Flow Coefficient**

Flow Coefficient for VAV 14

Displayed Air Volume	2516 cfm
Actual Air Volume	2516 - +
Current Flow Coefficient	0.71
New Flow Coefficient *	0.71 - + Calculate

Update Cancel

## Alarms

Alarms are the main source of feedback the System Manager provides. If something goes wrong on a HVAC controller and it has a method of sending a message about it, then an alarm will be generated. The other instance is if the device suddenly stops communicating with SiteLine, an alarm will also be generated.

### Alarm Colors

There are three levels of alarm colors based on alarm severity. Each alarm that activates is automatically assigned a lower yellow or higher red severity level. The alarm status button on the home page and the alarm status icon in the Daikin banner will be yellow if one or more yellow alarms are active, but they will turn red if one or more alarms are red, even if there is a mix of yellow and red alarms currently active. The alarm status button and icon cannot show the severity level of each individual alarm.

Selecting a device-type from the Device dropdown menu will list every device in the system of that particular type, as well as each device’s alarm status color.

To get more information on each alarm, visit the Manage Alarms page.

**Table 5: Alarm Coding**

Alarm Priority Level	What it means	Alarm Severity Color
Warning	An alarm issue that needs to be fixed, but <b>will not limit</b> the effected device’s <b>operation</b> .	Yellow Alarm
Problem	An alarm issue that needs to be fixed and <b>will limit</b> , but NOT shut-down, the affected device’s <b>operation</b> .	Yellow Alarm
Fault	An alarm that needs to be fixed, and <b>will cause</b> the affected device to <b>shut-down</b> completely.	Red Alarm

### Manage Alarms Page

The “Manage Alarms” page is the go-to page to learn more about active alarms. Users can choose to acknowledge and clear alarms or investigate patterns that may exist in the Alarm History. There are 3 separate ways to navigate to the “Manage Alarms” page: you can select the Alarm Status Button on the Home page, you can select the “Alarms” tab on the main menu bar, or you can select the Alarm Bell icon displayed in the black Daikin banner.

The Manage Alarms page has two tabs, one labeled “Active Alarms” and one labeled “Alarm History.”

### Active Alarms Tab

The Active Alarms tab provides more detailed information about currently active alarms than the alarm status button or icon can provide alone. This information includes the date and time the alarm was activated, the name and location of the device involved, and a brief message describing the particular condition or problem that activated the alarm. You can select specific active alarms from the list and then choose the show “Selected only” option to shrink the size of the list, or you can change the number of alarms per page in the drop-down box in the bottom right.

Active alarms can be either acknowledged or cleared by selecting one or more active alarm check boxes from the list and clicking on the “Acknowledge Selected” or “Clear Selected” buttons under the Active Alarms list.

### Acknowledging Alarms

Acknowledging alarms places a checkmark under the heading “Aked” (for “acknowledged”) next to the alarms name in the active alarm list. When all active alarms are acknowledged, the alarm status button will change from a flashing alarm color to a static alarm color. Acknowledging an alarm neither fixes nor clears the alarm, but it allows other System Manager users to know that someone has noticed the alarm.

### Clearing Alarms

Clearing an alarm will erase it from the Active Alarms list, and place it in the Alarm History list. When all alarms are cleared, the Alarm Status button on the Home page and the Alarm Status icon in the Daikin banner will turn green to signify zero alarms. However, the System Manager is in continuous contact with all system devices, so if an alarm is accidentally cleared without solving its originating problem, the System Manager will simply re-detect the issue and the alarm will reappear on the active alarms list within 10 to 30 seconds of being cleared.

### Alarm History Tab

The Alarm History Tab displays a list of all previous alarms messages that have not been deleted or cleared from the system’s memory. These alarm messages include all previous alarms, alarm clears, alarm acknowledgements, events, and event clears. The Alarm History tab has two drop-down menus that allow users to search and refine the alarm history by Device, Message type, or both. After selecting devices and/or message types, press “Find” to filter the alarm history. To return to the entire list of alarm history, press clear.

## Alarm Notifications

**NOTE:** Alarm notifications are configurable on the local or cloud interface. We recommend you configure alarm notifications in the cloud interface.

When the System Manager is connected to a network, alarm notifications can be configured in the “System Configurations” page in the settings drop-down menu by selecting the “Alarm Configuration” tab. Alarm notifications allow the system to send emails and text messages to notify selected users within minutes of an alarm being activated. Alarm notification settings must be set up for each individual user who requires them.

**NOTE:** In order for this feature to work, you must set up the appropriate SMTP Host and SMTP Port under “Source Configuration” under Settings – System Configuration – Alarm Configuration. Contact your IT team, or if you know the information, enter it in the “Source Configuration” section.

### To Set Alarm Notifications

1. Select the “Settings” dropdown menu, then “System Configuration” in the dropdown menu
2. Select the “Alarm Configuration” tab on the System Configuration page
3. In the “Email and SMS Configuration” form, shown in Figure 33, choose a user from the dropdown box next to the phrase, “Alarm Settings for.” All current users will be listed in the dropdown box, but alarm settings are configured for one user at a time.
4. Select either “Enable Email Alarming,” “Enable SMS Alarming” (or both) by clicking the selection box corresponding to each option. The option or options you choose will depend on the method of notification that the chosen user prefers.
5. For each selected option, you may adjust the minimum priority level that an alarm must reach before a text or email will be sent to the user. There are three priority levels to choose from in a dropdown menu box – differentiation can be found earlier in Table 5.
6. Enter the email and/or phone information to tell the System Manager where to send Alarm Notifications

**NOTE:** For SMS (text) messages, a cellular phone carrier must be chosen from the drop-down box list. Most major carriers are available in the dropdown list, and you can search the list quickly by entering your carrier name into the provided search box. However, if your cellular carrier is not on the dropdown list, you have the option to add a new carrier by selecting “Add New,” and entering your carrier’s domain number. Contact your carrier directly to get the carrier’s domain.

7. After the “Email and SMS Configuration” form is completed, you have the option to test the new alarm notification settings by selecting the “Send Test Email” and/or “Send Test SMS” buttons. This will send a test alarm notification message to the email address or cell phone number entered.

8. To complete the process of configuring alarm notifications for the chosen user, select the “Save” button.

Figure 33: Email and SMS Notification

## System Log

The **system log history** displays the System Diagnostic Messages on the network for a brief history. It is only available to users with commission level access or higher and is primarily used as a debug tool. The event list shows the last 25 communication messages received by the system. The types of messages that are logged here can be filtered by Message Type and Date and Time. To filter by Date and Time, select corresponding dates and times at the top of the table. The calendar will be the first window to pop up – to select a time, press the clock icon in the bottom of the calendar window. Once the date and time are set as desired, press the Search button. The system log will display all desired messages within the selected time frame.

The **system Live log** displays the System Diagnostic Messages on the network. It is only available to users with commission level access or higher. It is primarily used as a debug tool. The list shows network traffic for 30 seconds. This page also displays the current State of the application.

## Trend

The trend tab is for graphical representations of data being collected by the devices. Devices with trend data available will appear in the dropdown boxes in the Device column. When a device is selected, the corresponding Data Point drop-down will populate with available trended data points for that device. The user may also select the color of the corresponding line. Once a device and a point on the device have been selected, the graph will default populate with the past hour of data. If the graph appears empty, it is likely the data point you selected did not change more than the “change of value” (COV), resulting



in there being only a single point of data for the hour (select a different range of time to see a line formed by the data). If desired, up to 5 points from 5 different devices may be plotted, along with up to 2 different units of measure (e.g. damper position in % and room temperature in °F or °C). If three different units of measure are requested, the graph will turn off and a message will appear telling the user the operation was not possible.

## Settings

The settings menu contains access for Manage Users, System Configuration, Ancillary Control, Manage Device Templates, Network Setup, and Manage Documents. Users were already covered as part of the start-up earlier in this document, and will not be reiterated.

## System Configuration

The system configuration menu contains several tabs: General, System Log Configuration, Alarm Configuration, and My Configurations. It includes settings like the System Name, Session Timeout, Network initializations, Saving Configurations, Colors, Units, and more. The subsequent sections will outline the specifics.

### General

The general section contains high level system information in two sections: System Configuration and System Actions.

System Configuration contains five options:

**System Name:** Name that the System Manager responds with if asked by BACnet. It is also used as organizational tool in the ordering process.

**Project:** Property that the System Manager responds with if asked by BACnet. It is also used as organizational tool in the ordering process.

**Session Timeout:** Time in minutes that may pass in idle state before the System Manager logs out the current user. This value must be between 1 and 300.

**Trend History Length:** Number of days that data is retained for trending purposes. The trend function will measure at least every hour if the measured object has not exceeded the COV value. See the Trending section for more information.

**Comfort Gauge Plus Minus Setpoint:** Determines the degrees from setpoint the space temperature can differ before Comfort gauge counts the space as not in comfort range. Displayed on the Comfort Gauge on the home page. Default is 3 degrees.

**Import Config File on Re-Initialize:** Allows you to reinitialize use local config file will be imported, when disabled it will not be read in.

The other section, System Actions, includes file management options:

**Export Local Config:** This function will save system related

settings to a local file. These settings will also include schedules, ancillary control elements, and user settings. It is recommended that a copy of this file be saved at a remote location or sent to Daikin Applied for backup in case of PC failure. This function will not save setpoints associated with individual devices, as those are stored on their local unit controllers. These settings can be retrieved at a later date by using the Restore Saved System Setting function.

**Import Local Config:** This function will restore the last saved system settings from the local configuration file. Any changes made to system related settings since the last save will be discarded and will not be retrievable. This includes schedules, ancillary control elements, and user settings. This function will not restore any individual device setpoints as those are stored locally on their individual unit controllers.

**Import Factory Config:** This function will return the system to its factory default settings. Any changes that occurred during commissioning of the system or since will be lost, including settings related to schedules, ancillary control elements, or user settings.

**Restart and Re-Initialize:** This button will delete the BACnetDevs, BusinessDevs, and SystemDat files. The Application will restart and re-discover the entire network. If there is a LocalConfig.XML that will be imported.

**Delete Local Templates:** This button will delete the Local Template XML files and force a restart and re-initialize. Use this button to force the system to use the default Template set.

**Delete Local Configuration File:** This button will delete the Local Configuration XML file. If a configuration file exists in the devices Azure Cloud Container, a new one may be downloaded.

**Restart System Manager:** This button will restart the System Manager Application.

**Refresh Browser:** This button will refresh the browser. (Ctrl+Shift+R)

Below both the System Configuration and System Action boxes, information regarding versioning can be found. This includes the UI version, serial number, and BACnet Firmware version. Please make sure to send this information along with any requests for troubleshooting, as builds can impact that process.

## System Log Configuration

**System Log Disk Saver Options:** The types of messages that the System Log will save if they occur.

**System Log History Length:** Separate from Trend Log History Length, this is how long the selections under the System Log Disk Saver Options will be saved.

## Alarm Configuration

The Source Configuration box deals with the building's SMTP network, or emailing network. It configures how the System Manager sends alarm notifications via email. Work with your Building's IT team to configure this properly .

**NOTE:** Email and SMS Configuration is concerned with Alarm notifications on a per-user basis.

**Alarm Settings For:** Select a user – settings will be saved on a per-user basis.

**Enable Email Alarming:** For a particular user, when checked, enables Email Alarm Messages.

**Min Priority for Email:** Choose between Warning, Problem, and Fault (in order of escalating priority) for the threshold at which alarm emails are sent. Refer to [Table 5 on page 25](#).

**Email Address:** This is the email that alarm emails will be sent to.

**Enable SMS Alarming:** For a particular user, when checked, enables SMS Alarm messages.

**Min Priority for SMS:** Choose between Warning, Problem, and Fault (in order of escalating priority) for the threshold at which SMS alarm messages are sent.

**Phone Number:** Cellular device number that will receive Alarm SMS messages.

**Carrier Domain:** Cellular device company (e.g. AT&T, T-Mobile, Verizon, etc).

## My Configurations

**Custom Colors:** Modifies the colors of the user interface appearance. Hitting reset next to any of the colors will reset the corresponding UI color to the default.

**Localization Settings:** This will change the default language and the units displayed. The System Manager currently supports the English language, and the English and SI unit systems.

**Default Page Size:** Determines the default number of pieces of information given on a list. Examples of its use would be Device Lists, Ancillary Control elements, Manage Documents list, and more.

**NOTE:** Default Page Size does not apply to the System Log due to the sheer amount of data located there – it defaults at 25 per page up to a max of 100.

## Ancillary Control

Ancillary Control gives users additional control over the logic of unit controllers in the System, and even a couple features of the System Manager itself (e.g. Alarms). You must be logged in at Commission level to access these controls through the settings tab in the System Manager.

The typical structure of Ancillary Control consists of a single loop or many loops. Each loop is its own entity in the eyes of the System Manager – you can assign a priority number to tell it which one to run first, second, and so on. Within each loop elements are contained which may also be prioritized. These elements consist of logic statements, inputs, outputs, and other control logic elements that will be explained in the following section.

**Table 6: Ancillary Control Functions**

Element Type	Description	Properties		
		Name	Type	Description
AND	Logical AND operation between two binary values	Input 1	Boolean	Ancillary element input
		Input 2	Boolean	Ancillary element input
Aggregate Temperature <sup>1</sup>	Aggregates Space Temperatures for a selected Air Handler	Select Parent	AHU	Unit marked as Air Source with child units assigned to it
Alarm	Triggers alarm when selected element output is true	Alarm Trigger	Boolean	Ancillary element input that will trigger an alarm when set
		Alarm Text	Text	Text to be output on Alarm Page
All Delay	Delays a block output by a selected number of seconds; the block used as reference may be of any type	Input Value	Any	Ancillary element used as reference
		Delay Time Seconds	Int	Time in seconds to delay
Analog In	Allows the use of a BACnet object of type Analog Input or Analog Value for use in other ancillary objects	Select Device	Device	Known BACnet device
		Select Object	Object	Object defined in selected device to be captured
		Handle Unreliable	Boolean	Allows user to force block into a specific state if selected object or device becomes unreliable
		Unreliable Value	Real	Output of block when in an unreliable state
Analog Out	Allows the use of a BACnet object of type Analog Output or Analog Value as a receiver of the result of ancillary control-defined logic	Select Device	Device	Known BACnet device
		Select Object	Object	Object defined in selected device to receive data
		Input Value	Real	Ancillary element to have its output sent to the selected object
		Value Relinquish	Boolean	Condition to release control of selected object back to the device's control
Binary In	Allows the use of a BACnet object of type Binary Input or Binary Value for use in other ancillary objects	Select Device	Device	Known BACnet device
		Select Object	Object	Object defined in selected device to be captured
		Handle Unreliable	Boolean	Allows user to force block into a specific state if selected object or device becomes unreliable
		Unreliable Value	Boolean	Output of block when in an unreliable state
Binary Out	Allows the use of a BACnet object of type Binary Output or Binary Value as a receiver of the result of ancillary control-defined logic	Select Device	Device	Known BACnet device
		Select Object	Object	Object defined in selected device to receive data
		Input Value	Boolean	Ancillary element to have its output sent to the selected object
		Value Relinquish	Boolean	Condition to release control of selected object back to the device's control
Changeover <sup>2</sup>	Adjusts the selected parent air handler's mode based on its associated units, particularly for VVT applications	Select Parent	AHU	Unit Marked as Air Source with child units assigned to it
		Deadband	Int	The difference between the zone temperature and the temperature setpoint that the changeover voting algorithm uses to determine if zones vote for the air handler to go into heating, cooling, or fan only mode.
		Double Heat Vote	Int	Difference required to incur two heat votes
		Successful Heat Vote	Int	Number of votes required to go into heating
Compare	Compare two integer values, outputting a Boolean value	Input 1	Int	Ancillary element value on left side of comparison operation
		Input 2	Int	Ancillary element value on right side of comparison operation
		Op Select	Symbol	Symbol defining the rule used to evaluate the comparison operation
		Constant	Int	Numerical value of constant
Constant	Generates a constant value that may either be an integer, or a Boolean value	Boolean Flag	Boolean	If true, system will interpret 0 as False, and any other number as True

1, 2 and 3; see [page 38](#).



Element Type	Description	Properties		
		Name	Type	Description
Count	Reads an object from a device with a particular parent and counts the number of devices that return true when compared with a given value (e.g. counting the number of VAV boxes that are in cooling)	Template Class	Class	Type of Device Template being read
		Attribute Select	Object	Once a template class is selected, this may be any readable input object
		Parent Select	AHU	Option to limit selection to a particular section of HVAC system by parent child relationships
		Compare Mode	Symbol	Symbol defining the rule used to evaluate the comparison value
		Compare Value	Int	Ancillary element input
Fall Delay	Delays a falling-edge transition by a selected number of seconds, rising-edge events passed immediately	Input Value	Boolean	Ancillary element used as reference
		Delay Time Seconds	Int	Time in seconds to delay
Limiter	Takes in a value and based upon the limit select, "limits" the input value to a certain range	Input Value	Int	Ancillary element input
		Limit Select	Choice	None, High, Low, or Both – they limit the value accordingly
		High Limit	Int	Ancillary element input – if selected to limit, prevents input from going above this value
		Low Limit	Int	Ancillary element input – if selected to limit, prevents input from going below this value
Math	Add, Subtract, Multiply, and Divide integer values	Input 1	Int	Ancillary element input
		Op Select	Symbol	Add, Subtract, Multiply, Divide
		Input 2	Int	Ancillary element input
Multistate In	Allows the use of a BACnet object of type Multistate Input or Multistate Value for use in other ancillary objects	Select Device	Object	Known BACnet device
		Select Object	Object	Object defined in selected device to be captured
		Handle Unreliable	Boolean	Allows user to force block into a specific state if selected object or device becomes unreliable
		Unreliable Value	Int	Output of block when in an unreliable state
Multistate Out	Allows the use of a BACnet object of type Multistate Output or Multistate Value as a receiver of the result of ancillary control-defined logic	Select Device	Object	Known BACnet device
		Select Object	Object	Object defined in selected device to receive data
		Input Value	Int	Ancillary element to have its output sent to the selected object
		Value Relinquish	Boolean	Condition, if needed, to release control of selected object back to the device's control
NOT	Logical inversion of a single binary value	Input	Boolean	Ancillary element input
OR	Logical OR operation between two binary values	Input 1	Boolean	Ancillary element input
		Input 2	Boolean	Ancillary element input
Pressure Reset	Algorithm by which the air handler's energy consumption is regulated by altering its duct static pressure setpoint, and therefore its fan speed, in accordance with the state of the VAV boxes physically connected to it	Select Parent	AHU	AHU with DSP reset capabilities (it will only show up in the list if this applies)
		Min DSP Setpoint	Int	Minimum Duct Static Pressure used by algorithm
		Max DSP Setpoint	Int	Maximum Duct Static Pressure used by algorithm
		Damper Full Open	Int	Degree at which damper is considered completely open by algorithm
Rise Delay	Delays a rising-edge transition by a selected number of seconds; falling-edge events passed immediately	Input Value	Boolean	Ancillary element used as reference
		Delay Time Seconds	Int	Time in seconds to delay
Scaled Slope	Converts a measured value from one scale to another.	Input Value	Real	Ancillary element subject to conversion
		Base High	Real	High (100%) value of the input's scale
		Base Low	Real	Low (0%) value of the input's scale
		Mapped High	Real	High (100%) value of the result's scale
		Mapped Low	Real	Low (0%) value of the result's scale
Schedule	Returns true if a selected schedule is currently occupied	Input 1	Schedule	Schedule created and saved in the system
Switch	Use the binary value of one element to switch between two similar elements. It operates similar to IF-THEN-ELSE" statement	Switch Input	Boolean	Ancillary element used as toggle switch between two other ancillary elements
		Set Input	Any	Element which has its output passed if the switch block output is TRUE
		Unset Input	Any	Element which has its output passed if the switch block output is FALSE
XOR	Exclusive OR operation between two binary values	Input 1	Boolean	Ancillary element input
		Input 2	Boolean	Ancillary element input

1, 2 and 3; see [page 38](#).

### Aggregate Temperature

It is only available to air source devices. It will be successful if the device has children with the Space Temp attribute defined, and if the device itself has the Occ Heat, Occ Cool, Unocc Heat, Unocc Cool, Outdoor Air, and Net Space Temp attributes defined. The goal of the element will be to select the most appropriate temperature from a parent's constituents to use for that parent's control. If the lowest temperature is below the applicable heat setpoint, that value is used. If not, then if the highest temperature is above the applicable cool setpoint, that value is used. If not, then if the outdoor air temp is below 55 degrees F, the lowest temperature is used. If not, then the highest value is used by default. This element automatically writes to the parent device's Net Space Temp value, and also sets its output value to that selected value.

### Changeover Voting

The changeover voting algorithm is a means by which the air handler's unit mode is determined using the temperature needs of its associated zones. Temperature needs are based on the difference of zone temperatures compared to their setpoints. There are five levels of voting per zone: Heat Vote, Double Heat Vote, Cool Vote, Double Cool Vote, and Satisfied (No Vote). The votes are determined by user defined deadbands. The heat votes and cool votes are totaled and, depending on the user determined Heat/Cool Success Votes, the air handler will changeover to the appropriate mode. The air handler's occupied heating and cooling setpoints are locked out when the changeover voting is enabled and are adjusted to enable the unit mode change when the Heat/Cool Success Votes are met. The algorithm is checked once every 10 minutes. A quick overview can be found in [Figure 34](#).

#### Unit Mode Heating to Cooling Transition

If the unit is in Heating Mode, the cooling and heating setpoints are set at high values. Once the Cool Votes Success has been met and the Heat Votes Success Threshold has not been met, then the heating setpoint will first be lowered causing the unit to transition to Fan Only Mode. It will remain in Fan Only mode for a minimum of 10 minutes until the algorithm is rechecked. There are three options in the algorithm during Fan Only Mode detailed in the "Options in Fan Only Mode". The unit will transition into cooling if the Cool Vote Success threshold is still met; the cooling setpoint will be lowered causing the unit mode to transition to cooling.

#### Unit Mode Cooling to Heating Transition

If the unit is in Cooling Mode, the cooling and heating setpoints are set at low values. When the algorithm is checked and the Heating Vote Success threshold has been met and the Cool Votes Success Threshold has not been met, then the cooling setpoint will be raised causing the unit to transition to the Fan Only Mode. It will remain in Fan Only for a minimum of 10 minutes until the algorithm is rechecked. There are three options in the algorithm during Fan Only Mode detailed in the "Options in Fan Only Mode". The unit will transition into heating if the Heat Vote Success is still met and the Cool Vote Success is still not met; the heating setpoint will be raised causing the

unit to transition to heating.

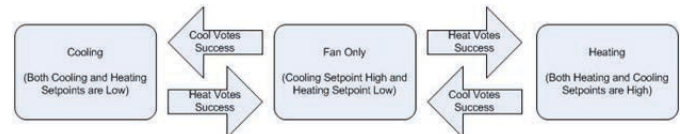
#### Options in Fan Only Mode

When the unit is in Fan Only mode (the cooling setpoint at a high value and the heating setpoint at a low value) there are three options for the algorithm. First, if neither the Cool Votes Success nor the Heat Votes Success is met, then the unit will remain in Fan Only mode. Second, if the Cool Votes Success is met, then the cooling setpoint will be lowered causing the unit to go into cooling. Lastly, if the Heat Votes Success is met, then the heating setpoint will be raised causing the unit to go into heating.

#### Maintaining Current Mode

If neither the Cool Vote Success nor the Heat Vote Success is met, then the unit will remain in its current mode.

Figure 34: Changeover Voting State Diagram



**Deadband:** This is the difference between the zone temperature and the temperature setpoint that the changeover voting algorithm uses to determine if zones vote for the air handler to go into heating, cooling, or fan only mode. If the difference is within the deadband, the zone is satisfied and does not vote. If the difference is larger than the deadband, but less than the double heat vote or double cool vote, then the zone votes for heating or cooling, respectively.

**Double Heat Vote:** If the zone temperature is less than the setpoint minus the double heat vote value, then the zone sends two heat votes.

**Double Cool Vote:** If the zone temperature is greater than the setpoint plus the double cool vote value, then the zone sends two cool votes.

**Heat Vote Success:** The amount of zone votes needed for the air handler to go into heating.

**Cool Vote Success:** The amount of zone votes needed for the air handler to go into cooling.

**Rogue Zone Disable:** Zone that is not included in the pressure reset or changeover voting algorithms. Checking these zones removes them from the control logic. Zones disabled from the pressure reset algorithm may become starved when the pressure reset is enabled. This option is found on the "Devices" tab, and for a particular VAV box, WSHP, and FCU under the "Device Status" sub tab on the "Device Properties" page.

### Pressure Reset

The Pressure Reset Settings algorithm is a means by which the air handler’s energy consumption is regulated by altering its duct static pressure setpoint, and therefore its fan speed, in accordance with the state of the VAV boxes physically connected to it. Every 5 minutes, the VAVs are evaluated to be in one of three states: Starved – the box is open at least to the “Damper Full Open” point, and has flow below its setpoint; Satisfied – the box is open at least to the “Damper Full Open” point, and has flow of at least 95% of its setpoint; and Overflow – the box has flow at least 95% of its setpoint and is not open to the “Damper Full Open” point. If any boxes are Starved, the air handler’s pressure setpoint is adjusted up 0.1 in H<sub>2</sub>O. If no boxes are Starved, and at least one box is Satisfied, the pressure setpoint is not adjusted. If all boxes are Overflow, the setpoint is adjusted down 0.1 in H<sub>2</sub>O.

**Min DSP Setpoint:** This is the low end of the range used by the pressure reset algorithm to reset the air handler’s duct static pressure setpoint.

**Max DSP Setpoint:** This is the high end of the range used by the pressure reset algorithm to reset the air handler’s duct static pressure setpoint.

**Damper Full Open:** This field allows the user to set the point at which a VAV’s damper is considered to be “open” in the algorithm’s logic.

### Display Templates

When all building HVAC devices have been addressed and are communicating properly with the System Manager, you will want to check that each device is displayed properly. Many devices – all Daikin equipment and many common third party devices – will have their own factory-configured templates. A template defines the device’s properties page organization in the System Manager.

To check if your system devices have configured templates available, go to a device’s device properties pages. If the device has a pre-configured display template, its properties page will have device information displayed in an organized manner, and will include one or more device illustrations or diagrams for reference. See [Figure 35](#) for an example of a device with a configured template.

If the device does not have a pre-configured display template, its properties page will be unorganized and will not include device illustrations or diagrams. Most BACnet points that the System Manager reads from the device will be displayed in the “Miscellaneous” tab. It is still usable, but may require more technical knowledge to operate properly. For an example of a device without a preconfigured template, see [Figure 36](#).

If you find that a particular device in your HVAC system does not have a pre-configured template, keep in mind that the System Manager is highly customizable and flexible. It has been designed to allow users to create their own templates or customize existing templates for any device without a current template available.

Figure 35: Device with Template

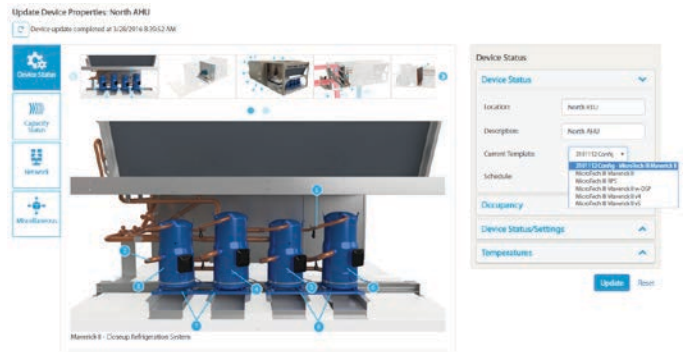
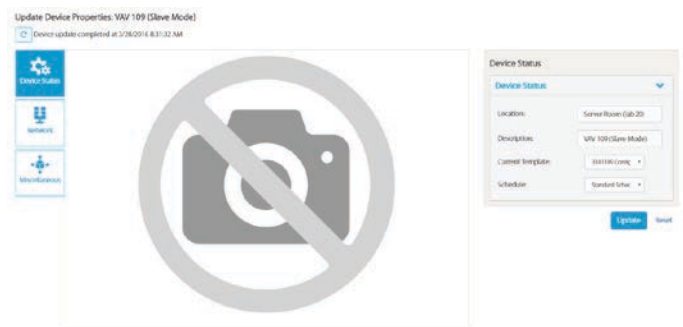


Figure 36: Device without Template



### Managing Device Templates

When a device communicates through BACnet MS/TP to the System Manager, it is registered as a type of device based upon the Model Name. However, if this is the first time for the System Manager to interact with a particular device, a new default template will be created. This default template will have no pictures attached to it along with three basic sub tabs: Device Status, Network, and Miscellaneous. Device Status will include information such as: Location, Description, the current template being used, parents (if applicable), and the schedule the device is assigned to. Network includes information such as the Device Instance number, the Device’s MAC address, model and vendor information and software versions. Lastly, the Miscellaneous section includes all BACnet points that the device carries (aside from any information mentioned earlier).

The default template setup will end up being more involved and may require more technical knowledge to navigate, but will still work nonetheless. If you would like to edit the template, first go to the respective device page and open the Network sub tab. Write down the Model Name – it will be shown in the template list found on the Device Status tab of the Device Properties Page (See [Figure 35](#) which shows this list). Next select the Settings tab, and in the dropdown select Manage Device Templates. When a new Template is created, it will end up under a Template Class. This Template Class will be named based on the Model Name if it has not already been named. For example, if a new application of VAV is created, that does not necessarily create a new Template Class, but rather makes

a new template under the VAV Template Class. Select the arrow to the left of the particular Template Class to see a list of associated templates with that Model Name. If this template was also auto-generated it will be named along the lines of “base Model Name.” Select the template to edit attributes within it.

Next will be a brief overview of the preferences behind a template. The Properties tab outlines basic format of text and other nomenclature features. The Configurations tab outlines settings for occupancy, alarms, identifiers, attributes, and resources. Pay particular attention to resources, as it is what the System Manager uses to sort a device into a particular section of the device page (e.g. if you want to show a device as an Air Handler, set the Air resource to Provider). The Objects tab lists every single BACnet point that the System Manager was able to read in from the device. Each point can be configured in a number of ways. Typical configuration settings include write security, home tab and sub tab, trend enable, and refresh rate for reading of the point. Device Images is what the name suggests – feel free to upload any supported file format (GIF, BMP, JPEG, JPG, PNG). These images are saved as a local resource and, as such, may be used in other templates freely (so you would not have to upload the images again for another template). Lastly, the Tabs subtab is the organizational center of templates. It is used to create main tabs, as seen along the left side of a template, and to choose its corresponding icon. In addition, sub tabs within each of the main tabs are also created here. Any tabs and sub tabs created here will be accessible in the Objects section under Object Configuration (once an object has been selected).

All template work is saved when the update button at the bottom of the page is selected (make sure to do this often). However, changes made to a template are **not automatically applied to a device**. To apply an updated template to a device, go to the respective device properties page and reselect the template from the drop-down menu – you will see a repeat of the current selected template. Once selected, press “**Update**” and refresh the page to see the new, updated template changes.

## Network Setup

### BACnet®

Settings for how the System Manager communicates through BACnet are given here, along with parameters for the BACnet network the System Manager will facilitate. These settings tend to cater to more advanced users, as some of these values heavily influence how the System Manager behaves.

**Vendor Name:** Name of the vendor.

**Vendor ID:** Unique number that is used to distinguish vendors.

**Model Name:** Name of the network model.

**Object Name:** Name of the device (MT\_System\_Manager is name given to the System Manager).

**MS/TP Baud Rate:** The rate at which information is read over the network.

**ADPU Timeout (ms):** Length of time required for a device to

look for a message from the token before timing out.

**ADPU Retries:** The number of times the system will try to send/receive a message from the stack before noting a communication error

**MAC Address:** Unique address that distinguishes this particular device from others on the network.

**Device Instance:** Unique number that distinguishes this particular device from others on the BACnet network.

**Min Device Instance:** The lowest Device Instance that the System Manager attempts to discover.

**Max Device Instance:** The highest Device Instance that the System Manager attempts to discover.

**Max Masters:** Tells the system how many devices need to be checked for when passing the token within the system. You will generally want to set this value one higher than the total number of devices on the network.

**Reset BACnet Module:** Performs an FTDI Reset of the Module and Restarts the computer.

**Re-Read BACnet Points:** Re-checks BACnet points and if any properties are empty it will re-read those points.

**Enable Terminator Resistor:**

**Enable Bias Resistor:** The objective of biasing is to make sure that the BACnet MS/TP line remains in a known, non-fluctuating state when no devices are transmitting.

**Enable REF Ground:**

### System Summary

This lists all devices discovered on the network along with its MAC address, Object Name, Device Tag, Template Name, Location, and Communication strength. All of these properties can be changed on the Device Properties page except for the Device Instance numbers and the MAC address. Those need to be changed at a controller level either manually or, if applicable, through ATS Auto Commissioning. This is a convenient way to see all devices quickly without any of the other information from the devices themselves.

### Manage Documents

In Manage Documents you will find pre-loaded documentation on various devices within the system, along with the Installation manual ([IOM 1336](#)). To search for a document enter in a file name into the search box, enter in a file date if desired (it searches the past year by default), and hit search.

Figure 37: Alarms Troubleshooting Decision Tree

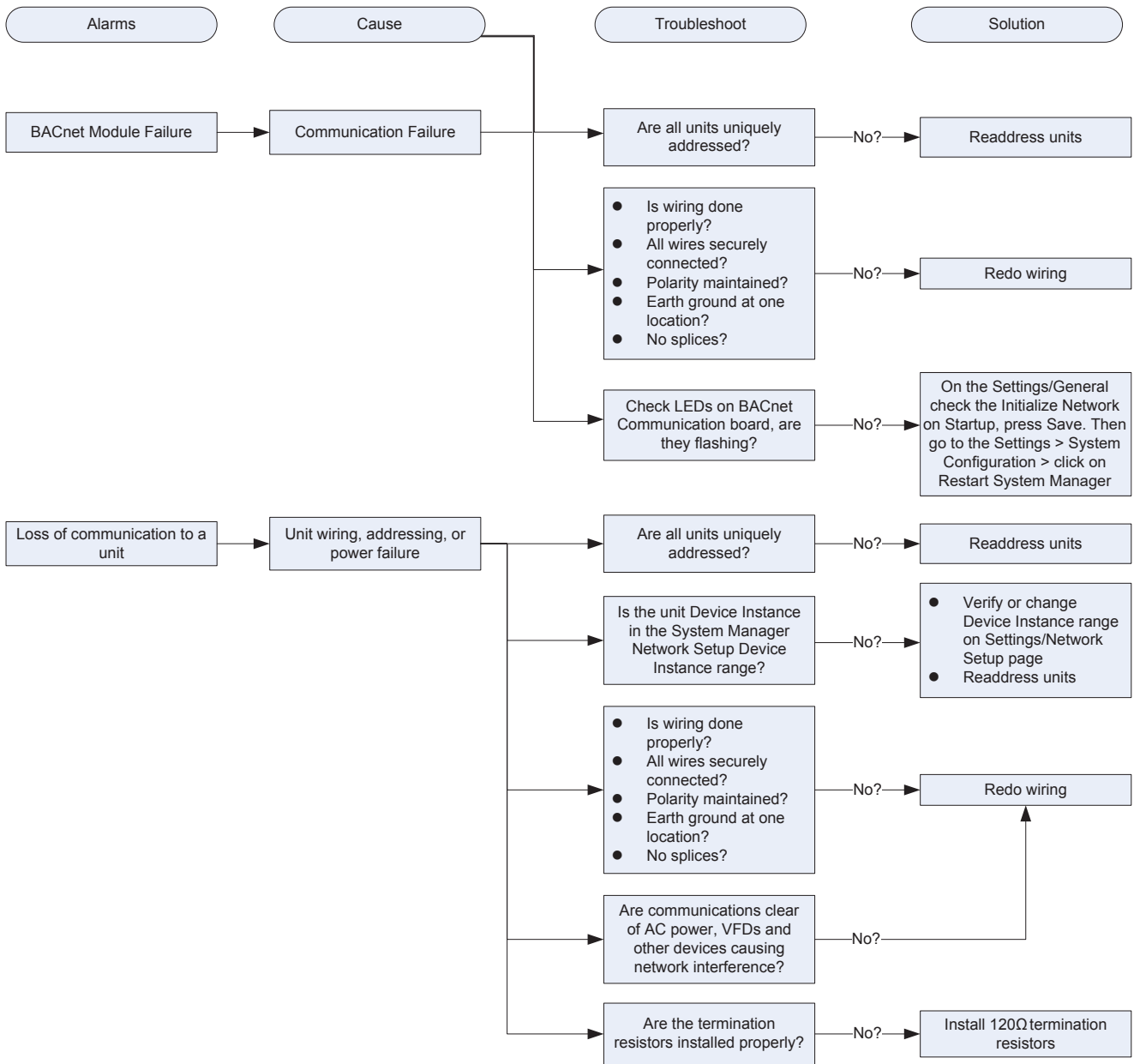




Figure 38: System Manager Log Troubleshooting Decision Tree

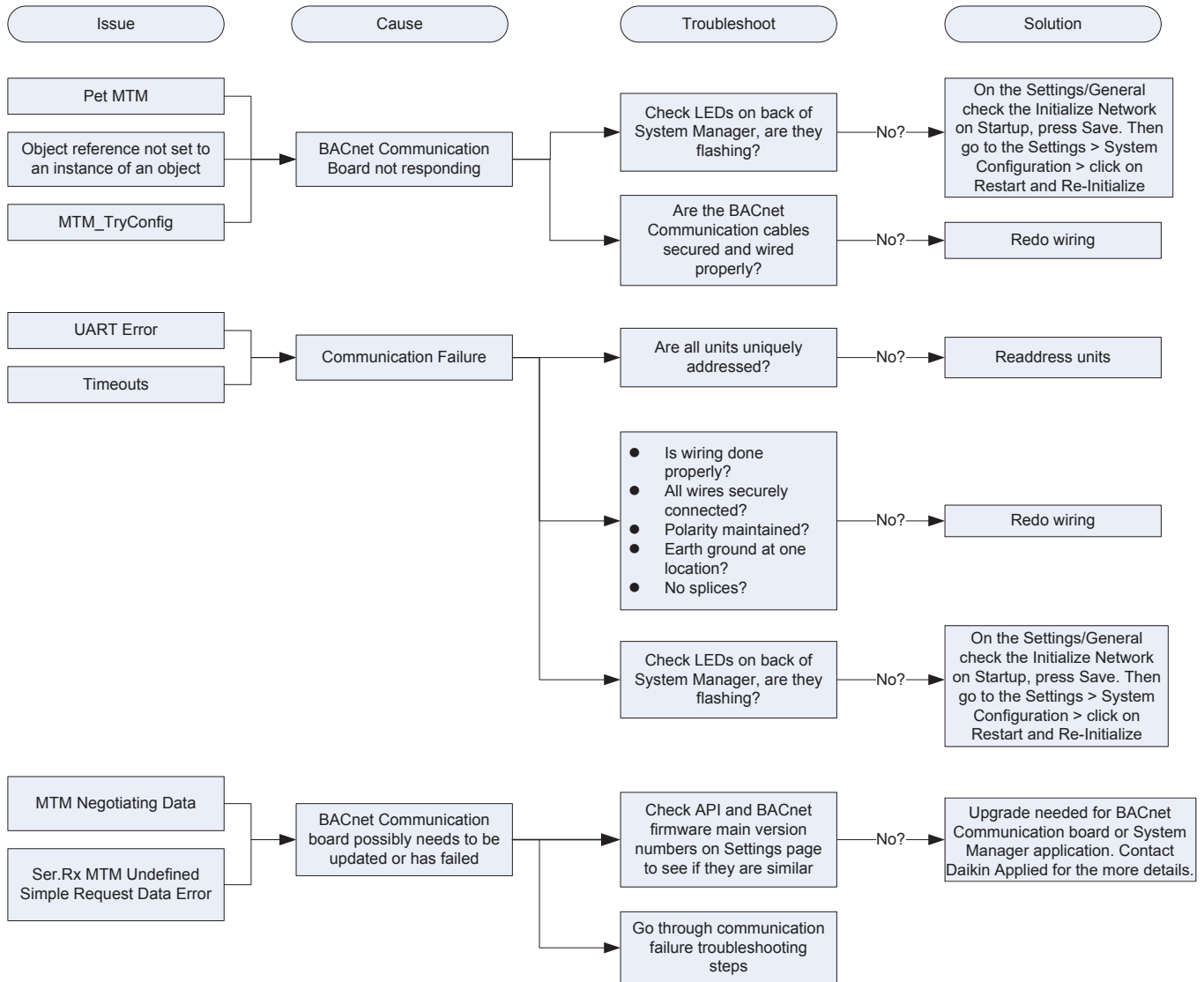
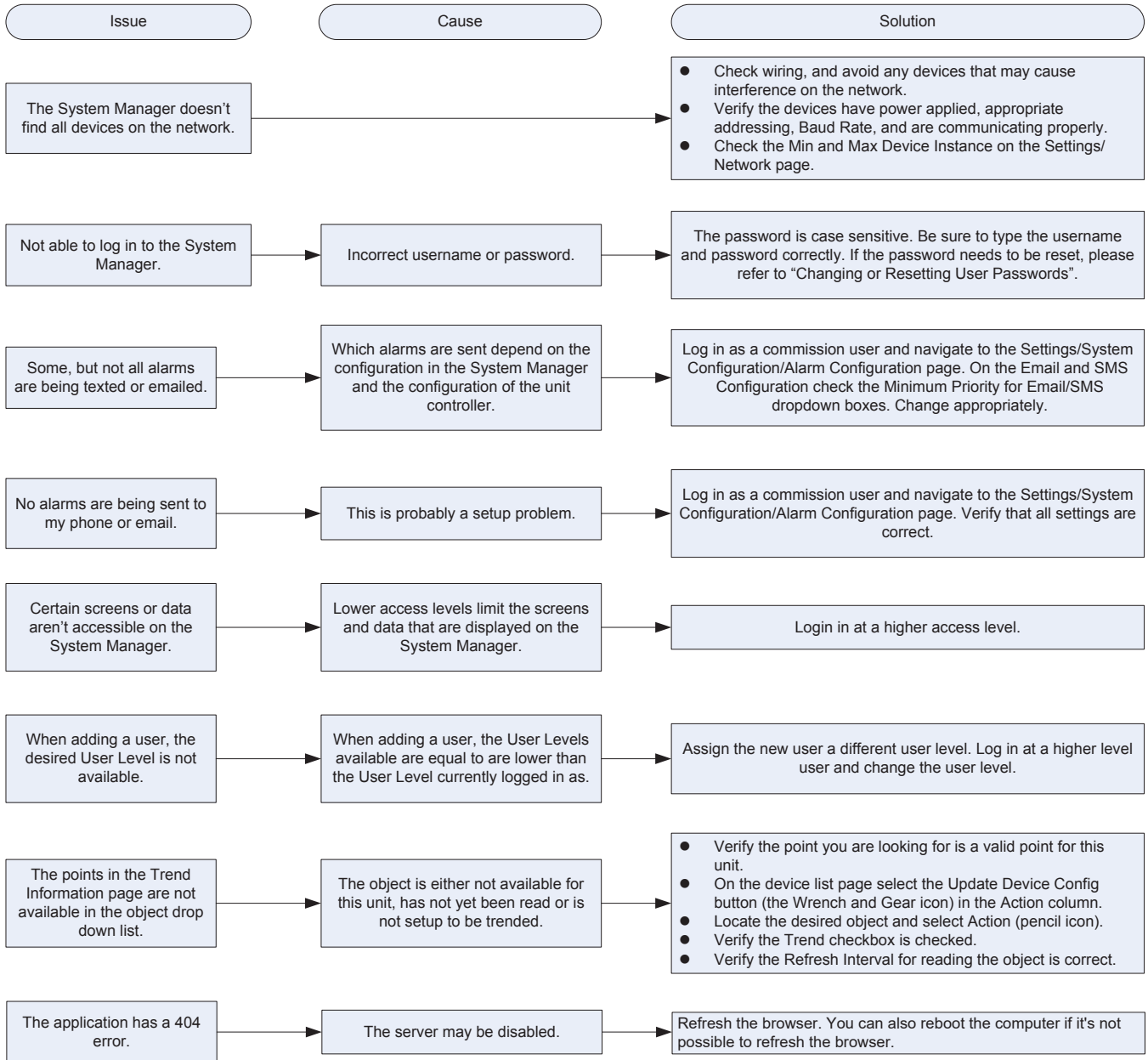


Figure 39: System Manager Troubleshooting Decision Tree





Error/Condition	Problem	Solution
MicroTech III RTU controller isn't communicating to the System Manager		<ul style="list-style-type: none"> <li>• See steps above in "System Manager doesn't find all devices on the network"</li> <li>• Verify the BUS LED and BSP LED are green signifying communication capability</li> </ul>
VAV actuator isn't communicating to the System Manager		<ul style="list-style-type: none"> <li>• See steps above in "System Manager doesn't find all devices on the network"</li> <li>• Verify the RX LED and TX LED are flashing signifying communication</li> <li>• Verify the BST LED is flashing approximately once per second</li> </ul>
System Manager is responding slowly, showing timeout errors, or not applying changes I've made	<ul style="list-style-type: none"> <li>• System Manager is overburdened</li> <li>• Communication errors are consuming PC resources</li> </ul>	<ul style="list-style-type: none"> <li>• Verify communications are clean by accessing the event log on the System Manager</li> <li>• Reduce trended points, trend intervals, or trend history. Also reduce Event Log history.</li> </ul>
The application works fine when I access it locally or from within a local network, but seems incomplete or broken when accessed from outside	<ul style="list-style-type: none"> <li>• Your local IT firewall may be causing an issue</li> <li>• Too many users are accessing the System Manager simultaneously</li> </ul>	<ul style="list-style-type: none"> <li>• Consult with local IT staff on troubleshooting firewall rules. This may be commonly caused by an Internet-facing firewall rule that denies an ampersand '&amp;' within URL headers, though there may be other issues.</li> <li>• Close your web browser and try back later.</li> </ul>

## System Log Troubleshooting

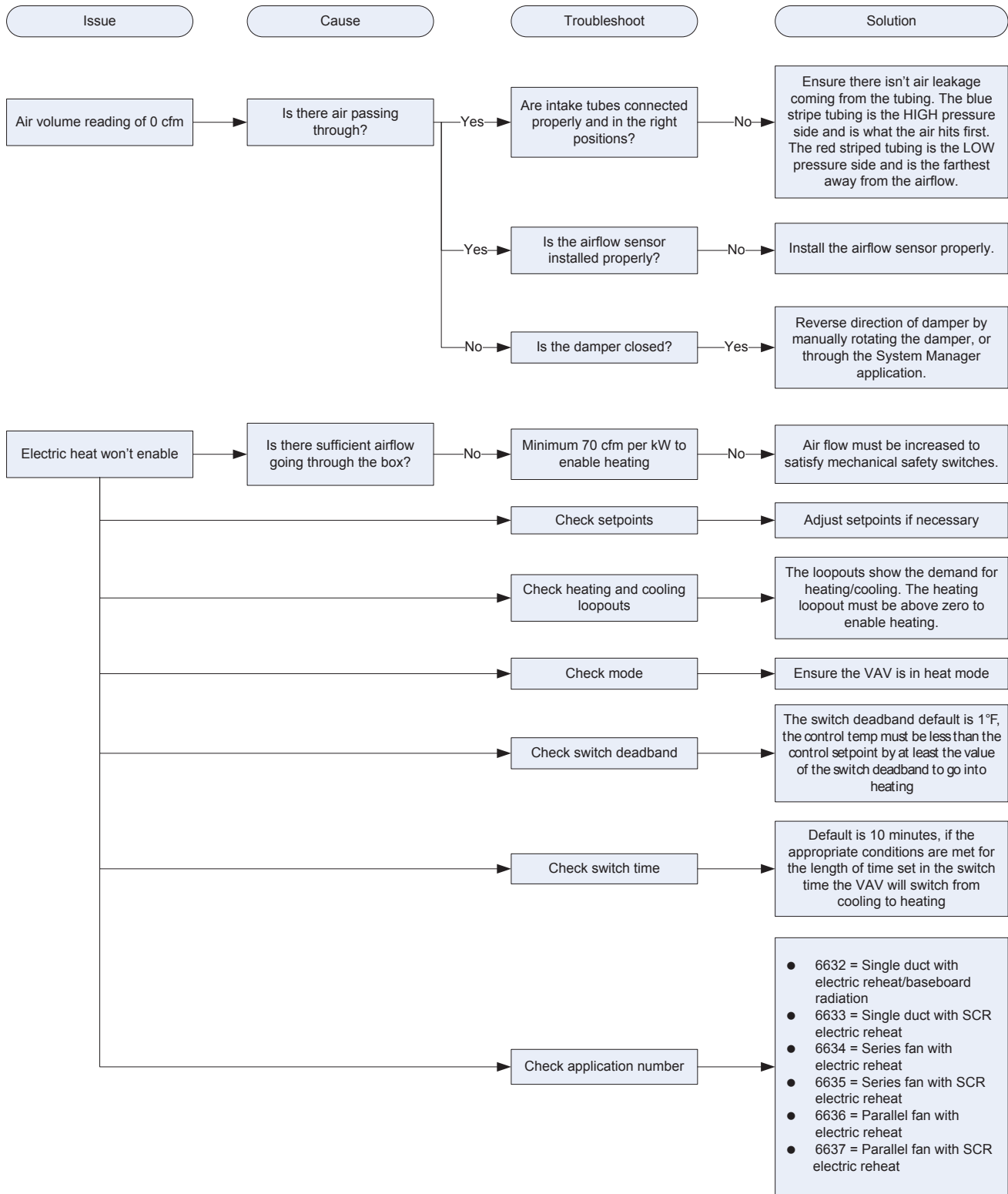
Network health is key to proper operation and control over any system. Verifying that the communications are happening properly can ensure prompt responsiveness during your interaction with the System Manager and eliminate potential issues down the road. A healthy SiteLine network is one where the System Manager requests updates and writes data to the various unit controllers and they respond appropriately without errors or timeout events. Unhealthy communication events will show up in the Event Log and may indicate a wiring, addressing, or hardware problem. For this reason, it is

recommended that you view the Event Log to determine if any of these events are occurring at the time of startup so they can be addressed immediately.

To access the Event Log, log in to the System Manager at a owner level access or higher. From the Home screen, select Event Log. Here you will be able to view the raw BACnet communications between the System Manager and all the HVAC devices on the network. The table below indicates several events that might indicate a "dirty" network and suggested troubleshooting for each type.

Error/Condition	Problem	Solution
UART errors	Physical wiring issue, or duplicate addresses on the network	<ul style="list-style-type: none"> <li>• Check the network wiring</li> <li>• Check the Device Instance and MS/TP Address on the unit controllers                             <ul style="list-style-type: none"> <li>– Compare to correct addresses in Settings → Network Setup → System Summary</li> </ul> </li> </ul>
Timeouts	No communication to devices. Timeouts could be for a particular device, or for many devices.	<ul style="list-style-type: none"> <li>• See steps in Troubleshooting "System Manager doesn't find all devices on the network"</li> </ul>
Pet MTM	The MTM is trying to get a response from the network due to communication errors.	<ul style="list-style-type: none"> <li>• Check LEDs and view LED Indicators on page 39.</li> </ul>
MTM_TryConfig	Indicates the MTM is not responding. Normally this would be accompanied with an MTM Failure alarm if a cable had fallen off or the MTM completely failed. Since the MTM would respond before the alarm occurred, the alarm was not created.	<ul style="list-style-type: none"> <li>• MTM board may be defective</li> </ul>

Figure 40: VAV Troubleshooting Decision Tree







### ***Daikin Applied Training and Development***

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at [www.DaikinApplied.com](http://www.DaikinApplied.com) and click on Training, or call 540-248-9646 and ask for the Training Department.

### ***Warranty***

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. To find your local Daikin Applied representative, go to [www.DaikinApplied.com](http://www.DaikinApplied.com).

### ***Aftermarket Services***

To find your local parts office, visit [www.DaikinApplied.com](http://www.DaikinApplied.com) or call 800-37PARTS (800-377-2787). To find your local service office, visit [www.DaikinApplied.com](http://www.DaikinApplied.com) or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to [www.DaikinApplied.com](http://www.DaikinApplied.com).

Products manufactured in an ISO Certified Facility.