Verasys System User's Guide

VERASYS®

Contents

Introduction to Verasys

The Verasys system provides bundled equipment and controls solutions that are well-proven. Verasys is a plug and play solution that is part of the Johnson Controls® SMART Systems. The Verasys system features both simple, configurable controllers and HVACR equipment from the factory or installed in the field. You can use Verasys to configure many HVACR controls applications for one building or an entire enterprise comprised of multiple buildings, without using special programming tools or control engineering.

Verasys has a key role in the Internet of Things (IoT) ecosystem in the light commercial market. The technology is based on the SMART equipment technology and uses the core assets of Johnson Controls Metasys product lines. You can use Verasys to create installation use cases that provide standard feature sets for the light commercial space.

Features and benefits

Plug and play:

Provides access to all identifiable and supported devices connected to the field bus without the need for any tool.

Remote access:

You can access device information through any supported web browser using a secure connection and access level.

Alarm notifications:

When you are connected to the Internet, you can configure email alerts for alarms.

Facility view:

Facility view provides a quick overview of each facility and can intuitively change the facilities' working conditions.

Data share:

Facilitates the sharing of meaningful data between smart system components.

Advanced features:

You can view alarms, events, trends. You can also view export trends into CSV file format, modify schedules, and commission devices.

Schedule sync:

You can view the synchronized schedules between different smart system components and access them for monitoring and editing from a single view.

Home screen with graphics:

You can view high-level information about the device under this feature. It provides key information about the controlled device for normal operation. Also, certain devices under the Verasys ecosystem provide a graphical display of the HVAC equipment.

Related documentation

The following table contains a list of the related Verasys documents.

Table 1: Verasys documentation

Information	Document title	LIT or Part No.
Using the SBH user interface for tenant users	*Verasys Tenant User Guide*	*LIT-12013613*
Verasys overview	*Verasys System Product Bulletin*	*LIT-12012342*
Overview of Verasys system components, features, and operating modes	*Verasys System Operation Overview Technical Bulletin*	*LIT-12012370*
Overview of Verasys BACnet MS/TP communication	*Verasys BACnet MS/TP Communications Technical Bulletin*	*LIT-12012362*
BACnet MS/TP device integration into Verasys	*Verasys BACnet MS/TP Integration Technical Bulletin*	*LIT-12013606*
Installing the SBH	*Verasys Smart Building Hub (SBH) Installation Guide SBH200*	*Part No. 24-10737-00237*
SBH network and IT guidance	*Verasys Smart Building Hub (SBH) Network and IT Guidance Technical Bulletin*	*LIT-12012324*
BACnet over IP integration	*Verasys BACnet over IP Integration User Guide*	*LIT-12013287*
Verasys Enterprise overview	*Verasys Enterprise Product Bulletin*	*LIT-12013647*
Using the Verasys Enterprise user interface	*Verasys Enterprise Configuration and User Guide*	*LIT-12012995*
Verasys Enterprise security and IT overview	*Verasys Enterprise Security and IT Guide*	*LIT-12013026*
Wireless system overview	*Verasys Pro Wireless Field Bus System Technical Bulletin*	*LIT-12013020*

Table 1: Verasys documentation

Information	Document title	LIT or Part No.
Installing Verasys controllers	*Verasys ZEC310 Zone Damper and BYP200 Bypass Damper Controllers Installation Guide*	*Part No. 24-10143-1248*
	Verasys Zone Coordinator (VZC) Installation Guide	*Part No. 24-10143-1280*
	Verasys Equipment Controller (VEC) Installation Guide	*Part No. 24-10143-1272*
	Verasys Input/Output Module (IOM) Installation Guide	*Part No. 24-10143-1256*
	Verasys ZEC510 VAV Controllers Installation Guide	*Part No. 24-10143-01485*
	Verasys 18 Point 240 VAC Application Controller Installation Guide	*Part No. 24-10143-01507*
	Verasys 32 Point 24 VAC Application Controller Installation Guide	*Part No. 24-10143-01515*
	Verasys 18 Point 24 VAC Application Controller Installation Guide	*Part No. 24-10143-01477*
	Verasys Input/Output Module Installation Guide	*Part No. 24-10143-01736*
	ZFR1821/ZFR1822 Pro Wireless Router Installation Guide	*Part No. 24-10325-00150*
	ZFR1825 Wireless Field Bus Coordinator Installation Guide	*Part No. 24-10325-00142*

Table 1: Verasys documentation

Information	Document title	LIT or Part No.
Using Verasys applications	*VEC100 Generic RTU Controller, Modulated Heating and Modulated Cooling Application Note*	*LIT-12013484*
	VEC100 Generic RTU Controller, Modulated Heating and Staged Cooling Application Note	*LIT-12013361*
	VEC100 Generic RTU Controller, Staged Heating and Modulated Cooling Application Note	*LIT-12013485*
	VEC100 Generic RTU Controller, Staged Heating and Staged Cooling Application Note	*LIT-12013443*
	VEC100 Generic RTU Heat Pump Controller Application Note	*LIT-12013452*
	Verasys Constant Volume Controller Application Note	*LIT-12013067*
	Verasys Input Output Module Application Note LC-VAC1002-0	*LIT-12012992*
	Verasys Lighting Controller Application Note	*LIT-12012524*
	Verasys Sideloop Controller Application Note	*LIT-12013364*
	Verasys System Changeover Bypass Zoning System Design Application Note	*LIT-12012331*
List of alarms from Verasys controllers	*Verasys Alarms Summary Technical Bulletin*	*LIT-12013648*

How to use this document

This document explains the setup process for the Smart Building Hub (SBH) and all of the Verasys controllers.

Connecting to the SBH

The information in the following task supports the information from the *Verasys Smart Building Hub (SBH) Quick Start Guide (Part No. 24-10737-00229)*. The default login credentials for each SBH are on a sticker in the quick start guide that ships with each device. Connect to the SBH through Wi-Fi. If you connect to your SBH through Ethernet, see the Ethernet section.

To connect to the SBH for the first time, complete the following steps:

1. Use the supplied field bus adapter to connect the RS-485 port on the SBH to the field bus port on the equipment controller.

2. Insert the provided WLAN USB adapter into either USB port on the SBH200. The flashing LEDs indicate that the device is initializing. The SBH is ready for use when the **FAULT** LED turns Off and the Wi-Fi AP flashes.

3. Use your default credentials to connect to the SBH Wi-Fi network. These credentials are included on a sticker in the quick start guide that ships with your device.

4. In your browser, navigate to the following URL: www.smartbuildinghub.com to open the SBH interface.

   ⓘ **Note:** The SBH ships with a private Smartbuildinghub.com SSL certificate pre-installed to ensure secure communication. However, this certificate does not indicate that it is trusted in a browser. If you want to install your own certificate, refer to Public and private keys.

5. Read and accept the SBH license agreement. The **Change Password** and **Passphrase** page appears.

6. Change the **Admin password** and **Wi-Fi passphrase**. Click **Save**.

   ⓘ **Note:** For information on how to reset your password refer to the *Verasys Smart Building Hub (SBH) Installation Guide (Part No. 24-10737-00237)*.

Facility

Facility is the first screen that appears when you log in to an SBH. The **Facility** home page displays the devices that are directly serving tenant areas. The **Facility** feature provides an enhancement to the previous **Spaces** view and includes HVAC, lighting, and refrigeration devices. It also provides a summary of the current system status and enables changes to setpoints and modes.

On the **Facility** view, the devices are categorized into three tabs at the top of the screen:

- **HVAC**
- **Lighting**
- **Refrigeration**

These tabs dynamically populate depending on the type of equipment connected to the SBH.

HVAC view

The **Facility** view for HVAC has four or five columns, depending on what controllers are connected to the network. The name of the space appears in the first column, beside the + symbol. The space names come from the device that controls a particular space.

The second column contains information about the space temperature. The color of the text depends on the space status.

The third column displays the space status. The **Status** column displays as one of the following parameters:

- **HEATING**
- **COOLING**
- **SATISFIED**
- **FAULT**
- **UNAVAILABLE**
- **SYSTEM OFF**

The fourth column displays the space occupancy status, either **Occupied** or **Unoccupied**.

The optional fifth column appears on devices with energy indicator setbacks. An extra option to reset the setpoints back to energy efficient default values appears if the controllers on the network provides it.

If you select the **+** symbol, the **Facility** view expands to a simplified graphical user interface. The current temperature and status of the space change colors depending on the status of the facility.

The setpoints that the space controls appear below the circle. You can use the up and down arrows to adjust the actual setpoint. You can use the unit enable button to shut down or enable the unit. You can use the system mode drop-down menu to set the system mode to cooling, heating, or automatic.

In the bottom right corner, a link to the equipment associated to the space appears. Select the link to gain access to the **Equipment details** page. With the appropriate access rights, you can click the **Equipment** shortcut to adjust other parameters. In addition to the equipment link, there are icons that directly take you to the alarms, schedules, or trends of that device.

ⓘ **Note:** Access rights are granted to you when you sign in using your password.

Lighting view

The facility view for lighting has two columns. The first column displays the name of the lighting zone beside the **+** symbol. An admin or technical user can define the zone name in the menu of the lighting controller.

The second column displays the status of the zone.

If you select the **+** symbol, the **Facility** view expands to a simplified graphical user interface. A large lightbulb icon shows the current status. If the lights are off, you can turn them on and adjust how long they must be on. Additionally, you can directly access the lighting device and its associated schedule.

Refrigeration view

The **Facility** view for refrigeration has four columns. The first column displays the name of the cooler beside the **+** symbol. The cooler names come from the device that controls a particular space.

The second column contains information about the cooler temperature.

The third column displays the refrigeration status. The **Refrigeration** column displays as either on or off depending on if the compressor is energized.

The fourth column displays the defrost status. The defrost status displays as either on or off.

If you select the **+** symbol, the **Facility** view expands to a simplified graphical user interface. The setpoint that the cooler controls to appears below the circle. Use the up and down arrows to adjust the setpoint.

In the bottom right corner, a link to the equipment associated to the cooler appears. Select the link to gain access to the **Equipment details** page. With the appropriate access rights, you can click the **Equipment** shortcut to adjust other parameters. In addition to the equipment link, there is an icon that directly takes you to the alarm page of the device.

Changing the name of a facility

You can change the name of a facility to the name of the building or site it controls. This name appears in the place of **Facility** in the SBH menu structure. To change the name, complete the following steps:

1. Navigate to **Settings** and select **Alarm Notifications**.

2. Navigate to the **Site Name** field and change the name.

3. Click **Save**.

Devices

The **DEVICES** tab on the navigation tree provides a list of all the online and offline Verasys devices. The system organizes the devices based on the bus connection type. The system bus address appears in a solid blue box on the right followed by the device name, device description, and status.

To view the devices, complete the following steps:

1. In the navigation tree, click the **Devices** tab. The system scans all the devices on the system bus and creates a list of all the online devices.

2. Click a specific device to explore the parameters. The first selection in all devices is the home screen. The home screen consists of a graphic section and status section. The **Status** section contains information about current system conditions. For more information about the graphics, see the Graphics section in this document.

3. Click the **Devices** tab to return to the main **Devices** screen.

Editing device details

Complete the following steps on the **DEVICES** screen to edit device names and descriptions:

1. Click **Edit Device Details**.

2. Edit the device names and descriptions. Both the name and description have a 30-character limit.

3. Click **Save Device Details**.

Removing offline devices

To remove offline devices, navigate to the **DEVICES** screen and at the bottom right of the screen, click **Remove Offline Devices**.

Viewing site alarms

The site alarm list shows all the alarms across all the connected devices. To view the site alarm list, click **Alarms** in the site navigation bar.

ⓘ **Note:** When you are viewing the details of a device, the site menu items appear in the lower part of the navigation bar. In the upper part of the navigation bar, you can see the device menu items that can also contain an **Alarms** menu. If you click the **Alarms** menu in the device navigation bar, the device alarm list opens.

On the site **Alarms** page, you can view two alarm lists:

*   To view the active site alarms, click **Active Alarms**.

*   To view the last 50 alarms from each device on the site, both the active and the inactive alarms, click **All Alarms**.

To sort the alarm list, click the column headers.

Graphics

You can use the SBH to associate simple graphics on a device by device basis. SMART Equipment devices such as TEC3000 Thermostats, zone controllers, and SMART rooftop controllers come preloaded with a standard graphic image. All devices can display a user-uploaded graphic which you can use to upload images of equipment, floor plans, and more.

Editing graphics on a SMART device

To edit standard graphics on a SMART Device, complete the following steps:

1. Click **Devices**.
2. Select the device that you want to change the graphics on.
3. To change the graphic, select the **Change Graphic** button on the devices homepage.
4. On the **Change graphics** home page, navigate to **Uploaded Images**.
5. Choose an existing image or select the **Upload** button to upload your own graphic. The graphic must be under 15 megapixels and less than 10 MB.
6. Click **Apply**.

Data share

You can use the data share feature to share the value of a point from the list of shareable points from one device to other devices. The data selection defines what object or parameter is available for sharing to controllers with similar objects. The source selection sets which controller is the source. The destination selection sets the controller that receives the data.

Outdoor Air Temperature (OAT) is an example of data share. Instead of installing a physical sensor on every unit, you can connect a single OAT sensor and share the value to all other equipment. Occupied setpoints are another example. Set one device as the source and all other devices as the destination. You can simply change the setpoints on one device and share to all others.

ⓘ **Note:** When you share the occupied cooling setpoint and unoccupied heating and cooling setpoints, the RTU becomes the master controller for the space. The fan coil unit setpoints match up to the master RTU. Verasys sends the source data values to the destination controllers when the value of the data changes. If a destination controller goes offline and then comes back online, the data share function sends the latest value to that controller.

To configure data share, complete the following steps:

1. Click the **Data Share** tab.
2. Click the **Add Data Share** button.
3. In the **Data** drop-down list, select an object or parameter.
4. In the **Source** drop-down list, select the controller that you want to define as the source.
5. In the **Destination** drop-down list, select the controllers that you want to share the data with.

The following table lists the shareable data points.

Table 2: Shareable data points

Controllers	Data in	Data out
Smart Equipment Rooftop Unit, SE-SPU100xx-1	**Humidity Setpoint**	**Humidity Setpoint**
	Indoor Air Quality	**Indoor Air Quality**
	Occupied Cooling Setpoint	**Occupied Cooling Setpoint**
	Occupied Heating Setpoint	**Occupied Heating Setpoint**
	Outdoor Air Temperature	**Outdoor Air Humidity**
	Standby Cooling Setpoint	**Outdoor Air Temperature**
	Standby Heating Setpoint	**Standby Cooling Setpoint**
	Unoccupied Cooling Setpoint	**Standby Heating Setpoint**
	Unoccupied Heating Setpoint	**Unoccupied Cooling Setpoint**
	Zone/Space Temperature	**Unoccupied Heating Setpoint**
		Warm/Cool Adjust
		Zone/Space Temperature
Terminal Equipment Controller, SE-TEC3xxx-0	**Common Setpoint**	**Common Setpoint**
	Humidity Setpoint	**Humidity Setpoint**
	Occupied Cooling Setpoint	**Occupied Cooling Setpoint**
	Occupied Heating Setpoint	**Occupied Heating Setpoint**
	Outdoor Air Temperature	**Outdoor Air Temperature**
	Standby Cooling Setpoint	**Return Air Humidity**
	Standby Heating Setpoint	**Standby Cooling Setpoint**
	Unoccupied Cooling Setpoint	**Standby Heating Setpoint**
	Unoccupied Heating Setpoint	**Unoccupied Cooling Setpoint**
	Zone/Space Temperature	**Unoccupied Heating Setpoint**
		Warm/Cool Adjust
		Zone/Space Temperature
Verasys Generic IO Controller, LC-VAC1002-0	**NONE**	**Indoor Air Quality**
		Outdoor Air Humidity
		Outdoor Air Temperature
		Zone/Space Temperature
Verasys Constant Volume Application, LC-VAC1000-0, LC-VAC3000-0	**Humidity Setpoint**	**Humidity Setpoint**
	Outdoor Air Temperature	**Indoor Air Quality**
	Standby Cooling Setpoint	**Outdoor Air Humidity**
	Standby Heating Setpoint	**Outdoor Air Temperature**
	Unoccupied Cooling Setpoint	**Standby Cooling Setpoint**
	Unoccupied Heating Setpoint	**Standby Heating Setpoint**
	Zone Temperature Setpoint	**Unoccupied Cooling Setpoint**
		Unoccupied Heating Setpoint
		Zone Temperature Setpoint
		Zone/Space Temperature

Table 2: Shareable data points

Controllers	Data in	Data out
Third-party RTU controller, LC-VEC100-0	Outdoor Air Temperature	Outdoor Air Temperature
		Supply Air Temperature
		Return Air Temperature
		CO2
VAV Box Controller, LC-ZEC510-x, LC-ZEC310-0	Occupied Cooling Setpoint	Indoor Air Quality
	Occupied Heating Setpoint	Occupied Cooling Setpoint
	Standby Cooling Setpoint	Occupied Heating Setpoint
	Standby Heating Setpoint	Standby Cooling Setpoint
	Unoccupied Cooling Setpoint	Standby Heating Setpoint
	Unoccupied Heating Setpoint	Unoccupied Cooling Setpoint
	Warmer/Cooler Adjust	Unoccupied Heating Setpoint
	Zone Temperature	Warmer/Cooler Adjust
		Zone Temperature
Advanced Terminal Unit Controller, LC-ATC1xxx-0	Fan Mode	Fan Mode
	Heat Cool Mode	Heat Cool Mode
	Indoor Air Quality	Indoor Air Quality
	Outdoor Air Temperature	Outdoor Air Temperature
	Standby Cooling Setpoint	Standby Cooling Setpoint
	Standby Heating Setpoint	Standby Heating Setpoint
	Unit Enable	Unit Enable
	Unoccupied Cooling Setpoint	Unoccupied Cooling Setpoint
	Unoccupied Heating Setpoint	Unoccupied Heating Setpoint
	Zone/Space Temperature	Zone/Space Temperature

Interlocks

Through the interlocks feature, the Verasys control system can create and execute simple logical automation functions. The interlocks feature can also interface entitled devices with external devices and equipment through physical connections. For example, you can connect the VAC with the generic IOM application.

Introduction to interlocks

Interlocks use simple logic to bring conditions together within a system. An example of a simple interlock is the interaction between a lighting switch or sensor, and a lighting circuit. To apply an interlock, you must have a Verasys IOM device within the system. An input sensor, or an input switch, such as a dry contact, identifies as a trigger point of the lighting action. The input determines the action of either turning on or off the lights. All outputs must be wired to a Verasys IOM module for all interlock logic.

You can use the interlock setup wizard to set up interlocks. You can configure interlock conditions on Verasys IOM Binary Output (BO), using the interlock set-up.

Interlocks can contain one condition or two conditions. In two-condition interlocks, you can define a logical **AND** or a logical **OR** connection between the conditions. The system performs the interlock action if both conditions are true (**AND**) or if one of the conditions is true (**OR**).

Interlock configuration includes the following tasks:

- Configuring a one-condition interlock
- Configuring a two-condition interlock where both conditions must be true (**AND**), or either condition may be true (**OR**)
- Disabling an interlock
- Viewing IOM controller interlock summary
- Viewing IOM controller interlock details

ⓘ **Note:** You must add interlock functions as a new entry. You must enable interlocking for this feature to function. You can disable a specific interlock from functioning at any time.

Adding a new interlock

1. From the main device list page, click **Interlocks**.
2. Click **Add New Interlock**.
3. In the **ADD/EDIT INTERLOCK** screen, enter the new interlock information.
4. Enter a unique name for the interlock. For example, OAT reset.
5. Use the optional **Description** field to include additional information about the Interlock. The Interlock defaults to **Enabled**. You can modify or edit the interlock later.

Configuring a one-condition interlock

1. On the **Interlock Condition** area, from the **Device** drop-down list select the device that you want to associate with the interlock to show all the points you can assign between the device and the interlock.
2. From the **Points** drop-down list, select the **Point** you want to associate with the interlock. This action makes the point part of the Interlock logic.
3. From the **Operator** drop-down list, select the operator for the point.
4. Enter the value.
5. Enter the **Differential** +/- variance.
6. Under **Input Conditions**, select **One Condition**.
7. In the **Interlock Action** area, select the device and point on which you want to perform the interlock action. You can configure an action when the interlock is true or false.
8. Click **Save** to enable the interlock.

Verasys schedules

You can use the SBH to create and update system schedules. You can also use the SBH to synchronize different devices on the network for all connected devices and equipment. The Smart Equipment devices, including the TEC3000 Thermostats, and Verasys Application Controllers, contain embedded schedules that you can synchronize from the SBH. The SBH supports unlimited schedules in which you can assess and modify schedules hosted on remote devices.

The SBH200 supports the creation of local On/Off and Occupied/Unoccupied types of schedules. These schedules are associated with objects hosted in devices that do not support the feature locally. For example, devices such as the TUC and the ATC.

Configuring a schedule

1. Click **Schedules**. Click **Add New Schedule**.
2. Enter a new schedule name. The new schedule status defaults to **Enabled**.
3. Select the schedule data type from the drop down list. The available schedule data types are **Analog** or **Multistate**.
4. Configure additional parameters based on the schedule data type:

   - For analog schedules, select the display units and display precision from the drop-down menus.
   - For multistate schedules, select the schedule type from the drop-down menu. The available schedule types are **Off/On**, **Occupied/Unoccupied**, or **Occupied/Unoccupied/ Standby/Not Set**.

5. Select the scheduled objects that you want to control with this time schedule and click **Save**. The list of objects depends on the connected devices and on the schedule type selected.
6. Click **+Add**. A separate page appears where you can add events for the schedule. Click the **Clock** icon to set a time. Select a status and the days, and click **Save**.
   ⓘ **Note:** You set the time in the 24-hour format and the time field converts it to the standard 12-hour time format with AM and PM adjusted.

   ➢ **Important:** When you save a weekly event, the schedule is not yet saved. Continue with the next step to save the schedule.
7. Click **Save** to save the new schedule.

Setting exceptions

About this task:
As part of the schedule functionality, you can set exceptions such as holidays, or any other exceptions to a normal weekly schedule. To set an exception, complete the following steps:

1. Click **Schedules**.
2. Click the **Modify** icon of the schedule you want to add an exception to.
3. Click **Exceptions**.
4. Click **+Add Exception**.
5. Select the required dates for the exception. As you select the dates, they appear in the **Selected Dates** field.
6. Select the time and the value for the exception. If you want to add more times and values, click **+Add New Event** to add a new time and value field.
7. Click **OK**.
   ➢ **Important:** When you save the new exceptions, the schedule is not yet saved. Continue with the next step to save the schedule.
8. Click **Save** to save the schedule with the new exceptions.

Settings

Wi-Fi access point

1. From the **Settings** tab, locate the **Wi-Fi access point** tab.

2. You can change the Wi-Fi SSID name and the connection passphrase.
3. When you first log in, you are prompted to change the passphrase but not the SSID name. The SSID name appears when you search for Wi-Fi connections and defaults to Verasys SBH.

Backup

Using the backup feature, you can save all the settings for the device into a file. You can back up an individual device or all of the devices simultaneously. Backup is supported on all SMART Equipment controllers. The following table shows controller backup version requirements.

Table 3: Controller backup version requirements

Controller	Version
Verasys Application Controllers	All versions
TEC3000 Thermostats	3.0.0.0128 and newer, wired 2.0.0.1007 and newer, wireless
Simplicity Smart Equipment Rooftop	3.3.1.186 and newer

To back up a device, complete the following steps:

1. Navigate to the **Settings** tab, and click the **Backup** tab.
2. From the **Select device for backup** drop-down list, select the device that you want to backup.
3. Click **Backup All**.

   ⓘ **Note:** During a backup procedure, a progress bar appears for all the devices included in the backup. Successful backups appear with a completed progress bar at 100% and a **Close** button. When the backup fails, an error message appears and your backup does not appear in the list.

4. When the backup completes, close the progress bar. The system updates the time stamp and stores the file. You can also download individual files with the download icon. To remove the file, click the trash can icon.

Use the check boxes on the left to select any, or all of the files to download one backup file for all the selected controllers. The file transfers to your download folder on Microsoft® Windows® operating system. You can also download individual files with the download icon. To remove a file, click the trash can icon.

Restore

Use the restore feature to restore the backed-up controller setting to the selected device. You can restore an individual device or all of the devices. Restore is supported on Verasys Smart Equipment controllers. See Table 2 for supported controller versions.

To perform a restore procedure, complete the following steps:

1. Go to the **Settings** tab and click **Restore**.
2. Under **Restore Devices**, select the device from the drop down list.
3. Choose whether to restore from a file or the SBH.
4. If you choose to restore from a file, select the controller that you want to restore and then select the restore file. If the controller is within the download file, the **Restore Settings** page appears.

5. Click **Restore**. The devices reboot after the restore procedures.

6. To select another backup file, navigate to **Settings** and select the **Backup** tab.

   ⓘ **Note:** Devices reboot after restore procedures. If the device you selected is not in the download file, a circular icon appears. You can switch to the **Backup** tab and see which devices have associated backup files. When you restore from a file, the data overwrites the data on the SBH.

7. To restore a backup from the files on the SBH, select the **From SBH** button and the device that you want to restore. If the device has a backup file on the SBH, the file appears and you can load it. If no file appears, return to the **Backup** tab and check that the device has an associated backup file.

Profile management

A profile in Verasys is a template that maps discovered BACnet data from a connected device to existing features of the SBH. A new profile can be created for any BACnet device that is connected to the SBH.

Creating a profile for a BACnet device

About this task: To create a profile for a BACnet device, complete the following steps:

1. Plug the device into the MS/TP network and wait until Verasys automatically discovers the device.

   When Verasys discovers the device, use that device as the starting point of a profile.

2. Navigate to **Settings** > **Profiles** > **Add New Profile**.

3. Select the device that you want to create the profile for and click **Next**.

4. Enter a name and description for the profile and click **Next**.

5. When you see a list of all the discovered BACnet objects, click into each individual point to configure them. For more information about the configuration options, see the following table.

Table 4: Point configuration options for a profile

Option	Description
Change name	You can change the name of the point. The name appears in the SBH and in the Verasys Enterprise user interfaces.
Display options	You can choose whether the point appears on the respective local user interface view or on the home page. The view that you can select depends on the object type, for example, inputs, outputs, or parameters.
Metadata tags	You can apply metadata tags to the point to specify the type of data that the point represents, for example zone temperature setpoint, and so on. These tags determine if the point shows an option in some of the native Verasys features.

Table 4: Point configuration options for a profile

Option	Description
Alarm extension	Select the **Alarm** checkbox to add alarms. Specify the low limit and high limit conditions, the corresponding messages, differential, delay, and the priority for the alarm. This action creates an alarm object when you apply this profile to a device.
Trend extension	Select the **Trend** checkbox to add trends. This action creates a trend object when you apply this profile to a device. The trend objects are created with predefined settings based on the object type. You can view the trend objects on the **Trend** view of the device navigation screen when you apply the profile to a device.
Schedule extension	Select the **Schedule** checkbox to specify that Verasys schedules can include this point. Create separate schedule objects under the **Schedules** view.

6. When you finish point configuration, click **Done**.
7. When you finish object configuration, click the **Save** button to save the profile.
   ⓘ **Note:** If you navigate away from the profile editing screens, you lose all progress and start over.

Applying a profile to a BACnet device

About this task:
To apply a profile to a device, complete the following steps:

1. Navigate to the **Devices** page.
2. Select the device you want to apply a profile to.
3. Go to the **Profile** view.
4. Select the appropriate profile from the drop-down list and click **Apply Profile**.

Editing profile configuration

About this task:
When you update a profile, you lose all alarm and trend data.
To edit a profile, complete the following steps:

1. Navigate to *Settings* > *Profiles* and click the profile you want to edit.
2. Change the name and the description if needed and click **Next** to proceed.
3. When the list of all the objects in the profile appears, follow the same process as in Creating a profile for a BACnet device to modify points. When you are ready, click **Save** to save the profile.
   ⓘ **Note:** When you save the edited profile, it applies to all the devices that used the old profile.

Removing a profile from a BACnet device

About this task:
Removing a profile from a device removes it from all Verasys features.
To remove a profile from a BACnet device, complete the following steps:

1. Click on the device in the device list and navigate to the **Profile** view.
2. Click the **Reset to defaults** button at the bottom of the page to disassociate the profile from the device and rediscover the device inside of Verasys.

Switching profiles for a BACnet device

About this task:
When you apply a profile, you lose all previous feature configurations that included the device. This includes alarm and trend data.
To switch profile for a BACnet device, complete the following steps:

1. Click on the device in the device list and navigate to the **Profile** view.
2. Under the **Configuration** section, select the new profile that you want to use on the device and click **Apply Profile**.

Exporting a profile

About this task:
To export a profile, complete the following steps:

1. Navigate to *Settings* > *Profiles* and select an existing profile.
2. Click the **Export Profile** button.
   ⓘ **Note:** An exported profile is saved locally to the PC according to your browser's settings. For example, when you use Google Chrome, the files are saved to `C:\Users\<user name>\Downloads`.

Importing a profile

About this task:
You can import a profile previously exported from another SBH.
To import a profile, complete the following steps:

1. Click *Settings* > *Profiles* > *Import Profile*.
2. In the screen that appears, select the profile stored on your PC.
3. Click **Import**. The imported profile appears in the list of profiles under *Settings* > *Profile*.

Device cloning

About this task:
Copy configuration parameters to other devices of the same type using device cloning.
To clone a device, complete the following steps:

1. Navigate to *Settings* > *Clone*.
2. Select a source device from the drop-down list.
3. Select a destination device from the drop-down list.
   ⓘ **Note:** The choice of devices in the destination devices drop-down list is limited to compatible devices to the source.
4. Click **Clone**.
   ⓘ **Note:** When you click **Clone**, a progress bar appears showing how many attributes are successfully cloned.

Ethernet

The **Ethernet** tab is located under the **Settings** section. Use the **Ethernet** tab to set up the connections to an Ethernet network. Under this tab, you can set several parameters to customize the device for your network. The following table describes each parameter.

Table 5: Ethernet Tab

Field	Description
Ethernet	Defaulted to **Off**. Set this to **On** when you want to connect to an Ethernet network.
Hostname	The hostname is the name of the device as it appears on an Ethernet network. For example, all computers have a computer name. The computer name is the hostname for that device.
Domain Name Suffix	If the network to which you are connecting uses a domain name, it appears here. Most networks leave this field blank.
Ethernet MAC Address	All devices that connect to an Ethernet network, hardwired or Wi-Fi, have a MAC Address for each connection.
Auto DHCP Configure	When set to **On**, the SBH tries to find the DHCP server and requests an IP address. If the network is configured to automatically provide an IP address, the IP address, Subnet Mask, and Default Gateway appear. If you set this to **Off**, then you need to enter the IP Address, Subnet Mask, and Default Gateway manually. Ask the network administrator person how to configure this setting. If the connection is configured with DHCP, the address to connect to can change. Therefore, you might need to use a static address. If the network administrator requires that you set the device to DHCP, ask for a DHCP connection that always has the same address. The IT person needs to know the Ethernet MAC Address above so they can configure this type of connection.
IP Address	This is the address of the SBH. If your laptop, phone, or tablet is connected to this subnet, you can open your browser and enter the IP address in the URL section of the browser to access the SBH. ⓘ **Note:** This is a connection for this subnet only. To connect to outside subnets, you need to perform additional settings, see BACnet routing.
Subnet Mask	Defines the maximum number of devices that may be a part of the subnet.
Default Gateway	This is the IP Address of the gateway device or server that allows traffic to go outside the local subnet. You must populate this to connect the SBH to the Internet.
Auto DNS Configure	In the same way as with Auto DHCP Configure, a request to the DHCP populates the Domain Name Service (DNS). DNS servers are necessary for the email and texting features to work. If you are using Google® as your SMTP, you can set one or both of the DNS servers to the Google DNS servers. Addresses 8.8.8.8 and 8.8.4.4 are the two Google DNS servers.

SBH Internet connectivity

When you connect to the Internet for remote access, there are different methods of connection. Each method has a different level of security assurance.

You can connect to the Internet for remote access through the following options:

- **Virtual private network (VPN) device - Highest level of security assurance:** This is the most secure method of remote access to Verasys. Make sure that you configure the VPN connection correctly, and that you meet the minimum password strength requirements. As this method is the most complex option for remote access, it is best practice to work with your IT department when you implement a VPN solution.

- **Simple port forwarding - Lowest level of security assurance:** This is the least secure method of remote access to Verasys. After you connect the SBH to your local subnet, use simple port forwarding to configure the system so it is accessible from any Internet connection. The router must apply port forwarding for port 443, which is the most secure access port for a browser. You must use an IP Address that is a WAN IP address or a public address that routes to the connected router. When you type the address in the browser, you must start with **https://** followed by the WAN IP address. The **https://** prefix ensures the browser uses port 443. If you forward port 80 address, the WAN IP device switches to Port 443. For security reasons, most IT personnel do not consider this a secure connection. For best security practices, use strong passwords and rotate them often.

- **Simple port forwarding and installed certificate - Medium level of assurance:** After you configure the system for port forwarding, install a certificate. See the *Verasys Smart Building Hub (SBH) Network and IT Guidance Technical Bulletin (LIT-12012324)*.

ⓘ **Note:** Installing a certificate only protects the session, it does not mitigate the risks associated with exposing the web ports to the Internet.

Load shedding

In the load shedding settings, you can select the device that can initiate the load shedding feature. With the load shedding feature, you can decrease the HVAC consumption in a building with a single physical input. You can use this feature in correlation with demand response pricing incentives provided by a local utility. This functionality requires either an LC-IOM100-0 or LC-VAC1002-0 on the system bus. To configure load shedding, complete the following steps:

1. Navigate to the **Settings** tab.
2. Click **Load Shedding**.
3. Under the **Select Device** tab, select the device you want to enable for load shedding.
4. Click **Save**.

Not all Verasys devices support load shedding. On the devices that do support load shedding, use the **Control Setup** menu to configure how far to spread the control band during a load shedding event. You can also adjust how quickly the setpoints change.

For example, if you set the **Load Shed Rate Limit** to 0.066 °F/min and the Load Shed Adjust to 4°F, and the normal occupied setpoints are 72°F for cooling and 68°F for heating, the setpoints temporarily change to 76°F and 64°F during a load shedding period. The BI-2 has a closed contact on either the LC-IOM100-0 or LC-VAC1002-0 that triggers this. After it opens, the setpoints ramp back at the same rate.

Global shutdown

In the global shutdown settings, you can select the device that can initiate a global shutdown of the entire HVAC system. This functionality requires either an LC-IOM100-0 or LC-VAC1002-0 on the system bus. To set up global shutdown, complete the following steps:

1. Navigate to the **Settings** tab.
2. Click **Global Shutdown** and choose the device you want to enable for global shutdown.

All devices that participate in global shutdown disable outputs when BI-1 on either LC-IOM100-0 or LC-VAC1002-0 devices is closed. Once BI-1 re-opens, the devices return to normal operation.

System settings

Use the **System Settings** menu to adjust the date, time, and timezone. You can also configure the units that appear in the application, and set the **BACnet Encoding** type for the controllers on the system. When you set the date and time, the system starts with the date and time of the device connected to the SBH.

On the **SYSTEM SETTINGS** menu, click each of the following icons, to adjust the settings:

1. Click on the calender icon under the **Date** heading, to select the date.
2. Click on the clock icon under the **Time** heading, to select the time.
3. Click the **Timezone** drop-down list, to select the time zone.

The time setting converts the selected 24-hour clock to the standard 12-hour time with AM and PM adjusted. When you adjust the settings and click **Save**, the time synchronizes to all devices with a time clock. To verify the time synchronized on the devices, navigate to the controller. On the **Controller** tab, the date and time appears.

Verasys Enterprise

The Verasys Enterprise section is used to add the Verasys Enterprise site to a collection of sites so that all user facilities are available in a single location. For information about setting up the Verasys Enterprise site, refer to the *Verasys Enterprise Configuration and User Guide (LIT-12012995)*.

On the **Verasys Enterprise** tab, you can enable the Verasys Enterprise Services and you can get the device ID that you need to add to the enterprise site. Also within this section, you can subscribe to automatic updates to the SBH from the cloud services, and decide at what time you receive the updates.

ⓘ **Note:** The SBH reboots after an update.

The **Verasys Enterprise** tab also shows the status of the enterprise connection and the last time it updated. The following enterprise connection shows the status of your connection:

- **OK**: The connection is working.
- **WARNING**: Possibly connected, but one or more issues may be present. See the diagnostic link below the status for more information.
- **PROBLEM**: Not connected. See the diagnostic link below the status for more information.

BACnet routing

Use the BACnet Router feature to add all the controllers under the control of a SBH, into a larger supervisory system via BACnet/IP integration. You can use this feature in a number of situations. For example:

- A new addition
- A segregated wing of a building
- A remote building that you want to tie into an existing Building Automation System (BAS).

The SBH has a list of devices on the system bus that are connected by RS-485 and an active BACnet/MSTP. When the BAS sends out the Who-Is message, the SBH responds for itself and all devices under its control. Optionally, you can set up a BACnet IP Broadcast Management Device (BBMD) if the SBH and BAS are on different subnets.

To configure the BACnet router feature, complete the following steps:

1. Navigate to the **Settings tab**.
2. Under the **Settings** tab, select the **BACnet Settings** option and adjust the following parameters:

    - **Device Object Identifier** – Identifies the SBH as a unique device on a BACnet network. Adjustable: **0** to **4194303**, default **1**.
    - **MAC Address** – Sets the address on the system bus for the MS/TP network. Adjustable: **4** to **127**, default **117**.
    - **Network Number** – Sets the routing address for devices under the SBH. Adjustable: **1** to **65534**, default **64999**. It is best practice to leave the network number on the default setting.
    - **Routing Mode** – In this mode, the SBH can utilize the routing feature which identifies MS/TP devices over the IP integration.
    - **UDP Port** – Defines the port for the UDP traffic. By default, BACnet uses **47808** but the use of other ports are optional. Adjustable: **47808** to **47823**.

Broadcast management

The second set of options for this feature are for a BACnet IP Broadcast Management Device (BBMD). The BBMD enables an SBH on one subnet to communicate with a supervisory device on another subnet.

To set up the router feature for the BBMD, complete the following steps on the SBH and the supervisor:

1. On the SBH, configure the following for each BBMD:

    - **IP Address** – The IP address of the supervisor with which the BBMD communicates.
    - **UDP Port** –UDP Port of the supervisor with which the BBMD communicates. It is different from the UDP port of the SBH itself.
    - **IP Broadcast Mask** – Needs to match on both the SBH and the supervisor.

SSL

When you log in to an SBH for the first time, your web browser instantly switches to a secure port (Port 443). A secure port requires certificates that authenticate it as a trusted site. With Google Chrome, the URL you entered appears with a red slash.

The https:// means you are communicating with a secure port. The red slash through https:// means the site is not a trusted site. An error appears in the browser and prompts you to continue to the site even though it is not secure. Different browsers provide a similar action as Google Chrome. You can continue to the site and log in knowing that the security required for this port has not been configured.

To connect to a secured site, you must add a certificate that is private or public. The purpose of the certificate is to configure a chain of trust. You must set up the public or private keys in order to set up a chain of trust. These keys make sure that the site trusts your device.

Alarm notifications

You can configure email and text alarms using alarm notifications. Click the **Alarm Notifications** from the **Settings** tab to set the parameters. First, you must connect the SBH to an Ethernet network and define the DNS servers. See the Ethernet section of this document to set up the Ethernet connection for the SBH. The following table describes each alarm notification parameter.

Table 6: Alarm notification

Field	Setting Description
Enabled	Default is **Off**. Set to **On** to use the email and text alarm function.
Use TLS	Set to **Yes** to use transport layer security (TLS).
Host	SMTP relay host address where alarms are sent.
Port	When the server sends an email to the host, this is the port the server uses.
From Email Address	This email address appears as the sender of the email.
Site Name	In the subject line of the email, the site name appears with the controller it came from, and the alarm. You can specify the name of the site in the subject line.
User Name	To connect to the host server you must log in. This is the user name of that login.
Set Password	This check box opens up a dialog box to enter the password. You must open the dialog box with the password entered in order to test alarms. When testing is complete, click **Save**.
Password	The password for the account used to log in to the SMTP host.
Test Email Address	You can use this dialog box to test an email. Make sure you open the password dialog box and enter a password. Press **Send** when you have finished writing the email. The top of the screen indicates if the system sent the email successfully.

Chain of trust

A chain of trust enables multiple users to create and use software on a system. Digital certificates are verified in a chain configuration, and their keys are not stored directly in hardware. When you attempt to use the SBH without the software being digitally signed, the UI issues warnings. The signing authority only signs boot programs that enforce security, such as only running programs that are themselves signed, or allowing only signed code to have access to certain features of the machine. This process may continue for several layers.

Self-signed certificates and certificates signed by a public certificate authority

A self-signed certificate is a certificate that is signed by the same entity that it certifies. This term does not refer to the identity of the person or organization that actually performed the signing procedure. A self-signed certificate is a certificate signed with its own private key, which means the entity signing the certificate is also the entity that created the certificate.

The SBH ships with a default Johnson Controls® self-signed certificate that provides secure communication. You can only install one certificate on an SBH at a time. When you install a new certificate on a SBH, you overwrite the existing certificate. You can run an SBH on your network with a self-signed certificate.

However, if you need to expose the SBH UI on a public network and have browsers that indicate a trusted site, you must get a signed certificate matching your domain name. You can acquire a valid signed certificate from your IT department or purchase it from a public Certificate Authority (CA) using a certificate signing request (CSR). A certificate signed by a CA is used to establish a secure connection between your browser and the SBH.

Public and private keys

Public and private keys are used to verify that the entity requesting access to a system is who or what it claims to be. For information on configuring your secure site, refer to the *Verasys Smart Building Hub (SBH) Network and IT Guidance Technical Bulletin (LIT-12012324)*. Use your default Admin login credentials that are included on a sticker in the *Smart Building Hub Quick Start Guide (Part No. 24-10737-00245)*.

Using Google as an SMTP host

If you do not have an email service to connect to the SBH, configure an SMTP host for the alarms. The configuration is different depending on whether you want to use TLS encryption.

Option 1: To use Transport Layer Security (TLS) encryption, use the settings in Table 7.

Table 7: TLS encryption - On

Field	Description or Setting
TLS	On
Host	smtp.gmail.com
Port	465
From Email Address	Email address for sender of message
Site Name	Name of the site
User Name	Google account User name
Password	Google account password

Option 2: If you do not want to use TLS encryption, use the settings in Table 8.

Table 8: TLS encryption - Off

Field	Description or Setting
TLS	Off
Host	smtp.gmail.com
Port	587
From Email Address	Email address for sender of message

Table 8: TLS encryption - Off

Field	Description or Setting
Site Name	Name of the site
User Name	Google account user name
Password	Google account password

ⓘ **Note:**

- If you are using Google as an SMTP Host, you can set the DNS server in the **Settings** > **Ethernet** section to the Google DNS Servers (IP addresses **8.8.8.8** and **8.8.4.4**).
- The first time you connect your Google account and send the first email, Google blocks it. You then receive a notification in your Gmail inbox that it does not recognize the device that is trying to access the account. You need to change the account to give access to less secure applications.

Software updates

Use the **Software Updates** tab to update the SBH. The current software version of the SBH appears on the lower left-hand corner of the screen, under the Verasys logo.

To update the software to the latest version, complete the following steps:

1. Click the **Settings** tab and navigate to the **Software Updates** tab.
2. Click the **Choose File** button.
3. Select the `.bin` file with the updated software.
4. Select **Upload**. The SBH uploads the file and prepares the update. When the upload is complete, the SBH displays **Upload Successful**.
5. Select **Install**.

A red warning bar notifies you that an update is in progress and a countdown begins before the SBH disconnects from the network.

ⓘ **Note:** When you update the software, the device retains your previous settings. Set up and update new features before you update the software. When complete, log in to the SBH and take note of the new version number.

Administration

The **Administration** tab is located on the **Settings** tab. You can configure users and user permissions from the **Administration** tab. By default, the system creates an Admin user role. For first-time login information, see Connecting to the SBH and refer to the *Smart Building Hub Quick Start Guide (Part No. 24-10737-00245)*.

After you have logged in, you are prompted to change the default password. This dialog box is where you change the Admin password again, configure the Admin user, or add more users to the system. Configuring multiple users helps distinguish who makes adjustments to the systems and when they access the system. See the following table.

Table 9: New User

Field	Description
Name	Identifies the individual obtaining an account.
Username	Identifies the user. This unique identifier can not contain spaces.
Password/Verify Password	The password must contain 8 or more characters, 1 uppercase letter, 1 number.
Roles	Roles include: **Tenant**: This role provides access to devices, facility, and schedules. Tenant permissions include device homepage, alarm notifications, and password settings. **Tech**: This role is similar to the admin role. Tech permissions provide access to the **Settings** tab. • Facility: Viewable and adjustable • Wi-Fi Access Point: Viewable and adjustable • Ethernet: Viewable and adjustable • Load Shedding: Viewable and adjustable • Global Shutdown: Viewable and adjustable • Alarm Notification: Viewable, not adjustable • Software Updates: Able to install updates • System Settings: Viewable and adjustable **Admin**: This role provides access to all settings and adjustments within the Verasys System.
Alarm Notification Level	Sets the user alarm notification levels. The four options include: **Disable**: User does not receive notifications via email or text message. **Service**: User receives all alarms (service, service priority, and critical). **Service Priority**: User receives only service priority and critical alarms. **Critical Alarms:** User only receives critical alarms.
Email address and SMS message notifications	You can enter the email address and SMS notifications into the following fields: • **Email Address 1** field • **Email Address 2** field

Custom logo

About this task: You can use the custom logo feature to upload a logo of your choice. After you upload the logo, it appears above the Verasys logo on the left side of the navigation and on the Verasys login page.
To add a custom logo, complete the following steps:

1. Navigate to the **Settings** tab and select **Custom Logo**.
2. Click **Choose file** and select a logo to upload.
3. Select the **Apply product logo** checkbox.
4. Click **Save**. The custom logo appears above the Verasys logo and on the Verasys login page.

Audit log

The SBH **Audit Log** tab tracks who logs in and out of the system and what changes are made. The information is stored in a text file on the SBH. To view a current copy of this text file, click the **Download** button and search through the log to find the information about what changes have been made.

The text file contains all the events. If you have Microsoft Excel, you can rename the file extension from a `.txt` to a `.csv` and open it with Excel to make it easier to read.

Diagnostics

The SBH diagnostics section is available for troubleshooting field issues. Ignore this tab unless support personnel direct you to generate a report.

System setup

This section acts as quick start guides for setting up your systems and is tailored to the specific controllers in the Verasys system.

VAV system setup procedures

The Verasys system uses plug and play to communicate to the zone coordinator. However, you must configure the system to ensure proper operation and control of the equipment connected to the devices. This section instructs you how to set up the zone coordinator for a VAV system.

Planning the zone bus layout

Plan the zone bus layout. For more information about communications buses, refer to the *Verasys BACnet MS/TP Communications Technical Bulletin (LIT-12012362)*.

It is best practice to connect the devices in the following sequence:

1. The first devices on the zone bus are the RTU and the Bypass damper.
2. The next devices on the zone bus are zone or VAV boxes, connect these in a daisy chain wiring configuration.

ⓘ **Note:** For full wiring details and diagrams refer to the *ZEC510 VAV Controllers Installation Guide (Part No. 24-10143-01485).*

Mounting and wiring

To keep the space temperature under control during installation, complete the following steps:

1. Mount the VAV boxes.
2. Open the damper positions fully.
3. Mount the zone coordinator.
4. Wire power to the zone coordinator.
5. Connect the SBH. To do this, wire the BAS port directly to the SBH.
6. Log in to the SBH.
7. Check that the zone coordinator appears in the menu.
8. Connect the RTU to the zone bus trunk.
9. Set the end-of-line (EOL) switch on the RTU to **ON** to make it the EOL on the trunk.

10. Turn on the RTU. Make sure it connects to the zone coordinator. See the following sections and complete the relevant steps before proceeding.

   - If the RTU is a smart equipment unit, see Configuring a Smart Equipment unit for VAV system using the SBH.
   - If it is a Verasys Equipment Controller, see Configuring a VEC using the SBH.

11. You can use the RTU to supply the air to the space. To do this, do not apply power to the VAV box controller and use the red manual override button to open up the damper and adjust the supply air setpoint on the RTU.

12. Wire the VAV boxes and make sure they connect to the zone coordinator.

13. When you connect the trunk to get the zones online, turn off the EOL switch that was temporarily set in Set the end-of-line (EOL) switch on the RTU to ON to make it the EOL on the trunk. and set the actual end of the line on the trunk.

14. Use the following sections to check your configuration:

   - Configuring a VAV controller for a VAV system (ZEC510) for temperature and flow control
   - Checking the VAV box

15. Configure the schedule. See Verasys schedules.

Configuring a Smart Equipment unit for VAV system using the SBH

The Smart Equipment unit is delivered with partial factory setup completed. Follow this procedure to check that the minimal settings have been performed.

1. Log in to the SBH.

2. From the device list screen, select the Smart Equipment unit. The RTU home page and the RTU menu structure appear.

3. Navigate to **Controller** > **Description**.

4. Set **Rooftop Controller Type** to **VAV**. If it is not set to VAV, the zone coordinator does not control as a VAV system.

5. Navigate to **Details** > **Indoor Fan** > **Setup**, and verify that **Fan Control Type** is set to **Variable Speed**.

   ⓘ **Note:** In older versions of Smart Equipment firmware, **Rooftop Controller Type** is located in the **Details** > **Service** > **Factory** > **Miscellaneous** section, and **Fan Control Type** is located in **Details** > **Service** > **Factory**.

6. Check the operation of the unit. Use the steps in the Setting the temperature control and flow parameters section to complete the configuration.

   ⓘ **Note:** Make sure you have some zones blocked open to relieve duct pressure.

Configuring a VEC using the SBH

The Verasys Equipment Controller (VEC) is by default a change-over bypass system. You must change this to a VAV system. Complete the following procedures to check that the minimal settings have been performed.

1. Log in to the SBH.

2. From the device list screen, select **VEC**. The VEC home page and the VEC menu structure appear.

3. The VEC home page provides an overview of the status of the unit. Check that the Supply Air Temperature (SAT) appears properly.

ⓘ **Note:** For the unit to have control, you need at least one SAT sensor.

4. Navigate to the *Details* > *Service* > *Factory* tab. From this tab, complete the following actions:

- Adjust the setup of the unit to the third-party equipment.
- Set the number of stages of heating and cooling that the unit has.
- If the VEC has control of the economizer, set it to **Yes**.

ⓘ **Note:** You must have an outside air temperature installed for the economizer to modulate.

- Set the RTU controller type to **VAV**. It defaults to change-over bypass so you must change it.

Testing the unit

To test the unit, navigate to the VEC **Commissioning** page and complete the following steps:

1. Set the **Start Commission** parameter to **Trigger**.

2. Block zones open.

3. Turn on the fan.

4. If the unit has heating capability, turn on heating stages and make sure the SAT increases. Most VAV systems do not have heat, but if your system does have heat, you need to install a return air sensor that can control the heat for warm-up mode.

5. Turn on cooling stages and make sure the SAT decreases.

6. Set the **Start Commission** parameter back to **Normal** to finish unit testing.

VAV controller zone setup procedures

The Verasys zone controllers come with predefined parameters and are plug-and-play when they communicate to the zone coordinator. However, you need to configure temperature control and flow control to ensure proper operation and control of the equipment connected to the devices. This section instructs you how to set up the zone controllers for temperature and flow control.

Configuring a VAV controller for a VAV system (ZEC510) for temperature and flow control

This method uses the SBH connected to a zone coordinator. To configure a VAV controller for a VAV system, complete the following steps:

1. Wire the zone bus trunk to the zone coordinator.

2. Power on the ZEC device.

3. Power on the device that communicates to the zone coordinator.

4. Make sure that the zone coordinator communicates to the SBH. If necessary, you can refer to the *Verasys Zone Coordinator Installation Guide (Part No. 24-10143-1280)* and navigate to the *Troubleshooting* section for information about LED flash rates and voltage measurements to verify communication.

Checking the VAV box

About this task:
ⓘ **Note:** This procedure is for the ZEC VAV controllers and it is the minimal configuration needed for temperature and flow control.

Complete the following steps to check the VAV box:

1. Log in to the SBH.
2. From the device list, select the VAV zone you want to configure.
3. On the zone home page, you can see an overview of the status of the unit.
4. Check that the **Zone Temperature** appears properly.
5. Check that the **Warmer Cooler Adjustment** works properly.
6. Navigate to the **Control Setup** tab and ensure that **Control Application Type** has the correct setting.

   ❯ **Important:** When you change this parameter, the controller restarts and you lose all other parameter settings.

7. Navigate to the **Equipment Setup** tab.
8. Turn the blade extension shafts a certain direction to open the dampers mechanically.
9. Check which direction closes the dampers and use the **Damper Polarity** parameter to set that position.
10. Set the **Actuator Stroke Time** to 60 seconds.
11. Before you continue, make sure you can manually move the actuator. To test this, hold down the red gear release button and turn the damper shaft. The red button unlocks the gear of the actuator and the collar can then move freely. If it cannot move freely, loosen the locking mechanism and move it 90 degrees, then lock it down again.

Figure 1: Moving the Actuator
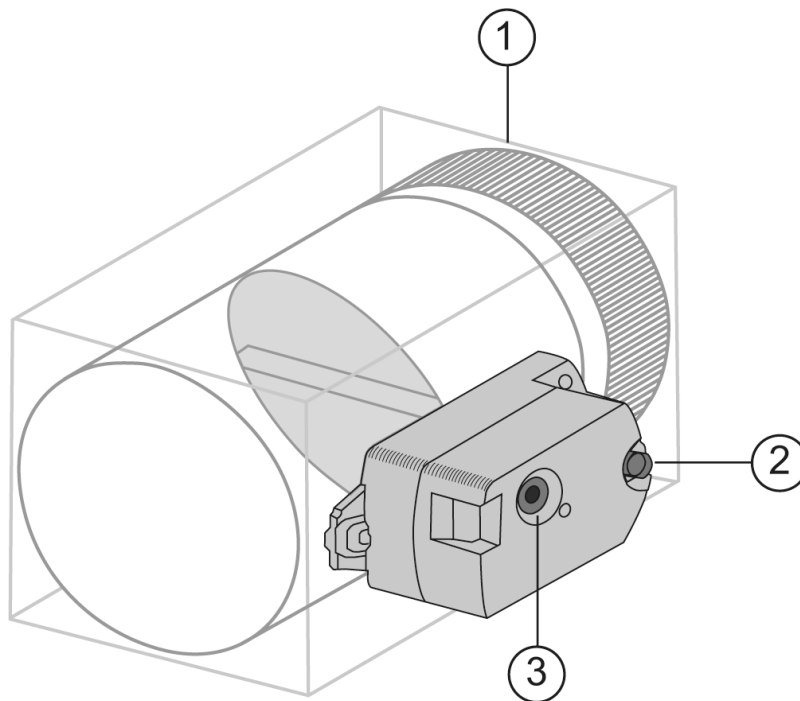
Table 10: Moving the actuator

Number	Description
1	Damper
2	Damper shaft
3	Gear release button

12. If the VAV box has heating functionality, set the parameters for the heating.
13. If the VAV box has a fan, set the parameters for the fan type.
14. If you want to calibrate the temperature, adjust the **ZNT SENSOR OFFSET** so the temperature matches the sensor you are calibrating to.
15. See Appendix A: Johnson Controls manufactured VAV box characteristics for directions to close the various JCI brands of VAV boxes.

Setting the temperature control and flow parameters

1. Select the **Commissioning** tab to set the flow, demand control ventilation (DCV), and Title 24 Load Shed parameters. To ensure proper temperature control, use the design flow schedule for the system, which is usually found on the mechanical plans for the job, to set the following flow parameters:

   ⓘ **Note:** The VAV box controls the amount of supply air from the unit into the VAV box. It is not the flow coming out of the box. Equipment such as a series fan, could increase the flow leaving the box.

   a. **Cooling Max Flow** – Sets the maximum supply air flow of the VAV box when cooling. Adjustable: 0 cfm to 10,000 cfm.

   b. **Cooling Min Flow** – Sets the minimum flow that enters the box when it is satisfied after cooling. Adjustable: 0 cfm to 10,000 cfm.

   c. **Occupied Heating Min Flow** – Sets the minimum supply air flow of the VAV box when heating. Adjustable: 0 cfm to 10,000 cfm.

   d. **Staged Reheat Min Flow** – Sets the minimum heating flow for electric reheat control. This parameter serves an additional control safety to the high-limit switches in the box. It is best practice to set this parameter to 70 cfm per kW of electric heat. Adjustable: 0 cfm to 10,000 cfm.

   e. **Unoccupied Cooling Min Flow** – Sets the minimum supply air flow of the VAV box when in unoccupied cooling mode. Adjustable: 0 cfm to 10,000 cfm.

   f. **Unoccupied Heating Min Flow** – Sets the minimum supply air flow of the VAV box when in unoccupied heating mode. Adjustable: 0 cfm to 10,000 cfm.

   g. **Supply Area**: The supply inlet area used to calculate the supply flow. Adjustable: 0 sq. ft to 8.0 sq. ft.

   h. **Pickup Gain**: Shows the K factor for the box. This parameter calibrates the flow. Adjustable, see Appendix A: Johnson Controls manufactured VAV box characteristics for the pickup gains, and for directions on how to close JCI brands of VAV boxes. Each manufacturer has different pickup gains (K Values) associated with their air flow rings. Check with the manufacturer for their values.

   ⓘ **Note:** Set **Occupied Cooling** and **Heating Min Flow** at least 10% higher than **Staged Reheat Min Flow**.

2. After you have set the flow parameters, it is best practice to issue an auto calibration command. You must have air flow coming from the unit before you do this.

    a. To start an auto calibration, set the **Auto Calibration Command** parameter to **True**. The auto calibration drives the damper closed and your velocity pressure must read near zero. The **Auto Calibration Offset** parameter is set to this value and the box reads zero flow.

      ⓘ **Note:** A common issue is incorrect damper polarity. The damper does not close, but instead it opens fully and offsets the flow. Ensure the damper polarity set in Checking the VAV box is correct.

    b. When the **Auto Calibration Status** parameter shows that auto calibration is complete, set **Auto Calibration Command** to **False**.

3. Select the **Control Setup** tab and check that each parameter is set to customize the zone to the customer's needs. For example, check if a **Warmer cooler adjustment** is needed or if you need temporary occupancy.

    ⓘ **Note:** See Appendix B: Objects and parameters for information about the controller parameters.

Your supply air flow controls to the supply air setpoint. The supply air setpoint increases from minimum to maximum depending on the temperature demand of the zone. You can use the **Trends** tab to diagnose issues and see the history of the zone temperature.

Configuring zone groups for scheduling

About this task:
Group schedules is a feature in the zone coordinator to simplify the creation of zone controller schedules. You can assign each zone controller to one of four zone groups, and you can create a schedule for each zone group in the zone coordinator. This way, you can create the same schedule and add exceptions for multiple zone controllers.

ⓘ **Note:** By default, zone controllers are in zone group 1 until you move them to a different group.

To assign a zone controller to a zone group, complete the following steps:

1. Select the controller device.
2. Click **Control Setup**.
3. In the **Zone Group Number** field, enter the zone group number in the range of 1 to 4.

What to do next: Assign all zone controllers to a zone group. When you create a schedule for the zone coordinator, you can also select the zone group that you want to add the schedule to.

COBP system setup procedures

The Verasys system uses plug-and-play functionality to set up communication with a zone coordinator. However, you must configure the system to ensure proper operation and control of the equipment connected to the devices. This section instructs you how to set up the zone coordinator for a COBP system.

Planning the zone bus layout

Plan the zone bus layout. For more information about communications buses, refer to the *Verasys BACnet MS/TP Communications Technical Bulletin (LIT-12012362)*.

It is best practice to connect the devices in the following sequence:

1. The first devices on the zone bus are the RTU and the bypass damper.

2. The next devices on the zone bus are zone or VAV boxes. Connect these in a daisy chain wiring configuration.

ⓘ **Note:** For full wiring details and diagrams refer to the *ZEC510 VAV Controllers Installation Guide (Part No. 24-10143-01485)*.

Mounting and wiring

To keep the space temperature under control during installation, complete the following steps:

1. Mount the zone controllers with the zone dampers or VAV boxes.
2. Open the damper positions fully.
3. Mount the zone coordinator.
4. Wire power to the zone coordinator.
5. Connect the SBH. To do this, wire the BAS port directly to the SBH or connect the BAS RJ12 port on the board.
6. Log into the SBH.
7. Check that the zone coordinator appears in the menu.
8. Connect the RTU and the bypass damper to the zone bus trunk.
9. In the SBH, temporarily set the EOL switch on the last device on the SBH.
10. Set the EOL switch to the **ON** position on the last device on the zone bus. Refer to the *Verasys Zone Coordinator Installation Instructions, 24-10143-1280* for more details.
11. Turn on the unit RTU and bypass damper. Make sure they connect to the zone coordinator. See the following sections and complete the relevant steps before proceeding.

    - If the RTU is a SMART Equipment device, see Configuring a Smart Equipment unit for COBP control using the SBH.
    - If a VEC controls the RTU see Configuring a VEC for COBP using the SBH.

12. Use the unit to supply the air to the space. To do this, navigate to the zone coordinator and set the **CONSTRUCTION MODE** to deliver **Heat** or **Cool**.

Configuring a COBP zone damper (BYP200) for flow control

This method uses the SBH connected to a zone coordinator. To set up a COBP damper, complete the following steps:

1. Wire the zone bus trunk to the zone coordinator.
2. Power on the BYP200 device.
3. Power on the device that communicates to the zone coordinator.
4. Check that the zone coordinator communicates to the SBH.
5. Wire the zone dampers and ensure that they communicate to the zone coordinator.
6. When you connect the trunk to get the zones online, turn off the EOL switch that was temporarily set in Mounting and wiring and set the actual EOL on the trunk.

    ⓘ **Note:** See Configuring a COBP zone damper (ZEC310) for temperature and flow control and Configuring a VAV controller for a COBP system (ZEC510) for temperature and flow control depending on whether you have zone dampers or VAV controllers.

7. When you connect all the zones, switch the unit out of construction mode, synchronize time to the zone coordinator, and set up the schedule.

Configuring a Smart Equipment unit for COBP control using the SBH

The Smart Equipment unit comes with partial factory setup completed. Follow this procedure to check that the minimal settings have been performed.

1. Log in to the SBH.

2. From the device list screen, select the Smart Equipment unit. The RTU home page and the RTU menu structure appear.

3. Navigate to **Controller** > **Description**.

4. Set **Rooftop Controller Type** to **Changeover bypass**.

5. Navigate to **Details** > **Indoor Fan** > **Setup**, and verify that **Fan Control Type** is set to **Single Speed** or **Fixed Variable**.

   ⓘ **Note:** In older versions of Smart Equipment firmware, **Rooftop Controller Type** is located in the **Details** > **Service** > **Factory** > **Miscellaneous** section, and **Fan Control Type** is located in **Details** > **Service** > **Factory**.

6. Check the operation of the unit. Verify that you have some zones blocked open.

7. After verifying, see Configuring a COBP zone damper (BYP200) for flow control to configure the bypass damper.

Configuring a VEC for COBP using the SBH

The VEC is by default a COBP system. Partial factory setup is already completed. Complete the following procedures to check that the minimal settings have been performed.

1. Log in to the SBH.

2. From the device list screen, select VEC. The VEC home page and the VEC menu structure appear.

3. The VEC home page provides an overview of the status of the unit. Check that the SAT sensor reading is correct.

   ⓘ **Note:** For the unit to have control, you need minimum one SAT sensor.

4. Navigate to the **Details** > **Service** > **Factory** tab to adjust the setup of the unit to the third-party equipment.

   a. Set the number of stages of heating and cooling that the unit has.
   b. If the VEC controls the economizer, set it to yes.

      ⓘ **Note:** An outside air temperature is required for the economizer to modulate.

   c. Set the RTU controller type to **COBP**.

Testing the unit

1. Navigate to the VEC **Commissioning** page to test the unit.

2. Before you turn on the fan, block zones open or make sure the bypass damper is operational.

3. Set the **Start Commission** parameter to **Trigger**.

4. Turn on the fan.

5. Turn on the heating stages and make sure the SAT increases.

6. Turn on the cooling stages and make sure the SAT decreases.

7. To finish testing the unit, set the **Start Commission** parameter back to **Normal**.

Configuring a change-over bypass zone damper (BYP200) for flow control

This method uses the SBH connected to a zone coordinator. To set up a COBP damper, complete the following steps:

1. Wire the zone bus trunk to the zone coordinator.
2. Power on the BYP200 device.
3. Power on the device that communicates to the zone coordinator.
4. Check that the zone coordinator communicates with the SBH.

Checking the bypass damper

Once these requirements are established, use the following procedure to check the bypass damper:

1. Log in to the SBH.
2. From the device list screen, select the COBP damper. The home page and the bypass damper menu structure appear.
3. From the BYP200 home page you can see an overview of how the damper controls the zone.
4. Start the supply fan.

   ⓘ **Note:** Ensure you have some zones blocked open to relieve system pressure.

5. Check the differential pressure sensor to make sure it is reading properly.
6. Navigate to the **Setup** tab and complete the following steps:

   a. Set the direction to **Close** on the damper.

      ⓘ **Note:** This setting only affects the actuator connected to the controller. The controller has the option to add a second actuator wired to a 0 V to 10 V output. If you are using the M9106-GGA-2 actuator, a jumper setting closes the second damper. Any other actuator used needs to have a means to switch the action of the actuator on the actuator by either a jumper or a switch.

   b. If installed, verify the second bypass damper actuator.
   c. Set the **Unit Enable** to **Enable**.
   d. Set the **Scheduled Occupancy** to **Occupied**.
   e. Set a **Differential pressure setpoint** that the damper can maintain.
   f. Navigate to the home screen. The damper modulates to maintain this pressure setpoint.
   g. Move the pressure setpoint back to the pressure you want to maintain in the system.

COBP zone setup procedures

The Verasys zone controllers come with predefined controllers and use plug and play functionality to configure communication with a zone coordinator. However, you must configure the following settings to ensure correct operation and control of the connected devices. This section instructs you how to configure the zone controllers for temperature and flow control.

ⓘ **Note:** For full wiring details and diagrams refer to the *ZEC510 VAV Controllers Installation Guide (Part No. 24-10143-01485)*.

Configuring a COBP zone damper (ZEC310) for temperature and flow control

This method uses the SBH connected to a zone coordinator. To configure a COBP zone damper, complete the following steps:

1. Wire the zone bus trunk to the zone coordinator.

2. Power on the ZEC device.

3. Power on the device that communicates to the zone coordinator.

4. Check that the zone coordinator communicates to the SBH.

Checking the zone damper

About this task:
ⓘ **Note:** This procedure is for the ZEC310 zone dampers and it is the minimal configuration needed for temperature and flow control.

Complete the following steps to check the zone damper:

1. Log in to the SBH.
2. From the device list, select the COBP zone you want to configure.
3. Navigate to the zone home page to see an overview of the status of the unit.
4. Check that the **Zone Temperature** reads properly.
5. Check that the **Warmer Cooler Adjustment** works properly.
6. Navigate to the **Equipment Setup** tab.
7. Turn the blade extension shafts a certain direction to open the dampers mechanically. Check the rotation before you tighten the locking collar to the damper shaft.
8. Check which direction closes the dampers and use the **Damper Polarity** parameter to set that position.
9. Set the **Actuator Stroke Time** to 60 seconds.
10. Before you continue, make sure you can manually move the actuator. To test this, hold down the red gear release button and turn the damper shaft. The red button unlocks the gear of the actuator and the collar can then move freely. If it cannot move freely, loosen the locking mechanism and move it 90 degrees, then lock it down again.

Figure 2: Moving the actuator
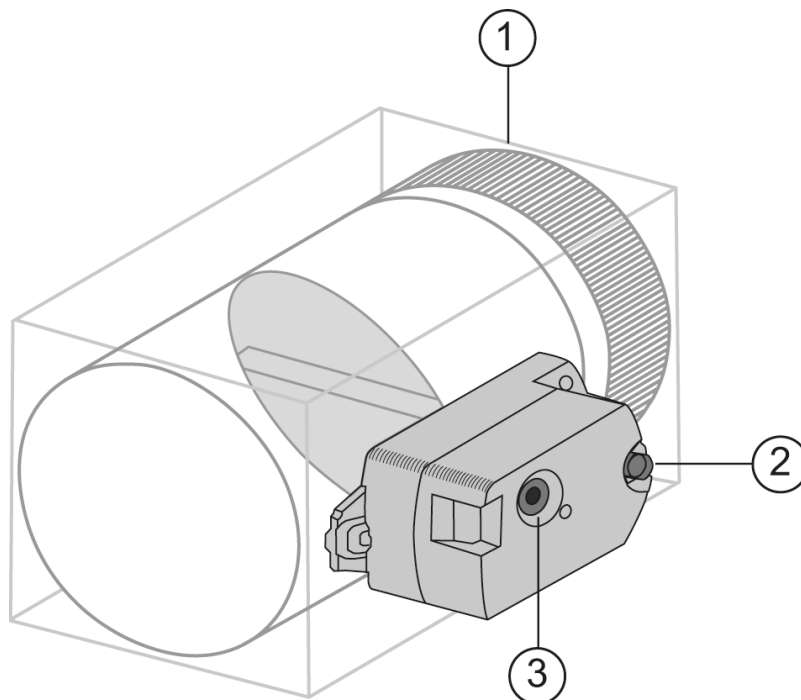
Table 11: Moving the actuator

Number	Description
1	Damper
2	Damper shaft
3	Gear release button

11. Select the **Commissioning** tab to set the flow, DCV, and Title 24 Load Shed.

ⓘ **Note:** If you cannot see the **DCV** tab, set the **DCV Enable** parameter to **CO2** for it to appear.

12. Select the **Flow** tab to check damper operation and set flow parameters.

    a. Set the minimum positions settings for heating or cooling to 0% and 100% to drive the damper open and closed. Select heating or cooling depending on the current state of the box.

    ⓘ **Note:** If the damper is not opening and closing, press the red button on the actuator, and check that it can move freely. This button unlocks the actuator so you can manually move it. Reconnect the actuator so it moves freely. Make sure the direction to close is what you set earlier in this procedure.

    b. Once the actuator works properly, set the minimum and maximum damper positions for each zone. This helps balance the system flows.

13. Select the **Control Setup** tab and check that each parameter is set to customize the zone to the customer's needs. For example, check if a warmer cooler adjustment is needed, or if you need temporary occupancy, or set the zone weight and the zone's voting options. Use the **Trends** tab to diagnose issues and see the history of the zone temperature.

Configuring zone groups for scheduling

About this task:
Group schedules is a feature in the zone coordinator to simplify the creation of zone controller schedules. You can assign each zone controller to one of four zone groups, and you can create a schedule for each zone group in the zone coordinator. This way, you can create the same schedule and add exceptions for multiple zone controllers.

ⓘ **Note:** By default, zone controllers are in zone group 1 until you move them to a different group.

To assign a zone controller to a zone group, complete the following steps:

1. Select the controller device.
2. Click **Control Setup**.
3. In the **Zone Group Number** field, enter the zone group number in the range of 1 to 4.

What to do next: Assign all zone controllers to a zone group. When you create a schedule for the zone coordinator, you can also select the zone group that you want to add the schedule to.

Configuring a VAV controller for a COBP system (ZEC510) for temperature and flow control

This method uses the SBH connected to a zone coordinator. To set up a VAV controller for a COBP system, complete the following steps:

1. Wire the zone bus trunk to the zone coordinator.
2. Power on the ZEC device.
3. Power on the device that communicates to the zone coordinator.

4. Check that the zone coordinator communicates to the SBH.

Checking the VAV box

About this task:
ⓘ **Note:** This procedure is for the ZEC510 VAV controller, and it is the minimal setup needed for temperature and flow control.

Use the following procedure to check the VAV box:

1. Log in to the SBH.
2. From the device list screen, select the VAV zone you want to configure. The zone home page and the zone menu structure appears.
3. Navigate to the zone home page to see the details of the status of the unit.
4. Check that the zone temperature reads properly.
5. Check that the warmer cooler adjustment works properly.
6. Navigate to the **Control Setup** tab and ensure that **Control Application Type** has the correct setting.

   ❯ **Important:** When you change this parameter, the controller restarts and you lose all other parameter settings.

7. Select the **Equipment Setup** tab.
8. Turn the blade extension shafts a certain direction to open the dampers mechanically.
9. Check which direction closes the dampers and use the **Damper Polarity** parameter to set that position.
10. Set the **Actuator Stroke Time** to 60 seconds.
11. Before you continue, make sure you can manually move the actuator. To test this, hold down the red gear release button and turn the damper shaft. The red button unlocks the gear of the actuator and the collar can then move freely. If it cannot move freely, loosen the locking mechanism and move it 90 degrees, then lock it down again.

Figure 3: Moving the actuator
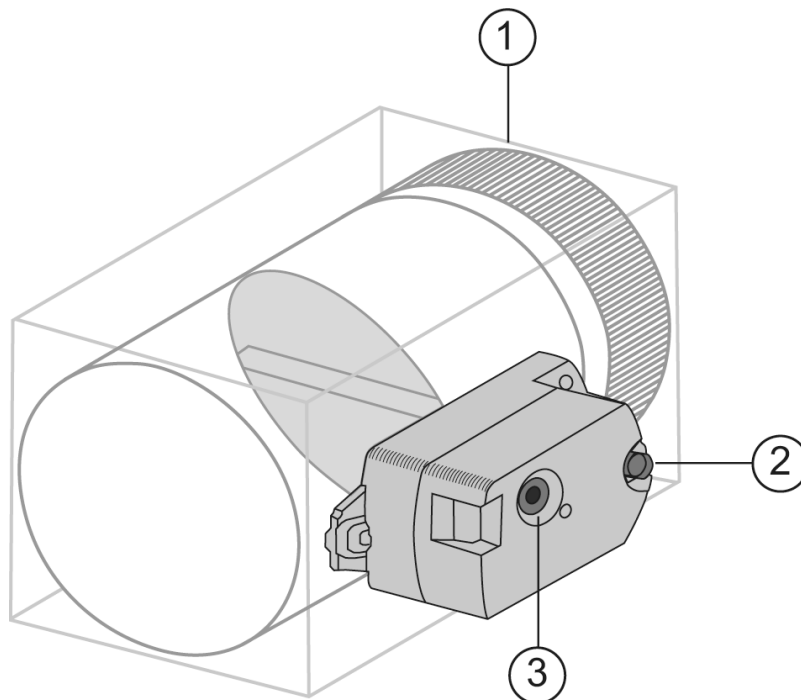
Table 12: Moving the actuator

Number	Description
1	Damper
2	Damper shaft
3	Gear release button

12. If the VAV box has heating functionality, set the parameters for the heating.

13. If the VAV box has a fan, set the parameters for the fan type.

14. If you want to calibrate the temperature, adjust the **ZNT Sensor Offset** so the temperature matches the sensor you are calibrating to.

15. See Appendix A: Johnson Controls manufactured VAV box characteristics for directions to close the various JCI brands of VAV boxes.

Setting the temperature control and flow parameters

1. Select the **Commissioning** tab to set the flow, DCV, and Title 24 Load Shed parameters. To ensure proper temperature control, use the design flow schedule for the system, which is usually found on the mechanical plans for the job, to set the following flow parameters:

    a. **Cooling Max Flow** – Sets the maximum supply air flow of the VAV box when cooling. Adjustable: 0 to 10,000 cfm.

    b. **Cooling Min Flow** – Sets the minimum flow that enters the box when it is satisfied after cooling. Adjustable: 0 to 10,000 cfm.

    c. **Occupied Heating Min Flow** – Sets the minimum supply air flow of the VAV box when heating. Adjustable: 0 to 10,000 cfm.

    d. **Staged Reheat Min Flow** – Sets the minimum heating flow for electric reheat control. This parameter serves an additional control safety to the high-limit switches in the box. It is best practice to set this parameter to 70 cfm per kW of electric heat. Adjustable: 0 to 10,000 cfm.

    e. **Unoccupied Cooling Min Flow** – Sets the minimum supply air flow of the VAV box when in unoccupied cooling mode. Adjustable: 0 to 10,000 cfm.

    f. **Unoccupied Heating Min Flow** – Sets the minimum supply air flow of the VAV box when in unoccupied heating mode. Adjustable: 0 to 10,000 cfm

    g. **Supply Area** – The supply inlet area used to calculate the supply flow. Adjustable: 0 to 8.0 sq. ft.

    h. **Pickup Gain** – Shows the K factor for the box. This parameter calibrates the flow. Adjustable, see Appendix A: Johnson Controls manufactured VAV box characteristics for the pickup gains, and for directions on how to close JCI brands of VAV boxes. Each manufacturer has different pickup gains (K values) associated with their air flow rings. Check with the manufacturer for their values.

    ⓘ **Note:** Set **Occupied Cooling** and **Heating Min Flow** at least 10% higher than **Staged Reheat Min Flow**.

2. After you have set the flow parameters, it is best practice to issue an auto calibration command. You must have air flow coming from the unit before you do this.

    a. To start an auto calibration, set the **Auto Calibration Command** parameter to **True**. The auto calibration drives the damper closed and your velocity pressure must read near zero. The **Auto Calibration Offset** parameter is set to this value and the box reads zero flow.

        ⓘ **Note:** A common issue is incorrect damper polarity. The damper does not close, but instead it opens fully and offsets the flow. Ensure the damper polarity set in Checking the VAV box is correct.

    b. When the **Auto Calibration Status** parameter shows that auto calibration is complete, set **Auto Calibration Command** to **False**.

3. Select the **Control Setup** tab and check that each parameter is set to customize the zone to the customer's needs. For example, check if a warmer cooler adjustment is needed or if you need temporary occupancy or set the zone weight and the zone's voting options. Use the **Trends** tab to diagnose issues and see the history of the zone temperature.

    ⓘ **Note:** See Appendix B: Objects and parameters for information about the controller parameters.

After completing the procedures outlined above, the zone controls properly. Your supply air flow controls to the supply air setpoint. The supply air setpoint increases from minimum to maximum depending on the temperature demand of the zone. You can use the **Trends** Tab to diagnose issues and see the history of the zone temperature.

Configuring zone groups for scheduling

About this task:
Group schedules is a feature in the zone coordinator to simplify the creation of zone controller schedules. You can assign each zone controller to one of four zone groups, and you can create a schedule for each zone group in the zone coordinator. This way, you can create the same schedule and add exceptions for multiple zone controllers.

ⓘ **Note:** By default, zone controllers are in zone group 1 until you move them to a different group.

To assign a zone controller to a zone group, complete the following steps:

1. Select the controller device.
2. Click **Control Setup**.
3. In the **Zone Group Number** field, enter the zone group number in the range of 1 to 4.

What to do next: Assign all zone controllers to a zone group. When you create a schedule for the zone coordinator, you can also select the zone group that you want to add the schedule to.

ZEC firmware download

You can use the ZEC firmware download feature to upgrade all the zone controllers in a zoning system through the USB upgrade of the Verasys Zone Coordinator (VZC100). This feature means future enhancements to the zone controllers are possible without physically replacing the hardware. The firmware download supports the following zone controller devices:

-   LC-ZEC310-0
-   LC-ZEC510-1
-   LC-ZEC510-2

- LC-ZEC510-3

ⓘ **Note:** The download process takes between five and seven minutes for each zone.

Upgrading from a coordinator build earlier than v3.2

If the VZC firmware is earlier than v3.2, you must upgrade the VZC firmware to a v3.2 or newer build before you can upgrade the firmware in the ZECs. To upgrade the VZC to a v3.2 or newer build, complete the following steps:

1. Log in to the SBH.
2. Physically remove the zone bus from the VZC100. For more information about VZC zone bus wiring, refer to the *Verasys Zone Coordinator (VZC) Installation Guide (Part No. 24-10143-1280)*.
3. Navigate to the **Devices** page on the SBH200, and wait until all devices under the zone coordinator that you are updating, switch to offline.
4. When all devices under the zone coordinator go offline, click **Remove Offline Devices**.
5. Copy **vvvvvv_VZCUSB.pkg** to the root directory of a USB 2.0 drive.

   ⓘ **Note:** The USB drive must have a FAT or FAT32 file system. NTFS and USB 3.0 are not supported.

6. Insert the USB drive into the VZC. A red fault light flashes rapidly to indicate that the upgrade is taking place. If the red fault light does not flash, recycle power to the VZC.
7. When the upgrade is complete, the fault light is solid off.
8. Remove the USB drive.
9. Reconnect the zone bus and wait for all devices to appear under the zone coordinator.
10. Continue with the procedure in Upgrading from a v3.2 coordinator build to a v3.2 or newer build to upgrade the firmware in the ZECs.

Upgrading from a v3.2 coordinator build to a v3.2 or newer build

If the VZC firmware is v3.2 or newer, you can upgrade the firmware in the ZECs and the VZC firmware in the following upgrade procedure. If the VZC is already at the same firmware version as the upgrade file, but the ZECs are at an older firmware version, then the ZECs receive the upgrade. This upgrade process also clears the error that firmware versions do not match the package.

To upgrade the ZEC firmware or both the ZEC and VZC firmware from a v3.2 or newer build, complete the following steps:

1. Copy **vvvvvv_VZCUSB.pkg** to a USB drive, and insert the USB drive into the VZC. A red fault light flashes rapidly to indicate the upgrade is taking place. If the red fault light does not flash, recycle power to the VZC.
2. Navigate to the **Zone Coordinator** > **Unit** menu to track the progress of the upgrade. The status appears under the device that is in provision.
3. During the update, the zone in provision appears offline in the **Devices** page.
4. To verify from the SBH UI that the required version was installed, navigate to the **VZC100** home page. You can see the firmware version of each zone listed under the zone coordinator.
5. Reboot the SBH.

Configuring a Verasys IOM

The Verasys IOM LC-VAC1002-0 provides additional controls for monitoring and controlling ancillary devices. You can use the IOM to monitor temperature, pressure, air flow, or other inputs based

on the input type. The IOM can also use its binary output options to control lighting, exhaust fans, motors, or ancillary output that needs to be scheduled or driven by a simple interlock.

As stated in the Interlocks section of this document, IOMs are used in conjunction with this feature to drive simple logic for monitoring and control.

There are no limits to the number of IOMs that you can add to a Verasys network. Limitation is based on the number of inputs and outputs. One IOM consists of nine binary outputs, four binary inputs, and five analog inputs.

To configure IOM points, navigate to **Devices** and select the IOM device you want to update. For more information about configuring the IOM, refer to the *Verasys Input Output Module Application Note (LIT-12012992)*.

Configuring binary and analog inputs

To configure binary and analog inputs, complete the following steps:

1. Navigate to the **Commissioning** tab and select the **Inputs** tab.
2. On the **Generic IOM Inputs** screen, configure the following fields:

   - Set the **Present** field to **Present**.
   - **States Text**
   - **Delay Type**
   - **Off Delay**
   - **On Delay**
   - **Alarm priority**
   - **Alarm Text**
   - **Alarm State**
   - **Alarm Delay**

3. Select the **Point Type** of the analog input you are using. You can adjust the **Value** of the **Point Type** to any of the following:

   - Temperature
   - Humidity
   - CO2
   - Light Sensor
   - Refrigerant
   - Building Pressure
   - Steam Pressure
   - Voltage
   - Current

ⓘ **Note:** Voltage and current are fully configurable input types that are meant to be used if a different sensor than what is provided in the VAC1002 accessories list is used. The IOM home page shows the inputs and outputs status and a changeable graphic.

Configuring the IOM load shed

1. Navigate to the **Settings options** and select **Load Shedding**.
2. From the drop-down list, select the Verasys IOM.

The BI-2 is automatically assigned to **Load Shed**. This means if there is a demand respond requirement for a Verasys system, the binary input must be set to **On**, based on dry contact. A load shed sequence then goes into affect. You can use this feature for State of California Title 24 Requirements for a zoning system.

Appendix A: Johnson Controls manufactured VAV box characteristics

Table 13: Manufacturer damper data

Manufacturer	Default direction to close
Environmental Technologies Inc.	Clockwise
Krueger	Counterclockwise
Titus	Counterclockwise
Tuttle and Bailey®	Counterclockwise

Table 14: Quickfill defaults

Box duct size	Area (sq ft)	Pickup gain (sq ft)				
		ETI with a 45 degree rotation	ETI with a 90 degree rotation	Krueger	Tuttle and bailey	Titus
4	0.09	1.71	1.63	2.32	2.80	1.63
5	0.14	1.69	1.66	2.31	3.00	1.95
6	0.20	1.67	2.90	2.32	2.90	3.07
7	0.27	n/a	n/a	2.32	3.00	2.57
8	0.35	1.61	2.52	2.33	2.90	2.39
9	0.44	n/a	n/a	2.33	n/a	2.30
10	0.55	1.63	2.41	2.32	3.00	2.31
12	0.79	1.61	2.38	2.32	3.00	2.76
14	1.07	1.59	2.29	2.33	3.00	2.02
16	1.40	1.61	2.29	2.33	3.00	2.12
18	n/a	1.59	2.43	n/a	3.00	n/a
19	n/a	n/a	2.92	n/a	n/a	n/a
20	0.78	1.61	n/a	n/a	n/a	2.19
22	0.78	1.60	2.65	2.33	3.00	2.19
24	n/a	n/a	n/a	n/a	n/a	n/a
26	1.00	n/a	n/a	n/a	n/a	2.57
30	n/a	n/a	n/a	n/a	3.00	n/a
40	2.67	n/a	n/a	n/a	n/a	2.22

Appendix B: Objects and parameters

You can find the objects and parameters for the different Verasys System controllers in the following tables and documents:

- SSE RTU controller: Table 15
- VZC100: Table 16
- BYP200: Table 17
- ZEC510: Table 18
- ZEC310: Table 19
- TEC363x: Table 20
- Generic IOM LC-VAC1002-0: Table 21
- Lighting controller LC-VAC1001-0: Table 22
- VEC100: refer to the application note for the application that you use.

   - *VEC100 Generic RTU Controller, Modulated Heating and Modulated Cooling Application Note (LIT-12013484)*
   - *VEC100 Generic RTU Controller, Modulated Heating and Staged Cooling Application Note (LIT-12013361)*
   - *VEC100 Generic RTU Controller, Staged Heating and Modulated Cooling Application Note (LIT-12013485)*
   - *VEC100 Generic RTU Controller, Staged Heating and Staged Cooling Application Note (LIT-12013443)*
   - *VEC100 Generic RTU Heat Pump Controller Application Note (LIT-12013452)*

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Status: Thermostat	**Y1 - Thermostat**	First stage cooling thermostat call	Read Only
	Y2 - Thermostat	Second stage cooling thermostat call	Read Only
	Y3 - Thermostat	Third stage cooling thermostat call	Read Only
	Y4 - Thermostat	Fourth stage cooling thermostat call	Read Only
	W1 - Thermostat	First stage heating thermostat call	Read Only
	W2 - Thermostat	Second stage heating thermostat call	Read Only
	W3 - Thermostat	Third stage heating thermostat call	Read Only
	G - Thermostat	Binary fan thermostat call	Read Only
	Local Occupancy Input - Thermostat	Local occupancy mode of the unit	Read Only
Status: Smoke Control	**Operating Purge Command**	Displays if unit is purged or not	Read Only
	Purge Command Source	Command source of purge command	Read Only
	Local Purge Command Input	Economizer Purge command input	Read Only
	Network Override Purge Command	Network Override purge command	Adjustable: False/True
	Shutdown Input/Smoke Detector	Smoke detector input; a closed contact equates an alarm condition	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Status: Status	Unit Status	The current status or state of the unit	Read Only
	Economizer Status	The Economizer operational status	Read Only
	Exhaust Fan Status	The Exhaust Fan operational status	Read Only
	Fan Status	The current status of the fan	Read Only
	Hot Gas Reheat Status	The Hot Gas Reheat operational status	Read Only
	Cooling Status	The Cooling Control operational status	Read Only
	Dirty Filter Switch	The switch that suggests that the filter is dirty	Read Only
	UCB 24VAC Input	Analog input stating the current status of VAC supply	Read Only
Status: Control	Econ Controller	The current connection status of the economizer board. Not present means that the board has not been installed. Offline means that the board is installed but not online. Online means that the board is installed and online.	Read Only
	4 Stage Controller	This input is the current communication status of the four stage add-on board.	Read Only
	FDD Master Controller	This input is the current communication status of the FDD1 add-on board.	Read Only
	FDD Slave Controller	This input is the current communication status of the FDD2 add-on board.	Read Only
Summary: Sensors: Operational Mode	Operational Outdoor Air Temperature	Analog input of the current operational outdoor air temperature	Read Only
	Operational Space Temperature	Analog input of the current operational space temperature	Read Only
	Operational Space Temperature Setpoint Offset	Analog input of current space temperature setpoint offset	Read Only
	Operational Space Humidity	Analog input of the current operational space humidity	Read Only
	Operational Outdoor Air Humidity	Analog input of the current operational outdoor humidity	Read Only
	Operational Indoor Air Quality	Analog input of the current operational indoor humidity	Read Only
	Operational Outdoor Air Quality	Analog input of the current operational outdoor humidity	Read Only
	Operating Purge Command	Indicates if unit is purged or not	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Summary: Sensors: Sensors	**Supply Air Temperature**	The present value of the supply air temperature analog input.	Read Only
	Return Air Temperature	The present value of the Return Air Temperature analog input	Read Only
	Outdoor Air Temperature Input	The present value of the Outdoor Air Temperature analog input	Read Only
	Outdoor Air Temperature Source	The source of the Outdoor Air Temperature analog input	Read Only
	Space Temperature Input	The present value of the Space Temperature Input	Read Only
	Space Temperature Source	The source of the Space Temperature Input	Read Only
	Space Temperature Alarm Setpoint Offset	The present value of the Space Temperature Alarm Setpoint Offset set by the user	Adjustable: 0 to 25°F
	Space Temperature Alarm Time Delay	The present value of the Space Temperature Alarm Time Delay set by the user	Adjustable: 0 to 120 minutes
	Space Temp Setpoint Offset Input	The present value of the Space Temp Setpoint Offset Input	Read Only
	Space Temperature Setpoint Offset Source	The source of the Space Temperature Setpoint Offset input	Read Only
	Space Temperature Setpoint Offset Range	The Space Temperature Setpoint Offset range set by the user	Adjustable: 0 to 5 delta °F
	Space Humidity RAH Input	The present value of the Space Humidity RAH Input	Read Only
	Space Humidity Source	The source of the Space Humidity input	Read Only
	Outdoor Air Humidity Input	The present value of the Outdoor Air Humidity Input	Read Only
	Outdoor Air Humidity Source	The source of the Outdoor Air Humidity input	Read Only
	Indoor Air Quality	The present value of the Indoor Air Quality	Read Only
	Indoor Air Quality Source	The source of the Indoor Air Quality input	Read Only
	Outdoor Air Quality Input	The present value of the Outdoor Air Quality Input	Read Only
	Outdoor Air Quality Source	The source of the Outdoor Air Quality input	Read Only
	Purge Command Source	The source of the Purge Command input	Read Only
	Supply Air Humidity	The present value of the Supply Air Humidity	Read Only
	Mixed Air Temperature	The present value of the Mixed Air Temperature	Read Only
	Building Static Pressure	The present value of the Building Static Pressure	Read Only
	Duct Static Pressure	The present value of the Duct Static Pressure	Read Only
Summary: Unit	**Unit Name**	The name of the Unit	Adjustable
	Unit Model Number	Indicates the firmware version of the controller	Adjustable
	Unit Serial Number	Indicates the serial number of the controller	Adjustable
	Model Name	Indicates the model name of the controller	Read Only
	Unit Status	Indicates in current status of the controller	Read Only
	Unit Enable	Indicates if the unit is enabled by the user	Adjustable: Shutdown/ Enable
	Hardware Reset	Indicates if the hardware is being reset by the user	Adjustable: No/Yes
	Reset Lockouts	Indicates if any reset lockouts are present	Adjustable: Off/On

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Commissioning: Quick Start	Number of Cooling Stages Installed	Sets the number of Cooling Stages installed	Adjustable: 1 to 4
	Number of Heating Stages Installed	Sets the number of Heating Stages installed	Adjustable: 0 to 3
	Number of Heat Pump Stages Installed	Sets the number of Heat Pump Stages installed	Adjustable: 0 to 2
	Number of Refrig Systems Installed	Sets the number of Refrig Systems installed	Adjustable: 0 to 4
	Fan Control Type	Sets the Fan Control Type	Adjustable: SE RTU Fan Control Type
	Thermostat Only Control Enabled	Sets the control to Thermostat Only mode	Adjustable: No/Yes
	Continuous Fan Operation in Occupied Mode	Sets the control for Continuous Fan during Occupied	Adjustable: No/Yes
	Economizer Minimum Position Setpoint	Sets the Economizer Minimum Position	Adjustable: 0 to 100
	Supply Air Temperature	The current Supply Air Temperature	Read Only
	Return Air Temperature	The current Return Air Temperature	Read Only
	Outdoor Air Temperature Input	The current Outdoor Air Temperature (Input)	Read Only
	Cooling Status	The current Cooling Control Status	Read Only
	Heating Status	The current Heating Control Status	Read Only
	Cooling Mode Enabled For Operation	Allows Cooling Mode to be enabled for operation	Adjustable: No/Yes
	Heating Mode Enabled For Operation	Allows Heating Mode to be enabled for operation	Adjustable: No/Yes
	Unique Equipment Identifier	Sets the current Equipment configuration specific to the unit	Adjustable: SE RTU Equipment Configuration
Commissioning: Standard	Occupancy Mode	Sets the Occupancy Mode of the controller	Adjustable: SE Occupancy Mode
	Thermostat Only Control Enabled	Sets the control to Thermostat Only mode	Adjustable: No/Yes
	Cooling Mode Enabled For Operation	Allows Cooling Mode to be enabled for operation	Adjustable: No/Yes
	Number of Cooling Stages Installed	Sets the number of Cooling Stages installed	Adjustable: 1 to 4
	Heating Mode Enabled For Operation	Allows Heating Mode to be enabled for operation	Adjustable: No/Yes
	Number of Heating Stages Installed	Sets the number of Heating Stages installed	Adjustable: 0 to 3
	Economizer Enabled For Operation	Determines if an Economizer is enabled for operation	Adjustable: No/Yes
	Economizer Minimum Position Setpoint	Determines the Economizer minimum position	Adjustable: 0 to 100%
	Economizer Damper Minimum Position Low Speed Fan	Determines the Economizer min position on low fan speed	Adjustable: 0 to 100%
	Continuous Fan Operation in Occupied Mode	Sets the control for Continuous Fan during Occupied	Adjustable: Yes/No
	SAT Limit for Cooling Enable	Allows option for SAT limit for cooling enable	Adjustable: No/Yes
	SAT Limit for Cooling Setpoint	Sets the SAT Limit for Cooling	Adjustable: 40 to 65°F
	OAT Cooling Cutout Enabled	Allows optional for Cooling Cutout to be enabled	Adjustable: No/Yes
	OAT Cooling Cutout	Sets the Cooling Cutout Temperature	Adjustable: 0 to 100°F

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Commissioning: Options	**Fan Control Type**	Sets the Fan Control Type	Adjustable: SE RTU Fan Control Type
	Exhaust Type	Sets the Exhaust Setup	Adjustable: SE RTU Exhaust Setup
	Number of Refrig Systems Installed	Sets the number of Refrig Systems installed	Adjustable: 0 to 4
	Low Ambient Enabled	Allows Low Ambient to be enabled/disabled	Adjustable: No/Yes
	Lead/Lag Equalize Cooling Stage Runtime Enabled	Sets if Lead/Lag functionality should be used for Compressor runtimes	Adjustable: No/Yes
	Hot Gas Bypass Present	Determines if Hot Gad Bypass is present in the system	Adjustable: No/Yes
	Heating Mode Enabled For Operation	Allows Heating Mode to be enabled for operation	Adjustable: No/Yes
	Heating Control Type	Sets the Heating Control Type	Adjustable: Heat Cool Type
	SAT Air Temp Limit for Heating Enabled	Allows option for SAT Air Temp Limit for Heating	Adjustable: No/Yes
	SAT Air Temp Limit For Heating Setpoint	Sets the SAT Air Temp Limit for Heating	Adjustable: 100 to 180°F
	Outdoor Air Temp Heating Cutout Setpoint	Sets the OAT Heating Cutout Setpoint	Adjustable: 0 to 100°F
	Air Proving Switch Setup	Sets the Air Proving Switch Setpoint	Adjustable: Fan Setup
	Dirty Filter Switch Installed	Determines if Dirty Filter Switch is installed	Adjustable: No/Yes
	Demand Ventilation Mode of Operation	Sets the Demand Ventilation Mode of Operation for the system	Adjustable: SE RTU DCV Mode
	Hot Gas Reheat Enabled For Operation	Determines in Hot Gas Reheat is enabled	Adjustable: No/Yes
	Morning Warmup Enabled	Determines if Morning Warmup is enabled	Adjustable: No/Yes
	Number of Heat Pump Stages Installed	Sets the number of Heat Pump Stages installed	Adjustable: 0 to 2
	Low Ambient Fan Pre-run Time For Cooling	Sets the Low Ambient Fan Pre-Run Time for Cooling	Adjustable: 0 s to 255 s
	PID Tuning Reset	Determines if the PID should be reset or not	Adjustable: False/True
	Low Ambient Start	Determines if Low Ambient should be set on start	Adjustable: No/Yes
	SZ VAV Enabled	Determines if SZ VAV is enabled	Adjustable: Off/On
	Network Occupancy Timeout Enable	Determines if Network Occupancy Timeout is enabled	Adjustable: Disable/Enable
	Network Occupancy Timeout Time	Sets the Network Occupancy Timeout Time	Adjustable: 5 to 60 minutes
	Pressurize Instead of Purge	Sets the option to Pressurize instead of purging the system	Adjustable: No/Yes
	Cooling Allowed During Heat Limit	Sets the option to Cool during Heat limit operation	Adjustable: No/Yes
	FDD Alarm Enable	Determines if FDD Alarm is Enabled	Adjustable: Disable/Enable
	Econ Sensor Fault Indications	Sets the Econ Sensor Fault Indications are present	Adjustable- Disable/Enable

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Commissioning: Network Setup	FC Comm Mode	Set to wired field bus. Wireless is in the future.	Read Only
	Address	The address of the controller. This address is Adjustable via the smart building hub and the display on the controller.	Adjustable: 4 to 127
	Device OID	The BACnet Device Object Identifier for the system bus. If on a standalone Verasys System this parameter is not used, but if connected to a 3rd party facility management system it sets the BACnet ID for the zone coordinator.	Adjustable: 0 to 4,194,302
	Baud Rate	The ability to set the baud rate. When set to auto the zone coordinator will set the baud rate for the controller.	Adjustable: MSTPDL Baud Rate
	Device Name	The name of the device. This name shows up on the device list.	Adjustable
	BACnet Encoding Type	The encoding type set the character set that the controller uses.	Adjustable: Legacy BACnet Encoding Type
Commissioning: Commissioning Mode	Commissioning Mode	Sets the controller into Commissioning Mode	Adjustable: Disable/ Enable
	Commissioning Time Remaining	The time remaining until Commissioning Mode ends	Read Only
	Extend Commissioning Time	Allows the user to extend Commissioning Mode	Adjustable: Disable/ Enable
	Unit Enable	Sets the Unit to Shutdown/Enable	Adjustable: Shutdown/ Enable
	Supply Fan Command	Sets the Fan to Off/On	Adjustable: Off/On
	Fan % Command	Adjusts Fan Speed to 0 to 100%	Adjustable: 0 to 100
	Compressor Stage Command 1	Turns On/Off Compressor Stage 1	Adjustable: Off/On
	Compressor Stage Command 2	Turns On/Off Compressor Stage 2	Adjustable: Off/On
	Compressor Stage Command 3	Turns On/Off Compressor Stage 3	Adjustable: Off/On
	Compressor Stage Command 4	Turns On/Off Compressor Stage 4	Adjustable: Off/On
	Condenser Fan 1	Turns On/Off Condenser Fan 1	Adjustable: Off/On
	Condenser Fan 2	Turns On/Off Condenser Fan 2	Adjustable: Off/On
	Heating Stage Command 1	Turns On/Off Heating Stage 1	Adjustable: Off/On
	Heating Stage Command 2	Turns On/Off Heating Stage 2	Adjustable: Off/On
	Heating Stage Command 3	Turns On/Off Heating Stage 3	Adjustable: Off/On
	Hot Gas Reheat (Binary)	Enables Hot Gas Reheat	Adjustable: Off/On
	Hot Gas Reheat (Analog)	Sets the Hot Gas Reheat percentage 0 to 100%	Adjustable: 0 to 100
	Hot Gas Reheat Bleed Valve Command	Sets the Hot Gas Reheat Bleed Valve Open/Close	Adjustable: Close/Open
	Economizer Damper % Command	Adjusts the Economizer Damper % Command	Adjustable: 0 to 100
	Exhaust Fan VFD % Command	Adjusts The Exhaust Fan VFD % Command	Adjustable: 0 to 100
	Exhaust Fan Command	Sets the Exhaust Fan Command Off/On	Adjustable: Off/On
	Exhaust Damper %	Adjusts the Exhaust Damper %	Adjustable: 0 to 100
	Cancel ASCD Timers	Clears any ASCD Timers to test the controller in a more time efficient manner	Adjustable: No/Yes

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Controller: Network	Device Name	The name of the device. This name shows up on the device list.	Adjustable
	Address	The address of the controller. This address is Adjustable via the smart building hub and the display on the controller.	Adjustable: 4 to 127
	Time Zone	The time zone the controller is using	Adjustable: SE RTU Time Zone
	Description	The description of the device. This description shows up on the device list.	Adjustable
	Communication Status	The status of the zone bus communication.	Read Only
	FC Comm Mode	Set to wired field bus. Wireless is in the future.	Read Only
	Operating Baud Rate	Shows the baud rate the controller is talking.	Read Only
	Baud Rate	The ability to set the baud rate. When set to auto the zone coordinator will set the baud rate for the controller.	Adjustable: MSTPDL Baud Rate
	Device OID	The BACnet Device Object Identifier for the system bus. If on a standalone Verasys System this parameter is not used, but if connected to a 3rd party facility management system it sets the BACnet ID for the zone coordinator.	Adjustable: 0 to 4,194,302
	Language	Sets the language the controller uses	Adjustable: SE RTU Languages
	Units	Sets the units the controller uses	Adjustable: Unit Set
	Number of Network Sensors Online	Indicates how many Network sensors are online	Read Only
	Relearn System	Relearns the sensors connected to the controller	Adjustable: Relearn
	BACnet Encoding Type	The encoding type set the character set that the controller uses.	Adjustable: Legacy BACnet Encoding Type
	Radio Code Version	This is the current radio code version	Read Only
	Active Channel	This is the active channel	Read Only
	Signal Strength	This is the signal strength of the connectivity	Read Only
	Connection Status	This is the status of the connection	Read Only
	Network State	This is the state of the network	Read Only
	Short Address	This is the short address for the control	Read Only
	Baud Rate	The ability to set the baud rate. When set to auto the zone coordinator will set the baud rate for the controller.	Adjustable: Baud Rate
	Parity	A parity bit, or check bit, is a bit added to a string of binary code to ensure that the total number of 1-bits in the string is even or odd. Parity bits are used as the simplest form of error detecting code.	Adjustable: Pager Parity
	Stop Bits	The stop bit is used to signal the end of a frame. The data is contained in the data bits and the parity bit is an extra bit that is often used to detect transmission errors	Adjustable: Stop bits
Controller: Firmware: UCB	Firmware Status	Indicates the status of the Firmware	Read Only
	Firmware Version	Indicates the firmware version of the controller.	Read Only
	Firmware Main Version	Indicates what firmware is in the controller	Read Only
	Application Version	Indicates the version of the application.	Read Only
	Hardware Version	Indicates the hardware version of the controller	Read Only
Controller: Firmware: Econ	Firmware Main Version	Indicates what firmware is in the controller	Read Only
	Application Version	Indicates the version of the application.	Read Only
	Hardware Version	Indicates the hardware version of the controller	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Controller: Firmware: 4 Stage	Firmware Main Version	Indicates what firmware is in the controller	Read Only
	Application Version	Indicates the version of the application.	Read Only
	Hardware Version	Indicates the hardware version of the controller	Read Only
Controller: Firmware: FDD Master	Firmware Main Version	Indicates what firmware is in the controller	Read Only
	Application Version	Indicates the version of the application.	Read Only
	Hardware Version	Indicates the hardware version of the controller	Read Only
Controller: Firmware: FDD Slave	Firmware Main Version	Indicates what firmware is in the controller	Read Only
	Application Version	Indicates the version of the application.	Read Only
	Hardware Version	Indicates the hardware version of the controller	Read Only
Controller: Network Inputs	Network Override Space Temperature	Overrides the Space Temperature per user request	Adjustable: 0 to 100°F
	Network Override Space Setpoint Offset	Overrides the Space Temperature Setpoint Offset per user request	Adjustable: -5 to 5 delta °F
	Network Override Zone Humidity	Overrides the Zone Humidity per user request	Adjustable: 0 to 100% RH
	Network Occupancy Request	Overrides the Occupancy Request per user request	Adjustable: Occ Sensor
	Network Temporary Occupancy Request	Overrides the Temporary Occupancy Request per user request	Adjustable: False/True
	Network Override Indoor Air Quality	Overrides the Indoor Air Quality per user request	Adjustable: 0 to 5,000 ppm
	Network Override Fan Request	Overrides the Fan Request per user Request	Adjustable: Off/On
	Network Override Outdoor Air Temperature	Overrides the Outdoor Air Temperature per user request	Adjustable: -50 to 125°F
	Network Override Outdoor Air Humidity	Overrides the Outdoor Air Humidity per user request	Adjustable: 0 to 100% RH
	Network Override Outdoor Air Quality	Overrides the Outdoor Air Quality per user request	Adjustable: 0 to 5,000 ppm
	Network Override Purge Command	Overrides the Purge Command per user request	Adjustable: False/True
	Direct Loadshed	Overrides the Direct Loadshed per user request	Adjustable: No/Yes
	Redline	Overrides the Redline per user request	Adjustable: No/Yes

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Controller: FDD	**Unit Type**	Selects the SE RTU equipment type for the FDD board.	Adjustable: SE RTU Equipment Type
	EER	Selects the energy efficient ration based on the system configuration	Adjustable: 0 to 20
	Subcooling Goal	Selects the subcooling temperature decrease	Adjustable: -10 to 20°F
	Refrigerant Type	Selects which refrigerant is being used in the system	Adjustable: SE RTU Refrigerant Type
	High Side Port Location	Selects where the High Side port is located	Adjustable: SE RTU High Side Port
	Evaporator Coil Type	Selects which types of evaporator coil is being used	Adjustable: Cooling Coil Type
	Condenser Coil Type	Selects which type of condenser coil is being used	Adjustable: Cooling Coil Type
	Indoor Metering Device Type	Selects which Indoor metering device is sensing the expansion valve	Adjustable: SE RTU Expansion Device
	Outdoor Metering Device Type	Select which Outdoor metering device is sensing the expansion valve	Adjustable: SE RTU Expansion Device
	Unit Capacity	Selects the Unit capacity based on the equipment configuration	Adjustable: 0 to 130 tons
	Fan Power	Selects the Fan power based on the equipment configuration	Adjustable: 0 to 19 kW
	Super Heat Goal	Selects the super heat temperature increase	Adjustable: 10 to 30°F
	Altitude	Selects the altitude in which the system is installed	Adjustable: -1,500 to 30,000 ft
Controller: Time	**Time**	The time setting that the controller is using	Read Only
	Date	The date that the controller is using	Read Only
	Time Zone	The time zone that the controller is using	Adjustable: SE RTU Time Zone
	Daylight Savings Enable	Enable or disables daylight savings time	Adjustable: No/Yes
	Time Format	This controls which format the time should be displayed	Adjustable: States
Controller: Description	**Rooftop Controller Type**	Indicates which type the Rooftop Controller is	Adjustable: LCCS Controller Type
	Rooftop Equipment Type	Indicates which equipment configuration the system is using	Adjustable: LCCS Equipment Type

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Occupancy Status	**Occupancy Mode**	Sets the Occupancy Mode that the controller will use	Adjustable: SE Occupancy Mode
	Occupancy Input	Indicates if the controller is occupied or unoccupied	Read Only
	Operational Occupancy	This output shows the current value of the Effective Occupancy. This allows the Setpoint Determination module to switch to the Standby mode setpoints.	Read Only
	Occupancy Input Source	Indicates the input source in which the controller is reading from	Read Only
	Temporary Occupancy Input	Allows the Temp Occ feature to be disabled. This only applies to a SE RTU that is not connected to a Verasys system. Some building owners do not want this feature.	Adjustable: Disable/ Enable
	Temporary Occupancy Timeout	The amount of time(secs) that the module will be in the Temp Occ (Bypass) mode.	Adjustable: 30 to 480 minutes
	Off During Unoccupied	Enables and disables heating and cooling during unoccupied.	Adjustable: No/Yes
	Optimal Start Enabled	Boolean input provides an indication that this module will use the information from the Optimal Start block as it determines the current Warm-Up or Cool-Down mode.	Adjustable: No/Yes
	Early Start Period	This is the early start period that is used when Occupancy BI Enable is true. It is also used to determine when to start if Optimal Start Enable is false.	Adjustable: 0 to 120 minutes
	Pre Occupancy Purge Enable	Control input to determine if the Differential CO2 mode is used.	Adjustable: Disable/ Enable
	Pre Occupancy Purge Time	This value is the amount of time (in minutes) prior to the system switching to occupied mode that the pre-occupancy purge sequence will run.	Adjustable: 1 to 120 minutes
	Pre Occupancy Purge Upper SAT Setpoint	This is the maximum value of the supply air temperature that the system will allow.	Adjustable: 80 to 100°F
	Pre Occupancy Purge Lower SAT Setpoint	This is the minimum value of the supply air temperature that the system will allow.	Adjustable: 35°F to 55°F

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Cooling: Setup	**Cooling Mode Enabled For Operation**	This allows cooling mode to be enabled or disabled.	Adjustable: No/Yes
	Number of Cooling Stages Installed	This is the number of cooling stages installed.	Adjustable: 1 to 4
	Number of Refrig Systems Installed	This is the number of refrigeration systems installed	Adjustable: 0 to 4
	CV Occupied Cooling Setpoint	This is the Control Volume Occupied Cooling Setpoint	Adjustable: 45 to 98°F
	CV Unoccupied Cooling Setpoint	This is the Control Volume Unoccupied Cooling Setpoint	Adjustable: 46 to 99°F
	SZ VAV Occupied Cooling Setpoint	This is the Single Zone Variable Air Volume Occupied Cooling Setpoint	Adjustable: 45 to 98°F
	SZ VAV Unoccupied Cooling Setpoint	This is the Single Zone Variable Air Volume unoccupied Cooling Setpoint	Adjustable: 45 to 98°F
	Common Setpoint	This is the common setpoint; available in common setpoint mode. This setpoint will not be in effect in the individual setpoint mode	Adjustable: 45 to 98°F
	Auto Changeover	Differential that is used to limit switching between heating and cooling (present when Heat Cool Setpoint Mode = Common Setpoint)	Adjustable: 2 to 5°F
	Heat Cool Setpoint Mode	This allows user to switch between single occupied setpoint and individual heating/cooling setpoint	Adjustable: Common Setpoint / Individual Setpoints
	Compressor Stage 1 Enabled	This is enabled if there is 1 stage of cooling in the system	Adjustable: Yes/No
	Compressor Stage 2 Enabled	This is enabled if there is 2 stages of cooling in the system	Adjustable: Yes/No
	Compressor Stage 3 Enabled	This is enabled if there is 3 stages of cooling in the system	Adjustable: Yes/No
	Compressor Stage 4 Enabled	This is enabled if there is 4 stages of cooling enabled	Adjustable: Yes/No
	Minimum Runtime for a Cooling Stage	This is the minimum runtime a cooling stage must be running before it will turn off. The cooling stage will continue to run even for this duration even if the cooling call is lost.	Adjustable: 3 to 10 minutes
	Cooling Adaptive Tuning Enable	This determines whether adaptive tuning is allowed to operate. When set to False, adaptive-tuning is disabled	Adjustable: No/Yes
	Low Ambient Enabled	Control input to determine if the Low ambient setpoint is used	Adjustable: No/Yes
	Low Ambient Cooling Stages 10 on 5 off Setpoint	This is the temperature that the Outdoor Air temperature (OAT) is compared with in order to detect the low ambient condition	Adjustable: 0 to 60°F
	Lead/Lag Equalize Cooling Stage Runtime Enabled	This input is used to determine if runtime/start count equalization functionality is being used. If enabled, resetting the stage from a direct thermostat signal is not possible.	Adjustable: No/Yes
	OAT Cooling Cutout Enabled	Specifies whether Cooling is locked out when free cooling is available.	Adjustable: No/Yes
	OAT Cooling Cutout	This is the value the outside air temperature must go below in order to lockout the cooling. ie change from False to True Note: True=Lockout Cooling, False=Enable Cooling	Adjustable: 0 to 100°F

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Cooling: Setup (continued)	SAT Limit for Cooling Enable	This input Indicates that SAT Cooling Limit control is determining the damper minimum position in the Damper Minimum Position Determination module.	Adjustable: No/Yes
	SAT Limit for Cooling Setpoint	This is the minimum value that the supply air temperature is allowed to assume.	Adjustable: 40 to 65°F
	Hot Gas Bypass Present	Determines if the Hot Gas Bypass stream is present in the system	Adjustable: No/Yes
	Freeze Condition Setpoint	Determines what temperature the freeze condition is at	Adjustable: 20 to 32°F
	Pump Out Enable	Determines if the pump out is enabled or disabled	Adjustable: Disable/ Enable
	Low Ambient Fan Pre-run Time For Cooling	Determines if the Low Ambient Fan Pre-run time. In cooling conditions and is in low ambient conditions, the fan will turn on before compressors begin	Adjustable: 0 s to 255 s
	Cooling Manual Tuning	Selects the range when Cooling manual tuning begins	Adjustable: 1 to 2.5 delta °F
	Low Ambient Start	Determines if Low Ambient should be set on start	Adjustable: No/Yes
	4 Pipe Split Enable	Determines if the system is set up in a 4 pipe split configuration	Adjustable: No/Yes
Details: Cooling: Service: Unit	Staged Cooling Command	Indicates the staged cooling command	Read Only
	CV Operating Cooling Setpoint	Indicates the calculated control volume operating cooling setpoint	Read Only
	SZ VAV Operating Cooling Setpoint	Indicates the SZ VAV operating cooling setpoint	Read Only
	Cooling Status	Indicates the status of the cooling control	Read Only
	Operational Outdoor Air Temperature	Indicates the calculated operating outdoor air temperature for cooling	Read Only
	Operational Space Temperature	Indicates the calculated operational space temperature for cooling	Read Only
	Return Air Temperature	Indicates the return air temperature	Read Only
	Econ Free Cooling Available	Indicates if economizer free cooling is available rooting from the outdoor conditions	Read Only
	Supply Air Temperature	Indicates the current supply air temperature being discharged from the duct	Read Only
	Y1 - Thermostat	Indicates the Y1 cooling call from the Thermostat	Read Only
	Y2 - Thermostat	Indicates the Y2 cooling call from the Thermostat	Read Only
	Y3 - Thermostat	Indicates the Y3 cooling call from the Thermostat	Read Only
	Y4 - Thermostat	Indicates the Y4 cooling call from the Thermostat	Read Only
	Condenser Fan 1	Indicates the status of Condenser Fan 1	Read Only
	Condenser Fan 2	Indicates the status of Condenser Fan 2	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Cooling: Service: Stage 1	Compressor Stage 1 Status	Indicates the status of compressor stage 1	Read Only
	Compressor Stage Command 1	Indicates the command of compressor stage 1	Read Only
	Min On Time Remaining 1	Indicates the remaining minimum runtime for the compressor. Once the timer expires, and cooling call is removed, the compressor may turn off.	Read Only
	Anti-Short Cycle Delay Time Remaining 1	Indicates the remaining anti-short cycle delay time.	Read Only
	Compressor Stage Accumulated Runtime 1	Indicates the accumulated runtime for compressor stage 1. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Efficiency Index 1	Indicates the current efficiency index rating based for cooling stage 1	Read Only
	Capacity Index 1	Indicates the capacity index for cooling stage 1	Read Only
	Condensing Temperature over Ambient 1	Indicates the condensing temperature during ambient conditions for stage 1	Read Only
	Evaporating Temperature Value Circuit 1	Indicates the evaporating temperature value in the refrigeration circuit for cooling stage 1	Read Only
	Cooling Circuit Test Status	The status of the cooling circuit test	Read Only
	Superheat	Indicates the Superheat temperature	Read Only
	Subcooling	Indicates the Subcooling temperature	Read Only
Details: Cooling: Service: Stage 2	Compressor Stage 2 Status	Indicates the status of compressor stage 2	Read Only
	Compressor Stage Command 2	Indicates the command of compressor stage 2	Read Only
	Min On Time Remaining 2	Indicates the remaining minimum runtime for the compressor. Once the timer expires, and cooling call is removed, the compressor may turn off.	Read Only
	Anti-Short Cycle Delay Time Remaining 2	Indicates the remaining anti-short cycle delay time.	Read Only
	Compressor Stage Accumulated Runtime 2	Indicates the accumulated runtime for compressor stage 2. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Efficiency Index 2	Indicates the current efficiency index rating based for cooling stage 2	Read Only
	Capacity Index 2	Indicates the capacity index for cooling stage 2	Read Only
	Condensing Temperature over Ambient 2	Indicates the condensing temperature during ambient conditions for stage 2	Read Only
	Evaporating Temperature Value Circuit 2	Indicates the evaporating temperature value in the refrigeration circuit for cooling stage 2	Read Only
	Cooling Circuit Test Status	The status of the cooling circuit test	Read Only
	Superheat	Indicates the Superheat temperature	Read Only
	Subcooling	Indicates the Subcooling temperature	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Cooling: Service: Stage 3	**Compressor Stage 3 Status**	Indicates the status of compressor stage 3	Read Only
	Compressor Stage Command 3	Indicates the command of compressor stage 3	Read Only
	Min On Time Remaining 3	Indicates the remaining minimum runtime for the compressor. Once the timer expires, and cooling call is removed, the compressor may turn off.	Read Only
	Anti-Short Cycle Delay Time Remaining 3	Indicates the remaining anti-short cycle delay time.	Read Only
	Compressor Stage Accumulated Runtime 3	Indicates the accumulated runtime for compressor stage 3. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Efficiency Index 3	Indicates the current efficiency index rating based for cooling stage 3	Read Only
	Capacity Index 3	Indicates the capacity index for cooling stage 3	Read Only
	Condensing Temperature over Ambient 3	Indicates the condensing temperature during ambient conditions for stage 3	Read Only
	Evaporating Temperature Value Circuit 3	Indicates the evaporating temperature value in the refrigeration circuit for cooling stage 3	Read Only
	Cooling Circuit Test Status	The status of the cooling circuit test	Read Only
	Superheat	Indicates the Superheat temperature	Read Only
	Subcooling	Indicates the Subcooling temperature	Read Only
Details: Cooling: Service: Stage 4	**Compressor Stage 4 Status**	Indicates the status of compressor stage 4	Read Only
	Compressor Stage Command 4	Indicates the command of compressor stage 4	Read Only
	Min On Time Remaining 4	Indicates the remaining minimum runtime for the compressor. Once the timer expires, and cooling call is removed, the compressor may turn off.	Read Only
	Anti-Short Cycle Delay Time Remaining 4	Indicates the remaining anti-short cycle delay time.	Read Only
	Compressor Stage Accumulated Runtime 4	Indicates the accumulated runtime for compressor stage 4. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Efficiency Index 4	Indicates the current efficiency index rating based for cooling stage 4	Read Only
	Capacity Index 4	Indicates the capacity index for cooling stage 4	Read Only
	Condensing Temperature over Ambient 4	Indicates the condensing temperature during ambient conditions for stage 4	Read Only
	Evaporating Temperature Value Circuit 4	Indicates the evaporating temperature value in the refrigeration circuit for cooling stage 4	Read Only
	Cooling Circuit Test Status	The status of the cooling circuit test	Read Only
	Superheat	Indicates the Superheat temperature	Read Only
	Subcooling	Indicates the Subcooling temperature	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Cooling: Sensors	**Evaporator Coil Temp 1**	The temperature reading for Evaporator Coil 1	Read Only
	Condenser Coil Temp 1	The temperature reading for Condenser Coil 1	Read Only
	Suction Pressure 1	The pressure reading in Suction Line 1	Read Only
	Liquid Pressure 1	The pressure reading in Liquid Line 1	Read Only
	Suction Temperature 1	The temperature reading in Suction Line 1	Read Only
	Liquid Temperature 1	The temperature reading in Suction Line 1	Read Only
	Evaporator Coil Temp 2	The temperature reading for Evaporator Coil 2	Read Only
	Condenser Coil Temp 2	The temperature reading for Condenser Coil 2	Read Only
	Suction Pressure 2	The pressure reading in Suction Line 2	Read Only
	Liquid Pressure 2	The pressure reading in Liquid Line 2	Read Only
	Suction Temperature 2	The temperature reading in Suction Line 2	Read Only
	Liquid Temperature 2	The temperature reading in Suction Line 2	Read Only
	Evaporator Coil Temp 3	The temperature reading for Evaporator Coil 3	Read Only
	Condenser Coil Temp 3	The temperature reading for Condenser Coil 3	Read Only
	Suction Pressure 3	The pressure reading in Suction Line 3	Read Only
	Liquid Pressure 3	The pressure reading in Liquid Line 3	Read Only
	Suction Temperature 3	The temperature reading in Suction Line 3	Read Only
	Liquid Temperature 3	The temperature reading in Suction Line 3	Read Only
	Evaporator Coil Temp 4	The temperature reading for Evaporator Coil 4	Read Only
	Condenser Coil Temp 4	The temperature reading for Condenser Coil 4	Read Only
	Suction Pressure 4	The pressure reading in Suction Line 4	Read Only
	Liquid Pressure 4	The pressure reading in Liquid Line 4	Read Only
	Suction Temperature 4	The temperature reading in Suction Line 4	Read Only
	Liquid Temperature 4	The temperature reading in Suction Line 4	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Cooling: Safeties	High Pressure Limit 1	This is the High Pressure Alarm No. 1 input from the High Pressure Event Primitive.	Read Only
	High Pressure Lockout 1	If High Pressure Limit 1 is tripped enough times, High Pressure Lockout 1 will take effect.	Read Only
	Low Pressure Limit 1	This is the Low Pressure Alarm No. 1 input from the Low Pressure Event Primitive.	Read Only
	Low Pressure Lockout 1	If the Low Pressure Limit 1 is tripped enough times, Low Pressure Lockout 1 will take effect.	Read Only
	Freeze Condition 1	This is the Freeze condition for evaporator coil 1. If the temperature goes below this, it will trigger an alarm.	Read Only
	Freeze Condition Lockout 1	If the Freeze Condition 1 is tripped enough times, the Freeze Condition Lockout 1 will take effect.	Read Only
	High Pressure Limit 2	This is the High Pressure Alarm No. 2 input from the High Pressure Event Primitive.	Read Only
	High Pressure Lockout 2	If High Pressure Limit 2 is tripped enough times, High Pressure Lockout 2 will take effect.	Read Only
	Low Pressure Limit 2	This is the Low Pressure Alarm No. 2 input from the Low Pressure Event Primitive.	Read Only
	Low Pressure Lockout 2	If the Low Pressure Limit 2 is tripped enough times, Low Pressure Lockout 2 will take effect.	Read Only
	Freeze Condition 2	This is the Freeze condition for evaporator coil 2. If the temperature goes below this, it will trigger an alarm.	Read Only
	Freeze Condition Lockout 2	If the Freeze Condition 2 is tripped enough times, the Freeze Condition Lockout 2 will take effect.	Read Only
	High Pressure Limit 3	This is the High Pressure Alarm No. 3 input from the High Pressure Event Primitive.	Read Only
	High Pressure Lockout 3	If High Pressure Limit 3 is tripped enough times, High Pressure Lockout 3 will take effect.	Read Only
	Low Pressure Limit 3	This is the Low Pressure Alarm No. 3 input from the Low Pressure Event Primitive.	Read Only
	Low Pressure Lockout 3	If the Low Pressure Limit 3 is tripped enough times, Low Pressure Lockout 3 will take effect.	Read Only
	Freeze Condition 3	This is the Freeze condition for evaporator coil 3. If the temperature goes below this, it will trigger an alarm.	Read Only
	Freeze Condition Lockout 3	If the Freeze Condition 3 is tripped enough times, the Freeze Condition Lockout 3 will take effect.	Read Only
	High Pressure Limit 4	This is the High Pressure Alarm No. 4 input from the High Pressure Event Primitive.	Read Only
	High Pressure Lockout 4	If High Pressure Limit 4 is tripped enough times, High Pressure Lockout 4 will take effect.	Read Only
	Low Pressure Limit 4	This is the Low Pressure Alarm No. 4 input from the Low Pressure Event Primitive.	Read Only
	Low Pressure Lockout 4	If the Low Pressure Limit 4 is tripped enough times, Low Pressure Lockout 4 will take effect.	Read Only
	Freeze Condition 4	This is the Freeze condition for evaporator coil 4. If the temperature goes below this, it will trigger an alarm.	Read Only
	Freeze Condition Lockout 4	If the Freeze Condition 4 is tripped enough times, the Freeze Condition Lockout 4 will take effect.	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Cooling: Misc	**Maximum Temperature / Humidity Setpoint Offset**	This is the maximum temperature humidity setpoint offset.	Adjustable: 0 to 5 delta °F
	Temperature/Humidity Setpoint	This input defines the dehumidification set point during the Occupied mode.	Adjustable: 20 to 80% RH
	Temperature/Humidity (Return) Control Enable	This enables the return temperature/humidity control.	Adjustable: No/Yes
	Operational Space Humidity	This is the present value of the operational space humidity.	Read Only
	CV Occupied Cooling Setpoint	The Occupied Cooling Setpoint	Adjustable: 45 to 98°F
	CV Operating Cooling Setpoint	The operating cooling setpoint used by the controller. Operating setpoints are calculated setpoints to make the system more efficient	Read Only
	SZ VAV Occupied Cooling Setpoint	The Single Zone Variable Air Volume occupied setpoint used by the controller	Adjustable: 45 to 98°F
	SZ VAV Operating Cooling Setpoint	The Single Zone Variable Air Volume operating setpoint used by the controller. Operating setpoints are calculated setpoints to make the system more efficient	Read Only
	Common Setpoint	The common setpoint is used when the control is in Common Setpoint mode. This setpoint controls both heating and cooling	Adjustable: 45 to 98°F
	Auto Changeover	Differential that is used to limit switching between heating and cooling (present when Heat Cool Setpoint Mode = Common Setpoint)	Adjustable: 2 to 5°F
	Temperature / Humidity Value per Degree Offset	The humidity per degree offset to compensate for uncomfortable dry or wet conditions	Adjustable: 1 to 10% RH

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Heating: Setup	Heating Mode Enabled For Operation	Enables heating mode for operation. If No, the heating mode still be disabled	Adjustable: No/Yes
	Number of Heating Stages Installed	The number of heating stages installed. The maximum allowable stages is 3.	Adjustable: 0 to 3
	Heating Control Type	Determines the Heating control type for the system	Adjustable: Heat Cool Type
	CV Occupied Heating Setpoint	The occupied heating setpoint when configured to individual setpoint mode	Adjustable: 46 to 99°F
	CV Unoccupied Heating Setpoint	The unoccupied setpoint when configured to individual setpoint mode	Adjustable: 45 to 98°F
	VAV Occupied Heating Setpoint	The Variable Air Volume occupied heating setpoint	Adjustable: 46 to 99°F
	VAV Unoccupied Heating Setpoint	The Variable Air Volume unoccupied heating setpoint	Adjustable: 45 to 98°F
	SZ VAV Occupied Heating Setpoint	The Single Zone Variable Air Volume occupied heating setpoint in individual setpoint mode	Adjustable: 46 to 99°F
	SZ VAV Unoccupied Heating Setpoint	The Single Zone Variable Air Volume unoccupied heating setpoint in individual setpoint mode	Adjustable: 45 to 98°F
	Common Setpoint	The common setpoint is used when the control is in Common Setpoint mode. This setpoint controls both heating and cooling	Adjustable: 45 to 98°F
	Auto Changeover	Differential that is used to limit switching between heating and cooling (present when Heat Cool Setpoint Mode = Common Setpoint)	Adjustable: 2 to 5°F
	Heat Cool Setpoint Mode	This allows user to switch between single occupied setpoint and individual heating/cooling setpoint	Adjustable: Common Setpoint / Individual Setpoints
	Heating Adaptive Tuning Enable	This allows adaptive tuning to be enabled for heating control	Adjustable: No/Yes
	SAT Air Temp Limit for Heating Enabled	This allowing the maximum supply air temperature limit to be set	Adjustable: No/Yes
	SAT Air Temp Limit For Heating Setpoint	The supply air temperature limit for heating. This is the maximum the heating setpoint can be set to	Adjustable: 100 to 180°F
	Outdoor Air Temp Heating Cutout Setpoint	The outdoor air temp heating cutout setpoint determines when the damper should be open/closed.	Adjustable: 0 to 100°F
	Number of Gas Valves Installed	Configured to the system to determine how many gas valves are installed. The maximum number of gas valves this control supports is 3.	Adjustable: 0 to 3
	Number of Limit Switches	Configured to the system to determine how many limit switches are installed.	Read Only
	Low Limit Enable	Allows Low limit control to be enabled/disabled	Adjustable: Disable/Enable
	Low Limit Upper SAT Setpoint	This is the low limit upper supply air temperature setpoint	Adjustable: 65 to 85°F
	Low Limit Lower SAT Setpoint	This is the low limit lower supply air temperature setpoint.	Adjustable: 60 to 80°F
	Heating Manual Tuning	Allows the range for manual tuning to be set in heating setup.	Adjustable: 1 to 2.5 delta °F
	Cooling Allowed During Heat Limit	Enables cooling allowed while control is in heating limit	Adjustable: Off/On

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Heating: Service	Staged Heating Command	Indicates the staged heating command	Read Only
	CV Operating Heating Setpoint	The control volume calculated operating setpoint	Read Only
	SZ VAV Operating Heating Setpoint	The single zone variable air volume calculated operating setpoint	Read Only
	VAV Operating Heating Setpoint	the variable air volume calculated operating heating setpoint	Read Only
	Heating Status	The current status of the heating control	Read Only
	Operational Outdoor Air Temperature	The current operational outdoor air temperature	Read Only
	Operational Space Temperature	The current operational space temperature	Read Only
	Return Air Temperature	The current return air temperature	Read Only
	W1 - Thermostat	Indicates the W1 heating call from the thermostat	Read Only
	W2 - Thermostat	Indicates the W2 heating call from the thermostat	Read Only
	W3 - Thermostat	Indicates the W3 heating call from the thermostat	Read Only
	G - Thermostat	Indicates the G fan call from the thermostat	Read Only
	Heating Stage 1 Status	The current status of heating stage 1	Read Only
	Heating Stage Command 1	The current command of heating stage 1	Read Only
	Heating Stage 1 Min On Time Remaining	The remaining minimum on time for heating stage 1. Once expired, heating is allowed to turn off.	Read Only
	Heating Stage 1 Anti-Short Cycle Delay Time Remaining	The time remaining on the Anti-Short-Cycle-Delay (ASCD) for heating stage 1	Read Only
	Heating Stage 1 Accumulated Runtime	The accumulated runtime for heating stage 1	Adjustable: 0 to 10,000 hours
	Heating Stage Command 2	The current command of heating stage 2	Read Only
	Heating Stage 2 Status	The current status of heating stage 2	Read Only
	Heating Stage 2 Min On Time Remaining	The remaining minimum on time for heating stage 2. Once expired, heating is allowed to turn off.	Read Only
	Heating Stage 2 Anti-Short Cycle Delay Time Remaining	The time remaining on the Anti-Short-Cycle-Delay (ASCD) for heating stage 2	Read Only
	Heating Stage 2 Accumulated Runtime	The accumulated runtime for heating stage 2	Adjustable: 0 to 10,000 hours
	Heating Stage Command 3	The current command of heating stage 3	Read Only
	Heating Stage 3 Status	The current status of heating stage 3	Read Only
	Heating Stage 3 Min On Time Remaining	The remaining minimum on time for heating stage 3. Once expired, heating is allowed to turn off.	Read Only
	Heating Stage 3 Anti-Short Cycle Delay Time Remaining	The time remaining on the Anti-Short-Cycle-Delay (ASCD) for heating stage 3	Read Only
	Heating Stage 3 Accumulated Runtime	The accumulated runtime for heating stage 3	Adjustable: 0 to 10,000 hours

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Heating: Safeties	Heat Limit1 Switch	This is the first limit switch. If triggered, the fan will turn on	Read Only
	Heat Limit1 Switch Lockout	If the first limit switch is triggered enough, the heat limit switch lockout will turn on and lock the fan on	Read Only
	Heat Limit2 Switch	This is the second limit switch. If triggered, the fan will turn on	Read Only
	Heat Limit2 Switch Lockout	If the second limit switch is triggered enough, the heat limit switch lockout will turn on and lock the fan on	Read Only
	Heat Limit3 Switch	This is the third limit switch. If triggered, the fan will turn on	Read Only
	Heat Limit3 Switch Lockout	If the third limit switch is triggered enough, the heat limit switch lockout will turn on and lock the fan on	Read Only
	Gas Valve1 Input	Indicates that the first gas valve is open/closed	Read Only
	Gas Valve2 Input	Indicates that the second gas valve is open/closed	Read Only
	Gas Valve3 Input	Indicates that the third gas valve is open/closed	Read Only
Details: Heating: Proportional: Setup	Hydronic Heating Stage #1 Supply Air Setpoint	This is the supply air setpoint for the first stage of hydronic heating. These setpoints are traditionally higher because they must radiate their heat through a medium.	Adjustable: 80 to 180°F
	Hydronic Heating Stage #2 Supply Air Setpoint	This is the supply air setpoint for the second stage of hydronic heating. These setpoints are traditionally higher because they must radiate their heat through a medium.	Adjustable: 80 to 180°F
	Hydronic Heat SAT Tempering Enabled	Allows Hydronic supply air temperature to be enabled	Adjustable: No/Yes
	Hydronic Heat SAT Tempering Setpoint	Determines the hydronic heating supply air temperature setpoint	Adjustable: 40 to 60°F
	Hydronic Heat Valve Reverse Acting	Allows the hydronic heating valve to enable the reverse acting functionality	Adjustable: No/Yes
Details: Heating: Proportional: Service	CV Occupied Heating Setpoint	The control volume occupied heating setpoint	Adjustable: 46 to 99°F
	CV Unoccupied Heating Setpoint	The control volume unoccupied heating setpoint	Adjustable: 45 to 98°F
	CV Operating Heating Setpoint	The control volume calculated operating heating setpoint	Read Only
	VAV Operating Heating Setpoint	the variable air volume calculated operating heating setpoint	Read Only
	SZ VAV Operating Setpoint	The single zone variable air volume calculated operating setpoint	Read Only
	Operational Space Temperature	The present value of the operational space temperature	Read Only
	Supply Air Temperature	The present value of the supply air temperature	Read Only
	W1 - Thermostat	Indicates the W1 heating call from the thermostat	Read Only
	W2 - Thermostat	Indicates the W2 heating call from the thermostat	Read Only
	Hydronic Heat Valve % Command	The % command for the hydronic heating valve	Read Only
	Hydronic Heat Valve Reverse Acting	Determines if the hydronic heat valve is reverse acting or not	Adjustable: No/Yes
	Hot Water Freeze Stat	Indicates if the hot water line is experiencing frost on it. Usually occurs when hydronic heat is idle for longer durations in low ambient conditions	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Indoor Fan: Setup	Fan Control Type	Determines the fan control type that the system uses	Adjustable: SE RTU Fan Control Type
	Continuous Fan Operation in Occupied Mode	Allows fan to run continuously during occupied state	Adjustable: Yes/No
	Fan On Delay for Heat	Determines the Fan On Delay when heating is called	Adjustable: 0 to 30 seconds
	Fan Off Delay for Heat	Determines the Fan Off Delay when heating is removed	Adjustable: 0 s to 255 s
	Turn Off Continuous Fan Operation When Starting Heat	Allows continuous fan mode to be turned off during heating mode	Adjustable: Yes/No
	Fan On Delay for Cool	Determines the Fan On Delay when cooling is called	Adjustable: 0 to 30 seconds
	Fan Off Delay for Cool	Determines the Fan Off Delay when cooling is removed	Adjustable: 0 s to 255 s
	Occupied: No Heat or Cool % Command	Indicates the occupied no heat/cool fan percent command for the indoor	Adjustable: 0 to 100%
	Occupied: One Stage of Cool % Command	Indicates the occupied first stage of cooling fan percent command for the indoor fan	Adjustable: 0 to 100%
	Occupied: Two Stage of Cool % Command	Indicates the occupied second stage of cooling fan percent command for the indoor fan	Adjustable: 0 to 100%
	Occupied: Three Stage of Cool % Command	Indicates the occupied third stage of cooling fan percent command for the indoor fan	Adjustable: 0 to 100%
	Occupied: Four Stage of Cool % Command	Indicates the occupied fourth stage of cooling fan percent command for the indoor fan	Adjustable: 0 to 100%
	Occupied: One Stage of Heat % Command	Indicates the occupied first stage of heating fan percent command for the indoor fan	Adjustable: 0 to 100%
	Occupied: Two Stage of Heat % Command	Indicates the occupied second stage of heating fan percent command for the indoor fan	Adjustable: 0 to 100%
	Occupied: Three Stage of Heat % Command	Indicates the occupied third stage of heating fan percent command for the indoor fan	Adjustable: 0 to 100%
	Dehumidification % Command	Indicates the fan percent command during dehumidification for the indoor fan	Adjustable: 0 to 100%
	Low Ambient Fan Pre-run Time For Cooling	Indicates how long the fan will blow in low ambient conditions before cooling starts up. This strategy blows the ambient cool air through the system before engaging the compressors	Adjustable: 0 s to 255 s
	Air Proving Switch Setup	Indicates if the air proving switch is set up for the indoor fan	Adjustable: Fan Setup
	Dirty Filter Switch	Indicates if the indoor fan filter is dirty or not. If dirty, it may be time to change the filter	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Indoor Fan: Service	G - Thermostat	Indicates the G fan call from the thermostat	Read Only
	Fan Status	Indicates the current status of the indoor fan	Read Only
	Fan Command	Indicates the current fan percent command for the indoor fan	Read Only
	Fan Accumulated Runtime	Indicates how long the fan has been running. This value is adjustable; however should not be changed unless a software update requires it	Adjustable: 0 to 10,000 hours
	Operating Fan Request	Indicates the calculated operating fan request for the indoor fan	Read Only
	Fan Request Source	Indicates where the fan request is coming from. This could be from the user or controller.	Read Only
	Air Proving Switch	Indicates the status of the air proving switch for the indoor fan	Read Only
	Fan Overload	Indicates if the fan load exceeded the maximum percent.	Read Only
	Fan VFD Fault	Indicates if the Variable Frequency Drive indoor fan is in fault or not	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Economizer: Setup	Economizer Enabled For Operation	Determines if the installed economizer is installed or not. If an economizer is not installed, this should be set to no	Adjustable: No/Yes
	Economizer Minimum Position Setpoint	Determines the economizer minimum position setpoint	Adjustable: 0 to 100%
	Economizer Damper Minimum Position Low Speed Fan	Determines the economizer minimum position when the fan is running at low speed	Adjustable: 0 to 100%
	Low Ambient Economizer Minimum Position	Determines the economizer minimum position in low ambient conditions	Adjustable: 0 to 100%
	Low Ambient Economizer Setpoint	Determines when the economizer should be enabled/disabled in low ambient conditions	Adjustable: 0 to 60°F
	Free Cooling Selection	Determines the economizer type that has been installed. Single Temperature, Single Enthalpy, Dual Enthalpy and Auto are the types of support economizers	Adjustable: Economizer Type
	Free Cooling Current Mode	The current free cooling status	Read Only
	All Compressors Off in Free Cooling	Determines if all compressors should be off in free cooling mode. This allows the system to only use the outdoor air damper to cool the system in free cooling mode	Adjustable: No/Yes
	Economizer Outdoor Air Temp Enable Setpoint	Determines the setpoint for when the economizer should be enabled.	Adjustable: 40 to 80°F
	Economizer Outdoor Air Enthalpy Setpoint	Determines the outdoor air enthalpy setpoint for when the economizer should be enabled.	Adjustable: 10 to 50 Btu/lb dry air
	Demand Ventilation Mode of Operation	Determines the mode for when the economizer should be enabled. This allows the economizer to open/close based on IAQ and OAQ	Adjustable: SE RTU DCV Mode
	Demand Ventilation Maximum Economizer Position	Determines the maximum position for the economizer when it receives a ventilation request	Adjustable: 0 to 100%
	Demand Ventilation Indoor Air Quality Setpoint	Determines the indoor air quality setpoint for when the economizer should begin ventilation	Adjustable: 0 to 5,000 ppm
	Demand Ventilation Differential Setpoint	Determines when the economizer should begin ventilation based on indoor and outdoor air quality differential	Adjustable: 0 to 5,000 ppm
	Indoor Air Quality Sensor Range	Determines the Indoor air quality sensor range	Adjustable: 0 to 5,000 ppm
	Outdoor Air Quality Sensor Range	Determines the outdoor air quality sensor range	Adjustable: 0 to 5,000 ppm
	Economizer Loading Enabled	Determines if the economizer should adjusted based indoor desired setpoint and outdoor air temperature	Adjustable: No/Yes
	Fresh Air Intake Setpoint	Determines how much air should be taken in when receiving a ventilation request	Adjustable: 0 to 50000 cfm
	Fresh Air Intake Max Sensor Range	Determines the maximum sensor range for the air velocity	Adjustable: 0 to 50,000 cfm
	EconMech Setup	Determines if economizer + mechanical cooling is setup	Adjustable: SE RTU EconMech Setup
	Economizer Fault Detection Enable	Determines if the economizer fault detection sensor is enabled	Adjustable: Disable/ Enable
	Calibration Fault Detect Enable	Determines if the calibration fault detection sensor is enabled.	Adjustable: Disable/ Enable

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Economizer: Service	Cooling Status	Indicates the current cooling status	Read Only
	Economizer Status	Indicates the current economizer status	Read Only
	Econ Free Cooling Available	Indicates if free cooling is available	Read Only
	Economizer Damper % Command	Indicates the economizer damper percent command	Read Only
	Supply Air Temperature	Indicates the supply air temperature of the economizer	Read Only
	Operational Outdoor Air Temperature	Indicates the operational outdoor air temperature	Read Only
	Outdoor Air Enthalpy	Indicates the outdoor air enthalpy	Read Only
	Return Air Enthalpy	Indicates the return air enthalpy	Read Only
	Operational Indoor Air Quality	Indicates the operational indoor air quality	Read Only
	Operational Outdoor Air Quality	Indicates the operational outdoor air quality	Read Only
	Fresh Air Intake Value	Indicates the amount of fresh air coming into the system	Read Only
	Economizer Damper Position	Indicates the damper position of the economizer	Read Only
	FDD Economizer Alarm Delay	Determines the FDD economizer alarm delay	Adjustable: 0 to 3,600 seconds
	FDD Economizer Damper Allowed Error	Determines the allowable error for the economizer	Adjustable: 0 to 100%
	FDD Damper Min Position Tolerance	Determines the damper min position tolerance	Adjustable: 0 to 100%
Details: Demand Ventilation	Economizer Enabled For Operation	Determines if the economizer is enabled for ventilation	Adjustable: No/Yes
	Demand Ventilation Mode of Operation	Determines the demand ventilation mode of operation	Adjustable: SE RTU DCV Mode
	Demand Ventilation Maximum Economizer Position	Determines the maximum economizer position during demand ventilation	Adjustable: 0 to 100%
	Demand Ventilation Indoor Air Quality Setpoint	Determines the IAQ setpoint for demand ventilation	Adjustable: 0 to 5,000 ppm
	Demand Ventilation Differential Setpoint	Determines the Air quality differential setpoint for demand ventilation	Adjustable: 0 to 5,000 ppm
	Indoor Air Quality Sensor Range	Determines the IAQ sensor range for Demand Ventilation	Adjustable: 0 to 5,000 ppm
	Outdoor Air Quality Sensor Range	Determines the OAQ sensor range for demand ventilation	Adjustable: 0 to 5,000 ppm
	Operational Indoor Air Quality	Indicates the current operational IAQ	Read Only
	Operational Outdoor Air Quality	Indicates the current operational OAQ	Read Only
	Economizer Damper Position	Indicates the current economizer damper position	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Air Monitor Station	Economizer Enabled For Operation	Determines if the economizer is enabled for air monitor station	Adjustable: No/Yes
	Fresh Air Intake Enable	Determines if the economizer is available to intake fresh air	Adjustable: Disable/ Enable
	Fresh Air Intake Setpoint	Determines how much air should be taken in at the air monitor station	Adjustable: 0 to 50,000 cfm
	Fresh Air Intake Max Sensor Range	Determines the maximum cfm that should be taken in at the air monitor station	Adjustable: 0 to 50,000 cfm
	Fresh Air Intake Value	Indicates the current CFM that the economizer is taking in	Read Only
	Economizer Damper Position	Indicates the current damper position of the economizer	Read Only
	Fresh Air Range	Determines the cfm range for fresh air to be taken in	Adjustable: 0 to 5,000 cfm
Details: Power Exhaust: Setup	Exhaust Type	Determines the exhaust type used in the Power exhaust configuration	Adjustable: SE RTU Exhaust Setup
	Economizer Damper Position for Exhaust Fan to Turn On	Determines the economizer damper position that allows the exhaust fan to turn on	Adjustable: 20 to 99%
	Economizer Damper Position for Exhaust Fan to Turn Off	Determines the economizer damper position that turns off the exhaust fan	Adjustable: 10 to 89%
	Exhaust Damper Position for Exhaust Fan to Turn On	Determines the damper position that allows the exhaust fan to turn on	Adjustable: 20 to 99%
	Exhaust Damper Position for Exhaust Fan to Turn Off	Determines the damper position that turns off the exhaust fan	Adjustable: 10 to 89%
	Building Pressure Setpoint	Determines the Building pressure setpoint to be used by the power exhaust configuration	Adjustable: -0.25 to 0.25 in wc
	Duct Static Pressure	Indicates the current duct static pressure	Read Only
Details: Power Exhaust: Service	Exhaust Fan Status	Indicates the current exhaust fan status	Read Only
	Exhaust Fan Command	Indicates the exhaust fan percent command	Read Only
	Building Static Pressure	Indicates the building static pressure	Read Only
	Exhaust Damper % Command	Indicates how far exhaust damper is open	Read Only
	Exhaust Fan VFD % Command	Indicates how fast the exhaust fan vfd is running	Read Only
	Exhaust Fan Accumulated Runtime	Indicates how long the exhaust fan has been running	Read Only
	Exhaust Fan VFD Fault	Indicates if the exhaust fan is experiencing a VFD fault	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: FanVFD: Setup	**Fan Control Type**	Determines the Fan control type	Adjustable: SE RTU Fan Control Type
	Duct Pressure Setpoint	Determines the Duct Pressure setpoint	Adjustable: 0 to 5 in wc
	Duct Pressure Shutdown Setpoint	Determines the duct pressure shutdown setpoint. The fan will shutdown if this setpoint is hit.	Adjustable: 0 to 5 in wc
	VAV Cooling Supply Air Temp Upper Setpoint	Determines the upper VAV cooling SAT setpoint	Adjustable: 41 to 70°F
	VAV Cooling Supply Air Temp Lower Setpoint	Determines the lower VAV cooling setpoint	Adjustable: 40 to 69°F
	VAV Supply Air Temp Reset Setpoint	Determines the SAT setpoint after reset	Adjustable: 40 to 85°F
	VAV Unoccupied Cooling Setpoint	Determines the unoccupied VAV cooling setpoint	Adjustable: 46 to 99°F
	Morning Warmup Enabled	Determines if the morning warmup algorithm should be enabled	Adjustable: No/Yes
	Morning Warmup/Return Air Temp Setpoint	If enabled, determines the warmup and return air temperature setpoints	Adjustable: 50 to 85°F
	VAV Occupied Heating Enabled	Determines if VAV heating during occupied should be enabled	Adjustable: No/Yes
	VAV Occupied Heating Setpoint	If enabled, determines the VAV occupied heating setpoint	Adjustable: 40 to 85°F
	Unoccupied Heating Enabled	Determines if VAV heating during unoccupied is enabled	Adjustable: No/Yes
	VAV Unoccupied Heating Setpoint	If enabled, determines the VAV occupied heating setpoint	Adjustable: 45 to 98°F
	Morning Cooldown Enabled	Determines if morning cooldown is enabled	Adjustable: No/Yes
	Morning Cooldown/Return Air Temp Setpoint	If enabled, determines the morning cooldown/ return air temp setpoints	Adjustable: 50 to 85°F
	Optimal Start Enabled	Determines if optimal start is enabled	Adjustable: No/Yes
	Early Start Period	Determines how early the optimal start should begin before occupancy	Adjustable: 0 to 120 minutes
	Discharge Air Static Pressure Minimum	Determines the minimum discharge air static pressure	Adjustable: 0.01 to 1 in. wc.
	Discharge Air Static Pressure Alarm Delay	Determines how long it will take for the alarm to trigger once it has been sensed	Adjustable: 0 to 600 seconds
	COBP Occupied Heating Enabled	Determines if COBP occupied heating is enabled	Adjustable: No/Yes

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: FanVFD: Service	**Fan % Command**	Indicates the current Fan % command for the VFD fan	Read Only
	Duct Static Pressure	Indicates the current duct static pressure	Read Only
	Duct Pressure Setpoint	Determines the duct pressure setpoint	Adjustable: 0 to 5 in wc
	VAV Operating Cooling Supply Air Temp Setpoint	Indicates the VAV Operating cooling SAT SP	Read Only
	Supply Air Temperature	Indicates the current SAT	Read Only
	Staged Cooling Command	Indicates the current staged cooling command	Read Only
	Cooling Status	Indicates the current status of cooling operation	Read Only
	Econ Free Cooling Available	Indicates if the economizer free cooling is available	Read Only
	Compressor Stage Command 1	Indicates the current command for Compressor Stage 1	Read Only
	Compressor Stage Command 2	Indicates the current command for Compressor Stage 2	Read Only
	Compressor Stage Command 3	Indicates the current command for Compressor Stage 3	Read Only
	Compressor Stage Command 4	Indicates the current command for f Compressor Stage 4	Read Only
	VAV Operating Heating Setpoint	Indicates the current VAV operating heating setpoint	Read Only
	Staged Heating Command	Indicates the current staged heating command	Read Only
	Operational Space Temperature	Indicates the calculated operational space temperature	Read Only
	Heating Status	Displays the current status of heating operation	Read Only
	Heating Stage Command 1	Indicates the current command for Heating Stage 1	Read Only
	Heating Stage Command 2	Indicates the current command for Heating Stage 2	Read Only
	Heating Stage Command 3	Indicates the current command for Heating Stage 3	Read Only
	VAV Box Heat Command	Indicates the heat command of the VAV box. This value will indicate if the VAV box is being used to heat the space	Read Only
Details: Single Zone VAV: Setup	**SZ VAV Enabled**	Determines if Single Zone VAV is installed and enabled	Adjustable: Off/On
	SZ VAV Minimum Fan Speed	Determines the minimum fan speed for the SZ VAV	Adjustable: 0 to 100%
	SZ VAV Occupied Cooling Setpoint	Determines the occupied cooling setpoint for the SZ VAV	Adjustable: 45 to 98°F
	SZ VAV Unoccupied Cooling Setpoint	Determines the unoccupied cooling setpoint for SZ VAV	Adjustable: 45 to 98°F
	VAV Occupied Heating Setpoint	Determines the Occupied Heating Setpoint for the VAV	Adjustable: 40 to 85°F
	VAV Unoccupied Heating Setpoint	Determines the unoccupied heating setpoint for the VAV	Adjustable: 45 to 98°F
	DAT Max Heating SP	Determines the maximum allowable heating setpoint for the discharge air temperature	Adjustable: 80 to 110°F
	DAT Satisfied SP	Determines the satisfied setpoint discharge air temperature setpoint	Adjustable: 65 to 75°F
	VAV Cooling Supply Air Temp Upper Setpoint	Determines the Upper cooling SAT setpoint for the VAV	Adjustable: 41 to 70°F
	VAV Cooling Supply Air Temp Lower Setpoint	Determines the Lower cooling SAT setpoint for the VAV	Adjustable: 40 to 69°F

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Single Zone VAV: Service	**SZ VAV Operating Cooling Setpoint**	Indicates the calculated operational cooling setpoint for SZ VAV	Read Only
	SZ VAV Cooling Load	Indicates the current cooling load for SZ VAV	Read Only
	SZ VAV Heating Load	Indicates the current heating load for SZ VAV	Read Only
	Operational Space Temperature	Indicates the calculated operational space temperature in the zone in which the SZ VAV is feeding into	Read Only
	Supply Air Temperature	Indicates the current SAT for the SZ VAV	Read Only
	Fan % Command	Indicates the current fan % command in the VAV box.	Read Only
	Economizer Damper % Command	Indicates the current economizer damper position for the VAV box	Read Only
	Compressor Stage Command 1	Indicates the current command for Compressor Stage 1	Read Only
	Compressor Stage Command 2	Indicates the current command for Compressor Stage 2	Read Only
	Compressor Stage Command 3	Indicates the current command for Compressor Stage 3	Read Only
	Compressor Stage Command 4	Indicates the current command for f Compressor Stage 4	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Hot Gas Reheat: Setup	Hot Gas Reheat Enabled For Operation	Determines if Hot Gas Reheat is installed and enabled	Adjustable: No/Yes
	Dehumidify In Satisfied	Displays if the dehumidification requirements are satisfied and requires no humidification process	Read Only
	Hot Gas Reheat Alternate Operation Enabled	Used for selecting whether the hot gas reheat alternate operation is in effect	Adjustable: No/Yes
	Hot Gas Reheat Alternate Operation Writeable	This input tells the control application if the alternate operation mode is writeable	Adjustable: No/Yes
	Hot Gas Reheat Humidity Setpoint	Determines the HGR humidity setpoint	Adjustable: 0 to 100% RH
	HGR Enabled for Unoccupied Operation	Determines if HGR will be enabled for unoccupied operation	Adjustable: No/Yes
	HGR Unoccupied Humidity Setpoint	If enabled, determines the unoccupied humidity setpoint	Adjustable: 0 to 100%
	HGR Humidity Setpoint Differential	Determines the HGR setpoint differential. This can be seen as a dead band for the setpoint when HGR should turn on	Adjustable: 1 to 10%
	Aux Mode	Determines if auxiliary mode should be used for HGR	Adjustable: Off/On
	Use DFS for Dehum	Determines if the Dirty Filter Switch binary input, used for detecting when the system needs to enter dehumidification, should be used	Read Only
	VAV Cooling Supply Air Temp Upper Setpoint	Determines the Upper cooling SAT setpoint for the VAV	Adjustable: 41 to 70°F
	VAV Cooling Supply Air Temp Lower Setpoint	Determines the Lower cooling SAT setpoint for the VAV	Adjustable: 40 to 69°F
	VAV Supply Air Temp Reset Setpoint	Determines the setpoint that should be used after reboot cycles	Adjustable: 40 to 85°F
	Dehum Evap Low Setpoint	Determines the dehumidification evap low setpoint	Adjustable: 40 to 7017°F
	Occupied Cooling Setpoint	Determines the occupied cooling setpoint for HGR	Adjustable: 45 - 98°F
	Dehumidification % Command	Determines the dehumidification % command during HGR	Adjustable: 0 to 100%
	Proportional Min Out Value	Determines the proportional min out value for HGR	Adjustable: 0 to 100%
	Proportional Max Out Value	Determines the proportional max out value for HGR	Adjustable: 0 to 100%
	Condenser Fan 2 OAT Cutout Setpoint	Determines when CF2 should cut out due to OAT	Adjustable: 50 to 85°F
	Modulating HGR Value Full Open Allowed	Determines if modulating HGR should be able to open fully.	Adjustable: No/Yes

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: Hot Gas Reheat: Service	Staged Cooling Command	Displays the current staged cooling command for hot gas reheat	Read Only
	CV Operating Cooling Setpoint	Displays the current CV operating cooling setpoint for hot gas reheat	Read Only
	Operational Space Temperature	Displays the calculated operational space temperature used by HGR	Read Only
	Operational Evap Temperature Setpoint	Displays the calculated operational evap temperature setpoint used by HGR	Read Only
	Evaporator Coil Temp	Displays the current temperature of the evaporator coil	Read Only
	Hot Gas Reheat Humidity Setpoint	Determines the HGR humidity setpoint.	Adjustable: 0 to 100% RH
	Operational Space Humidity	Displays the calculated operational space humidity based on controller logic	Read Only
	Hot Gas Reheat Status	Displays the current status of hot gas reheat	Read Only
	Hot Gas Reheat Command	Displays the current HGR command outputted by the control	Read Only
	Operational HGR Temperature Setpoint	Displays the calculated operational HGR temperature setpoint	Read Only
	Supply Air Temperature	Displays the current supply air temperature used by HGR	Read Only
	Hot Gas Reheat Bleed Valve Command	Displays the HGR bleed valve command. This will indicate the position of the bleed valve	Read Only
	Compressor Stage Command 1	Indicates the current command for Compressor Stage 1	Read Only
	Compressor Stage Command 2	Indicates the current command for Compressor Stage 2	Read Only
	Compressor Stage Command 3	Indicates the current command for Compressor Stage 3	Read Only
	Compressor Stage Command 4	Indicates the current command for f Compressor Stage 4	Read Only
	Space Humidity RAH Input	Indicates the return air humidity inputted from the space	Read Only
Details: Heat Pump	Number of Heat Pump Stages Installed	Determines the number of heat pump stages installed in the system	Adjustable: 0 to 2
	Test Defrost Enable	Determines if the defrost functionality should be tested	Adjustable: False/True
	Compressor Delay Enable	Determines if there should be a compressor delay when using heat pump	Adjustable: False/True
	Defrost Curve Selection	Determines the Defrost Curve that should be used for the unit. When the current curve selection equals 6 this value is used for the current Defrost Terminate Curve value. This value is adjustable at the factory.	Adjustable: SE RTU Defrost Curves
	Reversing Valve	Indicates the status of the reversing valve	Read Only
	Auxiliary Heat	Indicates if Aux heat is enabled	Read Only
	Mode	Indicates which mode the heat pump is currently in	Read Only
	OAT Defrost Permission	Determines the OAT in which the defrost cycle can perform	Adjustable: 45 to 60°F

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Details: ERV	ERV Enabled	Determines if energy recovery ventilators are installed	Adjustable: No/Yes
	ERV Unoccupied Fan Enabled	Determines if ERV will run fan during unoccupied	Adjustable: No/Yes
	Fan Control Type	Determines the fan control type for the energy recovery ventilator	Adjustable: SE RTU Fan Control Type
	Fan Command	Indicates the current fan for the energy recovery ventilator	Read Only
	Econ Free Cooling Available	Indicates if the economizer is available to benefit the ERV	Read Only
	Exhaust Fan Command	Indicates the current exhaust fan command outputted from the system	Read Only
Details: Load Shed	Load Shed Rate Limit	Determines the load shed rate limit	Adjustable: 0 to 1°F/min
	Load Shed Adjust	Determines the load shed offset/adjust	Adjustable: 0 to 8 delta °F
	Load Shed Active	Determines if the load shed functionality should be used	Adjustable: No/Yes
Clone: Full Clone	Device Name	Determines the device name of the clone	Adjustable
	Unit Name	Determines the name of the unit	Adjustable
	Unit Model Number	Determines the model number of the clone	Adjustable
	Unit Serial Number	Determines the serial number of the clone	Adjustable
	Model Name	Determines the model name of the clone	Read Only
	Fan Accumulated Runtime	Indicates how long the fan has been running. This value is adjustable; however should not be changed unless a software update requires it	Adjustable: 0 to 10,000 hours
	Compressor Stage Accumulated Runtime 1	Indicates the accumulated runtime for compressor stage 1. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Compressor Stage Accumulated Runtime 2	Indicates the accumulated runtime for compressor stage 2. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Compressor Stage Accumulated Runtime 3	Indicates the accumulated runtime for compressor stage 3. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Compressor Stage Accumulated Runtime 4	Indicates the accumulated runtime for compressor stage 4. This is how long the compressor has run since last power cycle	Adjustable: 0 to 10,000 hours
	Heating Stage 1 Accumulated Runtime	The accumulated runtime for heating stage 1. This is how long the heating element has run since last power cycle	Adjustable: 0 to 10,000 hours
	Heating Stage 2 Accumulated Runtime	The accumulated runtime for heating stage 2. This is how long the heating element has run since last power cycle	Adjustable: 0 to 10,000 hours
	Heating Stage 3 Accumulated Runtime	The accumulated runtime for heating stage 3. This is how long the heating element has run since last power cycle	Adjustable: 0 to 10,000 hours
	Time Zone	Determines which time zone the controller is using	Adjustable: SE RTU Time Zone
	Address	Determines the IP address for the controller	Adjustable: 4 to 127
	Device OID (Device ID)	Determines the Device ID of the controller	Adjustable: 0 to 99,999

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Clone: Partial Clone 1	Duct Pressure Setpoint	Determines the Duct Pressure setpoint	Adjustable: 0 to 5 in. wc.
	Duct Pressure Shutdown Setpoint	Determines the duct pressure shutdown setpoint. The fan will shutdown if this setpoint is hit.	Adjustable: 0 to 5 in. wc.
	Continuous Fan Operation in Occupied Mode	Sets the control for Continuous Fan during Occupied for the clone	Adjustable: Yes/No
	Turn Off Continuous Fan Operation When Starting Heat	Allows continuous fan mode to be turned off during heating mode	Adjustable: Yes/No
	Occupied : No Heat or Cool $ Command	Indicates the occupied no heat/cool fan percent command for the clone	Adjustable: 0 to 100%
	Occupied : One Stage of Cool % Command	Indicates the occupied first stage of cooling fan percent command for the clone	Adjustable: 0 to 100%
	Occupied: Two Stage of Cool % Command	Indicates the occupied second stage of cooling fan percent command for the clone	Adjustable: 0 to 100%
	Occupied: Three Stage of Cool % Command	Indicates the occupied third stage of cooling fan percent command for the clone	Adjustable: 0 to 100%
	Occupied: Four Stage of Cool % Command	Indicates the occupied fourth stage of cooling fan percent command for the clone	Adjustable: 0 to 100%
	Occupied: One Stage of Heat % Command	Indicates the occupied first stage of heating fan percent command for the clone	Adjustable: 0 to 100%
	Occupied: Two Stage of Heat % Command	Indicates the occupied second stage of heating fan percent command for the clone	Adjustable: 0 to 100%
	Occupied: Three Stage of Heat % Command	Indicates the occupied third stage of heating fan percent command for the clone	Adjustable: 0 to 100%
	VAV Cooling Supply Air Temp Upper Setpoint	Determines the upper VAV cooling SAT setpoint	Adjustable: 41 to 70°F
	VAV Cooling Supply Air Temp Lower Setpoint	Determines the lower VAV cooling setpoint	Adjustable: 40 to 69°F
	VAV Supply Air Temp Reset Setpoint	Determines the SAT setpoint after reset	Adjustable: 40 to 85°F
	VAV Operating Cooling Supply Air Temp Setpoint	Indicates the VAV Operating cooling SAT SP	Read Only
	CV Occupied Cooling Setpoint	This is the Control Volume Occupied Cooling Setpoint	Adjustable: 45 to 98°F
	CV Unoccupied Cooling Setpoint	This is the Control Volume Unoccupied Cooling Setpoint	Adjustable: 46 to 99°F
	VAV Occupied Heating Enabled	Determines if VAV heating during occupied should be enabled	Adjustable: No/Yes
	VAV Occupied Heating Setpoint	If enabled, determines the VAV occupied heating setpoint	Adjustable: 40 to 85°F
	Unoccupied Heating Enabled	Determines if VAV heating during unoccupied is enabled	Adjustable: No/Yes
	VAV Unoccupied Heating Setpoint	If enabled, determines the VAV unoccupied heating setpoint	Adjustable: No/Yes
	SZ VAV Occupied Cooling Setpoint	This is the Single Zone Variable Air Volume Occupied Cooling Setpoint	Adjustable: 45 to 98°F
	SZ VAV Unoccupied Cooling Setpoint	This is the Single Zone Variable Air Volume unoccupied Cooling Setpoint	Adjustable: 45 to 98°F
	Morning Warmup Enabled	Determines if the morning warmup algorithm should be enabled	Adjustable: No/Yes
	Morning Warmup/Return Air Temp Setpoint	If enabled, determines the warmup and return air temperature setpoints	Adjustable: 50 to 85°F
	CV Occupied Heating Setpoint	The occupied heating setpoint when configured to individual setpoint mode	Adjustable: 46 to 99°F

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Clone: Partial Clone 1 (continued)	**CV Unoccupied Heating Setpoint**	The unoccupied setpoint when configured to individual setpoint mode	Adjustable: 45 to 98°F
	Low Ambient Economizer Setpoint	Determines when the economizer should be enabled/disabled in low ambient conditions	Adjustable: 0 to 60°F
	Low Ambient Economizer Minimum Position	Determines the economizer minimum position in low ambient conditions	Adjustable: 0 to 100%
	Language	Sets the language the controller uses	Adjustable: SE RTU Languages
	Units	Sets the units the controller uses	Adjustable: IP/SI
	BAS Communication	Displays the current status of the BAS communication	Read Only
Clone: Network Override	**Network Override Space Temperature**	Overrides the space temperature to what the user desires	Adjustable: 0 to 100°F
	Network Override Indoor Air Quality	Overrides the indoor air quality to what the user desires	Adjustable: 0 to 5,000 ppm
	Network Override Zone Humidity	Overrides the zone humidity to what the user desires	Adjustable: 0 to 100% RH
	Network Override Fan Request	Overrides the fan request to what the user desires	Adjustable: Off/On
	Network Override Space Setpoint Offset	Overrides the space temperature setpoint offset to what the user desires	Adjustable: -5 to 5 delta °F
	Network Override Outdoor Air Temperature	Overrides the outdoor air temperature to what the user desires	Adjustable: -50 to 125°F
	Network Override Outdoor Air Humidity	Overrides the outdoor air humidity to what the user desires	Adjustable: 0 to 100% RH
	Network Override Outdoor Air Quality	Overrides the outdoor air quality to what the user desires	Adjustable: 0 to 5000 ppm
	Network Override Purge Command	Overrides the purge command to what the user desires	Adjustable: False/True
Self Test Results	**Fan Result**	The Fan results from the Self Test	Read Only
	C1 Result	The Compressor 1 results from the Self Test	Read Only
	C2 Result	The Compressor 2 results from the Self Test	Read Only
	C3 Result	The Compressor 3 results from the Self Test	Read Only
	C4 Result	The Compressor 4 results from the Self Test	Read Only
	H1 Result	The Heating 1 results from the Self Test	Read Only
	H2 Result	The Heating 2 results from the Self Test	Read Only
	H3 Result	The Heating 3 results from the Self Test	Read Only
	Econ Result	The Economizer results from the Self Test	Read Only
	Exhaust Result	The Exhaust results from the Self Test	Read Only
Trend: Status	**Network Override**	Network Override trend	Read Only
	Network Override	Network Override trend	Read Only
	Cooling Status	Cooling Status trend	Read Only
	Heating Status	Heating Status trend	Read Only
	Economizer Status	Economizer Status trend	Read Only
	Hot Gas Reheat Status	Hot Gas Reheat Status trend	Read Only
	Operational Occupancy	Operational Occupancy trend	Read Only
	Operational Space Temperature	Operational Space Temperature trend	Read Only
	Supply Air Temperature	Supply Air Temperature trend	Read Only
	Mixed Air Temperature	Mixed Air Temperature trend	Read Only
	Operational Outdoor Air Temperature	Operational Outdoor Air Temperature trend	Read Only
	Return Air Temperature	Return Air Temperature trend	Read Only
	Outdoor Air Enthalpy	Outdoor Air Enthalpy trend	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Trend: Cooling: Status	Cooling Status	Cooling Status trend	Read Only
	Supply Air Temperature	Supply Air Temperature trend	Read Only
	VAV Operating Cooling Supply Air Temp Setpoint	VAV Operating Cooling Supply Air Temp Setpoint trend	Read Only
	CV Operating Cooling Setpoint	CV Operating Cooling Setpoint trend	Read Only
Trend: Cooling: Stage 1	Y1 - Thermostat	The Y1 cooling call trend from the thermostat	Read Only
	Compressor Stage 1 Status	The Status trend for Compressor Stage 1	Read Only
	Compressor Stage Command 1	The Command trend from Compressor 1	Read Only
Trend: Cooling: Stage 2	Y2 - Thermostat	The Y2 cooling call trend from the thermostat	Read Only
	Compressor Stage 2 Status	The Status trend for Compressor Stage 2	Read Only
	Compressor Stage Command 2	The Command trend from Compressor 2	Read Only
Trend: Cooling: Stage 3	Y3 - Thermostat	The Y3 cooling call trend from the thermostat	Read Only
	Compressor Stage 3 Status	The Status trend for Compressor Stage 3	Read Only
	Compressor Stage Command 3	The Command trend from Compressor 3	Read Only
Trend: Cooling: Stage 4	Y4 - Thermostat	The Y4 cooling call trend from the thermostat	Read Only
	Compressor Stage 4 Status	The Status trend for Compressor Stage 4	Read Only
	Compressor Stage Command 4	The Command trend from Compressor 4	Read Only
Trend: Heating: Status	Heating Status	Heating Status trend	Read Only
	Supply Air Temperature	Supply Air Temperature trend	Read Only
	VAV Operating Heating Setpoint	VAV Operating Heating Setpoint trend	Read Only
	CV Operating Heating Setpoint	CV Operating Heating Setpoint trend	Read Only
Trend: Heating: Stage 1	W1 - Thermostat	The W1 heating call trend from the thermostat	Read Only
	Heating Stage Command 1	The Command trend for first stage of heating	Read Only
	Heating Stage 1 Enabled	The Status trend for the first stage of heating	Read Only
Trend: Heating: Stage 2	W2 - Thermostat	The W2 heating call trend from the thermostat	Read Only
	Heating Stage Command 2	The Command trend for second stage of heating	Read Only
	Heating Stage 2 Status	The Status trend for the second stage of heating	Read Only
Trend: Heating: Stage 3	W3 - Thermostat	The W3 heating call trend from the thermostat	Read Only
	Heating Stage Command 3	The Command trend for third stage of heating	Read Only
	Heating Stage 3 Status	The Status trend for the third stage of heating	Read Only
Trend: Fan: Indoor Fan	G - Thermostat	The G fan call trend from the thermostat	Read Only
	Fan Status	The Fan Status trend from the indoor fan	Read Only
	Fan Command	The Fan command trend from the indoor fan	Read Only
	Fan % Command	The Fan % command trend from the indoor fan	Read Only
	Air Proving Switch	The Air Proving switch trend from the indoor fan	Read Only
Trend: Fan: Exhaust Fan	Exhaust Fan Command	Exhaust Fan Command trend	Read Only
	Exhaust Fan VFD % Command	Exhaust Fan VFD % Command trend	Read Only
Trend: Fan: Condenser Fans	Condenser Fan 1	Condenser Fan 1 trend	Read Only
	Condenser Fan 2	Condenser Fan 2 trend	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Trend: Sensors	**Space Temperature Input**	Space Temperature Input trend	Read Only
	Supply Air Temperature	Supply Air Temperature trend	Read Only
	Mixed Air Temperature	Mixed Air Temperature trend	Read Only
	Supply Air Humidity	Supply Air Humidity trend	Read Only
	Operational Space Temperature	Operational Space Temperature trend	Read Only
	Operational Indoor Air Quality	Operational Indoor Air Quality trend	Read Only
	Operational Space Humidity	Operational Space Humidity trend	Read Only
	Operational Outdoor Air Temperature	Operational Outdoor Air Temperature trend	Read Only
	Operational Outdoor Air Quality	Operational Outdoor Air Quality trend	Read Only
Trend: Economizer	**Economizer Damper % Command**	Economizer Damper % Command trend	Read Only
	Econ Free Cooling Available	Econ Free Cooling Available trend	Read Only
	Economizer Status	Economizer Status trend	Read Only
	Return Air Enthalpy	Return Air Enthalpy trend	Read Only
	Building Pressure Setpoint	Building Pressure Setpoint trend	Read Only
	Building Static Pressure	Building Static Pressure trend	Read Only
	Reversing Valve	Reversing Valve trend	Read Only
Trend: Misc: Hot Gas Reheat	**Hot Gas Reheat Command**	Hot Gas Reheat Command trend	Read Only
	Hot Gas Reheat Status	Hot Gas Reheat Status trend	Read Only
	Hot Gas Reheat Humidity Setpoint	Hot Gas Reheat Humidity Setpoint trend	Read Only
Trend: Misc: Demand Ventilation	**Fresh Air Intake Setpoint**	Fresh Air Intake Setpoint trend	Read Only
	Fresh Air Intake Value	Fresh Air Intake Value trend	Read Only
Trend: Fault: Misc	**X-OUT**	X-OUT trend	Read Only
	Dirty Filter Switch	Dirty Filter Switch trend	Read Only
Trend: Fault: Heating Stage 1	**Heat Limit1 Switch**	Heat Limit1 Switch trend	Read Only
	Heat Limit1 Switch Lockout	Heat Limit1 Switch Lockout trend	Read Only
Trend: Fault: Heating Stage 2	**Heat Limit2 Switch**	Heat Limit2 Switch trend	Read Only
	Heat Limit2 Switch Lockout	Heat Limit2 Switch Lockout trend	Read Only
Trend: Fault: Heating Stage 3	**Heat Limit3 Switch**	Heat Limit3 Switch trend	Read Only
	Heat Limit3 Switch Lockout	Heat Limit3 Switch Lockout trend	Read Only
Trend: Fault: Cooling Stage 1	**High Pressure Limit**	High Pressure Limit trend	Read Only
	High Pressure Lockout	High Pressure Lockout trend	Read Only
	Low Pressure Limit	Low Pressure Limit trend	Read Only
	Low Pressure Lockout	Low Pressure Lockout trend	Read Only
	Freeze Condition	Freeze Condition trend	Read Only
	Freeze Condition Lockout	Freeze Condition Lockout trend	Read Only
	Evaporator Coil Temp	Evaporator Coil Temp trend	Read Only
	Condenser Coil Temp	Condenser Coil Temp trend	Read Only
Trend: Fault: Cooling Stage 2	**High Pressure Limit**	High Pressure Limit trend	Read Only
	High Pressure Lockout	High Pressure Lockout trend	Read Only
	Low Pressure Limit	Low Pressure Limit trend	Read Only
	Low Pressure Lockout	Low Pressure Lockout trend	Read Only
	Freeze Condition	Freeze Condition trend	Read Only
	Freeze Condition Lockout	Freeze Condition Lockout trend	Read Only
	Evaporator Coil Temp	Evaporator Coil Temp trend	Read Only
	Condenser Coil Temp	Condenser Coil Temp trend	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Trend: Fault: Cooling Stage 3	High Pressure Limit	High Pressure Limit trend	Read Only
	High Pressure Lockout	High Pressure Lockout trend	Read Only
	Low Pressure Limit	Low Pressure Limit trend	Read Only
	Low Pressure Lockout	Low Pressure Lockout trend	Read Only
	Freeze Condition	Freeze Condition trend	Read Only
	Freeze Condition Lockout	Freeze Condition Lockout trend	Read Only
	Evaporator Coil Temp	Evaporator Coil Temp trend	Read Only
	Condenser Coil Temp	Condenser Coil Temp trend	Read Only
Trend: Fault: Cooling Stage 4	High Pressure Limit	High Pressure Limit trend	Read Only
	High Pressure Lockout	High Pressure Lockout trend	Read Only
	Low Pressure Limit	Low Pressure Limit trend	Read Only
	Low Pressure Lockout	Low Pressure Lockout trend	Read Only
	Freeze Condition	Freeze Condition trend	Read Only
	Freeze Condition Lockout	Freeze Condition Lockout trend	Read Only
	Evaporator Coil Temp	Evaporator Coil Temp trend	Read Only
	Condenser Coil Temp	Condenser Coil Temp trend	Read Only
Trend: Diagnostics: Cooling Stage 1	Suction Pressure	Suction Pressure trend	Read Only
	Liquid Pressure	Liquid Pressure trend	Read Only
	Suction Temperature	Suction Temperature trend	Read Only
	Liquid Temperature	Liquid Temperature trend	Read Only
	Superheat	Superheat trend	Read Only
	Subcooling	Subcooling trend	Read Only
	Condensing Temperature over Ambient	Condensing Temperature over Ambient trend	Read Only
	Efficiency Index	Efficiency Index trend	Read Only
	Capacity Index	Capacity Index trend	Read Only
Trend: Diagnostics: Cooling Stage 2	Suction Pressure	Suction Pressure trend	Read Only
	Liquid Pressure	Liquid Pressure trend	Read Only
	Suction Temperature	Suction Temperature trend	Read Only
	Liquid Temperature	Liquid Temperature trend	Read Only
	Superheat	Superheat trend	Read Only
	Subcooling	Subcooling trend	Read Only
	Condensing Temperature over Ambient	Condensing Temperature over Ambient trend	Read Only
	Efficiency Index	Efficiency Index trend	Read Only
	Capacity Index	Capacity Index trend	Read Only
Trend: Diagnostics: Cooling Stage 3	Suction Pressure	Suction Pressure trend	Read Only
	Liquid Pressure	Liquid Pressure trend	Read Only
	Suction Temperature	Suction Temperature trend	Read Only
	Liquid Temperature	Liquid Temperature trend	Read Only
	Superheat	Superheat trend	Read Only
	Subcooling	Subcooling trend	Read Only
	Condensing Temperature over Ambient	Condensing Temperature over Ambient trend	Read Only
	Efficiency Index	Efficiency Index trend	Read Only
	Capacity Index	Capacity Index trend	Read Only

Table 15: SSE RTU controller

Menu	Object or Parameter	Description	Adjustable
Trend: Diagnostics: Cooling Stage 4	**Suction Pressure**	Suction Pressure trend	Read Only
	Liquid Pressure	Liquid Pressure trend	Read Only
	Suction Temperature	Suction Temperature trend	Read Only
	Liquid Temperature	Liquid Temperature trend	Read Only
	Superheat	Superheat trend	Read Only
	Subcooling	Subcooling trend	Read Only
	Condensing Temperature over Ambient	Condensing Temperature over Ambient trend	Read Only
	Efficiency Index	Efficiency Index trend	Read Only
	Capacity Index	Capacity Index trend	Read Only
Set Schedule	**Occupancy Schedule**	The set occupancy schedule determined in system configuration	Read Only

Table 16: VZC100 parameters and objects

Menu	Object or parameter	Description	Adjustable
Home Page	**Fan Status**	This is the fan status of the change over bypass or VAV unit that is suppling air to the zones.	Read only
	Supply Air Temperature	This is the SAT of the change over bypass or VAV unit that is suppling air to the zones.	Read only
	Unit Status	This is the unit status of the change over bypass or VAV unit that is suppling air to the zones.	Read only
	Zone Temperature	This is the zone temperature of the zone(s) connected to the zone coordinator. The list shows each zone temperature of each zone connected.	Read only
	Zone Vote	This is the vote sent from the COBP systems to the zone coordinator from the connected zones. The vote is for either Urgent Heat, Heat, Satisfied, Cool or urgent Cool. The zone coordinator determines what state the unit controls to based on all of the votes from the zones.	Read only
	Zone Can Vote	In COBP systems, this parameter indicates if the zone is currently allowed to vote. This parameter shows false if a zone is locked out from voting by a manual setting or because it cannot reach the temperature within the Lockout Time.	Read only
	Active Mode	On VAV systems, this is the current state the zone is in. Heating, Cooling or Satisfied. Each zone shows their mode.	Read only
	Firmware Main Version	Displays the firmware version for the given zone controller. The list shows this parameter for each connected zone controller.	Read only
	Application Version	Displays the application version for the given zone controller. The list shows this parameter for each connected zone controller.	Read only
	Application Name	Displays the application name for the given zone controller. It can be Verasys Incremental Heating Application, Verasys Staged Heating Application, Verasys SCR Heating Application, or Verasys Zone Damper Application. The list shows this parameter for each connected zone controller.	Read only

Table 16: VZC100 parameters and objects

Menu	Object or parameter	Description	Adjustable
Unit	**Unit Enable**	With this object you can command the unit to shut down. This can shut down all of the zones.	Adjustable: **Enable/ Shutdown**
	Network Temporary Occupancy Request	If any zone is in a temporary occupancy state this flags as true. The temporary occupancy command is then sent for the length of the temporary occupancy timeout.	Adjustable: **False/True**
	Temporary Occupancy Timeout	The duration of a temporary occupancy request. This value is sent to the rooftop unit controller when adjusted.	Adjustable: 30 min to 480 min
	Representative Zone	On VAV systems this is the zone that represents night setup and setback zone. You can use this to reset the SAT if it is enabled.	Adjustable: Range: 46°F to 99°F
	Load Shed Active	The status of the load shed command to the zone coordinator. When active, all zones are in load shed if the zones are enabled for load shed.	Read only
	Zoning System State	This is a trouble shooting object that identifies missing rooftop units, or unsupported rooftop units, a bypass damper when it is not needed, or an unsupported zone.	Read only
	Device Being Provisioned	While performing a VZC100 update, this menu parameter indicates the device that is currently being provisioned and can be either the VZC or one of the ZECs connected on the zone bus. When no update is in process, this parameter is empty.	Read only
	Provisioning Command	Provides a high level description of the state of the provisioning.	Read only
	Provisioning Detail Code	Provides a detailed description of the state of the provisioning.	Read only
	Provisioning Error Code	Indicates if there was an error with provisioning.	Read only
	Provisioning Status	Shows the status of provisioning.	Read only
	System Package Mismatch Information	Indicates if the current version of any of the ZECs or the VZC do not match the expected package version. Most often this occurs when an older ZEC is connected to a newer VZC. The red fault LED on the VZC slowly blinks while in a mismatch state.	Read only

Table 16: VZC100 parameters and objects

Menu	Object or parameter	Description	Adjustable
Commissioning	Control Mode	Sets the mode of the unit.	Adjustable: • **Auto** • **Cool** • **Heat** • **Fan Only** • **Off**
	Balancer Mode	When initiated, zone dampers index to their maximum positions, VAV boxes index to their cooling maximum flow positions and the bypass damper closes.	Adjustable: **Enable/ Disable**
	Title 24 Test Mode	When you are in title 24 test mode, the economizer damper ramp rate drops from 5% every 30 minutes to 5% every two minutes, so you can test the demand ventilation mode sequence faster. This does not test the Title 24 load shed.	Adjustable: **False/True**
	Construction Mode	Sets the mode of the unit during construction. This ignores typical shutdown conditions. Use this feature to temper the space during construction. Only available during change over bypass. Also make sure zone dampers are blocked open when you run the unit in construction mode to relieve duct pressure.	Adjustable: • **Not in Use** • **Heat** • **Cool** • **Fan Only**
Controller	Firmware Version	Displays the firmware version of the controller.	Read only
	Relearn System	Alerts the zone coordinator to rediscover all of the devices that are connected to the zone bus.	Adjustable: **False/True**
	Address	Shows the address of the controller. The address is set by the dip switches on the controller.	Read only
	Device OID	This is the BACnet device OID for the system bus. If on a standalone Verasys System this parameter is not used, but if connected to a 3rd party facility management system it sets the BACnet ID for the zone coordinator.	Adjustable: Range: 1 to 4,194,303
	Time	The time that was set by the SBH. To change the date and time, navigate to **settings** > **systems** on the SBH and adjust the date and time. This adjustment syncs to all online devices.	Read only
	Date	Shows the date that the controller is set to.	Read only

Table 16: VZC100 parameters and objects

Menu	Object or parameter	Description	Adjustable
Details: Setpoints	**Supply Temperature Cooling Setpoint**	On change over bypass systems, this is the setpoint the RTU controls to when the system calls for cooling.	Adjustable: 40°F to 69°F
	Supply Temperature Heating Setpoint	On change over bypass systems, this is the setpoint the RTU controls to when the system calls for heating.	Adjustable: 90°F to 130°F
	Supply Air Temperature Setpoint	On VAV systems, if the supply air temp reset strategy is set to true, this is the median setpoint the unit controls to.	Adjustable: 40°F to 70°F
	Maximum Supply Temp Setpoint Adjust	On VAV systems, if the supply air temp reset strategy is set to true, this is the maximum adjustment the of the supply air setpoint plus or minus what it is set to.	Adjustable: 0°F to 5°F
	Duct Pressure Setpoint	On VAV systems, if the duct static setpoint reset strategy is set to true, this is the median setpoint the unit controls to.	Adjustable: 0.5 in. wc to 4.5 in. wc
	Max Duct Static SP Adjust	On VAV systems, if the duct static setpoint reset is set to true, this is the maximum adjustment of the duct pressure setpoint plus or minus what it is set to.	Adjustable: 0 in. wc to 0.5 in. wc
	Economizer Minimum Position Setpoint	Sets the economizer minimum position if the economizer is installed on the unit.	Adjustable: 0% to 100%
Details: Control	**Supply Temp Reset Strategy**	On VAV Systems, if set to true the zone coordinator resets the SAT based on the zone that is set as the representative zone. If the zone is providing as much cooling as it can, it adjusts the SAT down towards the supply air setpoint minus maximum SAT adjust. If the zone is satisfied it adjusts the SAT up towards the supply air setpoint plus maximum SAT adjust.	Adjustable: **Enable/ Disable**
	Duct Static Setpoint Reset Enable	On VAV Systems, if set to true the zone coordinator resets the duct static pressure setpoint based on the zone that has the most open damper trying to control it between 85% and 95% open. If the zone is less than 85% it adjusts the duct pressure down. If the zone is greater than 95% it adjusts the duct pressure up. Using the Max Duct Static setpoint adjust to set the limits.	Adjustable: **Enable/ Disable**
	Unocc Heating Cooling Enable	On VAV systems, this enables the night setup and setback of the unit based on the conditions of the representative zone.	Adjustable: **Enable/ Disable**
	VFD Econ Min Pos Reset	On VAV Systems, the VFD economizer minimum position reset strategy adjusts the economizer minimum position proportional to the supply fan speed to maintain the outdoor ventilation rate.	Adjustable: **False/True**

Table 16: VZC100 parameters and objects

Menu	Object or parameter	Description	Adjustable
Details: Changeover	**Min Requests to Change**	The system changes from heat to cool when the cooling requests exceeds the minimum number of requests to change modes and all heating requests have been satisfied below this value. The system changes from cool to heat when the heating requests exceeds the minimum number of requests to change modes and all cooling requests have been satisfied below this value.	Adjustable: 1 to 4
	Min Urgent Requests to Change	The system changes from heat to cool when the urgent cooling requests exceeds the minimum number of urgent requests to change modes. The system changes from cool to heat when the urgent heating requests exceeds the minimum number of urgent requests to change modes.	Adjustable: 1 to 4
	Urgent Heat Requests	Number of zones with urgent requests for heat.	Ready only
	Total Heat Requests	Number of zones with requests for heat. A combination of urgent and regular requests.	Ready only
	Urgent Cool Requests	Number of zones with urgent requests for cooling.	Ready only
	Total Cool Requests	Number of zones with requests for cooling. A combination of urgent and regular requests.	Ready only
	Changeover Min Time	A user-set timer prevents cycling between the heat and cool modes. The timer begins running when it enters either the heat or cool mode. Once it expires, the system may change modes if the other conditions are met. The timer restarts when the mode changes.	Adjustable: 10 min to 60 min
	Changeover State	The current state of the changeover timer	Read only

Table 17: BYP200 parameters and objects

Menu	Object or Parameter	Description	Adjustable
Home Page	**Duct Static Pressure**	The Duct Static Pressure reading from the differential pressure sensor.	Read only
	Duct Static Pressure Setpoint	This is the setpoint the controller is modulating the bypass damper(s) to.	Adjustable: 0 in. wc to 5.0 in. wc
	Damper Position	The commanded position of the bypass damper(s).	Read only
	Unit Enable	The command given to the bypass damper by the zone coordinator.	Adjustable: Enable/ Shutdown
	Scheduled Occupancy	The occupied command from the zone coordinator. When occupied the bypass dampers control to setpoint. When unoccupied they are set to 50%.	Adjustable: • **Occupied** • **Unoccupied** • **Standby** • **Not Set**

Table 17: BYP200 parameters and objects

Menu	Object or Parameter	Description	Adjustable
Setup	Duct Pressure Setpoint	This is the setpoint the controller is modulating the bypass damper(s) to.	Adjustable: 0 in. wc to 5.0 in. wc
	Damper Maximum Position	Sets the maximum position the damper moves to.	Adjustable: Range 0% to 100%
	Heat Cool Mode	Shows what state the unit is in. Heating, Cooling, Fan Only, Balancing, Satisfied or Off.	Read only
	Scheduled Occupancy	Shows the occupied command from the zone coordinator. When occupied the bypass dampers control to the setpoint. When unoccupied they are set to 50%.	Adjustable: • **Occupied** • **Unoccupied** • **Standby** • **Not Set**
	Unit Enable	The command given to the bypass damper by the zone coordinator.	Adjustable: Enable/Shutdown
	Damper Direction to Close	Sets the direction to close the bypass damper that is a part of the controller. To set the second bypass damper direction you must set a jumper on the actuator.	Adjustable: clockwise/counter clockwise
	Power Fail Restart Enable	Upon a power fail the controller delays 5 minutes before it comes back operational. This is done so electrical demand is not spiked.	Adjustable: Enable/Disable
Controller	Firmware Version	Displays the firmware version of the controller.	Read only
	Address	Shows the address of the controller. The address is set by the dip switches on the controller.	Read only
	Unit Model Number	Shows the model number of the controller.	Read only
Trends	Duct Static Pressure	288 samples are taken at a 15 minute period.	Read only
	Scheduled Occupancy	10 samples in total. 1 sample taken every change of value.	Read only
	Damper Position	288 samples are taken at a 15 minute period.	Read only

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Home Page	Zone Temperature	Zone temperature reading from the zone sensor.	Read only
	Active Setpoint	This is the setpoint the zone controls to, taking into account occupancy and the warmer/cooler adjustment.	Read only
	Operational Occupancy	This is the commanded occupancy from the zone coordinator. The zone is either in an occupied, unoccupied or standby state. Temporary occupancy can switch this from unoccupied to occupied. If a motion sensor is connected and motion is not sensed it switches to standby.	Read only
	Active Mode	This is the current state the box is in. Heating, Cooling, Satisfied or Temperature Unreliable. This object only shows up on VAV systems.	Read only
	Zone Vote	This is the vote sent to the zone coordinator. The zone votes for either Urgent Heat, Heat, Satisfied, Cool or urgent Cool. The zone coordinator determines what state the unit controls to based on all of the votes from the zones. This object only shows up on change over bypass systems.	Read only
	Network Override Supply Air Temperature	This is the supply air temperature as measured by the RTU/AHU and shared over the network to the ZEC through the VZC100.	Read only
	Damper Position	The commanded position of the zone damper.	Read only
	Discharge Air Temperature	This is the temperature of the air that leaves the VAV box. The discharge air temperature sensor is typically installed to measure the heat rise of the box heater.	Read only
	Supply Flow	The supply air flow measured by the VAV box.	Read only
	Supply Flow Setpoint	The flow setpoint the damper is controlling the supply air flow to.	Read only
	Indoor Air Quality	This is the measurement of CO_2 in the space. If it is too high, the system drives more fresh air into the space.	Read only
	Fan Command	The VAV box fan command.	Read only
	Heating Stage Command 1	The first stage of heating command. ⓘ **Note:** This parameter is visible if you use staged or proportional SCR heat. If you use proportional SCR heat, this parameter shows whether SCR heat is enabled.	Read only
	Heating Stage Command 2	The second stage of heating command. ⓘ **Note:** This parameter is visible if you use staged heat.	Read only
	Heating Stage Command 3	The third stage of heating command. ⓘ **Note:** This parameter is visible if you use staged heat.	Read only
	Box Heating Status	This parameter shows when the box heating is able to activate based on flow.	Read only
	Supplemental Heating Stage Command	The supplemental heating stage command. ⓘ **Note:** This parameter is visible if you use staged heat.	Read only

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Home Page (continued)	**Heating Percent Command**	The box heating percent command. ⓘ **Note:** This parameter is visible if you use incremental or proportional SCR heat.	Read only
	Supplemental Heating Percent Command	The supplemental heating percent command. ⓘ **Note:** This parameter is visible if you use incremental or proportional SCR heat.	Read only
	Temp Occ	Temporary Occupancy. If enabled, any adjustment to the zone sensor during the unoccupied mode places the zone in the occupied state and this parameter sets to true. The Network Temporary Occupancy Request parameter also sets to true, and the unit starts and runs for the temporary occupancy duration.	Read only
	Ventilation Request	Indicates whether the zone CO_2 level is currently higher than the setpoint and the zone needs additional ventilation.	Read only
	Box Heating Type	Shows the type of heat installed in the VAV box.	Read only
	Supplemental Heating Type	Shows the type of heat installed for supplemental or perimeter heat.	Read only
	Cooling PID Saturation Status	Overview of the cooling PID loop status. A normal status indicates that cooling can occur at any time or cooling is currently on. The timing high status indicates that the output is at 100%, and the high status indicates 100% for more than five minutes.	Read only
	Heating PID Saturation Status	Overview of the heating PID loop status. A normal status indicates that heating can occur at any time or heating is currently on. The timing high status indicates that the output is at 100%, and the high status indicates 100% for more than five minutes.	Read only

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Setpoints	**Occupied Cooling Setpoint**	When occupied the thermostat controls cooling to this level. Set above occupied heating setpoint. Defaults to 72°F.	Adjustable: 46°F to 99°F
	Occupied Heating Setpoint	When occupied the thermostat controls heating to this level. Set below occupied cooling setpoint. Defaults to 68°F.	Adjustable: 45°F to 98°F
	Unoccupied Cooling Setpoint	When unoccupied the thermostat controls cooling to this level. Defaults to 80°F.	Adjustable: 46°F to 99°F
	Unoccupied Heating Setpoint	When unoccupied the thermostat controls heating to this level. Set below unoccupied cooling setpoint. Defaults to 60°F.	Adjustable: 45°F to 98°F
	Standby Cooling Setpoint	In order for the standby cooling setpoint to appear, set the occupancy mode to external. When set to external the zone switches to this setpoint when motion is no longer sensed and the unit is occupied. Defaults to 74°F.	Adjustable: 46°F to 99°F
	Standby Heating Setpoint	In order for the standby Heating setpoint to appear, set the occupancy mode to external. When set to external, the zone switches to this setpoint when motion is no longer sensed and the unit is occupied. Defaults to 66°F.	Adjustable: 45°F to 98°F
	Supply Air Temperature Setpoint	When the space temperature drops below the heating setpoint, the zone controller starts from the supply air temperature setpoint and resets to the supply air setpoint heating Max. Once the Heating Max setpoint is reached the supply air flow resets from heating minimum flow to cooling maximum flow.	Adjustable: 45°F to 130°F
	Warmer/Cooler Adjust Range	This is the range that the warmer cooler adjustment on the sensor can affect the setpoint. Setting it to zero means the user has no adjustment at the sensor. Default is 5°F	Adjustable: 0°F to 5°F
	Warmup Diff	This parameter indicates the amount with which the supply temperature must exceed the current zone temperature so that the controller detects a warmup condition.	Adjustable: -25 delta °F to 100 delta °F

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Commissioning: Flow	Cooling Maximum Flow	Sets the maximum supply air flow of the VAV box when cooling.	Adjustable: 0 cfm to 10,000 cfm
	Occupied Cooling Min Flow	Sets the minimum supply air flow of the VAV box when cooling.	Adjustable: 0 cfm to 10,000 cfm
	Occupied Heating Min Flow	Sets the minimum supply air flow of the VAV box when heating. ⓘ **Note:** When the zone is in heating mode, the supply air flow is constant. Thus, no maximum heating air flow.	Adjustable: 0 cfm to 10,000 cfm
	Unoccupied Cooling Min Flow	Sets the minimum supply air flow of the VAV box when unoccupied cooling and in the cooling mode.	Adjustable: 0 cfm to 10,000 cfm
	Unoccupied Heating Min Flow	Sets the minimum supply air flow of the VAV box when unoccupied heating and in the heating mode.	Adjustable: 0 cfm to 10,000 cfm
	Warmup Min Flow	During warmup mode this is the minimum flow to the VAV box.	Adjustable: 0 cfm to 10,000 cfm
	Staged Reheat Min Flow	Sets the minimum heating flow for electric reheat control. This parameter serves an additional control safety to the high-limit switches in the box. It is best practice to set this parameter to 70 cfm per kW of electric heat.	Adjustable: 0 cfm to 10,000 cfm
	DCV Max Flow	The DCV maximum ventilation flow. As determined by the CO_2 setpoint and proportional band, this is the maximum flow the DCV is set to. For example, if this is set to 700cfm and the controller is requiring maximum ventilation as determined by the DCV sequence, the system controls to 700cfm. However, if the system requires more flow because of temperature control, the flow setpoint may increase to the occupied cooling maximum flow setpoint in this section.	Adjustable: 0 cfm to 10,000 cfm
	DCV Occupied Cooling Min Flow	While in demand control ventilation (CO_2 Control) the minimum cooling supply air flow starts with this and span to the DCV maximum flow.	Adjustable: 0 cfm to 10,000 cfm
	DCV Occupied Heating Min Flow	While in demand control ventilation (CO_2 Control) the minimum heating supply air flow starts with this and span to the DCV maximum flow.	Adjustable: 0 cfm to 10,000 cfm
	Supply Flow	Shows the supply air flow measured by the VAV box.	Read only
	Supply Flow Setpoint	Shows the flow setpoint the damper is controlling the supply air flow to.	Read only
	Supply Area	Shows the supply inlet area used to calculate the supply flow.	Adjustable: 0 sq. ft. to 8.0 sq. ft.
	Pickup Gain	Shows the K factor for the box. Also used to adjusted the calibrate flow.	Adjustable: 0.1 to 9.9
	Velocity Pressure	Shows the velocity pressure sensed by the VAV box.	Read only
	Auto Calibration Command	This feature drives the VAV box damper shut and when it is shut, it offsets the differential pressure sensor so that it reads zero.	Adjustable: **False/True**
	Auto Calibration Status	The current status of the automatic calibration mode.	Read only
	Auto Calibration Offset	The resulting offset of the differential pressure sensor after an automatic calibration.	Read only

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Commissioning: Load Shed	**Load Shed Adjust**	This sets how the setpoint moves when a load shed command is issued. For example, if the Occupied Cooling Setpoint is 72°F, the cooling setpoint moves towards 76°F if the adjustment is set to four. If the Occupied Heating Setpoint is 70°F, the heating setpoint moves towards 66°F.	Adjustable: 0°F to 8°F
	Load Shed Rate Limit	This sets the rate at which the controller adjusts the setpoint until it hits the load shed adjust.	Adjustable: 0 to 1°F/min
	Load Shed Allowed	Enables the user to remove zones from the load shed command. Set this to false and the zone is removed from a load shed.	Adjustable: **False/True**
	Load Shed Active	Shows the current command for a load shed event.	Read only
Commissioning: DCV[1]	**Demand Ventilation Indoor Air Quality Setpoint**	Sets the point where the CO_2 level starts demand control ventilation. Above this level the zone switches to DCV and starts using the DCV positions. When you exceed this limit it issues a DCV call to the rooftop unit if DCV is enabled on the RTU.	Adjustable: 0 ppm to 5,000 ppm
	Indoor Air Quality Prop Band	Sets the rate at which the damper goes from minimum to maximum position. For example: If set at 400ppm and the indoor air quality setpoint is at 700ppm, the sensor needs to reach 1100ppm in order for the maximum position to be set. The controller proportionally opens until it reaches that point.	Adjustable: 0 ppm to 1,000 ppm
	Ventilation Timer	This timer starts when you fall below the demand ventilation indoor air quality setpoint and after this time expires, the DCV call to the rooftop unit expires and goes back to economizer minimum position.	Adjustable: 5 min to 30 min

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup	**System Mode**	Shows the current mode of the system.	Read only
	Control Application Type	This parameter sets the type of box heating installed. ❱ **Important:** When you change this parameter, the controller reboots and all other parameter settings are lost.	Adjustable: **Incremental/Staged/ Proportional SCR**
	Unit Enable	Enables or shuts down the zone control.	Adjustable: **Enable/ Shutdown**
	Power Fail Restart Enable	When the power fails, the controller delays 5 minutes before it comes back operational. This is done so electrical demand is not spiked.	Adjustable: **Enable/ Disable**
	Warmer/Cooler Adjust Enable	Enables the warmer/cooler adjustment to offset the current setpoint.	Adjustable: **False/True**
	DCV Enable	When set to CO_2 the DCV section in commissioning appears and a CO_2 sensor, when connected, controls the zone damper to add more ventilation when the CO_2 demand increases above setpoint.	Adjustable: **None/CO$_2$**
	Temp Occ Enable	Temporary Occupancy. If enabled, any adjustment to the zone sensor during the unoccupied mode places the zone in the occupied state and this parameter sets to true. In addition the zone coordinators **Network Temporary Occupancy Request** parameter sets to true and the unit starts and run for the temporary occupancy duration. Setting the parameter to disable does not allow this function to take place for this zone.	Adjustable: **Enable/ Disable**
	Zone Weight	Enables the user to increase the importance of a zone. For example, if zone weight is set to three, it counts the vote of the zone three times as much than a zone set to one. This parameter only shows up on COBP systems.	Adjustable: 0 to 3
	Zone Vote Allowed	Enables the user to remove a zone from voting. This parameter only shows up on change over bypass systems.	Adjustable: **False/True**
	Lockout Enable	This parameter enables or disables the rogue zone logic that takes a zone out of voting if it remains far away from the setpoint for too long.	Adjustable: **Disable/ Enable**
	Lockout Time	If the zone stays 3°F away from temperature setpoint for this duration, the zone is removed from the voting until the zone gets back in range at some point.	Adjustable: 15 min to 90 min
	Occupancy Mode	When set to **Schedule** the zone switches occupancy state, using the occupancy schedule of the zone coordinator only. When set to **External,** the controller reads the occupancy sensor contact and toggle between occupancy setpoints and standby setpoints during occupied mode of the schedule. When the schedule is unoccupied the unit switches to unoccupied setpoint and turns off.	Adjustable: **External/ Schedule**
	Auto Tuning Enable	Allows PRAC+ auto tuning algorithm to continuously tune the loops in the controller. Setting this to **Disable** turns off this feature.	Adjustable: **Enable/ Disable**

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup (continued)	**PID Tuning Reset**	Resets the PRAC+ tuning to the default values.	Adjustable: **Enable/ Disable**
	Power Fail Restart Time	Use this parameter to set how long the control remains idle before starting after a power loss.	Adjustable: 30 s to 600 s
	Standalone Mode	Use this parameter to set whether the controller is in standalone mode and determines occupancy based on flow, or it is connected to a BAS. If the ZEC is connected to a zone coordinator as part of a Verasys zoning system, set standalone mode to off.	Adjustable: **Off/On**
	Occ Min Flow 1	Use this parameter in standalone mode to set the minimum expected flow when the RTU or AHU is running. The box flow must be greater than this parameter for the ZEC to switch to occupied mode.	Adjustable: 0 cfm to 1,000 cfm
	SAT Limit Control	Use this parameter to enable the checking of supply air that enters the VAV box and to disable box heating if the supply air temperature exceeds the setpoint.	Adjustable: **False/True**
	High SAT Limit Setpoint	Configure this setpoint when you enable SAT limit control. If the supply air temperature exceeds this setpoint, box heating is disabled because the RTU or AHU already supplies hot air.	Adjustable: 50°F to 150°F
	Zone Group Number	Use this parameter to indicate to the VZC100 the group schedule that this zone follows. You can choose from four independent schedules.	Adjustable: 1 to 4

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Equipment Setup	**Min Valve Position**	Use this parameter to set the position of the heating valve when no heat is needed. ⓘ **Note:** This parameter is used for proportional SCR heat.	Adjustable: 0% to 100%
	Max Valve Position	Use this parameter to set the position of the heating valve when maximum heat is needed. ⓘ **Note:** This parameter is used for proportional SCR heat.	Adjustable: 0% to 100%
	Box Heating Stroke Time	Sets the actuator stroke time for the incremental heating valve.	Adjustable: 30 s to 120 s
	Supplemental Heating Stroke Time	Sets the actuator stroke time for the incremental supplemental heating valve.	Adjustable: 30 s to 120 s
	Actuator Stroke Time	Sets the damper actuator stroke time. ⓘ **Note:** The ZEC510 actuator is a 60-second motor.	Adjustable: 30 s to 120 s
	Damper Direction to Close	Sets the direction to close the zone damper.	Adjustable: **clockwise/ counter clockwise**
	Box Heating Polarity	Reverses the direction of the incremental heating valve. You can either switch this or reverse the wiring to the actuator.	Adjustable: **Normal/ Reverse**
	Supplemental Heating Polarity	Reverses the direction of the incremental supplemental heating valve. You can either switch this or reverse the wiring to the actuator.	Adjustable: **Normal/ Reverse**
	Number of Heating Stages Installed	Sets the number of box heating stages.	Adjustable: 0 - 2

	Fan Control Type	Sets the type of fan for the VAV Box.	Adjustable:
			  • **None**
			  • **Parallel**
			  • **Series**

	SAT Offset	Used to calibrate the supply air temperature sensor.	Adjustable: -5°F to 5°F
	ZNT Sensor Offset	Used to calibrate the zone temperature sensor.	Adjustable: -5°F to 5°F
	CO_2 Altitude Compensation	Altitude compensation used to calibrate the Netstat CO_2 sensor.	Adjustable: 700 hPa to 1,200 hPa
	IAQ Offset	Used to Calibrate the CO_2 Sensor. Only used for hardwired CO_2 sensors not Netstat.	Adjustable: -250 ppm to 250 ppm
	Heating Priority	Use this parameter to set whether to use box heat or supplemental heat first when both are installed.	Adjustable: **Box/ Supplemental**
	Heating Stage Command 1 Polarity	Use this parameter to set the output action to either normally open or normally closed for heating stage 1.	Adjustable: **Normal/ Reverse**
	Heating Stage Command 2 Polarity	Use this parameter to set the output action to either normally open or normally closed for heating stage 2.	Adjustable: **Normal/ Reverse**
	Heating Stage Command 3 Polarity	Use this parameter to set the output action to either normally open or normally closed for heating stage 3.	Adjustable: **Normal/ Reverse**

Table 18: ZEC510 objects and parameters

Menu	Object or Parameter	Description	Adjustable
Controller	Firmware Version	Displays the firmware version of the controller.	Read only
	Application Version	This string indicates the build number for the current application.	Read only
	Application Name	This string indicates the name of the application that is loaded on the controller.	Read only
	Address	Shows the address of the controller. The address is set by the dip switches on the controller.	Read only
	Unit Model Number	Shows the model number of the controller.	Read only
Trends	Zone Temperature	288 samples are taken at a 15 minute period.	Read only
	Indoor Air Quality	288 samples are taken at a 15 minute period.	Read only
	Supply Air Temperature	288 samples are taken at a 15 minute period.	Read only
	Heating Percent Command	288 samples are taken at a 15 minute period.	Read only
	Supplemental Heating Percent Command	288 samples are taken at a 15 minute period.	Read only
	Heating Stage Command 1	10 samples total. 1 sample taken every change of value.	Read only
	Heating Stage Command 2	10 samples total. 1 sample taken every change of value.	Read only
	Fan Command	10 samples total. 1 sample taken every change of value.	Read only
	Supplemental Heating Stage Command	10 samples total. 1 sample taken every change of value.	Read only
	Supply Flow	288 samples are taken at a 15 minute period.	Read only

1   In order for Commissioning: DCV tab to appear you must set the DCV Enable parameter to CO2.

Table 19: ZEC310 parameters and objects

Menu	Object or Parameter	Description	Adjustable
Home Page	Zone Temperature	Zone temperature reading from the zone sensor.	Read only
	Active Setpoint	This is the setpoint the zone is controlling to taking into account occupancy and the warmer/cooler adjustment.	Read only
	Operational Occupancy	This is the commanded occupancy from the zone coordinator. The zone is either in an occupied, unoccupied or standby state. Temporary occupancy can switch this from unoccupied to occupied. If a motion sensor is connected and motion is not sensed, it switches to standby.	Read only
	Zone Vote	This is the vote sent to the zone coordinator. The vote is either for Urgent Heat, Heat, Satisfied, Cool or urgent Cool. The zone coordinator determines what state the unit controls to, based on all of the votes from the zones.	Read only
	Damper Position	The commanded position of the zone damper.	Read only
	Temp OCC	Temporary Occupancy. If enabled, any adjustment to the zone sensor during the unoccupied mode places the zone in the occupied state and this parameter sets to true. In addition the zone coordinators **Network Temporary Occupancy Request** parameter sets to true and the unit starts and run for the temporary occupancy duration.	Read only
	Warmer/Cooler Adjustment	The output value of the adjustment knob at the zone sensor. The range of this adjustment is set by the warmer/cooler adjustment range parameter.	Read only
	Damper Mode	Indicates the mode of the zone damper. It can be heating, cooling, satisfied, or temperature unreliable.	Read only
	Network Override Supply Air Temperature	This is the supply air temperature as measured by the RTU and shared over the network to the ZEC through the VZC100.	Read only
	Heating PID Saturation Status	This parameter indicates the status of the PID loop for heating. Normal indicates normal control, timing high is when the heating loop is at 100% and high is when the loop is at 100% for more than 5 minutes.	Read only
	Cooling PID Saturation Status	This parameter indicates the status of the PID loop for cooling. Normal indicates normal control, timing high is when the cooling loop is at 100% and high is when the loop is at 100% for more than 5 minutes.	Read only

Table 19: ZEC310 parameters and objects

Menu	Object or Parameter	Description	Adjustable
Setpoints	**Occupied Cooling Setpoint**	When occupied, the thermostat controls cooling to this level. Set above occupied heating setpoint. Defaults to 72°F.	Adjustable: 46°F to 99°F.
	Occupied Heating Setpoint	When occupied, the thermostat controls heating to this level. Set below occupied cooling setpoint. Defaults to 68°F.	Adjustable: 45°F to 98°F
	Unoccupied Cooling Setpoint	When unoccupied, the thermostat controls cooling to this level. Defaults to 80°F.	Adjustable: 46°F to 99°F
	Unoccupied Heating Setpoint	When unoccupied, the thermostat controls heating to this level. Set below unoccupied cooling setpoint. Defaults to 60°F.	Adjustable: 45°F to 98°F
	Standby Cooling Setpoint	In order for the standby cooling setpoint to appear, set the occupancy mode to external. When set to external, the zone switches to this setpoint when motion is no longer sensed and the unit is occupied. Defaults to 74°F.	Adjustable: 46°F to 99°F
	Standby Heating Setpoint	In order for the standby heating setpoint to appear, set the occupancy mode to external. When set to external, the zone switches to this setpoint when motion is no longer sensed and the unit is occupied. Defaults to 66°F.	Adjustable: 45°F to 98°F
	Warmer/Cooler Adjust Range	This is the range that the warmer cooler adjustment on the sensor can affect the setpoint. Setting it to zero means the user has no adjustment at the sensor. Default is 3°F.	Adjustable: 0°F to 5°F
Commissioning: Flow	**Damper Cooling Min Position**	Sets the minimum position that the damper adjust to when the damper is cooling. Default is 50%.	Adjustable: 0% to 100%
	Damper Heating Min Position	Sets the minimum position that the damper adjusts to when the damper is heating. Default is 50%.	Adjustable: 0% to 100%
	Damper Max Position	This sets the maximum that the damper can open. Use this to reduce flow or noise. Default is 100%.	Adjustable: 0% to 100%
	Damper Satisfied Min Position	Sets the minimum position that the damper adjusts to when the damper is satisfied. Default is 10%.	
Commissioning: Title 24 Load Shed	**Load Shed Adjust**	The sets how the setpoints move when a load shed command is issued. For example, if the Occupied Cooling Setpoint is 72°F the cooling setpoint moves towards 76°F if the adjustment is set to four. If the Occupied Heating Setpoint is 70°F the heating setpoint moves towards 66°F.	Adjustable: 0°F to 8°F
	Load Shed Rate Limit	This sets the rate at which the controller adjusts the setpoint until it hits the load shed adjust.	Adjustable: 0 to 1°F/min
	Load Shed Allowed	The user can remove zones from the load shed command. Set this to false and the zone is removed from a load shed.	Adjustable: **False/True**
	Load Shed Active	Shows the current command for a load shed event.	Read only

Table 19: ZEC310 parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: DCV [1]	**Demand Ventilation Indoor Air Quality Setpoint**	Sets the point where the CO_2 level starts demand control ventilation. Above this level the zone switches to DCV and starts using the DCV positions. When you exceed this limit it issues a DCV call to the rooftop unit if DCV is enabled on the RTU.	Adjustable: 0 ppm to 5,000 ppm
	Indoor Air Quality Prop Band	Sets the rate at which the damper goes from minimum to maximum position. Example: If set at 400ppm and the indoor air quality setpoint is at 700ppm, the sensor needs to reach 1100ppm in order for the maximum position to be set. The controller proportionally opens until it reaches that point.	Adjustable: 0 ppm to 1,000 ppm
	Ventilation Timer	This timer starts when you fall below the demand ventilation indoor air quality setpoint and after this time expires the DCV call to the rooftop unit expires and goes back to economizer minimum position.	Adjustable: 5 min to 30 min
	DCV Cooling Min Value	The minimum damper position when cooling during a demand ventilation control state.	Adjustable: 0% to 100%
	DCV Heating Min Value	The minimum damper position when heating during a demand ventilation control state.	Adjustable: 0% to 100%
	DCV Max Vent Position	The maximum ventilation position. As determined by the setpoint and proportional band, this is the maximum position to set the ventilation. For example, if this is set to 50% and the controller is requiring maximum ventilation in the system, the damper adjusts to 50%. However, if the system requires more heating or cooling that damper may open further to the maximum position set in the *Commisioning* > *Flow* section.	Adjustable: 0% to 100%

Table 19: ZEC310 parameters and objects

Menu	Object or Parameter	Description	Adjustable
Control Setup	**System Mode**	Shows the mode of the system.	Read only
	Unit Enable	Enables or shuts down the zone control.	Adjustable: **Enable/Shutdown**
	Power Fail Restart Enable	Upon a power fail the controller delays five minutes before it comes back operational. This is done so electrical demand is not spiked.	Adjustable: **Enable/Disable**
	Warmer/Cooler Adjust Enable	The warmer/cooler adjustment to offset the current setpoint.	Adjustable: **False/True**
	DCV Enable	When set to CO_2 the DCV section in commissioning appears and a CO_2 sensor when connected, controls the zone damper to add more ventilation when the CO_2 demand increases above setpoint.	Adjustable: **None/CO_2**
	Temp OCC Enable	Setting this parameter to enable means you can adjust the zone sensor during the unoccupied mode, thus placing the zone in the occupied state. In addition, the zone coordinators **Network Temporary Occupancy Request** parameter sets to true and the unit starts and runs for the temporary occupancy duration. Setting the parameter to disable means this function cannot take place in this zone.	Adjustable: **Enable/Disable**
	Zone Weight	The user can increase the importance of a zone. For example, if the zone weight is set to three, it counts the vote of the zone three times as much than a zone set to one.	Adjustable: 0 to 3
	Zone Vote Allowed	The user can remove a zone from voting.	Adjustable: **False/True**
	Lockout Enable	This parameter enables or disables the rogue zone logic that takes a zone out of voting if it remains far away from the setpoint for too long.	Adjustable: **Disable/Enable**
	Lockout Time	If the zone stays at 3°F away from the temperature setpoint, the zone is removed from the voting until the zone gets back in range at some point.	Adjustable: 15 min to 90 min
	Occupancy Mode	When set to schedule, the zone switches occupancy state using the occupancy schedule of the zone coordinator only. When set to external, the controller looks at the occupancy sensor contact and toggle between occupancy setpoints and standby setpoints during occupied mode of the schedule. When the schedule is unoccupied the unit switches to unoccupied setpoint and turn off.	Adjustable: **External/Schedule**
	Auto Tune Enable	Allows PRAC+ auto tuning algorithm to continuously tune the loops in the controller. Setting this to disable turns off this feature.	Adjustable: **Enable/Disable**
	PID Tune Reset	Resets the PRAC+ tuning to the default values.	Adjustable: **Enable/Disable**
	Zone Group Number	Use this parameter to indicate to the VZC100 the group schedule that this zone follows. You can choose from four independent schedules.	Adjustable: 1 to 4

Table 19: ZEC310 parameters and objects

Menu	Object or Parameter	Description	Adjustable
Equipment Setup	Min Valve Position	Use this parameter to set the position of the heating valve when no heat is needed. ⓘ **Note:** This parameter is used for proportional SCR heat.	Adjustable: 0% to 100%
	Max Valve Position	Use this parameter to set the position of the heating valve when maximum heat is needed. ⓘ **Note:** This parameter is used for proportional SCR heat.	Adjustable: 0% to 100%
	Box Heating Installed	Use this parameter to specify whether box heating is installed.	Adjustable: **No/Yes**
	Supplemental Heating Installed	Use this parameter to specify whether supplemental heating is installed.	Adjustable: **No/Yes**
	Actuator Stroke Time	Sets the damper actuator stroke time. **Note:** The ZEC310 actuator is a 60 second motor.	Adjustable: 30 s to 120 s
	Damper Direction to Close	Sets the direction to close the zone damper.	Adjustable: clockwise/ counter clockwise
	ZNT Sensor Offset	Used to calibrate the zone temperature sensor.	Adjustable: -5°F to 5°F
Controller	Firmware Version	Displays the firmware version of the controller.	Read only
	Application Name	Displays the name of the application.	Read only
	Application Version	Displays the version of the application.	Read only
	Address	Shows the address of the controller. The address is set by the dip switches on the controller.	Read only
	Unit Model Number	Shows the model number of the controller.	Read only
Trends	Zone Temperature	288 samples are taken at a 15 minute period.	Read only
	Indoor Air Quality	288 samples are taken at a 15 minute period.	Read only

1   Note in order for Commissioning: DCV tab to appear you must set the DCV Enable parameter to CO2.

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Home Page	Zone Temperature	On the edge of the circle of comfort, the zone temperature reading from the zone sensor appears in one of the outer circles.	Read only
	Operating Setpoint	Inside the circle of comfort, this is the setpoint the zone controls to, taking into account occupancy and the warmer/cooler adjustment.	Read only
	Occupied Status	Inside the circle of comfort, the unit occupancy status appears.	Read only
	Unit Status	Inside the circle of comfort, the unit status shows the current status of the unit. If the unit is satisfied or off, the circle appears gray. If the unit is in cooling, the circle appears blue. If the unit is in heating, the circle appears red.	Read only
	Fan Status	Arrows rotate around the circle when the fan is on.	Read only
	Cooling Status	Shows the cooling status of the unit.	Read only
	Heating Status	Shows the heating status of the unit.	Read only
	Supply Air Temperature	Shows the supply air temperature of the unit.	Read only
	Outdoor Air Temperature	If install shows the outside air temperature.	Read only
	Alarms	The **Alarms** tab displays all alarms that are active. Click on **All Alarms** to see the history of alarms.	Read only

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Overview	**Setpoint Offset**	This object shows how much was added or subtracted to the setpoint by the up/down arrows on the front screen. It is adjustable and the limit is adjustable by the MAX Setpoint Offset value.	Adjustable: MAX Setpoint Offset sets range
	Hold/Run	If set to hold, the thermostat controls to this setpoint until it is placed back to run.	Adjustable: **Hold/Run**
	Active Setpoint	This is the setpoint the zone controls to, taking into account occupancy and the warmer/cooler adjustment.	Read only
	Unit Enable	Enables or shuts down the unit. If set to **Shutdown**, the unit remains off until set to enable.	Adjustable: **Enable/ Shutdown**
	Fan Override	• If set to **On**, the fan turns to keep the fan on. • If set to **Auto**, it follows the fan mode set under the **General Settings** menu. • If set to **Quiet**, it follows the fan mode set under the **General Settings** menu, but keeps multi-speed and variable-speed fans at their lowest speeds. This option is the same as Auto for single-speed fans. For the TEC3x3x models the Quiet Mode does not apply.	Adjustable: **On/Auto/ Quiet**
	Effective Zone Temperature	The current zone temperature for the zone.	Read only
	Units Status	Displays if the controller is cooling, heating, idle, disabled, or the reason why cooling and heating is unavailable.	Read only
	Occupancy Status	Displays the effective occupancy state for the controller.	Read only

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Setpoints	**Occupied Cooling Setpoint**	When occupied, the thermostat controls cooling to this level. Set above occupied heating setpoint. Defaults to 72°F.	Adjustable: 60.0°F to 100.0°F
	Occupied Heating Setpoint	When occupied, the thermostat controls heating to this level. Set below occupied cooling setpoint. Defaults to 68°F.	Adjustable: 45.0°F to 85.0°F
	Unoccupied Cooling Setpoint	When unoccupied, the thermostat controls cooling to this level. Defaults to 80°F.	Adjustable: 60.0°F to 100.0°F
	Unoccupied Heating Setpoint	When unoccupied, the thermostat controls heating to this level. Set below unoccupied cooling setpoint. Defaults to 60°F.	Adjustable: 45.0°F to 85.0°F
	Standby Cooling Setpoint	In order for the standby cooling setpoint to appear, set the occupancy mode to external. When set to external, the zone switches to this setpoint when motion is no longer sensed and the unit is occupied. Defaults to 74°F.	Adjustable: 60.0°F to 100.0°F
	Standby Heating Setpoint	In order for the standby heating setpoint to appear, set the occupancy mode to external. When set to external, the zone switches to this setpoint when motion is no longer sensed and the unit is occupied. Defaults to 66°F.	Adjustable: 45.0°F to 85.0°F
	Occ Setpoint Select	You can use this parameter to choose whether setpoints shift up and down together with the same range or if they should have separate minimum and maximum values.	Adjustable: **Setpoint Offset/Min and Max Setpoint**
	Heat Cool Setpoint Mode	Option to switch between distinct heating and cooling setpoints or a common setpoint with user-defined deadband.	Adjustable: **Individual Setpoints/Common Setpoint**
Schedule: Options	**Optimal Start Enable**	Enables or disables the optimal start algorithm to automatically start the equipment prior to the scheduled occupancy period. It does this in order to reach the occupied setpoint. At the same time the schedule transitions from unoccupied to occupied. Setting this option to yes only has an effect when the local schedule is used.	Adjustable: **No/Yes**
	Temp Occ Duration	Sets the duration for which the controller remains in a temporary occupancy period that is triggered during an unoccupied period. Temporary occupancy is triggered by interacting with the touch screen while unoccupied or by activating a binary input configured for temporary occupancy.	Adjustable: 0 min to 300 min
	Motion Sensor Timeout	Sets how long the controller waits to return to standby mode after the last detection of motion while in a scheduled occupied period. Setting the timeout to zero minutes disables standby mode.	Adjustable: 0 min to 240 min
	Manual Occupancy Mode	Use this mode to override all schedules and other sources of occupancy. You can also put the controller indefinitely into an occupied or unoccupied state.	Adjustable: **No Override/Occupied/ Unoccupied**
	Schedule Source	Sets the source of the occupancy schedule on the TEC. Setting to **Local** utilizes the internal 7-day programmable schedule, and setting to **External** uses the command from a BAS if it is online. If the BAS is offline, the schedule reverts to the onboard schedule.	Adjustable: **External/ Schedule**

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Display Settings	**Passcode Enabled**	Setting this to **True** means you can enter a 4-digit passcode into the configuration menu. You can only define a passcode via the local display.	Adjustable: 4 Digit Code
	Brightness Setting	Sets the brightness of the display when you are interacting with the display.	Adjustable: Range 0 - 10
	Enable Backlight Timeout	Sets whether the backlight should timeout and go to low brightness after three minutes.	Adjustable: **No/Yes**
	Language	Sets the language shown on the screens.	Adjustable: **English/French/Spanish**
	Units	Sets Imperial (IP) or Metric (SI) units on the display and exposed to a BAS.	Adjustable: IP/SI
	Time	Sets the time on the controller.	Read only
	Time Zone	Sets the time zone where the controller is installed. ⓘ **Note:** Some time zones display **No DST**. This stands for daylight savings time.	Adjustable: Varies
	Set Time Format	Sets the display time format on the controller.	Adjustable: 12 Hour/24 Hour
	Date	Sets the date on the controller.	Read only
	Set Date Format	Sets the display date format on the controller.	Adjustable
	Show Fan Icon On Home	Sets whether the user fan override option is available on the home screen. This means you can select the fan mode overrides from the home screen.	Adjustable: **No/Yes**
	Show Temp On Home	Sets whether the current zone temperature is displayed on the home screen.	Adjustable: **No/Yes**
	Show Humidity On Home	Sets whether the current zone humidity is displayed on the home screen. Humidity is always displayed when the setting is enabled on a thermostat controller with a built-in humidity sensor. The humidity is displayed when a network override is active on thermostat controllers without a built-in humidity sensor.	Adjustable: **No/Yes**
	Show Off Button On Home	Sets whether the master control On/Off icon is displayed on the home screen.	Adjustable: **No/Yes**
	Show Hold Button	Sets whether the Hold/Run icon is displayed on the home screen. The Hold/Run icon is the square around the zone setpoint on the right side of the screen.	Adjustable: **No/Yes**
	Show Setpoint On Home	Sets whether the current zone temperature setpoint is displayed on the home screen.	Adjustable: **No/Yes**
	Show Alarms On Home	Sets whether the current alarm symbol is displayed on the home screen when warnings or alarms are active.	Adjustable: **No/Yes**
	Show Occ Status	Sets whether the current occupancy status shows on the home screen.	Adjustable: **No/Yes**
	Show Unit Status	Sets whether the operational status of the controller shows on the home screen.	Adjustable: **No/Yes**
	Show Date/Time	Sets whether the date and time show on the home screen.	Adjustable: **No/Yes**

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup: General	**Control Mode**	Sets the thermostat to operate only in cooling or heating modes, or to automatically switch between cooling and heating based on the zone temperature.	Adjustable: **Auto/Heating/Cooling**
	Unit Enable	Enables or disables the control. This option is linked to the Off/On icon on the home screen. The home screen fan override can still turn the fan on when Unit Enable = False	Adjustable: **Enable/Shutdown**
	Fan Mode	Sets the operational mode of the fan. The options include: **On** - The fan runs continuously unless control is disabled. **Auto** - The fan cycles with the equipment stages. **Smart** - The fan operates continuously while occupied, and follows the **Auto** mode when unoccupied.	Adjustable: **On/Auto/Smart**
	Max Setpoint Offset	Sets the maximum deviation above or below the active programmed setpoint that the user can set from the home screen.	Adjustable: Range 0 to 20
	Fan On Delay	Sets how long the fan waits to turn on after turning on a stage of heating or cooling.	Adjustable: Range: 0 s - 120 s
	Fan Off Delay	Sets how long the fan waits to turn off after turning off the last stage of heating or cooling.	Adjustable: Range: 0 s - 120 s
	Frost Protection	Prompts the controller to turn on heating when the zone temperature drops below 42°F regardless of whether the control is enabled.	Adjustable: **No/Yes**
	Reset PID Tuning	Resets the PRAC+ tuning parameters of the PID controllers to the factory defaults.	Adjustable: **No/Yes**
	Auto Tuning Enable	Enables the PRAC+ auto tuning algorithm to adjust PID tuning parameters for optimal control performance.	Adjustable: **No/Yes**
	Aux Mode	Sets the mode that the auxiliary output runs in. Options include: **Not Used** - Opens the contact. **Occupied NO** - Closes the contact when the controller is occupied. **Occupied NC** - Opens the contact when the controller is occupied. **Occupied Fan NO** - Closes the contact when the controller is occupied and the fan is running. **Occupied Fan NC** - Opens the contact when the controller is occupied and the fan is running. **Off** - Opens the contact. **On** - Closes the contact.	Adjustable: **Not Used / Occupied NO / Occupied NC / Occupied Fan NO / Occupied Fan NC / Off / On**
	Load Shed Adjust	This sets how the setpoints move when a load shed command is issued. For example, if the Occupied Cooling Setpoint is 72°F the cooling setpoint moves towards 76°F if the adjustment is set to four. If the Occupied Heating Setpoint is 70°F the heating setpoint moves towards 66°F.	Adjustable: Range: 0°F - 8°F
	Load Shed Rate Limit	This sets the rate at which the controller adjusts the setpoint until it hits the load shed adjust.	Adjustable: Range: 0°F/min - 1 °F/min

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup: General (continued)	**Fan Alarm Delay**	If the binary inputs are set to supply fan status, the controller uses this delay parameter to delay a supply fan alarm. If set to zero the alarm turns off.	Adjustable: Range 0 min to 5 min
	Fan Alarm Action	When the supply fan alarm delay is above zero this parameter appears. This sets the action of the controller once a fan alarm is sensed.	Adjustable: Range: 0 s - 300 s
	Fan Alarm Reset	When the supply fan alarm delay is above zero, this parameter appears. You can reset the fan alarm here, once it has been triggered.	Adjustable: **No/Yes**
	Fan Runtime Limit	The fan runtime limit is used to set a periodic alarm for maintenance. Set the number of hours you want the fan to run for and after the limit is reached, an alarm generates. At this time perform the maintenance (i.e. change the filters, clean the coils) and then reset the alarm. Set this to zero when you want to disable it.	Adjustable: Range 0 hrs to 9000 hrs
	Fan Runtime Reset	This parameter appears when the runtime limit is above zero. It is used to reset the runtime alarm.	Adjustable: **No/Yes**
	Supply Air Temperature Alarm Offset	Defines the minimum change in supply air temperature when heating or cooling is active. If this offset is not exceeded within the delay, an alarm occurs. ⓘ **Note:** You can disable the alarm if you set this parameter to 0.	Adjustable: 0 delta °F to 10 delta °F
	Supply Air Temperature Alarm Delay	If the Supply Air Temperature Alarm Offset is greater than 0, the supply air temperature alarm is enabled. Use this parameter to set how long to delay the supply air temperature alarm.	Adjustable: 300 s to 3,600 s

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup: Inputs	**BI1 Config** **BI2 Config**	Sets the mode that the binary input operates in. • **Occupancy** – Direct override of **Occupied/Unoccupied** • **Temp Occ** – Trigger to place controller into **Temporary Occupancy** mode • **Motion NO** – External motion sensor with an open contact output when no motion is detected • **Motion NC** – External motion sensor with a closed contact output when no motion is detected • **Dirty Filter** – Input from the equipment to display a dirty filter fault on the thermostat • **Service** – Input from the equipment to display a service warning on the thermostat • **Fan Lock** – Air proof switch input to shut down control if no airflow is detected within ten seconds of turning the fan on • **Open Door** – Works in conjunction with the Motion NO/Motion NC sensor to control occupancy • **Open Window** – Sensor to shut down control if a window is opened. The controller disables control 60 seconds after detecting an opened window. • **Supply Fan Status** - Connect a current relay or air proving switch to the input for proof of fan. If the fan alarm delay is set above zero the controller issues an alarm if the commanded value does not match the measured value.	Adjustable: • **Disabled** • **Occupancy** • **Temp Occ** • **Motion NO** • **Motion NC** • **Dirty Filter** • **Service** • **Open Door** • **Open Window** • **Supply Fan Status**
	Supply Temp Sensor	Sets the type of analog supply temperature sensor connected to the controller.	Adjustable: **Nickel/Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Supply Temp Offset	Sets the offset applied to the supply/discharge temperature reading.	Adjustable: Range: -5.0 - 5.0

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup: Inputs (continued)	**Zone Temp Sensor**	Sets the type of analog zone temperature sensor connected to the controller.	Adjustable: **Nickel/ Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Zone Temp Offset	Sets the offset applied to the zone temperature displayed on the screen and used for control.	Adjustable: -5.0 to 5.0
	Outdoor Air Temp Sensor	Sets the type of analog outdoor air temperature sensor connected to the controller.	Adjustable: **Nickel/ Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Outdoor Air Temp Offset	Sets the offset applied to the outdoor temperature reading.	Adjustable: -5.0 to 5.0
	Reset Sensors	Resets sensor inputs back to factory state. This clears alarms for sensors which were connected at one point and are no longer connected.	Adjustable: **No/Yes**
	Zone Temp Alarm Enabled	If set to yes, the controller evaluates the zone temperature and issues an alarm if the zone temperature rises about the high limit or falls below the low limit.	Adjustable: **No/Yes**
	Zone Temp Low Limit	Appears when the zone temperature alarm is set to yes. Use this to set how low the zone temp drops before an alarm issues.	Adjustable: 32°F to 150°F
	Zone Temp High Limit	Appears when the zone temperature alarm is set to yes. Use this to set how high the zone temp rises before an alarm issues.	Adjustable: 32°F to 150°F

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup: Tuning	**Temp Control Setup**	Sets Automatic PID Tuning, Manual PID Tuning, Deadband Override, or On/Off Control (On/Off Control is available for units with staged control outputs only). • Automatic PID Tuning - uses PRAC+ (all units) and PMAC (staged units only) to satisfy zone demand. Works best with proportional equipment. Also works with staged equipment in large zones (500 sq ft or greater) with a single piece of equipment operating that space. • Manual PID Tuning - uses manual tuning parameters to satisfy zone demand, similar to Automatic PID Tuning, but parameters need to be manually adjusted per zone. • Deadband Override - uses PRAC+ (all units) and PMAC (staged units only) to satisfy zone demand. Allows the user to specify the Deadband parameter that PRAC+ and PMAC use. • On/Off Control - uses a simple deadband and timer to satisfy zone demand (staged equipment only).	Adjustable: **Automatic PID Tuning/Deadband Override/Manual PID Tuning/On Off Control**
	Reset PID Tuning	When Reset Tuning is True, causes the PID to reset the Effective Proportional Band and the Effective Integral Time to the values in Proportional Band and Integral Time.	Adjustable: **No/Yes**
	Deadband	Sets the Effective Deadband.	Adjustable: 1.4 delta °F to 3 delta °F
	Auto Economizer Tuning	Determines if the adaptive tuning is allowed to operate for the OA damper.	Adjustable: **Disable/Enable**
	Heat Prop Band	Sets the initial Effective Proportional Band.	Adjustable: 5 delta °F to 30 delta °F
	Heat Integral Time	Sets the initial Effective Integral Time.	Adjustable: 300 s to 1600 s
	Heat Process Range	Indicates the magnitude of the range that the process variable traverses as the Present Value of the PID varies between its minimum and maximum values.	Adjustable: 10 delta °F to 100 delta °F
	Heat Saturation Time	Sets the Effective Saturation Time.	Adjustable: 60 s to 900 s
	Heat Time Constant	Indicates the time required for a system to reach 63% of its final magnitude given a 100% step change.	Adjustable: 360 s to 1,440 s
	Heat Process Dead Time	Indicates the time required for the process to begin to reflect the results of a step change.	Adjustable: 20 s to 120 s
	Heat Period	Sets the Effective Period.	Adjustable: 30 s to 120 s
	Cool Prop Band	Sets the initial Effective Proportional Band.	Adjustable: 5 delta °F to 30 delta °F
	Cool Integral Time	Sets the initial Effective Integral Time.	Adjustable: 300 s to 1,600 s
	Cool Process Range	Indicates the magnitude of the range that the process variable traverses as the Present Value of the PID varies between its minimum and maximum values.	Adjustable: 10 delta °F to 100 delta °F

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Control Setup: Tuning (continued)	Cool Saturation Time	Sets the Effective Saturation Time.	Adjustable: 60 s to 900 s
	Cool Time Constant	Indicates the time required for a system to reach 63% of its final magnitude given a 100% step change.	Adjustable: 360 s to 1,440 s
	Cool Process Dead Time	Indicates the time required for the process to begin to reflect the results of a step change.	Adjustable: 20 s to 120 s
	Cool Period	Sets the Effective Period.	Adjustable: 30 s to 120 s
	Econ Prop Band	Sets the initial Effective Proportional Band.	Adjustable: 5 delta °F to 30 delta °F
	Econ Integral Time	Sets the initial Effective Integral Time.	Adjustable: 300 s to 1,600 s
	Econ Process Range	Indicates the magnitude of the range that the process variable traverses as the Present Value of the PID varies between its minimum and maximum values.	Adjustable: 10 delta °F to 100 delta °F
	Econ Saturation Time	Sets the Effective Saturation Time.	Adjustable: 60 s to 900 s
	Econ Time Constant	Indicates the time required for a system to reach 63% of its final magnitude given a 100% step change.	Adjustable: 360 s to 1,440 s
	Econ Process Dead Time	Indicates the time required for the process to begin to reflect the results of a step change.	Adjustable: 20 s to 120 s
	Econ Period	Sets the Effective Period.	Adjustable: 30 s to 120 s
	Equipment Size	Sets the internal zone temperature response. It can be normal (slower) or Oversized (faster).	Adjustable: **Normal/ Oversized**
Network Setup	FC Comm Mode	Sets BACnet or N2 communications mode. Only adjustable at the stat. For a Verasys system set this to BACnet.	Read only
	BACnet Instance ID	Sets the instance ID of the controller when on a BACnet network.	Adjustable: 1 to 4,194,303
	BACnet Address	Sets the physical network address on a BACnet network.	Adjustable: 0 to 127
	MSTP Baud Rate	When set to auto the SBH sets the baud rate for the controller.	Adjustable: **Auto/1200/9600/1920 0/38400/76800**
	BACnet Encoding Type	Sets the encoding type to use on the BACnet network. Verasys uses ISO 10646 (UCS-2).	Adjustable: **ISO 10646 (UCS-2)/ANSI X3.4 (US-ACSII)**

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Equipment Setup: General	**Number of Compressors**	Sets the number of compressors in a rooftop unit or heat pump.	Adjustable: **Not Used/ One Stage/Two Stage**
	Runtime Equalization	When enabled, the controller alternates between Y1 and Y2 calls when cycling 2-stage compressors, to ensure both compressors are equally used.	Adjustable: **No/Yes**
	Number of Heating Stages	Sets the number of heat stages in a rooftop unit. This option does not exist on heat pumps. Heat Pumps support a single stage of supplemental heating on top of compressor heating.	Adjustable: **Not Used/ One Stage/Two Stage**
	Compressor Min On Time	Sets the minimum time that a compressor runs under normal control conditions.	Adjustable: 0 s to 360 s
	Compressor Min Off Time	Sets the minimum time that a compressor must be off for before turning on again.	Adjustable: 0 s to 360 s
	Heating Min On Time	Sets the minimum time that the heating valve/ stage is open under normal conditions.	Adjustable: 0 s to 360 s
	Heating Min Off Time	Sets the minimum time that the heating valve/ stage is closed before opening again.	Adjustable: 0 s to 360 s
	Cooling Lockout Temp	Sets the outdoor temperature below which cooling does not run regardless of zone temperature.	Adjustable: 0°F to 100°F
	Heating Lockout Temp	Sets the outdoor temperature above which heating does not run regardless of zone temperature. **Note**: Frost Protection overrides this lockout.	Adjustable: 0°F to 100°F
	Unoccupied Off Delay	Sets the off delay time that the unit will continue to heat or cool after demand has been met when in Unoccupied mode.	0 min to 10 min
Equipment Setup: Economizer	**Economizer Installed**	Sets if economizer damper control is required on the rooftop or heat pump unit.	Adjustable: **No/Yes**
	Minimum Position	Sets the minimum economizer position when the fan is running.	Adjustable: 0% to 100%
	Closed Voltage	Sets the voltage corresponding to the damper being fully shut.	Adjustable: 0 V to 10 V
	Open Voltage	Sets the voltage corresponding to the damper being fully opened.	Adjustable: 0 V to 10 V
	Dry Bulb Setpoint	Sets the outdoor air temperature. When in dry bulb mode and the TEC only has outdoor and zone temperature, the economizer does not operate above this temp.	Adjustable: 40°F to 80°F
	Outdoor Enthalpy Setpoint	Sets the outdoor air enthalpy. When the TEC has outdoor temperature, outdoor humidity and zone temperature, the economizer cooling does not operate when in single enthalpy mode.	Adjustable: 10 to 50 Btu/lb dry air

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Equipment Setup: Heat Pump	Heat Pump Supported	Sets whether the W1 output is used to control a reversing valve (O/B) and if Y1/Y2 controls compressors for both cooling and heating. **Supp Heating Installed** – Sets if a stage of supplemental heating is connected to the W2 output. Many heat pumps with integrated control units use traditional thermostat controller wiring (Y, W, and G inputs). Only set this option to Yes on the heat pump units where the thermostat controller controls an O/B input on the equipment.	Adjustable: **No/Yes**
	Supp Heating Supported	Sets the minimum economizer position when the fan is running.	Adjustable: **No/Yes**
	Comp Low Lockout Temp	Sets the temperature below which compressor heating does not run.	-20°F to 100°F
	Supp High OA Lockout Temp	Sets the temperature above which supplemental heating does not run.	-20°F to 100°F
	Reverse Valve Polarity	Sets the voltage corresponding to the damper being fully shut.	Adjustable: Normal Heat/Normal Cool
System Status	Occupancy Source	Displays the current source of the TEC controller's occupancy.	Read only
	Unit Status	Displays if the controller is cooling, heating, idle, disabled, or the reason why cooling and heating is unavailable.	Read only
	Outdoor Air Temperature	If installed, displays the outdoor air temperature value in the controller.	Read only
	Supply Air Temperature	If installed, displays the supply air temperature value in the controller.	Read only
	Economizer Available	Displays the status if the outdoor conditions are suitable for economizer cooling.	Read only
	Cooling OAT Lockout	Displays if cooling is being locked out due to low outdoor air temperature.	Read only
	Heating OAT Lockout	Displays if heating is being locked out due to high outdoor air temperature.	Read only
	Comp Low OAT Lockout	Displays if compressor heating is locked out due to low outdoor air temperature.	Read only
	Zone Temp Source	Displays the source of the zone temperature reading in the TEC controller.	Read only
	Fan Accumulated Runtime	Displays the accumulated runtime.	Read only
	BI1 Status	Displays the current status of BI1.	Read only
	BI2 Status	Displays the current status of BI2.	Read only
Control Status	Control % Command	Displays the current PID controller percent command.	Read only
	Heating % Command	Displays the current PID controller percent command.	Read only
	Supplemental Heat % Command	If supplemental heating is installed, this parameter displays the current percent command for supplemental heating.	Read only
	Economizer % Command	Displays the current PID controller percent command.	Read only
	Cool Stage 1	Displays if the first stage of cooling is on.	Read only
	Cool Stage 2	Displays if the second stage of cooling is on.	Read only
	Heat Stage 1	Displays if the first stage of heating is on.	Read only
	Heat Stage 2	Displays if the second stage of heating is on.	Read only
	Fan	Displays the current fan command	Read only

Table 20: TEC363x objects and parameters

Menu	Object or Parameter	Description	Adjustable
Controller Info	**Model Name**	Displays the firmware version of the controller.	Read only
	Software Version	Shows the address of the controller. The address is set by the dip switches on the controller.	Read only
	Unit Name	The name of the unit.	Adjustable: 30 characters
	Device Name	The name of the device. This name shows up on the device list.	Adjustable: 30 characters
	Device Description	The description of the device. This description shows up on the device list.	Adjustable: 30 characters
Trends	**Effective Zone Temperature**	100 samples are taken at a 15 minute period.	Read only
	Active Setpoint	100 samples are taken at a 15 minute period.	Read only
	Humidity	100 samples are taken at a 15 minute period.	Read only
	BI1 Status	100 samples are taken at a 15 minute period.	Read only
	BI2 Status	100 samples are taken at a 15 minute period.	Read only
	Operational Outdoor Air Temperature	100 samples are taken at a 15 minute period.	Read only
	Supply Air Temperature	100 samples are taken at a 15 minute period.	Read only
	Fan Command	25 samples in total. 1 sample taken every change of value.	Read only
	Cool Stage 1 On	25 samples in total. 1 sample taken every change of value.	Read only
	Cool Stage 2 On	25 samples in total. 1 sample taken every change of value.	Read only
	Heat Stage 1 On	25 samples in total. 1 sample taken every change of value.	Read only
	Heat Stage 2 On	25 samples in total. 1 sample taken every change of value.	Read only
	Economizer PID Cmd	100 samples are taken at a 15 minute period.	Read only
	Heat PID Cmd	100 samples are taken at a 15 minute period.	Read only
	Cool/Dehum PID Cmd	100 samples are taken at a 15 minute period.	Read only

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Home Page	**Binary Input 1 Status**	The input is defined on the **Commissioning** tab.	Read only
	Binary Input 2 Status		
	Binary Input 3 Status		
	Binary Input 4 Status		
	Analog Input 5 Status		
	Analog Input 6 Status		
	Analog Input 7 Status		
	Analog Input 8 Status		
	Analog Input 9 Status		
	Netsensor 1 Temperature		
	Netsensor 2 Temperature		
	Netsensor 3 Temperature		
	Netsensor 4 Temperature		
	Netsensor 5 Temperature		
	Netsensor 1 Humidity		
	Netsensor 2 Humidity		
	Netsensor 3 Humidity		
	Netsensor 4 Humidity		
	Netsensor 5 Humidity		
	Output 1 Status		
	Output 2 Status		
	Output 3 Status		
	Output 4 Status		
	Output 5 Status		
	Output 6 Status		
	Output 7 Status		
	Output 8 Status		
	Output 9 Status		
	Energy Meter 1 Consumption		
	Energy Meter 2 Consumption		
	Energy Meter 3 Consumption		
	Energy Meter 4 Consumption		
Alarms	**Alarms**	To see the history of alarms, click **All Alarms**.	Read only
Status: Inputs	**Binary Input 1 Status**	The input is defined on the **Commissioning** tab.	Read only
	Binary Input 2 Status		
	Binary Input 3 Status		
	Binary Input 4 Status		
	Analog Input 5 Status		
	Analog Input 6 Status		
	Analog Input 7 Status		
	Analog Input 8 Status		
	Analog Input 9 Status		

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Status: Outputs	**Output 1 Status**	The input is defined on the **Commissioning** tab.	Read only
	Output 2 Status		
	Output 3 Status		
	Output 4 Status		
	Output 5 Status		
	Output 6 Status		
	Output 7 Status		
	Output 8 Status		
	Output 9 Status		
Status: Netsensor Plug and Play	**Netsensor 1 Temperature**	The input is defined on the **Commissioning** tab.	Read only
	Netsensor 1 Humidity		
	Netsensor 2 Temperature		
	Netsensor 2 Humidity		
	Netsensor 3 Temperature		
	Netsensor 3 Humidity		
	Netsensor 4 Temperature		
	Netsensor 4 Humidity		
	Netsensor 5 Temperature		
	Netsensor 5 Humidity		
Summary: General	**Energy Meter 1 Address**	Sets the address of the energy meter.	Adjustable: Enter the last 3 digits of the serial number.
	Energy Meter 2 Address		
	Energy Meter 3 Address		
	Energy Meter 4 Address		
Summary: Energy Meter 1	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Energy Consumption	Shows the electrical meter consumption since the last reset.	
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Input 1	If present, shows the consumption of the pulse meter hooked to input 1. The input is defined on the **Commissioning** tab.	
	Input 2	If present, shows the consumption of the pulse meter hooked to input 2. The name of the input is defined under the **Commissioning** tab.	
	Clear Statistics	Clears or resets the statistics of the meter.	Adjustable: **True/False**

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Summary: Energy Meter 2	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Energy Consumption	Shows the electrical meter consumption since the last reset.	
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Input 1	If present, shows the consumption of the pulse meter hooked to input 1. The input is defined on the **Commissioning** tab.	
	Input 2	If present, shows the consumption of the pulse meter hooked to input 2. The name of the input is defined under the **Commissioning** tab.	
	Clear Statistics	Clears or resets the statistics of the meter.	Adjustable: **True/False**
Summary: Energy Meter 3	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Energy Consumption	Shows the electrical meter consumption since the last reset.	
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Input 1	If present, shows the consumption of the pulse meter hooked to input 1. The input is defined on the **Commissioning** tab.	
	Input 2	If present, shows the consumption of the pulse meter hooked to input 2. The input is defined on the **Commissioning** tab.	
	Clear Statistics	Clears or resets the statistics of the meter.	Adjustable: **True/False**
Summary: Energy Meter 4	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Energy Consumption	Shows the electrical meter consumption since the last reset.	
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Input 1	If present, shows the consumption of the pulse meter hooked to input 1. The input is defined on the **Commissioning** tab.	
	Input 2	If present, shows the consumption of the pulse meter hooked to input 2. The input is defined on the **Commissioning** tab.	
	Clear Statistics	Clears or resets the statistics of the meter.	Adjustable: **True/False**

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Energy Meter 1: System	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Last Demand	Shows the amount of energy consumed in the last demand window time.	
	Demand Window Time	Sets the period in which the demand is monitored.	Adjustable: 5 min to 60 min
	Elapsed Demand Window	Shows the amount of time elapsed in the demand window time.	Read only
	Demand Window Count	Shows the number of demand windows since the last reset.	
	Energy Consumption	The electrical meter consumption of all phases since the last reset.	
	Clear Statistics	Clears or resets the statistics of the meter.	Adjustable
	Input 1	Sets whether Input 1 is used to accumulate.	Adjustable: **Present/**
	Input 2	Sets whether Input 2 is used to accumulate.	**Absent**
Commissioning: Energy Meter 1: R Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit.**	
	High Alarm Limit	Shows the value for the **High Alarm Limit.**	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit.**	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 1: S Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit.**	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit.**	
	High Alarm Limit	Shows the value for the **High Alarm Limit.**	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Energy Meter 1: T Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for High Alarm Limit.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for Low Alarm Limit	
	High Alarm Limit	Shows the value for the High Alarm Limit.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the Low Alarm Limit.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 1: Input 1	**Description**	Shows the description of this pulse input.	Adjustable
	Pulse Counter	Shows the number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	Shows the value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value.	Adjustable
Commissioning: Energy Meter 1: Input 2	**Description**	The description of this pulse input.	Adjustable
	Pulse Counter	Shows the number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	Shows the value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value.	Adjustable
Commissioning: Energy Meter 2: System	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Last Demand	Shows the amount of energy consumed in the last demand window time.	
	Demand Window Time	Sets the period in which the demand is monitored.	Adjustable: 5 min to 60 min
	Elapsed Demand Window	Shows the amount of time elapsed in the demand window time.	Read only
	Demand Window Count	Shows the number of demand windows since the last reset.	
	Energy Consumption	Shows the electrical meter consumption of all phases since the last reset.	
	Clear Statistics	Clears or resets the statistics of the meter	Adjustable
	Input 1	Sets whether Input 1 is used to accumulate.	Adjustable: **Present**/ **Absent**
	Input 2	Sets whether Input 2 is used to accumulate.	

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Energy Meter 2: R Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	Shows the value for the High Alarm Limit.,	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 2: S Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 2: T Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical / Service Priority / Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 2: Input 1	**Description**	Shows the description of this pulse input.	Adjustable
	Pulse Counter	Shows the number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	The value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value.	Adjustable

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Energy Meter 2: Input 2	**Description**	Shows the description of this pulse input.	Adjustable
	Pulse Counter	Shows the number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	The value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value.	Adjustable
Commissioning: Energy Meter 3: System	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Last Demand	Shows theamount of energy consumed in the last demand window time.	
	Demand Window Time	Sets the period in which the demand is monitored.	Adjustable: 5 min to 60 min
	Elapsed Demand Window	Shows the amount of time elapsed in the demand window time.	Read only
	Demand Window Count	Number of demand windows since the last reset.	
	Energy Consumption	Shows the electrical meter consumption of all phases since the last reset.	
	Clear Statistics	Clears or resets the statistics of the meter.	Adjustable
	Input 1	Sets whether Input 1 is used to accumulate.	Adjustable: **Present/ Absent**
	Input 2	Sets whether Input 2 is used to accumulate.	
Commissioning: Energy Meter 3: R Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	The electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Energy Meter 3: S Phase	Voltage	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	The electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 3: T Phase	Voltage	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	The value for the **High Alarm Limit**.	Adjustable: 90 V to 600 V
	Low Alarm Limit	The value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 3: Input 1	Description	The description of this pulse input.	Adjustable
	Pulse Counter	The number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	The value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value	Adjustable
Commissioning: Energy Meter 3: Input 2	Description	Shows the description of this pulse input.	Adjustable
	Pulse Counter	Shows the number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	Shows the value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value.	Adjustable

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Energy Meter 4: System	Description	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Last Demand	Shows the amount of energy consumed in the last demand window time.	
	Demand Window Time	Sets the period in which the demand is monitored.	Adjustable: 5 min to 60 min
	Elapsed Demand Window	The amount of time elapsed in the demand window time.	Read only
	Demand Window Count	Number of demand windows since the last reset.	
	Energy Consumption	The electrical meter consumption of all phases since the last reset.	
	Clear Statistics	Clears or resets the statistics of the meter.	Adjustable
	Input 1	Sets whether Input 1 is used to accumulate.	Adjustable: **Present/ Absent**
	Input 2	Sets whether Input 2 is used to accumulate.	
Commissioning: Energy Meter 4: R Phase	Voltage	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 4: S Phase	Voltage	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Energy Meter 4: T Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	The electrical meters phase consumption since the last reset.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for High Alarm Limit.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for Low Alarm Limit.	
	High Alarm Limit	Shows the value for the High Alarm Limit.	Adjustable: 90 V to 600 V
	Low Alarm Limit	Shows the value for the Low Alarm Limit.	
	Differential	Sets the alarm differential.	Adjustable: 0 V to 10 V
Commissioning: Energy Meter 4: Input 1	**Description**	The description of this pulse input.	Adjustable
	Pulse Counter	The number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	The value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value.	Adjustable
Commissioning: Energy Meter 4: Input 2	**Description**	The description of this pulse input.	Adjustable
	Pulse Counter	The number of pulses since last reset.	Read only
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	
	Scale Factor	The value of each pulse. Multiplying the scale factor by the pulse count gives the present value.	Adjustable: 0.01 to 1,000
	Change Units	Change the display units of the present value.	Adjustable
Commissioning: Inputs: Binary Input 1	**Present**	Sets whether or not this input is in use.	Adjustable: **Present**/ **Absent**
	States Text	Sets the enumeration that the object shows on screen.	Adjustable
	Input	The current state of the input; the name of this is reflected in the **Description** field.	Read only
	Description	The description of the input.	Adjustable
	Delay Type	If this a momentary input, this parameter sets the delay type for the input.	Adjustable: **None/Off/ On/Both**
	Off Delay	If the delay type is set to **Off** or **Both**, this sets the **Delay Off timer**.	Adjustable: 1 min to 360 mins
	On Delay	If the delay type is set to **On** or **Both**, this sets the **Delay On timer**.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	Alarm Text	Sets the text that is sent with the alarm.	Adjustable
	Alarm State	Sets which state issues the alarm.	
	Alarm Delay	Delays the alarm if needed.	Adjustable: 0 mins to 100 mins

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Inputs: Binary Input 2	**Present**	Sets whether or not this input is in use.	Adjustable: **Present/ Absent**
	States Text	Sets the enumeration that the object shows on screen.	Adjustable
	Input	The current state of the input; the name of this is reflected in the **Description** field.	Read only
	Description	The description of the input.	Adjustable
	Delay Type	If this a momentary input, this sets the delay type for the input.	Adjustable: **None/Off/ On/Both**
	Off Delay	If the delay type is set to **Off** or **Both**, this sets the **Delay Off timer**.	Adjustable: 1 min to 360 mins
	On Delay	If the delay type is set to **On** or **Both**, this sets the Delay On timer.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	Alarm Text	Sets the text that is sent with the alarm.	Adjustable
	Alarm State	Sets which state issues the alarm.	
	Alarm Delay	Delays the alarm if needed.	Adjustable: 0 mins to 100 mins
Commissioning: Inputs: Binary Input 3	**Present**	Sets whether this input is being used or not.	Adjustable: **Present/ Absent**
	States Text	Sets the enumeration that the object shows on screen.	Adjustable
	Input	The current state of the input; the name of this is reflected in the **Description** field.	Read only
	Description	The description of the input	Adjustable
	Delay Type	If this a momentary input, this parameter sets the delay type for the input.	Adjustable: **None/Off/ On/Both**
	Off Delay	If the delay type is set to Off or Both, this sets the Delay Off timer.	Adjustable: 1 min to 360 mins
	On Delay	If the delay type is set to On or Both, this sets the Delay On timer.	
	Alarm Priority	If set to something other than Disable, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical / Service Priority / Service**
	Alarm Text	Sets the text that is sent with the alarm.	Adjustable
	Alarm State	Sets which state issues the alarm.	
	Alarm Delay	Delays the alarm if needed.	Adjustable: 0 mins to 100 mins

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Inputs: Binary Input 4	**Present**	Sets whether or not this input is in use.	Adjustable: **Present/ Absent**
	States Text	Sets the enumeration that the object shows on screen.	Adjustable
	Input	The current state of the input; the name of this is reflected in the **Description** field.	Read only
	Description	The description of the input.	Adjustable
	Delay Type	If this a momentary input, this sets the delay type for the input.	Adjustable: **None/Off/ On/Both**
	Off Delay	If the delay type is set to Off or Both, this sets the Delay Off timer.	Adjustable: 1 min to 360 mins
	On Delay	If the delay type is set to On or Both, this sets the Delay On timer.	
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	Alarm Text	Sets the text that is sent with the alarm.	Adjustable
	Alarm State	Sets which state issues the alarm.	
	Alarm Delay	Delays the alarm if needed.	Adjustable: 0 mins to 100 mins

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Inputs: Analog Input 5	Point Type	Sets what kind of input the point is defined as.	Adjustable: **Undefined/ Temperature/ Humidity/CO2/Light Sensor/Refrigerant/ Building Pressure/ Steam Pressure/ Voltage/Current**
	Description	The description of the input.	Adjustable
	Input	The current value of the input; the name of this is reflected in the **Description** field.	Read only
	Change Units	Change the units for user defined voltage or current inputs.	Adjustable
	Change Display Precision	Change the display precision, which also changes the change of value (COV) increment, for user defined voltage or current inputs.	
	Setup	When point type is set to Temperature Inputs, this sets the type of sensor used.	Adjustable: **Nickel/ Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Input Range Low	When point type is set to **Voltage** and **Current**, this parameter sets the voltage or current for the minimum value.	Adjustable: 0 to 10, V or mA depending on the input
	Input Range High	When the point type is set to **Voltage** and **Current**, this parameter sets the voltage or current for the max value.	Adjustable: 5 to 20, V or mA depending on the input
	Voltage Range	When point type is set to **Building Pressure**, this parameter sets the voltage input for the sensor.	Adjustable: 0 to 10 V/2 to 10 V/0 to 5 V
	Device Type	Point type is set to **Steam Pressure** and assumes the sensor is DPT2090-25G. This parameter sets whether the sensor sends a current or voltage. If it sends voltage, the range is 0-5.5 VDC. If it sends current, the range is 4-20 mA.	Adjustable: **Current/ Voltage**
	Output Range Low	Point type set to **Building Pressure**, **Voltage**, or **Current**. Sets the minimum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Output Range High	Point type set to **Building Pressure**, **Voltage**, or **Current**. Sets the maximum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Offset	Use this parameter to offset the present value of the analog input.	Adjustable: +/-10% of full range (dynamic)
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical / Service Priority / Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	Unreliable Sensor	Sets the text that is sent when the sensor is unreliable.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: Dynamic based on point type
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Alarm Delay	Delays the alarm if needed.	
	Alarm Differential	Sets the alarm differential.	Adjustable: +/- 10% of full range (dynamic)
	Trend	Enables or disables the trend.	Adjustable: Enable/ Disable
	Interval	Sets the interval of the trend samples.	Adjustable: 0 s to 900 s

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Inputs: Analog Input 6	**Point Type**	Sets what kind of input the point is defined as.	Adjustable: **Undefined/ Temperature/ Humidity/CO2/Light Sensor/Refrigerant/ Building Pressure/ Steam Pressure/ Voltage/Current**
	Description	The description of the input.	Adjustable
	Input	The current value of the input; the name of this is reflected in the **Description** field.	Read only
	Change Units	Change the units for user defined voltage or current inputs.	Adjustable
	Change Display Precision	Change the display precision, also changes the COV increment, for user defined voltage or current inputs.	
	Setup	When point type is set to **Temperature Inputs**, this parameter sets the type of sensor used.	Adjustable: **Nickel/ Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Input Range Low	When point type is set to **Building Pressure Voltage** and **Current**. Sets the voltage or current for the minimum value.	Adjustable: 0 to 10, V or mA depending on input
	Input Range High	When point type is set to **Voltage** and **Current**. This parameter sets the voltage or current for the max value.	Adjustable: 5 to 20, V or mA depending on input
	Voltage Range	When point type is set to **Building Pressure**. This parameter sets the voltage input for the sensor.	Adjustable: 0 to 10 V/2 to 10 V/0 to 5 V
	Device Type	Point type is set to **Steam Pressure** and assumes the sensor is DPT2090-25G. This parameter sets whether the sensor sends a current or voltage. If it sends voltage, the range is 0-5.5 VDC. If it sends current, the range is 4 to 20 mA.	Adjustable: **Current/ Voltage**
	Output Range Low	Point type set to **Building Pressure**, **Voltage**, or **Current**. Sets the minimum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Output Range High	Point type set to **Building Pressure**, **Voltage**, or **Current**. Sets the maximum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Offset	Use this to offset the present value of the analog input.	Adjustable: +/-10% of full range (dynamic)
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	Unreliable Sensor	Sets the text that is sent when the sensor is unreliable.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: Dynamic based on point type
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Alarm Delay	Delays the alarm if needed.	
	Alarm Differential	Sets the alarm differential.	Adjustable: +/-10% of full range (dynamic)
	Trend	Enables or disables the trend.	Adjustable: **Enable**/**Disable**
	Interval	Sets the interval of the trend samples.	Adjustable: 0 s to 900 s

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Inputs: Analog Input 7	Point Type	Sets what kind of input the point is defined as.	Adjustable: **Undefined/ Temperature/ Humidity/CO2/Light Sensor/Refrigerant/ Building Pressure/ Steam Pressure/ Voltage/Current**
	Description	The description of the input.	Adjustable
	Input	The current value of the input; the name of this is reflected in the **Description** field.	Read only
	Change Units	Change the units for user defined voltage or current inputs.	Adjustable
	Change Display Precision	Change the display precision (also changes the COV increment) for user defined voltage or current inputs.	
	Setup	When point type is set to **Temperature Inputs**, this sets the type of sensor used.	Adjustable: **Nickel/ Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Input Range Low	When point type is set to **Building Pressure Voltage** and **Current**. Sets the voltage or current for the minimum value.	Adjustable: 0 to 10, V or mA depending on input
	Input Range High	When point type is set to **Voltage** and **Current**. Sets the voltage or current for the max value.	Adjustable: 5 to 20, V or mA depending on input
	Voltage Range	When point type is set to **Building Pressure**. This sets the voltage input for the sensor.	Adjustable: 0 to 10 V/2 to 10 V/0 to 5 V
	Device Type	**Point type** is set to **Steam Pressure** and assumes the sensor is DPT2090-25G. This sets whether the sensor sends a current or voltage. If it sends voltage, the range is 0-5.5 VDC. If it sends current, the range is 4-20 mA.	Adjustable: **Current/ Voltage**
	Output Range Low	**Point type** set to **Building Pressure**, **Voltage**, or **Current**. Sets the minimum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Output Range High	**Point type** set to **Building Pressure**, **Voltage**, or **Current**. Sets the maximum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Offset	Use this to offset the present value of the analog input.	Adjustable: +/-10% of full range (dynamic)
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical / Service Priority / Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	Unreliable Sensor	Sets the text that is sent when the sensor is unreliable.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: Dynamic based on point type
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Alarm Delay	Delays the alarm if needed.	
	Alarm Differential	Sets the alarm differential.	Adjustable: +/-10% of full range (dynamic)
	Trend	Enables or disables the trend.	Adjustable: **Enable/ Disable**
	Interval	Sets the interval of the trend samples.	Adjustable: 0 s to 900 s

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Inputs: Analog Input 8	**Point Type**	Sets what kind of input the point is defined as.	Adjustable: **Undefined/ Temperature/ Humidity/CO2/Light Sensor/Refrigerant/ Building Pressure/ Steam Pressure/ Voltage/Current**
	Description	Shows the description of the input.	Adjustable
	Input	Shows the current value of the input; the name of this is reflected in the **Description** field.	Read only
	Change Units	Change the units for user defined voltage or current inputs.	Adjustable
	Change Display Precision	Change the display precision for user defined voltage or current inputs. Also changes the COV increment.	
	Setup	When point type is set to **Temperature Inputs**, this sets the type of sensor used.	Adjustable: **Nickel/ Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Input Range Low	**Point type** is set to **Building Pressure Voltage** and **Current**. Sets the voltage or current for the minimum value.	Adjustable: 0 to 10, V or mA depending on input
	Input Range High	**Point type** is set to **Voltage** and **Current**. Sets the voltage or current for the max value.	Adjustable: 5 to 20, V or mA depending on input
	Voltage Range	**Point type** is set to **Building Pressure**. This sets the voltage input for the sensor.	Adjustable: 0 to 10 V/2 to 10 V/0 to 5 V
	Device Type	**Point type** is set to **Steam Pressure** and assumes the sensor is DPT2090-25G. This sets whether the sensor sends a current or voltage. If it sends voltage, the range is 0-5.5 VDC If it sends current, the range is 4-20 mA.	Adjustable: **Current/ Voltage**
	Output Range Low	**Point type** is set to **Building Pressure**, **Voltage**, or **Current**. Sets the minimum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Output Range High	**Point type** is set to **Building Pressure**, **Voltage**, or **Current**. Sets the maximum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Offset	Use this to offset the present value of the analog input.	Adjustable: +/-10% of full range (dynamic)
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	Unreliable Sensor	Sets the text that is sent when the sensor is unreliable.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: Dynamic based on point type
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Alarm Delay	Delays the alarm if needed.	
	Alarm Differential	Sets the alarm differential.	Adjustable: +/-10% of full range (dynamic)
	Trend	Enables or disables the trend.	Adjustable: **Enable/ Disable**
	Interval	Sets the interval of the trend samples.	Adjustable: 0 s to 900 s

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Inputs: Analog Input 9	Point Type	Sets what kind of input the point is defined as.	Adjustable: **Undefined/ Temperature/ Humidity/CO2/Light Sensor/Refrigerant/ Building Pressure/ Steam Pressure/ Voltage/Current**
	Description	The description of the input.	Adjustable
	Input	The current value of the input; the name of this is reflected in the **Description** field.	Read only
	Change Units	Change the units for user defined voltage or current inputs.	Adjustable
	Change Display Precision	Change the display precision for user defined voltage or current inputs. Also changes the COV increment.	
	Setup	When point type is set to **Temperature Inputs**, this sets the type of sensor used.	Adjustable: **Nickel/ Platinum/A99B/2.25K NTC/10K NTC/10K NTC Type 3**
	Input Range Low	Point type is set to **Building Pressure Voltage** and **Current**. Sets the voltage or current for the minimum value.	Adjustable: 0 to 10, V or mA depending on input.
	Input Range High	Point type is set to **Voltage** and **Current**. Sets the voltage or current for the maximum value.	Adjustable: 5 to 20, V or mA depending on input.
	Voltage Range	Point type is set to **Building Pressure .**This sets the voltage input for the sensor.	Adjustable: 0 to 10 V/2 to 10 V/0 to 5 V
	Device Type	Point type is set to **Steam Pressure** and assumes the sensor is DPT2090-25G. This sets whether the sensor sends a current or voltage. If it sends voltage, the range is 0-5.5 VDC. If it sends current, the range is 4-20 mA.	Adjustable: **Current/ Voltage**
	Output Range Low	Point type set to **Building Pressure**, **Voltage**, or **Current**. Sets the minimum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Output Range High	Point type set to **Building Pressure**, **Voltage**, or **Current**. Sets the maximum value of the range for the sensor.	Adjustable: -100,000 to 100,000
	Offset	Use this to offset the present value of the analog input.	Adjustable: +/-10% of full range (dynamic)
	Alarm Priority	If set to something other than Disable, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Text	Sets the text that is sent with the alarm for **High Alarm Limit**.	Adjustable
	Low Alarm Text	Sets the text that is sent with the alarm for **Low Alarm Limit**.	
	Unreliable Sensor	Sets the text that is sent when the sensor is unreliable.	
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: Dynamic based on point type
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Alarm Delay	Delays the alarm if needed.	
	Alarm Differential	Sets the alarm differential.	Adjustable: +/-10% of full range (dynamic)
	Trend	Enables or disables the trend.	Adjustable: **Enable/ Disable**
	Interval	Sets the interval of the trend samples.	Adjustable: 0 s to 900 s

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Outputs: Output 1	**Description**	The description of the **Output**.	Adjustable
	Output	The current state of the **Output**; the name reflects the description.	Read only
	Override	The ability to override the **Output**.	Adjustable: **Off/On**
Commissioning: Outputs: Output 2	**Description**	The description of the **Output**.	Adjustable
	Output	The current state of the **Output**; the name reflects the description.	Read only
	Override	The ability to override the **Output**.	Adjustable: **Off/On**
Commissioning: Outputs: Output 3	**Description**	The description of the **Output**.	Adjustable
	Output	The current state of the **Output**; the name reflects the description.	Read only
	Override	The ability to override the **Output**.	Adjustable: **Off/On**
Commissioning: Outputs: Output 4	**Description**	The description of the output.	Adjustable
	Output	The current state of the output; the name reflects the description.	Read only
	Override	The ability to override the output.	Adjustable: **Off/On**
Commissioning: Outputs: Output 5	**Description**	The description of the output.	Adjustable
	Output	The current state of the output; the name reflects the description.	Read only
	Override	The ability to override the output.	Adjustable: **Off/On**
Commissioning: Outputs: Output 6	**Description**	The description of the output.	Adjustable
	Output	The current state of the output; the name reflects the description.	Read only
	Override	The ability to override the output.	Adjustable: **Off/On**
Commissioning: Outputs: Output 7	**Description**	Shows the description of the output.	Adjustable
	Output	Shows the current state of the output; the name reflects the description.	Read only
	Override	The ability to override the output.	Adjustable: **Off/On**
Commissioning: Outputs: Output 8	**Description**	The description of the output.	Adjustable
	Output	Shows the current state of the output; the name reflects the description.	Read only
	Override	The ability to override the output.	Adjustable: **Off/On**
Commissioning: Outputs: Output 9	**Description**	The description of the output.	Adjustable
	Output	The current state of the output; the name reflects the description.	Read only
	Override	The ability to override the output.	Adjustable: **Off/On**

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Netsensor Plug and Play: Netsensor 1	**Temperature**	Shows the temperature of the Netsensor at address 199.	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the temperature input.	Adjustable: -5°F to 5°F
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0°F to 250°F
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	Adjustable: 0°F to 250°F
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0°F to 100°F
	Humidity	Shows the humidity of the Netsensor at address 199.	Read only
	Description	The description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the humidity input.	Adjustable: -5 to 5% RH
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0% to 100% RH
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0% to 100% RH
	Interval	Sets the interval of the trend samples.	Adjustable: 1 min to 15 min

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Netsensor Plug and Play: Netsensor 2	**Temperature**	Shows the temperature of the Netsensor at address 200.	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the temperature input	Adjustable: -5°F to 5°F
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0°F to 250°F
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0°F to 100°F
	Humidity	Shows the humidity of the Netsensor at address 200.	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the humidity input.	Adjustable: -5 RH to 5% RH
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0% to 100% RH
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0% to 100% RH
	Interval	Sets the interval of the trend samples.	Adjustable: 1 min to 15 min

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Netsensor Plug and Play: Netsensor 3	**Temperature**	Shows the temperature of the Netsensor at Address 201.	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the temperature input.	Adjustable: -5°F to 5°F
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0°F to 250°F
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0°F to 100°F
	Humidity	Shows the humidity of the Netsensor at address 201	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the humidity input.	Adjustable: -5 to 5% RH
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0% to 100% RH
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0% to 100% RH
	Interval	Sets the interval of the trend samples.	Adjustable: 1 min to 15 min

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Netsensor Plug and Play: Netsensor 4	**Temperature**	Shows the temperature of the Netsensor at Address 202	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the temperature input.	Adjustable: -5°F to 5°F
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0°F to 250°F
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0°F to 100°F
	Humidity	Shows the humidity of the Netsensor at address 202.	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the humidity input.	Adjustable: -5 to 5% RH
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable**/ **Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0% to 100% RH
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0% to 100% RH
	Interval	Sets the interval of the trend samples.	Adjustable: 1 min to 15 min

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Netsensor Plug and Play: Netsensor 5	**Temperature**	Shows the temperature of the Netsensor at address 203.	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the temperature input.	Adjustable: -5°F to 5°F
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the **High Alarm Limit**.	Adjustable: 0°F to 250°F
	Low Alarm Limit	Shows the value for the **Low Alarm Limit**.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0°F to 100°F
	Humidity	Shows the humidity of the Netsensor at address 203.	Read only
	Description	Shows the description of the Netsensor.	Adjustable
	Offset	Use this to offset the present value of the humidity input.	Adjustable: -5 to 5% RH
	Alarm Priority	If set to something other than **Disable**, the object issues alarms. The state set is the priority set for the alarm.	Adjustable: **Disable/ Critical** / **Service Priority** / **Service**
	High Alarm Limit	Shows the value for the High Alarm Limit.	Adjustable: 0 to 100% RH
	Low Alarm Limit	Shows the value for the Low Alarm Limit.	
	Time Delay	Delays the alarm if needed.	Adjustable: 0 min to 60 min
	Alarm Differential	Sets the alarm differential.	Adjustable: 0% to 100% RH
	Interval	Sets the interval of the trend samples.	Adjustable: 1 min to 15 min
Controller: Firmware	**Firmware Status**	The status of the firmware loaded in the controller.	Read only
	Calibration Data Fault	Appears if proper calibration is not loaded at the factory.	
	Firmware Main Version	Displays the firmware version of the controller.	
	Application Version	Displays the version of the application.	
	Application Name	Displays the name of the application.	
	Equipment Template Version	Displays the version of the template.	
	Equipment Archive Version	Displays the version of the equipment archive.	
	Equipment View Version	Displays the version of the view definition.	
Controller: Time	**Time**	Shows the time set by the SBH. To change the date and time, go to the **Settings** > **System Setting** on the SBH and adjust the date and time.This adjustment syncs to all online devices.	Read only
	Date	Shows the date that the controller is set to.	
	Time Zone	Shows the time zone the controller is adjusting to.	Adjustable

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Controller: Network	**Device Name**	Shows the name of the device on the device list.	Adjustable: 30 characters
	Device Description	Shows the description of the device on the device list.	
	Device OID	BACnet Device OID for the system bus. On a standalone Verasys System, this parameter is not used. If connected to a 3rd party facility management system, the parameter sets the BACnet ID for the zone coordinator.	Adjustable: Range: 1 to 4,194,303
	Address	Shows the address of the controller; the address is adjustable via the SBH and the display on the controller.	Adjustable: 0 to 127
	Communication Status	Shows the status of the zone bus communication.	Read only
	FC Comm Mode	Set to wired field bus. ⓘ **Note:** This feature is not available yet.	
	Baud Rate	When set to auto, the zone coordinator sets the baud rate for the controller.	Adjustable: Auto/1200/9600/19200/38400/76800
	Operating Baud Rate	Shows the baud rate of the controller.	Read only
	BACnet Encoding Type	Shows the encoding type set and the character set that the controller uses.	Adjustable: ISO 10646 (UCS-2)/ANSI X3.4 (US-ASCII)/Microsoft DBCS code page 932 (Japanese Shift JIS)/ISO 106464 (UTF-8)
Controller: Misc	**Language**	Sets the language of the controller.	Read only
	Units	Sets the units of the controller.	Adjustable: **Imperial/ Metric**
	Relearn system	A relearn system tells the controller that sensors that were removed and are showing as unreliable is intentional. The system resets the reliability status for these points.	Adjustable: **False/True**
Details: Energy Meter 1: System	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Energy Consumption	Shows the electrical meter consumption of all phases since the last reset.	Read only
Details: Energy Meter 1: R Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 1: S Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	The electrical meter phase consumption since the last reset	
Details: Energy Meter 1: T Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 1: Input 1	**Description**	Shows the description of this pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Details: Energy Meter 1: Input 2	**Description**	Shows the description of this pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only
Details: Energy Meter 2: System	**Description**	Sets the name of the Energy Meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Energy Consumption	Shows the electrical meter consumption of all phases since the last reset.	Read only
Details: Energy Meter 2: R Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details:Energy Meter 2: S Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 2: T Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 2: Input 1	**Description**	The description of this pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only
Details: Energy Meter 2: Input 2	**Description**	Shows the description of the pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only
Details: Energy Meter 3: System	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Energy Consumption	Shows the electrical meter consumption of all phases since the last reset.	Read only
Details: Energy Meter 3: R Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 3: S Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Details: Energy Meter 3: T Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meters phase consumption since the last reset.	
Details: Energy Meter 3: Input 1	**Description**	Shows the description of the pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only
Details: Energy Meter 3: Input 2	**Description**	Shows the description of the pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only
Details: Energy Meter 4: System	**Description**	Sets the name of the energy meter.	Adjustable
	Peak Demand	Shows the maximum amount of energy consumed in the demand window time.	Read only
	Voltage	Shows the average voltage of the meter phases.	
	Current	Shows the average current of the meter phases.	
	Frequency	Shows the measured frequency of the signal.	
	Current Demand	Shows the amount of energy consumed in the demand window time.	
	Energy Consumption	Shows the electrical meter consumption of all phases since the last reset.	Read only
Details: Energy Meter 4: R Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 4: S Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 4: T Phase	**Voltage**	Shows the voltage of the meter phases.	Read only
	Current	Shows the current of the meter phases.	
	Energy Consumption	Shows the electrical meter phase consumption since the last reset.	
Details: Energy Meter 4: Input 1	**Description**	Shows the description of the pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only
Details: Energy Meter 4: Input 2	**Description**	Shows the description of the pulse input.	Adjustable
	Present Value	If present, shows the consumption of the pulse meter hooked to the input. The name of the input is defined by the description.	Read only
Details: Inputs: Binary Input 1	**Input**	The name of the input is defined under the **Commissioning** tab.	Read only
Details: Inputs: Binary Input 2			
Details: Inputs: Binary Input 3			
Details: Inputs: Binary Input 4			

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Details: Inputs: Analog Input 5	**Input**	The name of the input is defined under the **Commissioning** tab.	Read only
Details: Inputs: Analog Input 6			
Details: Inputs: Analog Input 7			
Details: Inputs: Analog Input 8			
Details: Inputs: Analog Input 9			
Details: Outputs: Output 1	**Output**	The name of the input is defined under the **Commissioning** tab.	Read only
Details: Outputs: Output 2			
Details: Outputs: Output 3			
Details: Outputs: Output 4			
Details: Outputs: Output 5			
Details: Outputs: Output 6			
Details: Outputs: Output 7			
Details: Outputs: Output 8			
Details: Outputs: Output 9			
Details: Netsensor Plug and Play: Netsensor 1	**Temperature**	Shows the temperature of the device at address 199.	Read only
	Humidity	Shows the humidity of the device at address 199.	
Details: Netsensor Plug and Play: Netsensor 2	**Temperature**	Shows the temperature of the device at address 200.	Read only
	Humidity	Shows the humidity of the device at address 200.	
Details: Netsensor Plug and Play: Netsensor 3	**Temperature**	Shows the temperature of the device at address 201.	Read only
	Humidity	Shows the humidity of the device at address 201.	
Details: Netsensor Plug and Play: Netsensor 4	**Temperature**	Shows the temperature of the device at address 202.	Read only
	Humidity	Shows the humidity of the device at address 202.	
Details: Netsensor Plug and Play: Netsensor 5	**Temperature**	Shows the temperature of the device at address 203.	Read only
	Humidity	Shows the humidity of the device at address 203.	
Trends: Inputs: Binary Input 1	**Binary Input 1**	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Inputs: Binary Input 2	**Binary Input 2**		
Trends: Inputs: Binary Input 3	**Binary Input 3**		
Trends: Inputs: Binary Input 4	**Binary Input 4**		

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Trends: Inputs: Analog Input 5	**Analog Input 5**	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Inputs: Analog Input 6	**Analog Input 6**		
Trends: Inputs: Analog Input 7	**Analog Input 7**		
Trends: Inputs: Analog Input 8	**Analog Input 8**		
Trends: Inputs: Analog Input 9	**Analog Input 9**		
Trends: Outputs	**Output 1**	Total: 25 samples, 1 sample taken every change of value.	Read only
	Output 2		
	Output 3		
	Output 4		
	Output 5		
	Output 6		
	Output 7		
	Output 8		
	Output 9		
Trends: Netsensor 1: Zone Temperature	**Temperature**	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Netsensor 1: Zone Humidity	**Humidity**		
Trends: Netsensor 2: Zone Temperature	**Temperature**		
Trends: Netsensor 2: Zone Humidity	**Humidity**		
Trends: Netsensor 3: Zone Temperature	**Temperature**		
Trends: Netsensor 3: Zone Humidity	**Humidity**		
Trends: Netsensor 4: Zone Temperature	**Temperature**		
Trends: Netsensor 4: Zone Humidity	**Humidity**		
Trends: Netsensor 5: Zone Temperature	**Temperature**		
Trends: Netsensor 5: Zone Humidity	**Humidity**		

Table 21: LC-VAC1002-0 Input Output Module parameters and objects

Menu	Object or Parameter	Description	Adjustable
Trends: Energy Meter 1: System	Consumption / Demand	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 1: R Phase	R Phase Voltage / R Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 1: S Phase	S Phase Voltage / S Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 1: T Phase	T Phase Voltage / T Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 1: Input 1	Input 1 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Energy Meter 1: Input 2	Input 2 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Energy Meter 2: System	Consumption / Demand	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 2: R Phase	R Phase Voltage / R Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 2: S Phase	S Phase Voltage / S Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 2: T Phase	T Phase Voltage / T Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 2: Input 1	Input 1 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Energy Meter 2: Input 2	Input 2 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Energy Meter 3: System	Consumption / Demand	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 3: R Phase	R Phase Voltage / R Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 3: S Phase	S Phase Voltage / S Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 3: T Phase	T Phase Voltage / T Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 3: Input 1	Input 1 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Energy Meter 3: Input 2	Input 2 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Energy Meter 4: System	Consumption / Demand	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 4: R Phase	R Phase Voltage / R Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 4: S Phase	S Phase Voltage / S Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 4: T Phase	T Phase Voltage / T Phase Current	Total: 200 samples, user defined sample interval in **Commissioning** menu.	Read only
Trends: Energy Meter 4: Input 1	Input 1 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only
Trends: Energy Meter 4: Input 2	Input 2 Present Value	Total: 25 samples, 1 sample taken every change of value.	Read only

Table 22: LC-VAC1001-0 Lighting Controller parameters and objects

Menu	Object or Parameter	Description	Adjustable
Home Page	**Lighting 1 Circuit Command**	The command given to configurable output 1.	Read only
	Lighting 2 Circuit Command	The command given to configurable output 2.	
	Lighting 3 Circuit Command	The command given to configurable output 3.	
	Lighting 4 Circuit Command	The command given to configurable output 4.	
	Lighting 5 Circuit Command	The command given to configurable output 5.	
	Lighting 6 Circuit Command	The command given to configurable output 6.	
	Lighting 7 Circuit Command	The command given to configurable output 7.	
	Lighting 8 Circuit Command	The command given to configurable output 8.	
	Lighting 9 Circuit Command	The command given to configurable output 9.	
Alarms	**Alarms**	The **Alarms** tab displays all alarms that are active. Click on all alarms and view alarm history.	Read only
Status	**Unit Status**	Shows the status of the controller.	Read only
	Light Level Status	Shows the status of the light level.	
	Light Level	Shows the analog light level in ft candles.	
	Lighting Level Setpoint	If the light level is below this setpoint, it is night and if it is above this setpoint plus the differential, it is day.	Adjustable: 0.0 ft to 200 ft candles
	Lighting Level Differential	When transitioning back to day, this parameter sets how many more ft candles are needed to switch to day.	Adjustable: 0.0 ft to 100 ft candles
	Zone 1 Command	Shows the current state of the zone.	Read only
	Zone 1 Schedule	Shows the current state of the zone schedule.	
	Zone 1 Override	The ability to override the zone. In the **Auto** state, the zone works from the logic setup for the zone.	Adjustable: **Auto/Off/ On**
	Zone 2 Command	Shows the current state of the zone.	Read only
	Zone 2 Schedule	Shows the current state of the zone schedule.	
	Zone 2 Override	The ability to override the zone. In the **Auto** state, the zone works from the logic setup for the zone.	Adjustable: **Auto/Off/ On**
	Zone 3 Command	Shows the current state of the zone.	Read only
	Zone 3 Schedule	Shows the current state of the zone schedule.	
	Zone 3 Override	The ability to override the zone. In the **Auto** state, the zone works from the logic setup for the zone.	Adjustable: **Auto/Off/ On**
	Zone 4 Command	Shows the current state of the zone.	Read only
	Zone 4 Schedule	Shows the current state of the zone schedule.	
	Zone 4 Override	The ability to override the zone. In the **Auto** state, the zone works from the logic setup for the zone.	Adjustable: **Auto/Off/ On**
	Zone 5 Command	Shows the current state of the zone.	Read only
	Zone 5 Schedule	Shows the current state of the zone schedule.	
	Zone 5 Override	The ability to override the zone. In the **Auto** state, the zone works from the logic setup for the zone.	Adjustable: **Auto/Off/ On**
	Zone 6 Command	Shows the current state of the zone.	Read only
	Zone 6 Schedule	Shows the current state of the zone schedule.	
	Zone 6 Override	The ability to override the zone. In the **Auto** state, the zone works from the logic setup for the zone.	Adjustable: **Auto/Off/ On**
	Zone 7 Command	Shows the current state of the zone.	Read only
	Zone 7 Schedule	Shows the current state of the zone schedule.	
	Zone 7 Override	The ability to override the zone. In the **Auto** state, the zone works from the logic setup for the zone.	Adjustable: **Auto/Off/ On**
	Zone 8 Command	Shows the current state of the zone.	Read only
	Zone 8 Schedule	Shows the current state of the zone schedule.	
Summary: Network	**Communication Status**	The status of the network communication.	Read only
Summary: Inputs	**Light Level Status**	Shows the status of the light level.	Read only
	Light Level	Shows the analog light level in ft candles.	

Table 22: LC-VAC1001-0 Lighting Controller parameters and objects

Menu	Object or Parameter	Description	Adjustable
Summary: Outputs	**Lighting 1 Circuit Command**	The command given to configurable output 1.	Read only
	Lighting 2 Circuit Command	The command given to configurable output 2.	
	Lighting 3 Circuit Command	The command given to configurable output 3.	
	Lighting 4 Circuit Command	The command given to configurable output 4.	
	Lighting 5 Circuit Command	The command given to configurable output 5.	
	Lighting 6 Circuit Command	The command given to configurable output 6.	
	Lighting 7 Circuit Command	The command given to configurable output 7.	
	Lighting 8 Circuit Command	The command given to configurable output 8.	
	Lighting 9 Circuit Command	The command given to configurable output 9.	
Commissioning: Network	**Device Name**	Sets the name of the device	Adjustable: 30 characters
	Address	The address of the controller. This address is adjustable in the SBH and the display on the controller.	Adjustable: 4 to 127 characters

Table 22: LC-VAC1001-0 Lighting Controller parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Control Setup	**Lighting Sensor Mode**	Sets the logic to determine the mode for the light sensor. **Binary Only**: Sets sensor to **Day** or **Night** from the binary input. **Analog Only**: Sets sensor to **Day** or **Night** from the analog input. **Both ON/Both OFF**: Uses both the binary and analog inputs. **Both ON** sets the sensor to **Night**, and **Both off** sets the sensor to **Day**. **Both ON/Analog OFF** - Uses both the binary and analog inputs. **Both ON** sets the sensor to **Night** and **Analog off** sets the sensor to **Day**. **Analog ON/Both OFF** - Uses both the binary and analog inputs. Sets the sensor to **Night** from the analog input. Sets the sensor to **Day** when set to **Both OFF**. **Both ON/Any Off** - Uses both the binary and analog inputs. **Both ON** sets the sensor to **Night** and either binary or analog input sets the sensor to **Day**.	Adjustable: **Binary Only** **Analog Only** **Both ON/Both OFF** **Both ON/Analog OFF** **Analog ON/Both OFF** **Both ON/Any OFF**
	Number of Lighting Circuits	Sets the number of circuits that this controller controls. Unused circuits do not show on the screens, except on the trends.	Adjustable: 1 to 9
	Number of Lighting Zones	Sets the number of controller lighting zones. Each zone may control more than one circuit and may have different criteria to turn the zone on. Unused zones do not show on the screens, except on the schedules.	Adjustable: 1 to 9
	Zone 1 Control Mode **Zone 2 Control Mode** **Zone 3 Control Mode** **Zone 4 Control Mode** **Zone 5 Control Mode** **Zone 6 Control Mode** **Zone 7 Control Mode** **Zone 8 Control Mode** **Zone 9 Control Mode**	Sets the logic to determine on and off for zones 1 to 9. **Sensor Only**: Controls the zone with the logic from the Lighting Sensor Mode. **Night** turns the zone **ON** and **Day** turns the zone **OFF**. **Schedule Only**: Turns the zone on and off from the Zone 1 Schedule. **Both ON/Both OFF**: Uses both the sensor and the schedule. Sensor set to **Night** and **Schedule ON** sets the zone to **ON**. Sensor set to **Day** and **Schedule OFF** sets the zone to **OFF**. **Both ON/Schedule OFF**: Uses both the sensor and the schedule. Sensor set to **Night** and **Schedule ON** sets the zone to **ON**. **Schedule OFF** sets the zone to **OFF**. **Schedule ON/Both OFF**: Uses both the sensor and the schedule. Sets the schedule to on. Sensor set to **Day** and **Schedule OFF** sets the zone to **OFF**. **Both ON/Any OFF**: Uses both the sensor and the schedule. Sensor set to **Night** and **Schedule ON** sets the zone to **ON**. The sensor set to **Day** or the schedule set to **OFF** sets the zone to **OFF**.	Adjustable: **Sensor Only** **Schedule Only** **Both ON/Both OFF** **Both ON/Schedule OFF** **Schedule ON/Both OFF** **Both ON/Any OFF**

Table 22: LC-VAC1001-0 Lighting Controller parameters and objects

Menu	Object or Parameter	Description	Adjustable
Commissioning: Control Setup (continued)	**Lighting Circuit 1 Zone Select**	Select which zone associates with lighting circuit 1.	Adjustable: **Zone 1/ Zone2/Zone 3/Zone 4/ Zone 5/Zone 6/Zone 7/Zone 8/Zone 9**
	Lighting Circuit 2 Zone Select	Select which zone associates with lighting circuit 2.	
	Lighting Circuit 3 Zone Select	Select which zone associates with lighting circuit 3.	
	Lighting Circuit 4 Zone Select	Select which zone associates with lighting circuit 4.	
	Lighting Circuit 5 Zone Select	Select which zone associates with lighting circuit 5.	
	Lighting Circuit 6 Zone Select	Select which zone associates with lighting circuit 6.	
	Lighting Circuit 7 Zone Select	Select which zone associates with lighting circuit 7.	Adjustable: **Zone 1/ Zone2/Zone 3/Zone 4/ Zone 5/Zone 6/Zone 7/Zone 8/Zone 9**
	Lighting Circuit 8 Zone Select	Select which zone associates with lighting circuit 8.	
	Lighting Circuit 9 Zone Select	Select which zone associates with lighting circuit 9.	
	Circuit 1 Command Polarity	Sets whether the command for ON is 24V or 0V: Normal: 24V = On Reverse: 0V = On	Adjustable: **Normal/ Reverse**
	Circuit 2 Command Polarity		
	Circuit 3 Command Polarity		
	Circuit 4 Command Polarity		
	Circuit 5 Command Polarity		
	Circuit 6 Command Polarity		
	Circuit 7 Command Polarity		
	Circuit 8 Command Polarity		
	Circuit 9 Command Polarity		
	Zone 1 Override is Momentary	Switches the input from Maintained to Momentary.	Adjustable: **True/False**
	Zone 1 Override Duration	Set the override duration for the zone when the **Momentary** switch or button is triggered.	Adjustable: 1 min to 240 min
	Zone 2 Override is Momentary	Switches the input from **Maintained** to **Momentary**.	Adjustable: **True/False**
	Zone 2 Override Duration	Set the override duration for the zone when the **Momentary** switch or button is triggered.	Adjustable: 1 min to 240 min
	Zone 3 Override is Momentary	Switches the input from **Maintained** to **Momentary**.	Adjustable: **True/False**
	Zone 3 Override Duration	Sets the override duration for the zone when the **Momentary** switch or button is triggered.	Adjustable: 1 min to 240 min
	Zone 4 Override is Momentary	Switches the input from **Maintained** to **Momentary**.	Adjustable: **True/False**
	Zone 4 Override Duration	Sets the override duration for the zone when the **Momentary** switch or button is triggered.	Adjustable: 1 min to 240 min
	Zone 5 Override is Momentary	Switches the input from **Maintained** to **Momentary**.	Adjustable: **True/False**
	Zone 5 Override Duration	Sets the override duration for the zone when the **Momentary** switch or button is triggered.	Adjustable: 1 min to 240 min
	Zone 6 Override is Momentary	Switches the input from **Maintained** to **Momentary**.	Adjustable: **True/False**
	Zone 6 Override Duration	Sets the override duration for the zone when the **Momentary** switch or button is triggered.	Adjustable: 1 min to 240 min
	Zone 7 Override is Momentary	Switches the input from **Maintained** to **Momentary**.	Adjustable: **True/False**
	Zone 7 Override Duration	Set the override duration for the zone when the **Momentary** switch or button is triggered.	Adjustable: 1 min to 240 min

Table 22: LC-VAC1001-0 Lighting Controller parameters and objects

Menu	Object or Parameter	Description	Adjustable
Controller: Firmware	**Firmware Status**	Shows the status of the firmware on the controller.	Read only
	Firmware Version	Displays the firmware version of the controller.	
	Application Version	Displays the version of the application.	
Controller: Time	**Time**	Shows the time that is set by the SBH. To change the date and time, go to the **Settings** > **System Settings** on the SBH and adjust the date and time. This adjustment syncs to all online devices.	Read only
	Date	Shows the date that the controller is set to.	
	Time Zone	Shows the time zone the controller adjusts to.	Adjustable
Controller: Network	**Device Name**	The name of the device on the device list.	Adjustable: 30 characters
	Device Description	The description of the device on the device list.	
	Device OID	This is the BACnet Device OID for the system bus. If on a standalone Verasys System, this parameter is not used. If connected to a 3rd party facility management system, it sets the BACnet ID for the zone coordinator.	Adjustable: Range: 1 to 4,194,303
	Address	The address of the controller. This address is adjustable via the SBH and the display on the controller.	Adjustable: 0 to 127
	Communication Status	The status of the zone bus communication.	Read only
	FC COMM Mode	Set to wired field bus. ⓘ **Note:** This feature is not available yet.	Adjustable: **Wired Field Bus/Wireless Field Bus**
	Baud Rate	When set to auto, the zone coordinator sets the baud rate for the controller.	Adjustable: **Auto/1200/9600/19200/38400/76800**
	Operating Baud Rate	Shows the baud rate of the controller	Read only
	BACnet Encoding Type	The encoding type set and the character set that the controller uses	Adjustable: **ISO 10646 (UCS-2)/ANSI X3.4 (US-ASCII)/Microsoft DBCS code page 932 (Japanese Shift JIS)/ISO 106464 (UTF-8)**
Controller: Misc	**Language**	Sets the language of the controller	Read only
	Units	Sets the units of the controller	Adjustable: **Imperial/ Metric**
	Display Contrast	Sets the contrast for the display	Adjustable: 2 to 6
Details: Unit	**Unit Status**	The status of the controller	Read only
	Unit Serial Number	The ability to document a serial number or string	Adjustable: 30 characters
	Model Name	The model name of the controller	Read only
	Hardware Version	The version of the hardware	
Details: Inputs	**Light Level Status**	The status of the binary input.	Read only
	Light Level	The value of the analog input.	
	Zone 1 Override Input	The value of the binary input.	
	Zone 2 Override Input		
	Zone 3 Override Input		
	Zone 4 Override Input		
	Zone 5 Override Input		
	Zone 6 Override Input		
	Zone 7 Override Input		

Table 22: LC-VAC1001-0 Lighting Controller parameters and objects

Menu	Object or Parameter	Description	Adjustable
Details: Output	**Lighting 1 Circuit Command**	The command given to configurable output 1.	Read only
	Lighting 1 Circuit Override	The ability to override lighting circuit 1. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 2 Circuit Command	The command given to configurable output 2	Read only
	Lighting 2 Circuit Override	The ability to override lighting circuit 2. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 3 Circuit Command	The command given to configurable output 3.	Read only
	Lighting 3 Circuit Override	The ability to override lighting circuit 3. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 4 Circuit Command	The command given to configurable output 4.	Read only
	Lighting 4 Circuit Override	The ability to override lighting circuit 4. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 5 Circuit Command	The command given to configurable output 5.	Read only
	Lighting 5 Circuit Override	The ability to override lighting circuit 5. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 6 Circuit Command	The command given to configurable output 6.	Read only
	Lighting 6 Circuit Override	The ability to override lighting circuit 6. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 7 Circuit Command	The command given to configurable output 7.	Read only
	Lighting 7 Circuit Override	The ability to override lighting circuit 7. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 8 Circuit Command	The command given to configurable output 8.	Read only
	Lighting 8 Circuit Override	The ability to override lighting circuit 8. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
	Lighting 9 Circuit Command	The command given to configurable output 9.	Read only
	Lighting 9 Circuit Override	The ability to override lighting circuit 9. In the **Auto** state, the circuit uses the logic setup for the zone.	Adjustable: **Auto/Off/On**
Details: Change Name	**Zone x Name**	You can change the name of each zone.	Adjustable
	Circuit x Name	You can change the name of each circuit.	Adjustable
Trends	**Light Level Status**	Total: 10 samples, 1 sample taken every change of value.	Read only
	Light Level	100 samples are taken every 15 minutes.	
	Lighting 1 Circuit Command	Total: 10 samples, 1 sample taken every change of value.	Read only
	Lighting 2 Circuit Command	Total: 10 samples, 1 sample taken every change of value.	
	Lighting 3 Circuit Command		
	Lighting 4 Circuit Command		
	Lighting 5 Circuit Command		
	Lighting 6 Circuit Command		
	Lighting 7 Circuit Command		
	Lighting 8 Circuit Command		
	Lighting 9 Circuit Command		

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable end-user license, open-source software information, and other terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

Patents

Patents: https://jcipat.com

Single point of contact

APAC	Europe	NA/SA
JOHNSON CONTROLS C/O CONTROLS PRODUCT MANAGEMENT NO. 32 CHANGJIJANG RD NEW DISTRICT WUXI JIANGSU PROVINCE 214028 CHINA	JOHNSON CONTROLS WESTENDHOF 3 45143 ESSEN GERMANY	JOHNSON CONTROLS 507 E MICHIGAN ST MILWAUKEE WI 53202 USA

Contact information

Contact your local branch office: www.johnsoncontrols.com/locations

Contact Johnson Controls: www.johnsoncontrols.com/contact-us