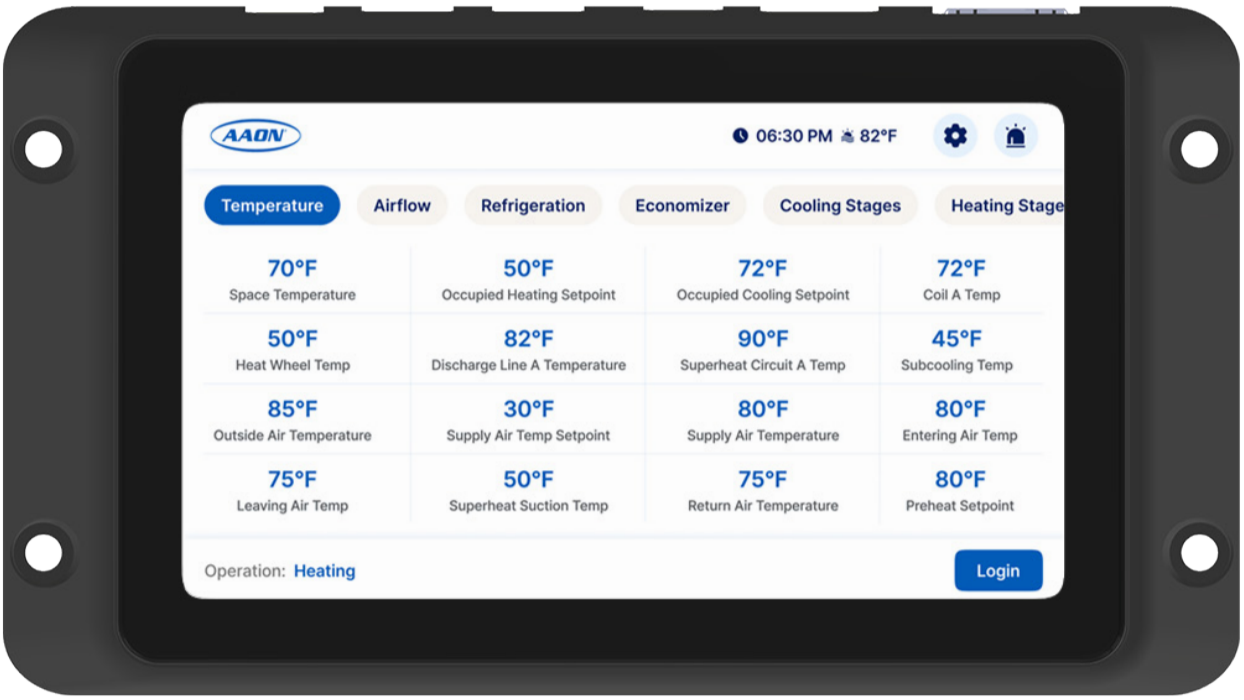
Stratus Unit Manager User Guide

ASM08150



STRATUS CONTROLLER TECHNICAL GUIDE	
REVISION AND DATE	**CHANGE**
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Part Number Cross Reference

PART NUMBER CROSS REFERENCE	
PART DESCRIPTION	AAON
Stratus Unit Manager	ASM08150
Stratus Power-Comm	ASM08153
Stratus Air Handler I-O	ASM08156
Stratus Cooling I-O	ASM08159
Stratus Heating I-O	ASM08162
Stratus Outdoor Air I-O	ASM08165
Stratus Energy Recovery I-O	ASM08168
Stratus Preheat I-O	ASM08171

Stratus Power/Comm Board

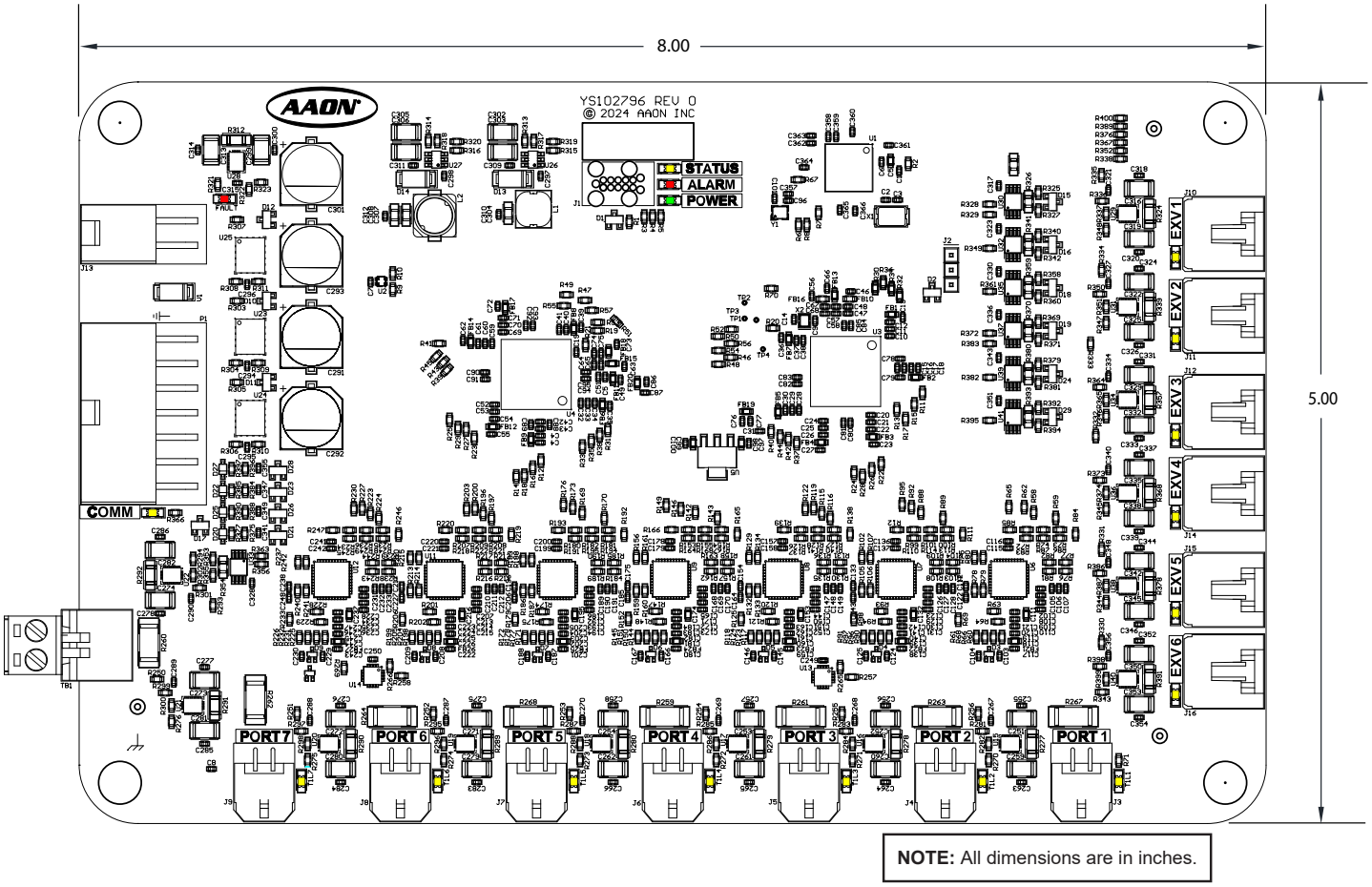
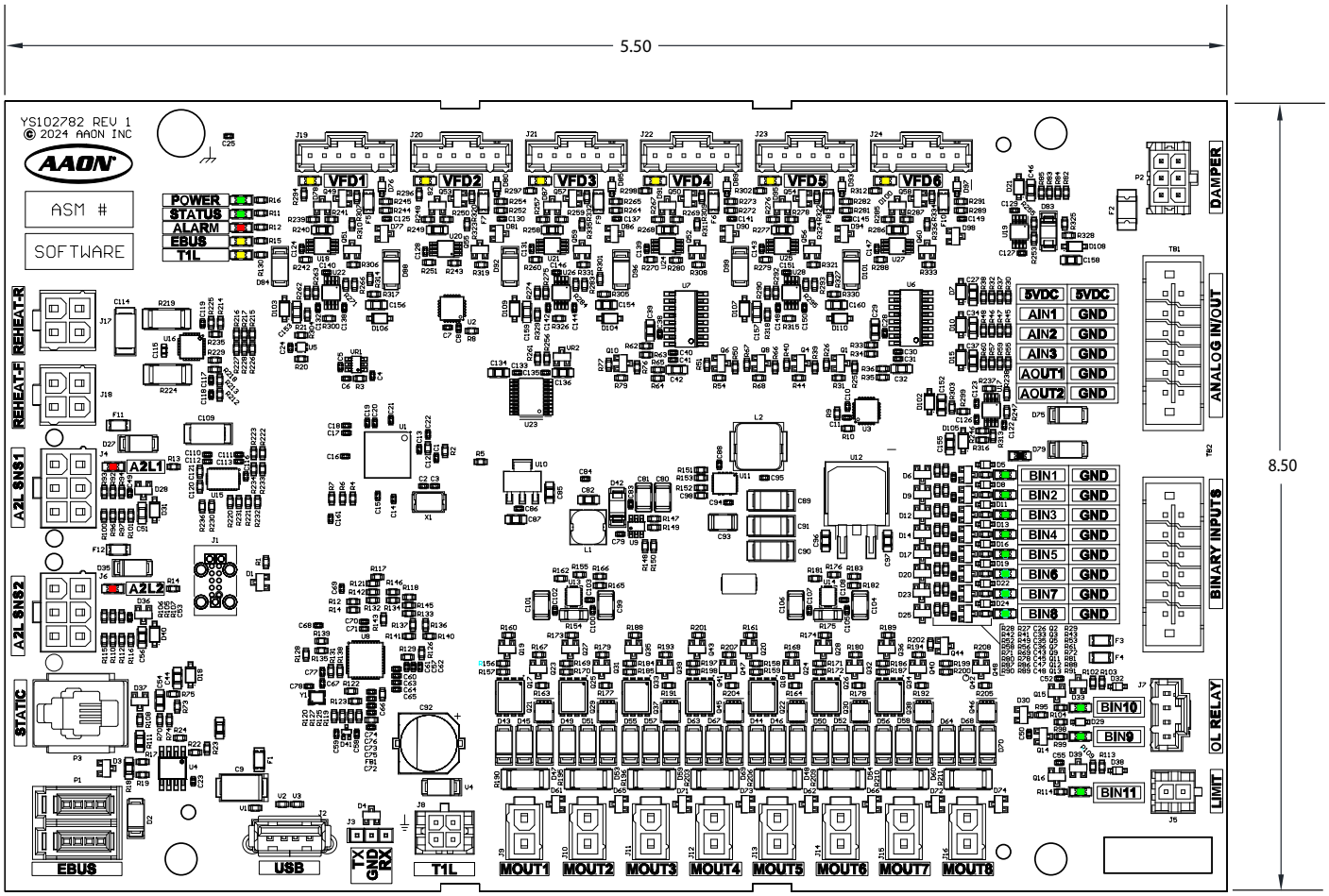


Figure 1: Stratus Power/Comm Board

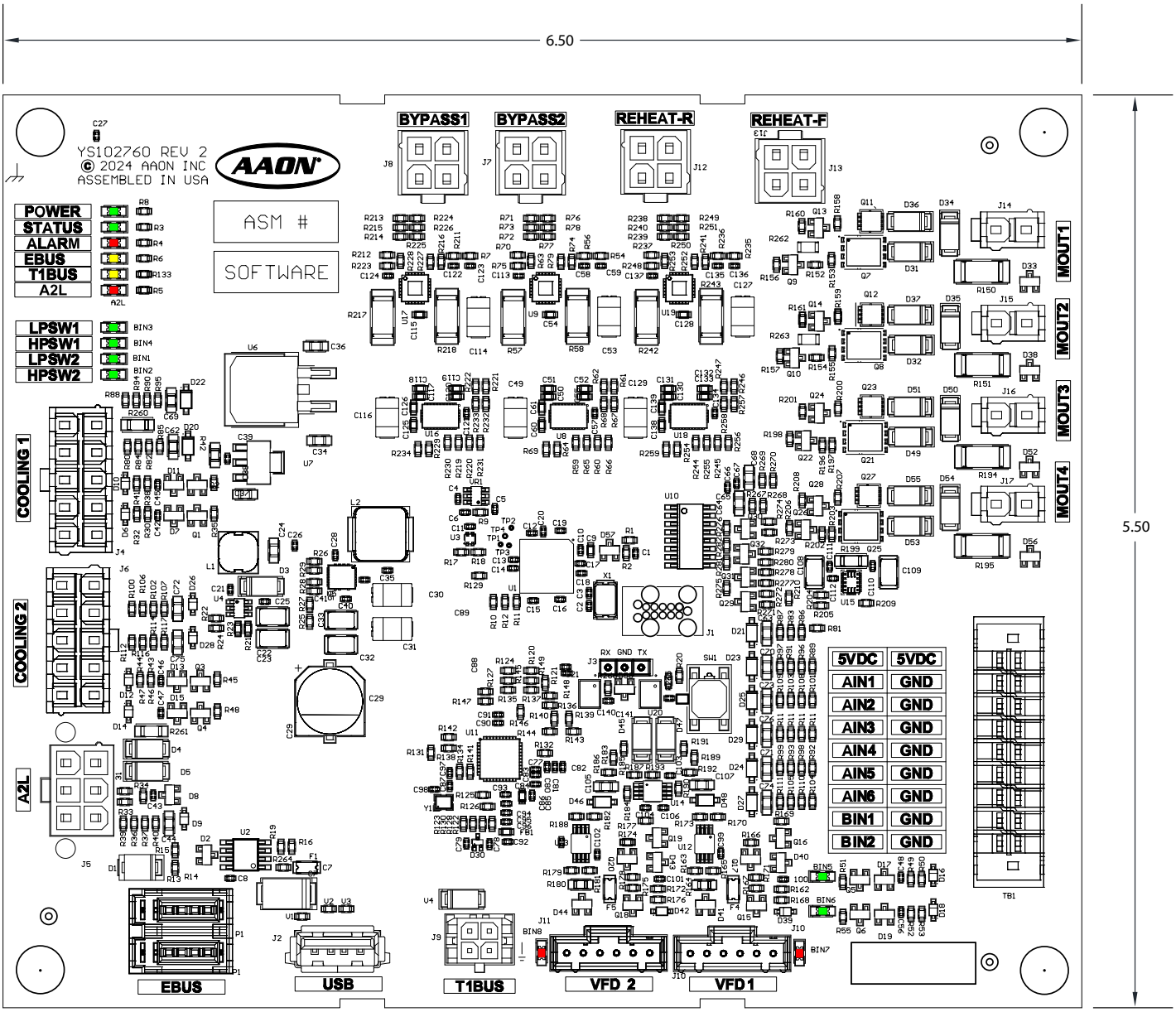
Stratus Air Handler Main I/O Board



NOTE: All dimensions are in inches.

Figure 2: Stratus Air Handler Main I/O Board

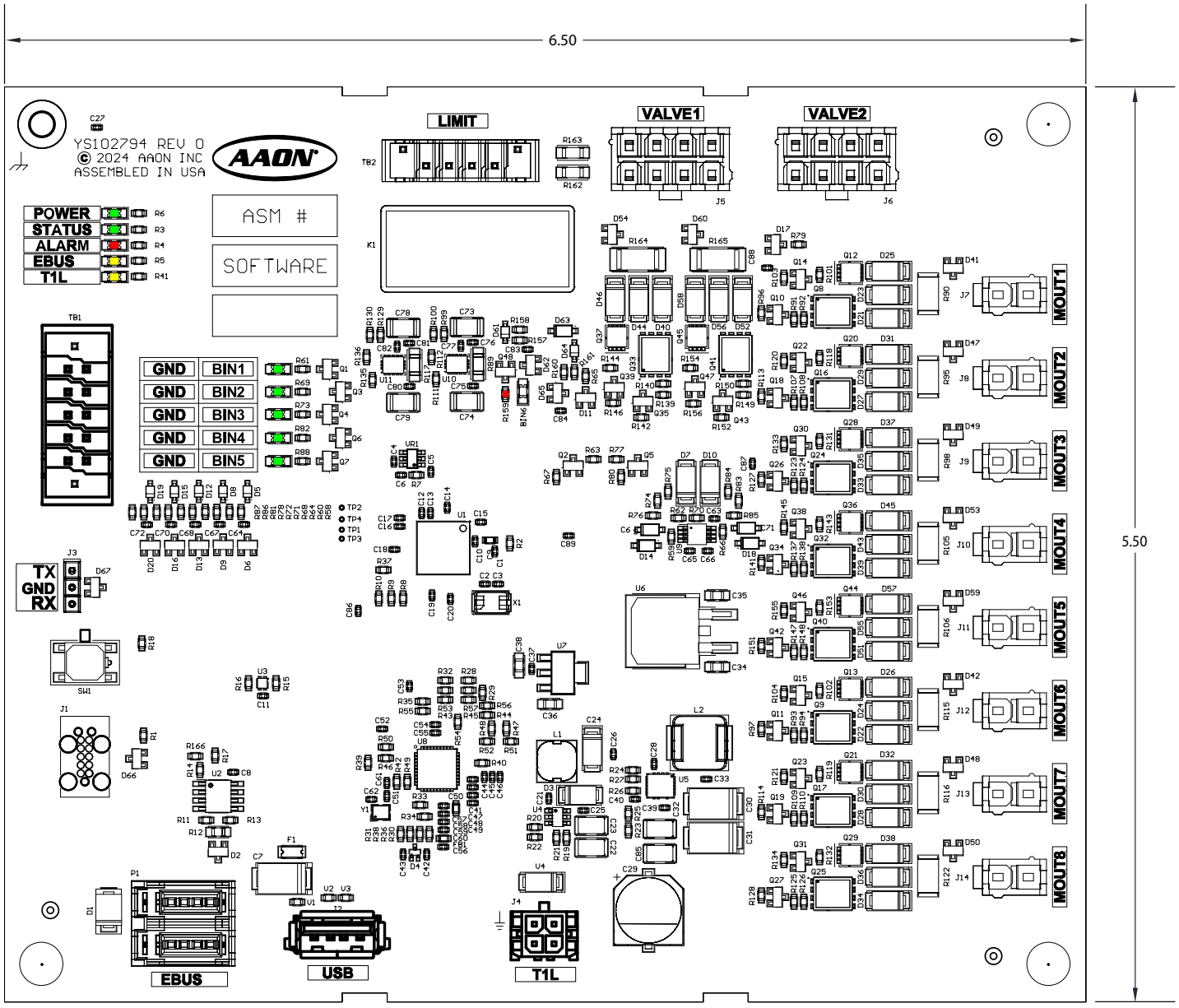
Stratus Cooling I/O Board



NOTE: All dimensions are in inches.

Figure 3: Stratus Cooling I/O Board

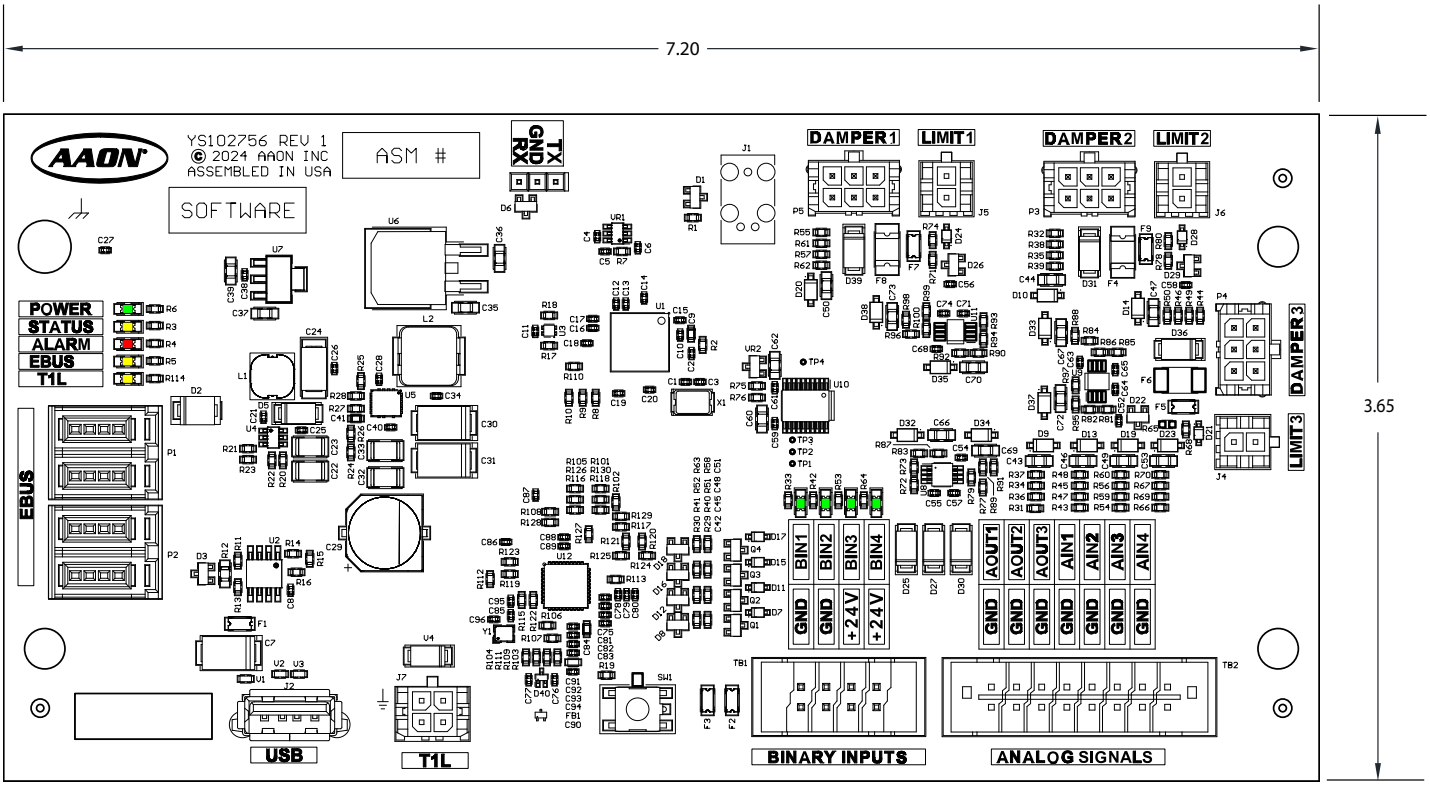
Stratus Heating I/O Board



NOTE: All dimensions are in inches.

Figure 4: Stratus Heating I/O Board

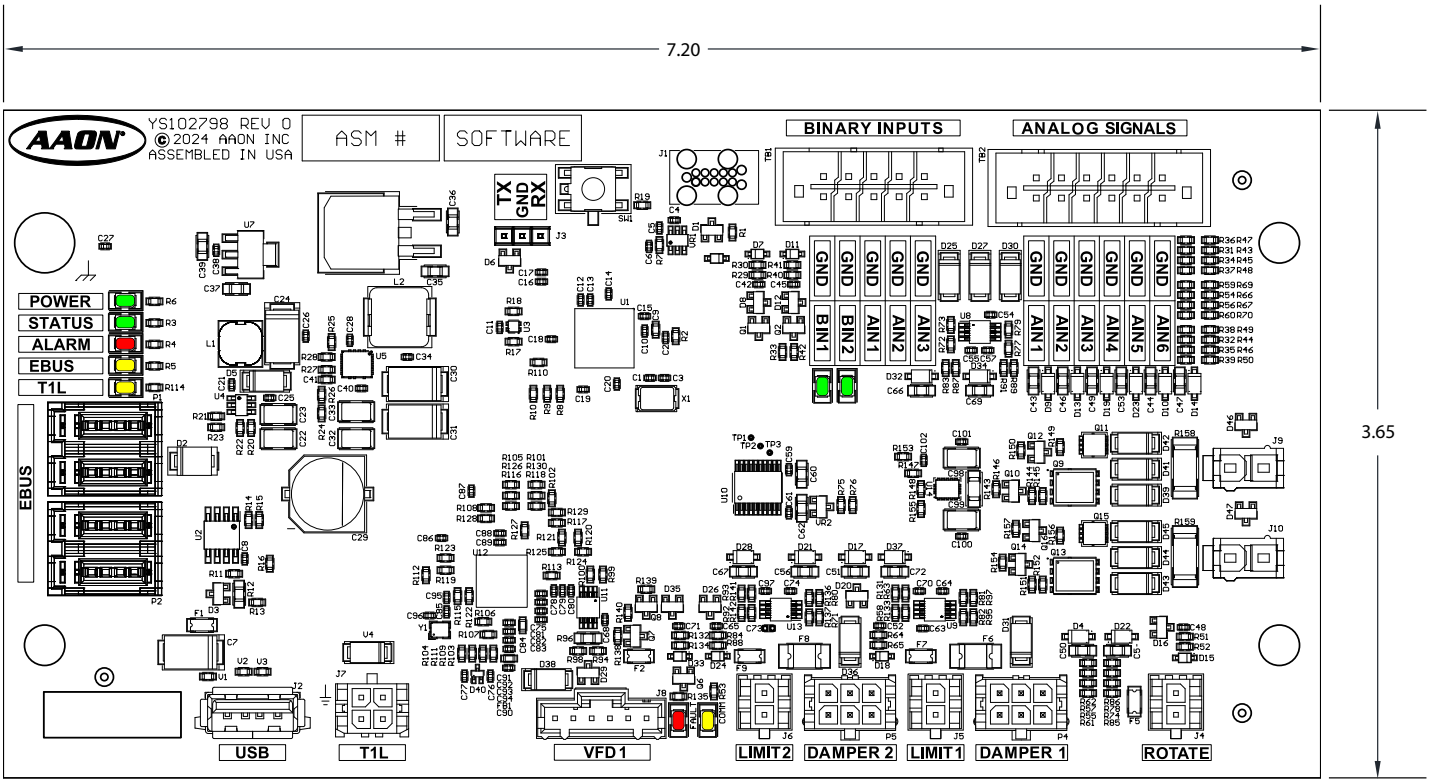
Stratus Outdoor Air I/O Board



NOTE: All dimensions are in inches.

Figure 5: Stratus Outdoor Air I/O Board

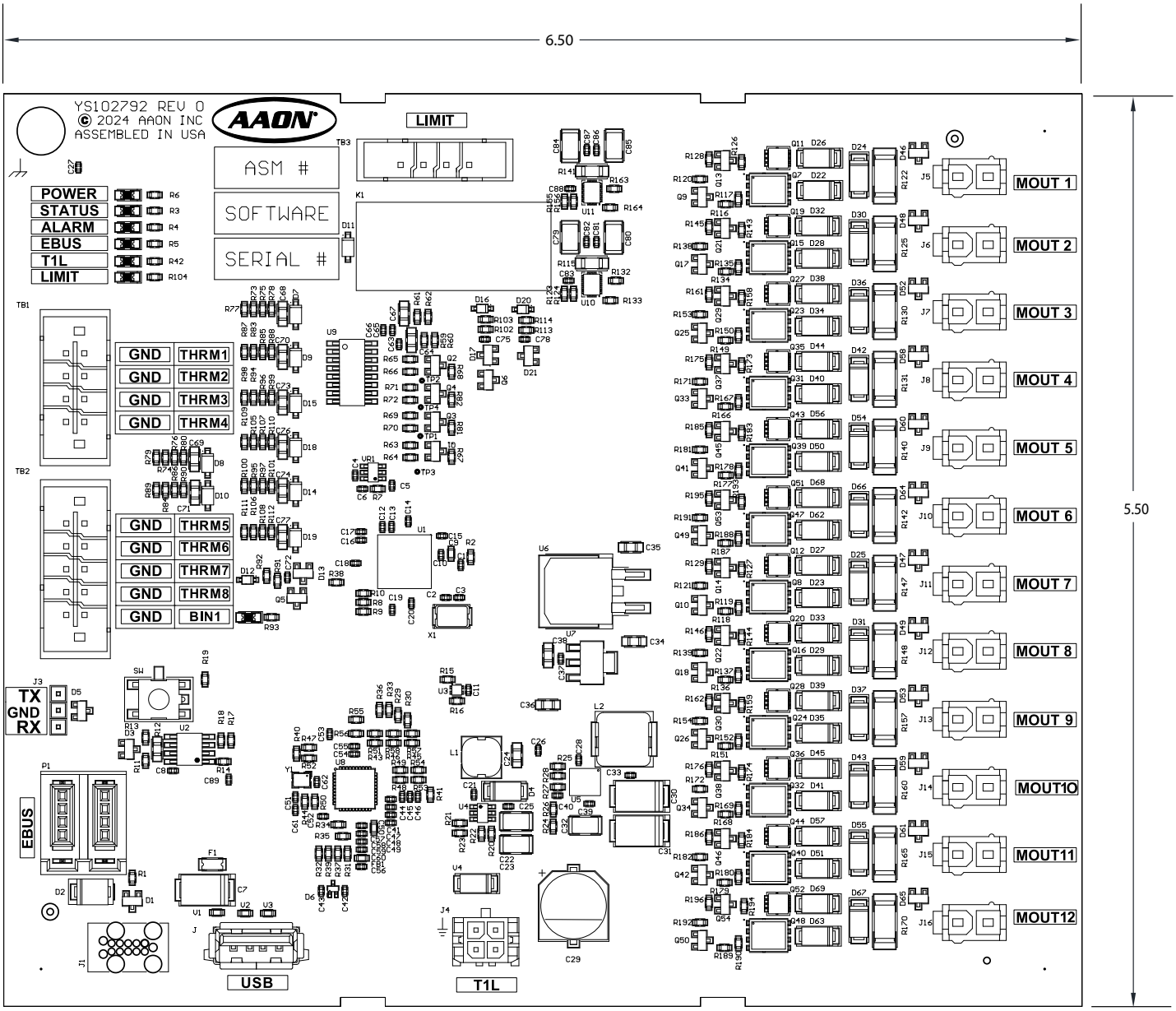
Stratus Energy Recovery I/O Board



NOTE: All dimensions are in inches.

Figure 6: Stratus Energy Recovery I/O Board

Stratus Preheat Board



NOTE: All dimensions are in inches.

Figure 7: Stratus Preheat Board

Screen Maps - Title Bar Buttons

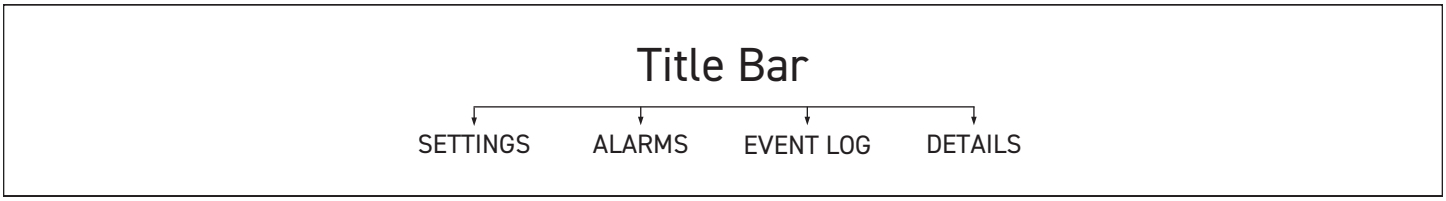


Figure 8: Screen Map: Title Bar Menus

Title Bar Menus

Refer to the following table when navigating through the above figure, **Figure 8**, to understand the functionality found within the Analysis section of the Stratus Controller screens.

TITLE BAR MENUS	
Screen Heading	**Description**
Settings	Menu that provides toggleable to idle view data settings, display preferences, and time settings.
Alarms	Display current alarms and their status
Event Log	Show alterations in setpoints across given dates
Details	Display detailed data relevant to the mode the user is current in
Network	Display current network data for the unit

Table 1: Main Screens: Analysis

Alarms

The Alarms screen displays the status of any alarms relating to the unit. Should no alarms be active, this screen will be blank. If, however, there are active alarms, the alarms screen will detail the type of alarm present. This screen does not provide a means of addressing the alarms, but rather it acts as a central location to be notificed should an alarm be active within the unit.

Settings

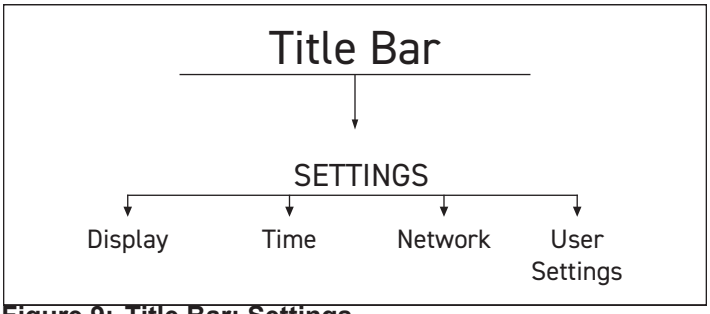


Figure 9: Title Bar: Settings

The Settings menu provides a series of submenus to further customize the user experience.

Time

Time settings includes the option to choose between Auto and Manual options. The Auto option will set the Stratus unit's time to go based off the device's internal time.

Network

The Network settings submenu contains the network connection information of the unit including IPv4, Netmask, Gateway Address, an optional DNS Server Address, Ethernet Status, and the unit's MAC Address. The Network DHCP can be set to either manual or automatic from this submenu, as well.

User Settings

Found within the settings tab, User Settings allows users to edit their own profile's information, or delete their user account from the unit.

Add New User

Adding a user entails registering a username, password, and discerning the user's role for this unit. Once added and saved, this user will be able to access the unit at the level of their assigned privilige.

Admin Users and Startup

The first time a unit is accessed, the user will be met with a sign up page. The first user to access the unit will be registered as the "Admin". Users Only elevated users are given access to create and remove users from the unit. Non-privileged users are able to access their own user profile, changing their password or information.

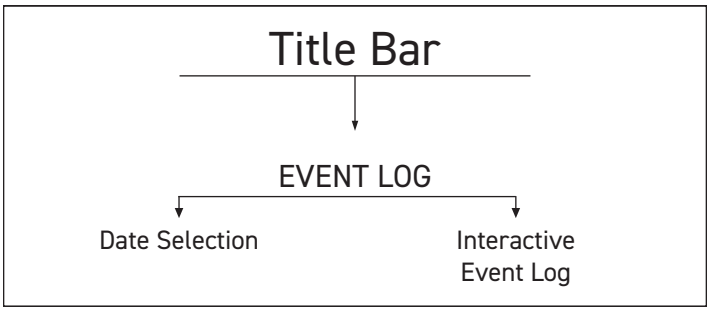


Figure 10: Title Bar: Event Log

Event Log

The Event Log menu is used to keep track of changes made throughout the unit given a selected date range. This includes alterations to setpoints, unit settings, the values that were specifically altered and their new settings, the time and date of changes, and who made the changes.

Date Selection

Users will be prompted to select a start date and end date. This will select a range of dates, up to 14 days at a time, and will return data within this range.

Interactive Event Log

Once dates are selected, the dashboard will populate with entries that detail changes in setpoints made within the unit including which setpont was changed, what value the setpoint was altered to, as well as the time and date of the change. This log shows changes, but does not itself allow for changes to be made via this screen.

Screen Maps - Monitoring Mode Screens

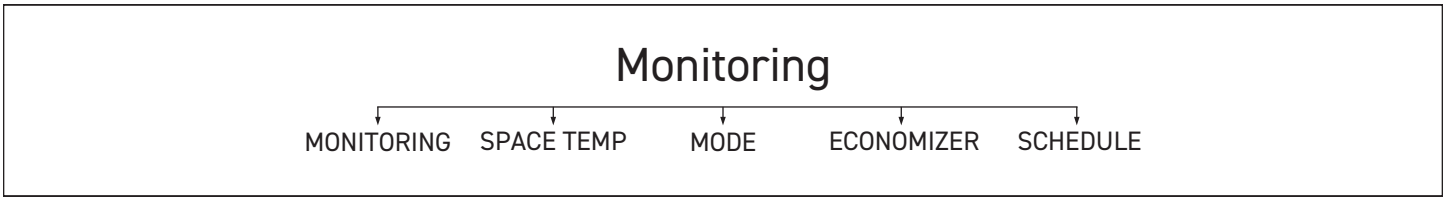


Figure 11: Screen Map: Monitoring Mode

Monitoring Screens

Refer to the following table when navigating through the above figure, **Figure 11**, to understand the functionality found within the Analysis section of the Stratus Controller screens.

MONITORING SCREENS	
Screen Heading	**Description**
Monitoring	An editable dashboard of values and setpoints
Space Temp	Monitor and modify Occupied and Unoccupied heating and cooling setpoints
Mode	Change the unit's current mode between Cool, Heat, Dehum, or Vent.
Economizer	Monitor and modify Minimum Economizer Position, toggle "Force Close" functionality of economizer
Schedule	Switch between Auto, Force Occupied, Force Unoccupied modes

Table 2: Main Screens: Analysis

Monitoring

The Monitoring menu provides a Monitoring dashboard to view values and setpoints from the unit. This dashboard allows users to edit which values and setpoints are present on the dashboard, providing an actionable view that best suits the needs of the user.

Custom View

Dashboards within the monitoring dashboard can be edited and saved. Saved dashboards can be accessed via the Custom View dropdown menu.

Space Temp

The Monitoring menu provides access to the following setpoints to modify and monitor: Occupied Cooling Setpoint, Unoccupied Cooling Setpoint, Occupied Heating Setpoint, and Unoccupied Heating Setpoint.

Mode

The Mode menu allows users to change the current mode of the unit. The mode options include Cool, Heat, Dehum, and Vent. Once selected, the mode can be saved and applied to the unit. The Mode menu provides a series of read-only data points for user reference, including Occupied/Unoccupied Cooling Setpoints, the Occupied/Unoccupied Heating Setpoints, Control Mode High/Low Alarm Offsets, Mode Selection Deadband, and Coil Setpoint High/Low Reset Limits.

Economizer

The Economizer menu provides fine control over the unit's Economizer Enable Setpoint and Minimum Economizer Position. Additionally, this menu provides the option to force close the unit damper with an on-screen button.

Schedule

Schedule provides the following options to choose from: Force Occupied forces the unit on. Force Unoccupied forces the unit off (note that the unit can still operate if it is appropriately set up with unoccupied setpoints, should values get outside of the established ranges). Auto allows for the unit to behave normally, alternating between on and off based on its given settings. These options can be selected, saved, or reset via the on-screen button. Along with these options, the schedule screen shows the current mode of the unit, as well as the current Supply Air Temperature reading.

Screen Maps - Service Mode Screens

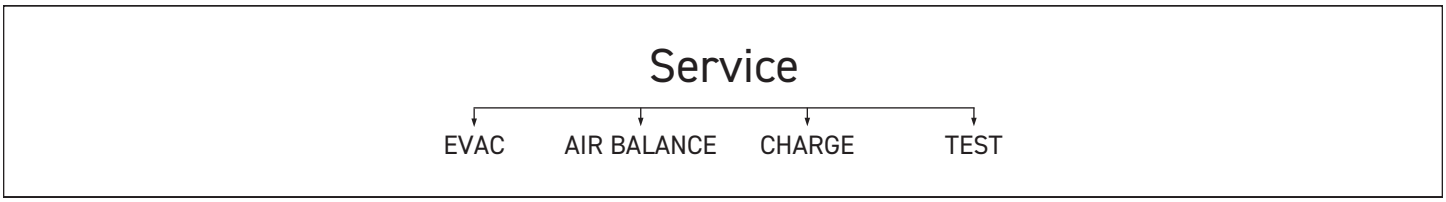


Figure 12: Screen Map: Service

Service Screens

Refer to the following table when navigating through the above figure, **Figure 12**, to understand the functionality found within the Service section of the Stratus Controller screens.

SERVICE SCREENS	
Screen Heading	**Description**
EVAC	Initialize squence to prepare unit for evacuation of refrigerant via the use of a vaccuum.
Air Balance	Adjust fan setpoints to optimize and balance airflow.
Charge	Initialize squence to prepare unit for addition of refrigerant.
Test	Override fan speeds, damper positions, cooling and heating components and reheat valve position.

Table 3: Main Screens: Service

EVAC

Upon entering EVAC Mode, users will be met with a Caution screen. This caution informs users that EVAC Mode will override and shutdown all other unit operations. Upon confirmation, the unit will enter EVAC Mode. Here, EVAC Mode will display values to help monitor unit performance while in this mode. Setpoints available in this mode include: Head Pressure, Building Pressure, Duct Static Pressure, and MHGRV Valve Position.

While in EVAC Mode, attempts to leave the EVAC Mode screen will be met with another screen, asking if you are sure you want to leave. It is worth noting that by leaving the EVAC Mode screen, this does not end EVAC Mode. To end EVAC Mode, one must press the The Stop EVAC button present on the EVAC Mode screen.

Air Balance

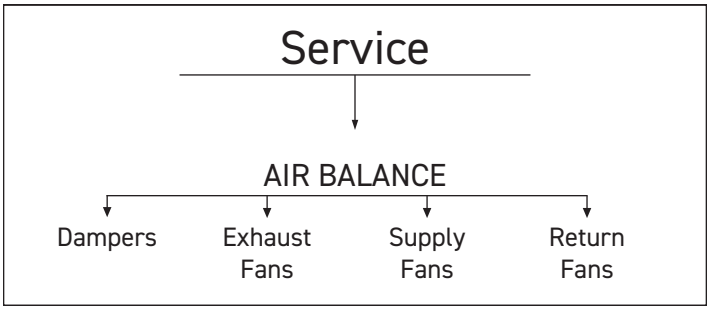


Figure 13: Service Mode: Air Balance

Upon entering Air Balance Mode, users will be met with a Caution screen. This caution informs users that Air Balance Mode will override and shutdown all other unit operations. Upon confirmation, the unit will enter Air Balance Mode. Here, users will see the Air Balance dashboard; a screen of relevant read-only values that show the unit's performance. The dashboard values will update as setpoints are adjusting within the submenus to reflect how setpoint changes alter the unit's performance. Each submenu has its own set of setpoints that can be altered. The setpoints found within these submenus can be set, forced, or reverted. When pressing the Revert button, all changes will be reverted back to their original configuration.

While in Air Balance Mode, attempts to leave the Air Balance Mode dashboard will be met with another Caution screen. This caution screen will prompt users to save their current Air Balance configuration before leaving the screen. Pressing the STOP button on any of the Air Balance screens will end Air Balance mode, as well as having the current saved Air Balance configuration override the previous configurations.

The submenus within Air Balance Mode include: Dampers, Supply Fans, Return Fans, and Exhaust Fans.

Dampers
The Dampers submenu provides users with the ability to edit the following setpoints: Return Air Damper, Return Air Bypass, Exhaust Damper, Outdoor Air Damper, and Minimum Damper Position.

Supply Fans
The Supply Fans submenu provides users with the ability to edit the following setpoints: Min VFD, Max VFD, Duct Static Pressure SP, and Building Pressure SP. There also exist several read-only live data points on the submenu screen that update in real time to demonstrate how changes to these setpoints impact these metrics.

Return Fans
The Return Fans submenu provides users with the ability to edit the following setpoints: Min VFD, Max VFD, and Building Pressure SP. There also exist several read-only live data points on the submenu screen that update in real time to demonstrate how changes to these setpoints impact these metrics.

Exhaust Fans
The Exhaust Fans submenu provides users with the ability to edit the following setpoints: Min VFD, Max VFD, and Building Pressure SP. There also exist several read-only live data points on the submenu screen that update in real time to demonstrate how changes to these setpoints impact these metrics.

Charge

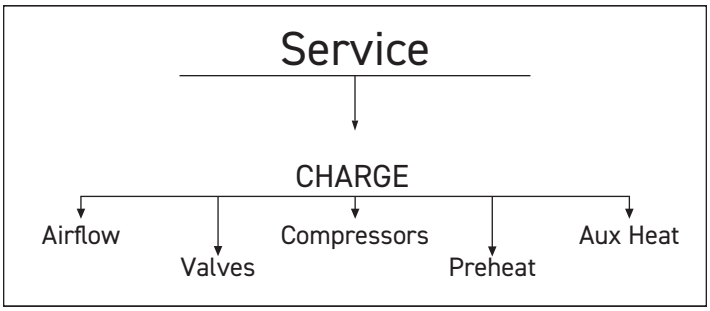


Figure 14: Service Mode: Charge

Upon entering Charge Mode, users will be met with a Caution screen. This caution informs users that Charge Mode will override and shutdown all other unit operations. Upon confirmation, the unit will enter Charge Mode. Here, users will see the Charge dashboard; a screen of relevant read-only values that show the unit's performance. The dashboard values will update as setpoints are adjusting within the submenus to reflect how setpoint changes alter the unit's performance. Each submenu has its own set of setpoints that can be altered. The setpoints found within these submenus can be set, forced, or reverted. When pressing the Revert button, all changes will be reverted back to their original configuration.

While in Charge Mode, attempts to leave the Charge Mode dashboard will be met with another screen, asking if you are sure you want to leave. It is worth noting that by leaving Charge Mode screen, this does not end Charge Mode. To end Charge Mode, one must press the The Stop Charge button present on the bottom of any Charge Mode screen.

The Force Flush button can be pressed to initiate the Force Flush cycle functionality. When pressed, users will be prompted with an Initiate Flush Cycle screen explaining that the flush cycle will take approximately 60 seconds. The Force Flush button can be found at the bottom of any of the Charge Mode submenus.

The submenus within Air Balance Mode include: Airflow, Valves, Compressors, Preheat, and Aux Heat.

Airflow
The Airflow submenu provides users with the ability to edit the following setpoints: Supply Fan Speed, Return Fan Speed, Exhaust Fan Speed, OA Damper Position, Cond. Fan A Speed, and Cond. Fan B Speed. Forced fans can also be cleared, revertting the fan speed setpoint(s) back to their original value.

Valves
The Valves submenu provides users with the ability to edit the following setpoints: Reheat Valve Position. It also allows the Reversing Valve to be toggled between Heat and Cool.

Compressors
The Compressors submenu provides users with the ability to edit the following setpoints: Compressor 1 (Digital), Compressor 2 (On/Off), Compressor 3 (VFD), and Compressor 4 (2-Stage). These are setpoint toggles and can be switched either on or off.

Preheat
The Preheat submenu provides users with the ability to edit the following setpoints: Leaving Air Temperature SP. The submenu also includes a Preheat start/stop toggle.

Aux Heat
The Aux Heat submenu provides users with the ability to edit the following setpoints: Supply Air Temp SP. The submenu also includes an Aux Heat start/stop toggle.

Test

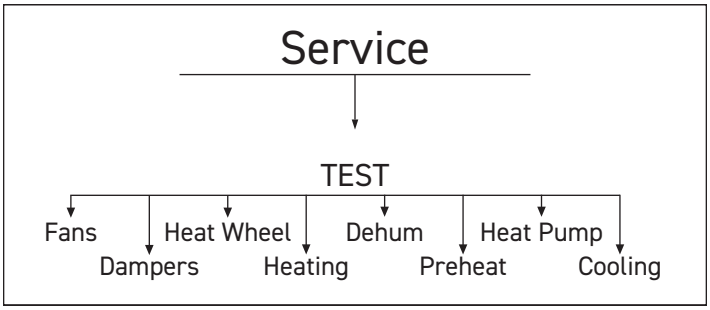


Figure 15: Service Mode: Test

Upon entering Test Mode, users will be met with a Caution screen. This caution informs users that Test Mode allows users to test individual components on the unit. It is recommended this mode is only to be used by certified technicians. Upon confirmation, the unit will enter Test Mode. Here, users will see the Test dashboard; a screen that allows for selection of any of the Test Mode submenus.

The Test Mode submenus incliude the following: Fans, Dampers, Heat Wheel, Heating, Dehum, Preheat, Heat Pump, and Cooling.

Fans
The Fans submenu allows for manual override of supply fans, return fans, and exhaust fans.

Dampers
The Dampers submenu allows for access to the following: Outside Air Damper, Exhaust Damper, Return Air Damper, Return Bypass Damper, and Waterside Eco Valve.

Heat Wheel
The Heat Wheel submenu allows for access to the following: Heat Wheel Enable and the Heat Wheel Bypass. The Heat Wheel is on an on/off toggle, the Heat Wheel Enable setpoint allows for a percentage setpoint. This setpoint is the speed that the Heat Wheel Enable is set to when the test begins.

Heating
The Heating submenu allows for access to the following: Heat 1, Heat 2, Heat 3, Heat 4, SCR 1, SCR 2, and Hotwater Valve.

Dehum
The Dehum submenu allows for access to the following: Reheat Valve, HV Relay - Crankcase 1, HV Relay - Crankcase 2, HV Relay - Crankcase 3 and HV Relay - Crankcase 4.

Preheat
The Preheat submenu allows for access to the following: Heat 1 -12, and SCR 1.

Heat Pump
The Heat Pump submenu allows for access to the following: Heat Stage 1-6, Aux Heat, Emergency Heat, and Defrost.

Cooling
The Cooling submenu allows for manual override of compressors, condenser fans, and the CW valve.

The Condenser Fans screen allows for manual override of the Condenser Fan. This screen also provides read-only live data points of the unit's Head Pressure to show how this value reacts to changes of the Condenser Fans in the units.

The CW Valve screen allows for adjustment of the Chilled Water Valve setpoint value.

Screen Maps - Schedule Mode Screens

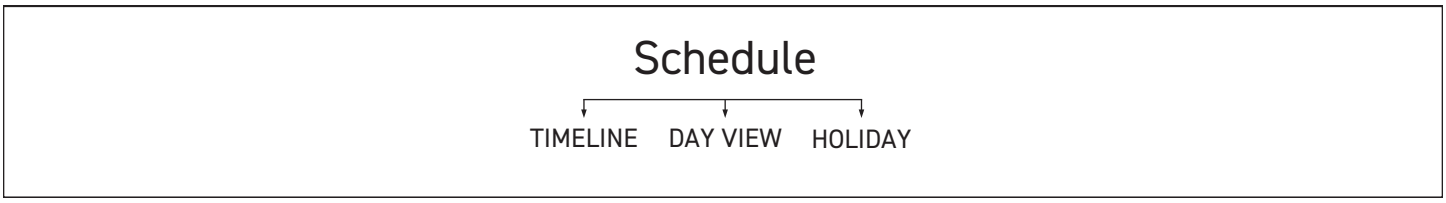


Figure 16: Screen Map: Schedule Mode

Schedule Screens

Refer to the following table when navigating through the above figure, **Figure 16**, to understand the functionality found within the Schedule section of the Stratus Controller screens.

SCHEDULE SCREENS	
Screen Heading	**Description**
Timeline	Rapid read-only view of daily schedules
Day	Control daily schedules
Holiday	Set special schedules for select days

Table 4: Main Screens: Schedule

Timeline

The Timeline view of the Schedule menu features an hourly graphical overview of the current schedule of the unit for each day. This overview provides a quick and easily digestible means of understanding the occupied and unoccupied windows of time in each day's.

Day

The day menu is a dashboard that allows for users to see the start and stop time of each day, given the current schedule. When tapped, each day's schedule can be manually edited with the Events sub-menu.

Events

Within each individual day is the Events sub-menu. This sub-menu allows users to manually set the start and stop time for up to two events, or scheduled occupied times, per day. Once set, users can save the events. Saved events will become the active schedule for that day until a new schedule is created and saved.

Holiday

Holidays are special days whose events can be set separately from a regularly occurring day. The Holiday menu allows users to select specific days throughout the year, setting specialized Events, or schedules, for those days.

Screen Maps - Configuration Mode Screens

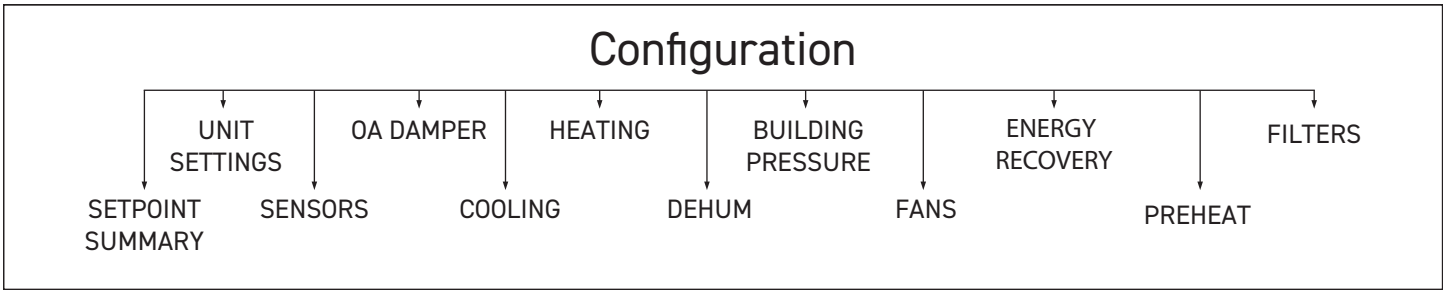


Figure 17: Screen Map: Configuration Mode

Configuration Screens

Refer to the following table when navigating through the above figure, **Figure 18**, to understand the functionality found within the Configuration section of the Stratus Controller screens.

CONFIGURATION SCREENS	
Screen Heading	**Description**
Setpoint Summary	Review changes made to setpoints within the unit
Unit Settings	Edit settings and setpoints within the unit
Sensors	A series of menus for space, return air, outside air, supply, and CO_2 sensors
OA Damper	Edit settings that pertain to Outside Air Dampers, including position, drybulb/wetbulb, and more
Cooling	Edit Cooling setpoints and configure up to six individual circuits
Heating	Edit and configure heating type and setpoints, featuring support for Heat Pump, Gas, Electric, Water/Steam, and Direct Fire heating options
Dehum	Configure dehumidification and reheat settings including humidity and dewpoint control, reheat, and more
Building Pressure	Overview of sensors, including building pressure, duct pressure, as well as control for fans, such as supply fans, exhaust fans, and more
Fans	Alter fan configuration and setpoint values for supply fans, return fans, and exhaust fans
Energy Recovery	Edit setpoints based on type, enables, bypass, and defrost settings
Preheat	Edit setpoints based on type of preheat, whether electric or water/steam
Filters	See binary, differential pressure, or change interval setpoints for all filters within the system

Table 5: Main Screens: Configuration

Setpoint Summary

The Setpoint Summary menu provides users quick access to see the current selection of setpoint values. From this menu, users can change these values, should they so desire. Only setponts that are associated with the Configuration submenu options are shown here.

Sensors

From the Sensors menu, you can access and configure the system's selection of sensors, including Space, Return Air, Outdoor Air, Supply Air, and CO_2 sensors. Each sensor type has its own submenu, allowing further configuration based on whether the sensor is present in the system or not, and if it is, depending on whether it is analog or digital. Further, setpoints such as Override values, Setpoint Adjust Limits, Offsets, PPM Setpoints, and the number of each type of sensor within the system can all be edited by the user.

Unit Settings

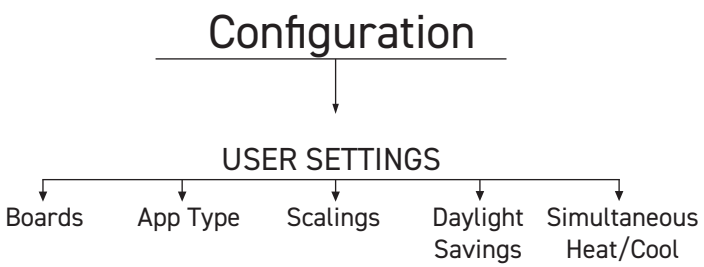


Figure 19: Configuration Mode: Unit Settings

Within Unit Settings, users can edit settings and setpoints for a variety of endpoints within the system.

Boards

Available Board Types include: Unit Manager, Power-Comm Board, Air Handler Board, Cooling Board, Heating Board, Energy Recovery Board, Preheat Board, and Outside Air Board. For each board type, users can further configure relevant values, when selected.

App Type

Available App Types include: Precision Space Control, Standard Space Control, VAV, Outdoor Air, Return Air, or 3rd Party Interface for supervisory control. The option to enable Unoccupied Temperature setpoints is also available to be used with any selected application type.

Scalings

Scaling allows for selection of either Fahrenheit (Default) or Celsius degree settings.

Daylight Savings

Available options are to enable daylight savings and set the start date and end date you want the system clock to adjust for daylight savings.

Simultaneous Heat/Cool

When a unit was ordered with the Simultaneous Heat/Cool feature this configuration will be available and allows for the option to be disabled/enabled.

Dehum

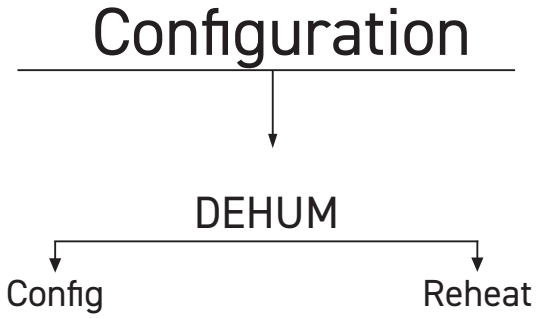


Figure 18: Configuration Mode: OA Dampers

Within the Dehum menu, users can engage with either the dehumidification configuration submenu for humidity control or the reheat submenu.

Configuration

The configuration submenu allows for the option of performing dehumidification control via Dewpoint or Relative Humidity control. The option to choose between Space, Return, or OA sensors is provided and will configure the sensor used to start and stop dehumidification operations. The additional option to add Supply Air Dewpoint Control is available and when enabled will be used to reset the coil control setpoint when the configured dehumidification sensor initiates dehumidification.

Reheat

The type of reheat the unit will use during dehumidification reheat includes Modulating HGR with or without Aux Heat, Unit Heat, and On/Off relay with or without Unit Heat. When the unit has return air bypass dampers the user can enable them and can be configured to perform space control operations or SAT control.

The Flush configuration submenu allows users to enable Startup Flush, Reheat Flush, Condenser Flush, and Cooling Flush, controlling per-minute control for each interval, with additional option to configure the interval between flush cycles.

Screen Maps - Configuration Mode Screens

OA Dampers

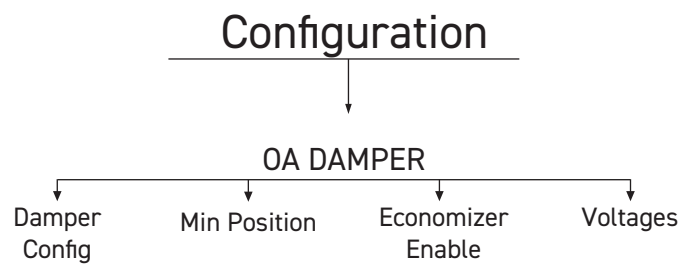


Figure 20: Configuration Mode: OA Damper

The menu for OA Dampers allows access to damper configuration, minimum position, economizer enable, and damper voltages.

OA Dampers Configuration

This submenu allows for configuration of various OA Damper Control options, including Building Pressure Control, CFM Control via Airflow Station, whether or not the user will allow econo during unoccupied mode, and the ability to enable Fault Detection and Diagnostics.

Min Pos

The Min Pos submenu allows for direct setting of the minimum economizer position, between 0% to 100%.

Economizer Enable

Within Economizer Enable, users have the option to choose the enable type including OA Drybulb, OA Wetbulb, OA Dewpoint, Comp Enthalpy with or without OA Drybulb limit.

Voltage

The Voltage submenu allows access to the minimum and maximum economizer voltage values, in vdc. These values can be altered and saved by the user.

Building Pressure

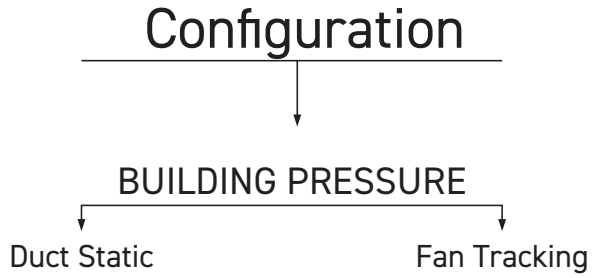


Figure 21: Configuration Mode: Building Pressure

Within Building Pressure, users can select their Building Pressure Type, including Building Pressure Sensor, Duct Static Pressure Sensor, and Fan Tracking

Duct Pressure Sensor

The Duct Status Pressure Sensor submenu allows users to select which device will be used to control the duct static pressure. The available options are Return Fan only, Exhaust Fan Only, or Both Return and Exhaust Fans.

Fan Tracking

The Fan Tracking submenu allows users to select which device will track the supply fan speed. The available options are Return Fan only, Exhaust Fan Only, or Both Return and Exhaust Fans.

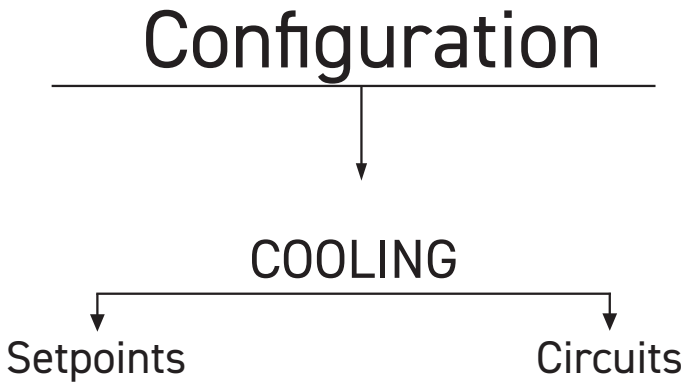


Figure 22: Configuration Mode: Cooling

Cooling

The Cooling menu provides users with the ability to configure up to six circuits, as well as edit a selection of global cooling setpoints. .

Setpoints

The global cooling setpoints that can be managed from the Cooling menu include: Stage Up Window, Stage Down Window, Stage Up Timer, Stage Down Timer, Min Run Time, Min Off Time, Cooling OAT Lockout, Cool SAT Setpoint, Low SAT Cutoff, Cool Min Fan Speed, Cool Control Window, Cool Superheat SP, and Changeover Delay Time.

Circuits

Circuits are where you define the individual control components associated with the circuit. So you define the compressors that are in the circuit, up to 2. The 2 compressors would include the main compressor (all supported types) and the tandem compressor which would be On/Off, or Two Step.

If the selected compressor has vapor injection then you need to define which Power\Com EXV port is used for the selected compressor.

You would also define the EXVs associated with the circuit. If the unit is a heat pump there would be 2 EXVs. One is the inside coil and one is the outside coil.

Compressor

The configuration options populate based on what Compressors/ Cooling Board are configured, based on the desired type of compressor (e.g. Single Compressor, Tandem).

Once selected, compressors option allows for further configuration. These configuration options are based on the Comm(s) selected on the Power-Comm Board (e.g. Power-Comm Board 1, Comm 1), configured as Sporlan Vapor Injection. If the selected compressor has vapor injection then you need to define which Power\Com EXV port is used for the selected compressor.

The selection of compressor gives way to the following setpoint options: Superheat SP, Startup Disable Time, and Discharge Line Temp SP.

Condenser Fan

The Condenser Fan options populate based on what VFD Port(s) on the AHU Board (e.g. AHU Board 1, VFD Port 1) are configured as Condenser Fan. If no VFD Port is selected, the option is None.

Inside EXV

The Inside EXV options populate based on what Port(s) on the Power-Comm Board (e.g. Power-Comm Board 1, Port 1) are configured as Inside. If no Port is selected, the option is None.

The inside coil is the evaporator coil for traditional cooling only units. In heat pump units this inside coil becomes the condenser coil in heating.

Outside EXV

The Outside EXV options populate based on what Port(s) on the Power-Comm Board (e.g. Power-Comm Board 1, Port 1) are configured as Outside. If no Port is selected, the option is None.

The outside coil is the condenser coil for traditional cooling only units. In heat pump units this outside coil becomes the evaporator coil in heating.

Reversing Valve

The Reversing Valve options populate based on what Mout(s) on the AHU Board (e.g. AHU Board 1, Mout 2) are configured as Reversing Valve. If no Mout is selected, the option is None.

Reheat Valve

The Reheat Valve options populate based on what boards are available, (e.g. Cooling Board 1, Air Handler Board 1) and are configured as Reheat Valve. If no board is selected, the option is None.

Defrost

The Defrost options populate based on what Binary Input(s) on the AHU Board (e.g. AHU Board 1, Binary Input 1) are configured as Defrost Switch. If no Binary Input is selected, the option is None.

Solenoid

The Solenoid options populate based on what Mout(s) on the Cooling Board (e.g. Cooling Board 1, Mout 1) are configured as Solenoid. If no Mout is selected, the option is None. In vapor injection units, this is the Startup Solenoid.

Proof of Waterflow

The Proof of Waterflow options populate based on what Binary Input(s) on the AHU Board (e.g. AHU Board 1, Binary Input 1) are configured as Proof of Waterflow. If no Binary Input is selected, the option is None.

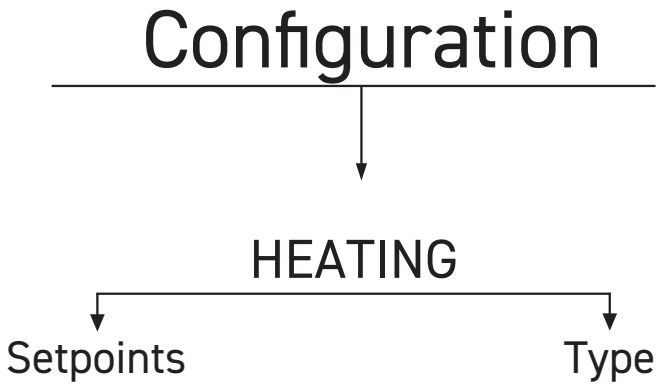


Figure 23: Configuration Mode: Heating

Heating

The Heating menu gives users the ability to edit a selection of global setpoints. The global heating setpoints that can be managed from the Heating menu include: Stage Up Window, Stage Down Window, Stage Up Timer, Stage Down Timer, Min Run Time, Min Off Time, Heating OAT Lockout, Heating SAT Setpoint, High SAT Cutoff, Heating Min Fan Speed, Heat Control Window, Heating Max Fan Speed, and Changeover Delay Time.

The Heating menu also allows for selection of Heat Type, providing the following available options: Heat Pump, Gas, Electric, Water/Steam, and Direct Fire. The Gas heat includes configuration of Ignition Control boards.

Each Ignition Control Board can be configured as modulating or On/Off. There are 2 heat call inputs on each ign board that need the associated Heating Board MOUTs defined.

There is also a low speed Combustion Fan on the ignition control board that needs the Heating Board MOUT associated.

If there are modulating gas valve(s) then you need to enable them. Up to 2 valves can be controlled per stage.

Heat Pump

The Heat Pump submenu allows users to select the Heat Pump Type, Reversing Valve Type, Aux/Emergency Heat options, and provides access to the following additional setpoints: Aux Off Delay, Aux On Delay, Aux Off Window, Aux On Window, Cool Superheat SP, Heat Superheat SP, and Heat Pump OAT Lockout.

The Heat Pump “Water” Type selection allows for selection of the Heat Pump WHP Glycol percentage value, providing options ranging from 0% to 40%.

Reversing Valve Type options include Fail to Heating and Fail to Cooling.

Aux/Emergency Heat includes options for Gas, Heat Tempering, Aux Heat, Emergency Heat, Electric, and Water/Steam. Here, each option gives way to the configuration of the aforementioned Modulating or Fixed Ignition Boards.

Gas

The Gas submenu provides users with the option of configuring two Heat Boards.

Electric

The Electric options populate based on what Mout(s) on the Heat Board are configured as either SCR Enable or Fixed Enable. If no Mout is selected, the option is None.

Water/Steam

The Water/Steam setpoints include: Min Voltage and Max Voltage.

Direct Fire

The Direct Fire setpoints include: CO2 Max, CO2 Acceptable Level, OA Damper Position, and Purge Time.

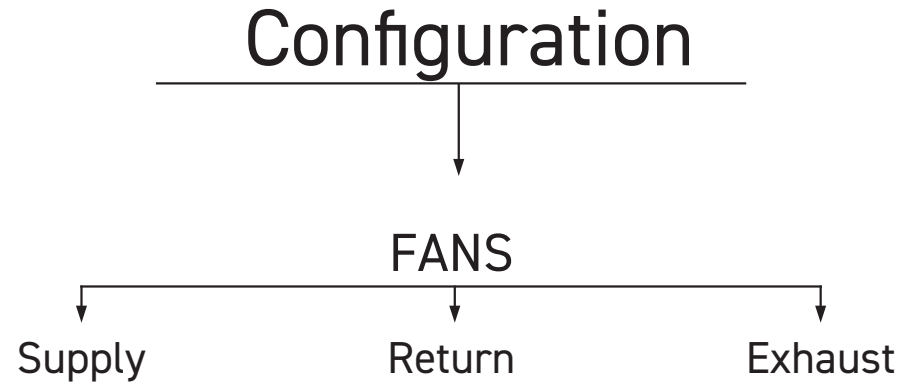


Figure 24: Configuration Mode: Fans

Fans

The Fans menu allows users to select which type of fan is currently being configured, providing options for Supply fans, Return fans, and Exhaust fans. Within each fan type, the fan can further be configured, as well as have its corresponding setpoints adjusted.

Supply Fans

The supply fan submenu allows for access to global supply fan setpoints, as well as setpoints that are further tailored depending on the configuration settings selected. The global supply fan setpoints include the Cool Min Speed, Heat Min Speed, Heat Max Speed, Vent Speed, and the Number of Allowed Fan Failure. The supply fan configuration options include CAV, SZVAV, Building Pressure, Controls, Min OA, Duct Static Control, Supply Fan Cycles w/ Heat/Cool, and SF Runs while Unoccupied.

Checkbox configuration options enable/disable their respective features and are in addition to the supply fan configuration options chosen. The CAV configuration option allows users to add filter loading control and set the associated setpoints, which include both the Duct Static setpoint and Duct Static deadband values.

The SZVAV Configuration lets users adjust the Heat Min VFD, Heat Max VFD, and Cool Min VFD setpoints.

The Duct Static Control configuration settings include the Duct Static setpoint and Duct Static deadband values. When using AAON VAV Box Controllers, users can also check the Has Static Reset sub-setting, if applicable, to gain further access to the Minimum Static Reset Setpoint value.

The Building Pressure configuration setting links users back to the Building Pressure menu within the Unit's Configuration mode. For details on this menu, see the Building Pressure.

Some settings within the Supply Fan configuration menu may be inaccessable by default. For instance, the Supply Fan Cycles w/ Heat/Cool setting will be greyed out and unable to be selected unless the unit is in Space Control - Standard Mode.

Return Fans

The Return Fans configuration settings menu provides two options: CAV (default) and Building Pressure Control.

The Building Pressure configuration setting links users back to the Building Pressure menu within the Unit's Configuration mode. For details on this menu, see the Building Pressure.

Exhaust Fans

The Return Fans configuration settings menu provides two options: CAV (default) and Building Pressure Control.

The Building Pressure configuration setting links users back to the Building Pressure menu within the Unit's Configuration mode. For details on this menu, see the Building Pressure.

Preheat

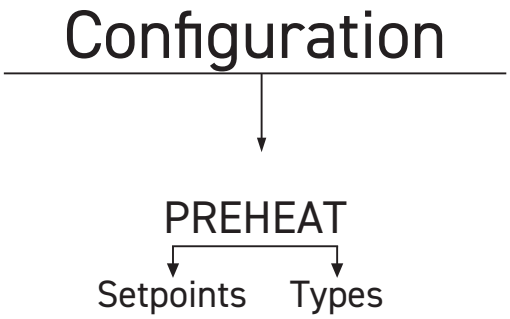


Figure 25: Configuration Mode: Preheat

The Preheat menu allows for access to the following submenus: Type and Setpoints

Type

The preheat type gives user the option to configure the preheat type being used. Options include: None, Electric, or Water/Steam preheat. Once selected, setpoints that relate to the selected type of preheat can then be configured.

Setpoints

For each type, a given selection of setpoints can be altered from this submenu. Users can adjust the OAT Enable setpoint, as well as the Cool, Heat, and Vent Leaving Air setpoints.

Energy Recovery

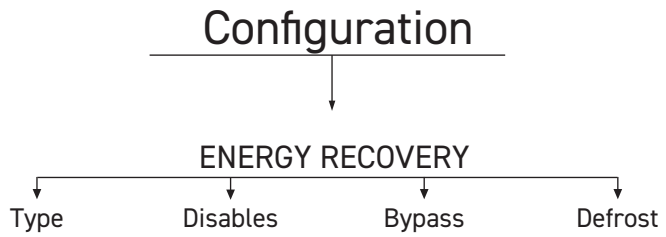


Figure 26: Configuration Mode: Energy Recovery

The Energy Recovery menu allows access to the following submenus: Type, Disables, Bypass, and Defrost

Type

The Energy Recover Source menu allows selection by Type, either Modulating or On/Off. The Modulating type allows for either the 0-10V or Communicating types. 0-10V Modulating Type allows users to edit the ERV Min and Max Voltage setpoints.

Disables

The Energy Resource Disables offer two options: Economizer and OA Enthalpy. The OA Enthalpy option allows control over the Low and High OA Enthalpy setpoints. In order to utilize the OA Enthalpy option, the system must configure a digital or BACnet OA Sensor and Return Air Sensor.

Bypass

ERV Bypass type offers both On/Off and Modulating options. Within modulating, users can alter OA ERV Bypass Min and Max, Output Voltages, Exhaust ERV Bypass Min and Max, OA Diff Pr and Exhaust Diff Pr setpoint values.

Defrost

Defrost allows users to select either No Defrost or Defrost Enable. Within Defrost Enable, users can edit the OA Temp and OA Dewpoint temperature values.

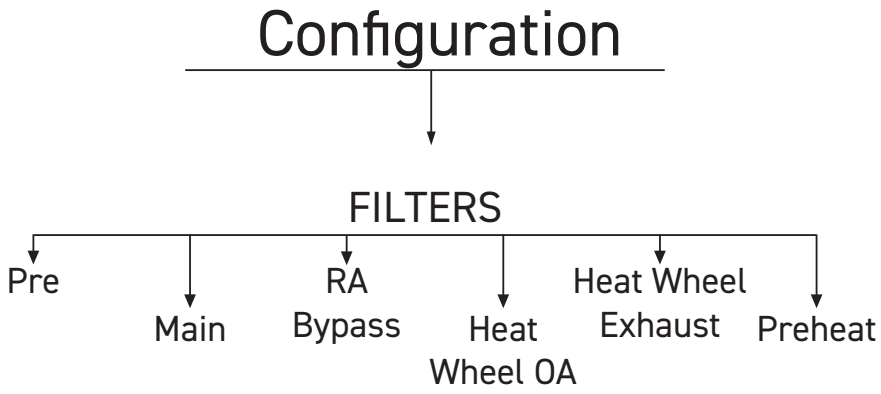


Figure 27: Configuration Mode: Filters

Filters

The Filter menu is broken up into the following areas: Pre, Main, Return Air Bypass, Heat Wheel OA, Heat Wheel Exhaust, and Preheat.

Pre Filter Monitoring Type

Within the Pre Filter Monitoring Type menu, users have the option of either Binary, Differential Pressure, or Change Interval. Here, users can alter the Differential Pressure setpoint and Change Interval Lifespan setpoint.

Main Filter Monitoring Type

Within the Main Filter Monitoring Type menu, users have the option of either Binary, Differential Pressure, or Change Interval. Here, users can alter the Differential Pressure setpoint and Change Interval Lifespan setpoint.

Return Air Bypass Filter Monitoring Type

Within the RA Bypass Filter Monitoring Type menu, users have the option of either Binary, Differential Pressure, or Change Interval. Here, users can alter the Differential Pressure setpoint and Change Interval Lifespan setpoint.

Heat Wheel OA Filter Monitoring Type

Within the Heat Wheel OA Filter Monitoring Type menu, users have the option of either Binary, Differential Pressure, or Change Interval. Here, users can alter the Differential Pressure setpoint and Change Interval Lifespan setpoint.

Heat Wheel Exhaust Filter Monitoring Type

Within the Heat Wheel Exhaust Filter Monitoring Type menu, users have the option of either Binary, Differential Pressure, or Change Interval. Here, users can alter the Differential Pressure setpoint and Change Interval Lifespan setpoint.

Preheat Filter Monitoring Type

Within the Preheat Filter Monitoring Type menu, users have the option of either Binary, Differential Pressure, or Change Interval. Here, users can alter the Differential Pressure setpoint and Change Interval Lifespan setpoint.

BACnet Protocol Implementation Conformance Statement - Stratus

BACnet® Protocol Implementation Conformance Statement

Date: December 2024
Vendor: AAON
Product: Stratus BACnet Tester
Product Model Number: ASM08029
Product Version: FW 2.0.0
Product Description: BACnet Testing Device
BACnet Protocol Revision: Revision 22 (ANSI/ASHRAE Standard 135-2020)

BACnet Standardized Device Profile

L.4 BACnet Advanced Application Controller (B-AAC)

For all supported objects, device does not support CreateObject or DeleteObject.
For all supported objects, device supports Intrinsic Reporting ⌘.
There are no proprietary objects.

Data Link Layer Options

MS/TP Master: Supported Baud rates: 9.6K, 19.2K, 38.4K, 57.6K, 76.8K
BACnet/IP, 'DIX' Ethernet

Segmentation Support

Neither segmented requests nor segmented responses are supported.

BACnet® Protocol Implementation Conformance Statement

BACnet Interoperability Building Blocks Supported (Annex K)			
Data Sharing		**Device & Network Management**	
K.1.1 BIBB	DS-RP-A	K.5.1 BIBB	DM-DDB-A
K.1.2 BIBB	DS-RP-B	K.5.2 BIBB	DM-DDB-B
K.1.4 BIBB	DS-RPM-B	K.5.4 BIBB	DM-DOB-B
K.1.6 BIBB	DS-WP-B	K.5.6 BIBB	DM-DCC-B
K.1.8 BIBB	DS-WPM-B	K.5.12 BIBB	DM-TS-B
K.1.10 BIBB	DS-COV-B	K.5.14 BIBB	DM-UTC-B
		K.5.16 BIBB	DM-RD-B
Scheduling		**Alarm & Event Management**	
K.3.2 BIBB	SCHED-I-B	K.2.2 BIBB	AE-N-I-B
Trending		K.2.5 BIBB	AE-ACK-B
K.4.2 BIBB	T-VMT-I-B	K.2.11 BIBB	AE-INFO-B
K.4.5 BIBB	T-ATR-B		

Standard Object Types Supported

- Analog Input ⌘
- Analog Output ⌘
- Analog Value ⌘
- Binary Input ⌘
- Binary Output ⌘
- Binary Value ⌘
- Device Object
- Multi-state Input ⌘
- Multi-state Value ⌘
- Calendar
- Notification Class ⌘
- Schedule ⌘
- Event Log ⌘
- Event Enrollment ⌘
- Trend Log ⌘
- Trend Log Multiple ⌘
- Integer Value ⌘
- Positive Integer Value ⌘
- Bitstring Value ⌘
- Network Port

Stratus Controller Technical Guide

Rev. A · 250407

AAON Controls Support:
866-918-1100
Monday through Friday, 7:00 AM to 5:00 PM Central Time

Controls Support website:
www.aaon.com/aaon-controls-technical-support

AAON Factory Technical Support:
918-382-6450 | techsupport@aaon.com

NOTE: Before calling Technical Support, please have the model and serial number of the unit available.

PARTS: For replacement parts, please contact your local AAON Representative.

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AAON P/N G115820, Rev. A