



# Controls, Start-Up, Operation and Troubleshooting Instructions

**IMPORTANT:** This literature covers 48/50JC 04-06 models with SystemVu controller version 4.X. The SystemVu controller is standard on all 48/50JC models.

## **Unit Start Up Note**

This unit's operation is controlled by the integrated SystemVu controller.

It has been pre-configured with safeties, default settings and other logic to control all functions including the variable speed operation of the compressor, indoor fan motor and outdoor fan motor. It also controls the operation of factory options if they are provided.

The unit can be hooked up to a conventional thermostat or Carrier sensor for operation with simply defining the sensor type mentioned with this manual. The factory default is Thermostat Control.

Within this manual are all the details to field change allowable settings to fit your application needs.

For a quick start process if required, scan the QR Code below or enter the following URL.

<https://www.carrier.com/commercial/en/us/systemvu>



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## SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment. Untrained personnel can perform the basic maintenance functions of replacing filters. Trained service personnel should perform all other operations.

When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply. Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguishers available for all brazing operations.

Follow all safety codes. Wear safety glasses and work gloves. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies a hazard which could result in personal injury or death. CAUTION is used to identify unsafe practices which may result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

### DANGER

#### ELECTRICAL SHOCK HAZARD

Failure to follow this warning will result in personal injury or death.

Before performing service or maintenance operations on unit, turn off main power switch to unit and install lock(s) and lockout tag(s). Ensure electrical service to rooftop unit agrees with voltage and amperage listed on the unit rating plate. Unit may have more than one power switch.

### CAUTION

#### UNIT DAMAGE HAZARD

This unit uses a microprocessor-based electronic control system. Do not use jumpers or other tools to short out components or to bypass or otherwise depart from recommended procedures. Any short-to-ground of the control board or accompanying wiring may destroy the electronic modules or electrical components.

### WARNING

#### FIRE, EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death and/or property damage.

Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or loss of life. Refer to the User's Information Manual provided with this unit for more details.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. What to do if you smell gas:

1. DO NOT try to light any appliance.
2. DO NOT touch any electrical switch, or use any phone in your building.
3. IMMEDIATELY call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
4. If you cannot reach your gas supplier, call the fire department.

### WARNING

#### ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury, or death.

Unit is equipped with capacitors that take time to discharge after power disconnect. Before performing service or maintenance operations on this unit, ensure the power has been off to the unit and locked out for at least 5 minutes. After removal of the high voltage cover, ensure all LED lights are off.

## GENERAL

This publication contains Start-Up, Controls, Operation, Service, and Troubleshooting information for the 48/50JC rooftop units which come equipped with SystemVu™ controls (version 4.X or higher) and Puron® (R-410A) refrigerant. The specific base unit installation instructions, service manual and/or wiring label diagram may also be required in conjunction with this book as a guide to a specific unit on the roof. All units in Table 1 are variable speed units that allow for stand-alone or network operation.

**Table 1 — Rooftop Units**

MODEL	SIZE	NOMINAL TONS
48/50JC	04	3
	05	4
	06	5

## Conventions Used in This Manual

The following conventions for discussing configuration points for the local display (SystemVu controller or Navigator accessory) will be used in this manual.

Menu paths will be written with the main menu name first, then any menus or sub menus, each separated by an arrow symbol (→) and will also be shown in bold and italics. As an example, the General sub menu which is located in the Setting main menu under Unit Configuration menu would be written as ***SETTINGS → UNIT CONFIGURATIONS → GENERAL***.

This path name will show the user how to navigate through the local display to reach the desired menu. The user scrolls through the Menus using the up and down keys. The arrow symbol in the path name represents pressing ENTER to move into the next level of the menu structure.

Point names are referenced in parentheses and bold and italics as would be shown on the local display.

CCN point names are also referenced for users configuring the unit with CCN software instead of the local display. See Appendix A at the end of this manual.

## SENSOR/ACCESSORY INSTALLATION

There are a variety of sensors and accessories available for the SystemVu™ controller. Some of these can be factory or field installed, while others are only field installable. The SystemVu controller may also require connection to a building network system or building zoning system. All field control wiring that connects to the SystemVu controller must be routed through the raceway built into the corner post of the unit or secured to the unit control box with electrical conduit. The unit raceway provides the UL required clearance between high and low-voltage wiring. Pass the control wires through the hole provided in the corner post, then feed the wires through the raceway to the SystemVu controller. Refer to the unit installation instructions for wire routing per specific product and size variations. See “MAJOR SYSTEM COMPONENTS” on page 51 for board connections and typical controller wiring.

## BASIC CONTROL USAGE

### SystemVu Control

The SystemVu control is a comprehensive unit-management system. The control system is easy to access, configure, diagnose and troubleshoot.

SystemVu is a integrated intelligent controller designed for stand-alone operation or is fully communicating and cable-ready for connection to the Carrier Comfort Network® (CCN), Carrier i-Vu®, and Third Party BACnet<sup>1</sup> building management systems. The control provides high-speed communications for remote monitoring via the Internet. Multiple units can be

linked together (and to other Direct Digital Control (DDC) equipped units) using a 3-wire communication bus.

The SystemVu control system is easy to access through the use of a integrated display module. A computer is not required for start-up. Access to control menus is simplified by the ability to quickly select from 7 main menu items. An expanded readout provides detailed explanations of control information. Only six buttons are required to maneuver through the entire controls menu. The display readout is designed to be visible even in bright sunlight.

### SystemVu Interface

This integrated device is the keypad interface used to access the control information, read sensor values, and test the unit. The interface is located in the main control box and is standard on all units. The interface is a 6-key, 4x30 character, LCD (liquid-crystal display) display module. The interface also contains Status LEDs. (See Fig. 1.) The interface is easy to operate using 6 buttons and the main menu structures shown in Fig. 2.

Through the SystemVu interface, the user can access all of the inputs and outputs to check on their values and status, configure operating parameters, and evaluate the current decision status for operating modes. The control also includes an alarm history which can be accessed from the display. The user can access a built-in test routine that can be used at start-up commissioning and troubleshooting.

### SystemVu Interface Operation

Units are shipped from the factory with the SystemVu interface located in the main control box. (See Fig. 1.) In addition, the interface has up and down arrow keys, BACK, ENTER, MENU, and TEST keys. These keys are used to navigate through the different levels of the menu structure. All discussions and examples in this document will be based on the SystemVu display except in the Navigator display section. See the Accessory Navigator Display section for further details and Table 2 for the Navigator menu structure and usage.

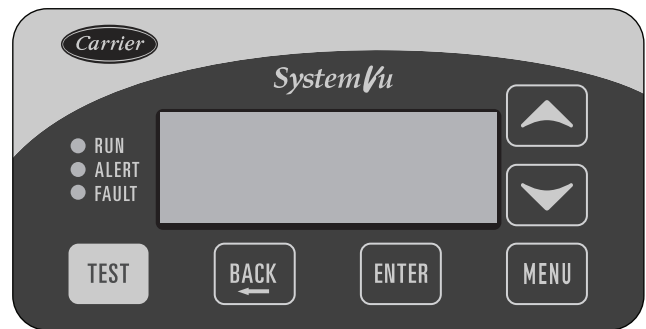


Fig. 1 — SystemVu Interface

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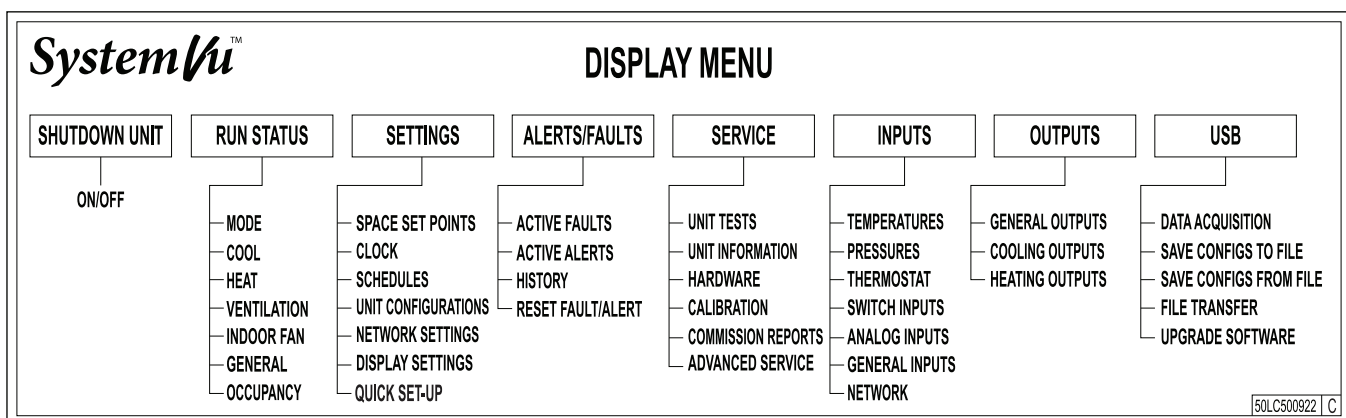


Fig. 2 — SystemVu - Main Menu Structures

The six keys are used to navigate through the display structure, which is organized in a tiered menu structure. If the buttons have not been used for a period, the display will default to a standby screen intended to provide a quick overall look at the system. To show the top-level display, press any key first to turn the display backlight on, and then press the MENU key. Then use the up and down arrow keys to scroll through the top-level menus. These are shown in Fig. 2 and listed in Appendix A.

When a specific menu or sub-menu is located, push the ENTER key to enter the menu. Depending on the menu, there may be additional tiers. Continue to use the up and down keys and the ENTER key until the desired display item is found. At any time, the user can move back a menu level by pressing the BACK key.

Once an item has been selected the display will flash showing the item, followed by the item value and then followed by the item units (if any). Pressing the TEST button at any time will jump the display to the test menu. Pressing the MENU button any time will jump the display to the main menu.

Items in the Configuration and Service Test menus are password protected. The display will prompt the enter password screen when required. Use the ENTER, BACK, and arrow keys to enter the four digits of the password. The default user password is 1111.

Pressing the BACK and ENTER keys simultaneously will show an expanded text description screen on the display indicating the full meaning of each display point. To put the screen in standby, hold down the BACK key for 5 seconds.

Some points can be forced from the SystemVu interface. To force a variable, follow the same process as editing a configuration parameter. A forced variable, regardless where the force has come from will be displayed with a lower case “f” following its value. For example, if **ECON CMD POSITION** is forced, the display shows “80%f”, where the “f” is to signify a force on the point. Remove the force by selecting the point that is forced with the key ENTER and then pressing the up and down arrow keys simultaneously. Pressing ENTER and BACK on a forced item will display the expanded description for that item including the force level that is currently applied. Depending on the type of unit (48JC or 50JC), factory-installed options and field-installed accessories, some of the items in the various menus may not apply.

### Accessory Navigator™ Display

The accessory hand-held Navigator display can be used with the 48/50JC units. (See Fig. 3.) The Navigator display is plugged into the LEN (local equipment network) port on either the SystemVu display or the Main Base Board (MBB).

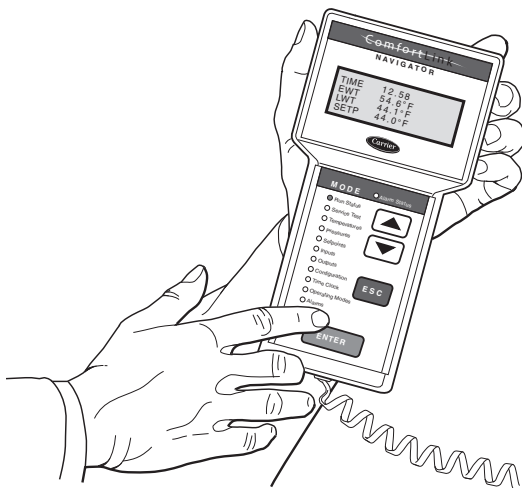


Fig. 3 — Accessory Navigator Display

### NAVIGATOR DISPLAY OPERATION

The Navigator display has up and down arrow keys, an ESCAPE key and an ENTER key. These keys are used to navigate through the different levels of the display structure.

The four keys are used to navigate through the display structure, which is organized in a tiered mode structure. If the buttons have not been used for a period, the display will default to the AUTO VIEW display category as shown under the RUN STATUS category. To show the top-level display, press the ESCAPE key until a blank display is shown. Then use the up and down arrow keys to scroll through the top-level categories. These are listed in Appendix C and will be indicated on the Navigator display by the LED next to each mode listed on the face of the display.

When a specific mode or sub-mode is located, push the ENTER key to enter the mode. Depending on the mode, there may be additional tiers. Continue to use the up and down keys and the ENTER keys until the desired display item is found. At any time, the user can move back a mode level by pressing the ESCAPE key. Once an item has been selected the display will flash showing the item, followed by the item value and then followed by the item units (if any).

Items in the Configuration and Service Test modes are password protected. The display will flash PASS and WORD when required. Use the ENTER and arrow keys to enter the four digits of the password. The default password is 1111.

Pressing the ESC and ENTER keys simultaneously will display an expanded text description across the display indicating the full meaning of each display point. Pressing the ESCAPE and ENTER keys when the display is blank (MODE LED level) will return the display to its default menu of rotating AUTO VIEW display items.

In addition, the password will need to be entered again before changes can be made.

Changing item values or testing outputs is accomplished in the same manner. Locate and display the desired item. If the display is in rotating auto-view, press the ENTER key to stop the display at the desired item. Press the ENTER key again so that the item value flashes. Use the arrow keys to change the value of state of an item and press the ENTER key to accept it. Press the ESCAPE key and the item, value or units display will resume. Repeat the process as required for other items.

There are some points that can be forced from the Navigator display. If the user needs to force a variable, follow the same process as when editing a configuration parameter. A forced variable, regardless where the force has come from will be displayed with a blinking “f” on a Navigator display following its value. For example, if economizer commanded position (**EC.CP**) is forced, the Navigator display shows “80f”, where the “f” is blinking to signify a force on the point. Remove the force by selecting the point that is forced with the key ENTER and then pressing the up and down arrow keys simultaneously.

Depending on the type of unit (48JC or 50JC), factory-installed options and field-installed accessories, some of the items in the various Mode categories may not apply.

See Table 2 and Appendix C for full Navigator display menu layout.

**Table 2 — Navigator Mode and Menu Display Structure**

RUN STATUS	SERVICE TEST	TEMPERATURES	PRESSURES	SETPOINTS	INPUTS	OUTPUTS	CONFIGURATION	TIMECLOCK	OPERATING MODES	ALARMS
Auto View of Run Status (VIEW) ↓ Cooling Status (COOL) ↓ Heating Status (HEAT) ↓ Ventilation Status (VENT) ↓ Assigned I/O Channels (A.IO) ↓ Assigned I/O Channels (A.IO)	Service Test Mode (TEST) ↓ Test Independent Outputs (INDP) ↓ Test Fans (FANS) ↓ Test Cooling (COOL) ↓ Test Heating (HEAT)				Thermostat Inputs (STAT) ↓ Switch Inputs (SW) ↓ Analog Inputs (AIS) ↓ General Inputs (GEN)	General Outputs (GEN) ↓ Cooling Outputs (COOL) ↓ Heating Outputs (HEAT)	General Unit Config (GEN) ↓ Indoor Fan Config (I.FAN) ↓ Economizer Config (ECON) ↓ Building Net Config (NET) ↓ User Display Config (DISP)	Time of Day (TIME) ↓ Month, Date and Year (DATE) ↓ Daylight Savings Config (DST) ↓ Schedules Adjust (SCHD) ↓ Holiday Adjustment (HLDY)		Curr Active Alarm (CURR) ↓ History (HIST) ↓ Reset All Current Alarms (R.CUR) ↓ Alarm Reset History (R.HIS) ↓ Versions (VERS)

## CCN Tables and Display

In addition to the unit-mounted SystemVu display, the user can also access the same information through the CCN tables by using the service tool or other CCN programs/devices. The variable names used for the CCN tables and the SystemVu display menus may be different and more items may be displayed in the CCN tables. Details on the CCN tables are included in Appendix D.

### FORCE HIERARCHY

There is a hierarchy in SystemVu controls with regards to forcing a point. Programs and devices write a force at different priority levels. A higher level (smaller number, 1 being the highest) will override a lower level force. The SystemVu controller uses a Control Force at level 7. The Navigator device writes a Service Force which is level 3. Network programs can be set to write different level priority forces.

NOTE: In the case of a control power reset, any force in effect at the time of power reset will be cleared.

**IMPORTANT:** All further discussions and examples in this document will be based on the SystemVu controller.

## START-UP

**IMPORTANT:** Do not attempt to start unit, even momentarily, until all items on the Start-Up Checklist (see page CL-1) and the following steps have been read/completed.

### Unit Preparation

Check that unit has been installed in accordance with installation instructions and all applicable codes.

### Refrigerant Service Ports

The refrigerant system has a total of 3 Schrader-type service gauge ports per circuit. One port is located on the suction line, one on the compressor discharge line, and one on the liquid line. Be sure that caps on the ports are tight.

### Crankcase Heater

The compressor is equipped with a crankcase heater. There is a control function used to turn the crankcase heaters on and off when the compressor is not running. This is a configurable value for which the factory default value is set to 65°F. If the ambient is above the selected value the control will prevent the crankcase heater from turning on.

**IMPORTANT:** Unit power must be ON for 24 hours prior to start-up to allow the crankcase heater to run. Otherwise, damage to the compressor may result.

## Compressor Rotation

### ⚠ CAUTION

#### UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

Improper wiring will cause compressor stoppage and alarm. Correct wiring by switching leads as indicated in the following section.

It is important to be certain the compressors are rotating in the proper direction. To determine whether or not compressors are rotating in the proper direction, use the Service Test mode to energize a compressor. If the compressor is rotating in the wrong direction, the controls will stop the compressor and display alarm for “Circuit A Reverse Rotation”.

NOTE: Indoor or outdoor fan rotation direction will not indicate proper input power phase sequence, the compressor must be run to verify.

**IMPORTANT:** Swapping the unit supply power will not correct the compressor rotation. The Compressor VFD controls the phasing out to the compressor. Only a manufacturing error will cause a reverse rotation.

To correct the wrong compressor rotation direction, perform the following procedure:

1. Turn off power to the unit and lock out the power.
2. Switch any two of the Compressor VFD output power that run out to the compressor.
3. Turn on power to the unit.
4. Verify corrected compressor rotation.

### Power Supply

All 208/230-v units are factory wired for 230-v power supply. If the 208/230-v unit is to be connected to a 208-v power supply, the transformers must be rewired by moving the wire from the 230-volt connection and moving to the 200-volt terminal on the primary side of the transformer. Refer to unit label diagram for additional information.



Internal Wiring

Check all electrical connections in unit control boxes; tighten as required.

Evaporator Fan

The Evaporator fan does not need to be checked for rotation as it only operates in one direction. Refer to the unit product data for full

Fan Performance tables and physical data. The specific unit’s fan performance table is printed and adhered to the control box high voltage cover. See Fig. 4 for an example fan performance table.

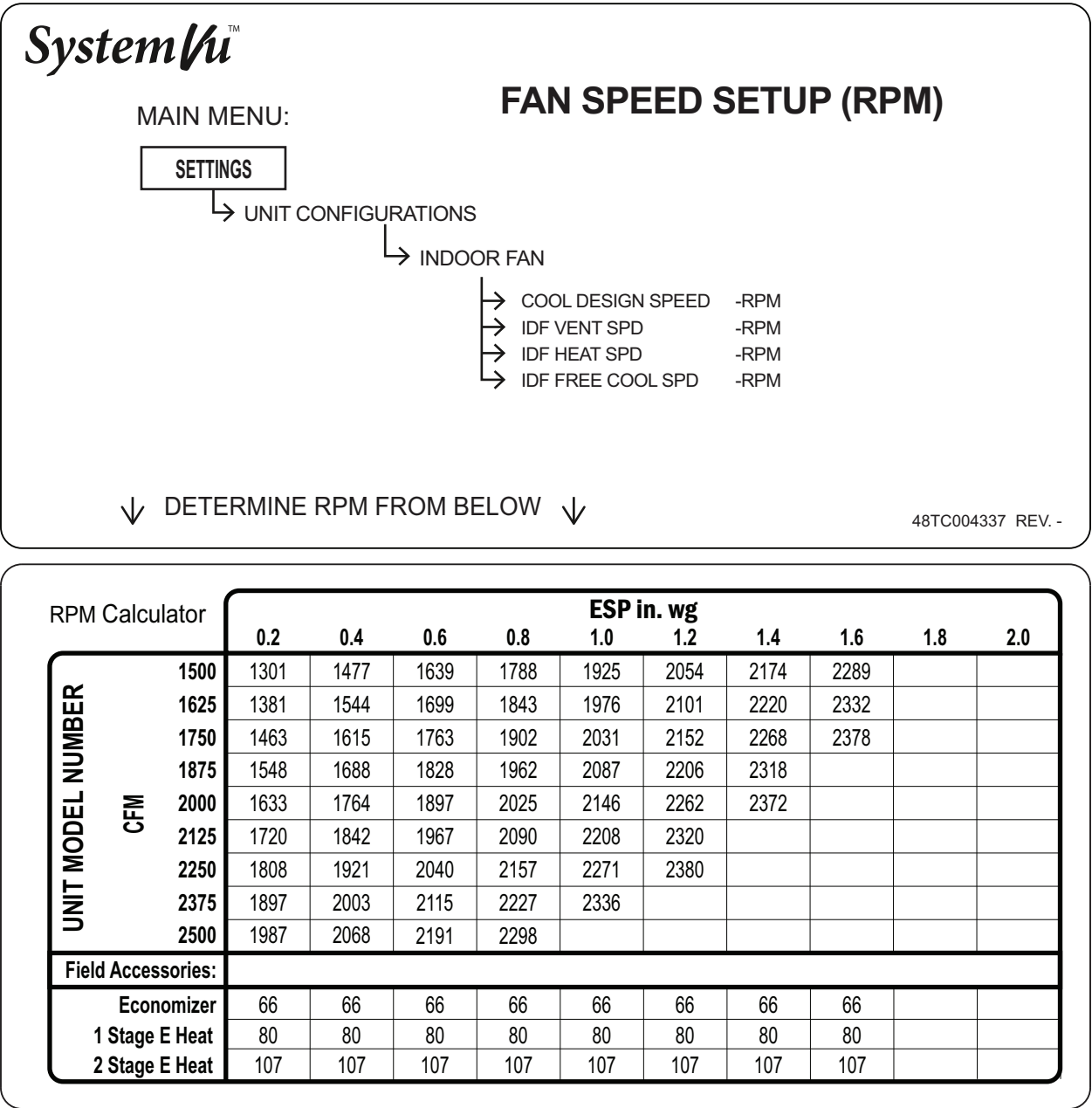


Fig. 4 — Example of Fan Speed Set Up Labels

Use the job specifications and unit fan performance table to determine the operating mode specific fan speeds. The following instructions are included in the unit installation instructions. When adjusting the Heating Fan Speed and Cooling Design Speed, ensure that the CFM is not lower than the minimum CFM allowed in the product data.

1. Check the job specifications for the CFM (cubic feet per minute) and ESP (external static pressure) required.
2. Using the chart on the Fan Speed Set Up labels (see Fig. 4), calculate the RPM from the CFM and ESP for the base unit plus any field accessories (as listed on the label).

NOTE: The Fan Speed Set Up labels are located on the High Voltage cover in the Control Box.

3. Press any key on the SystemVu interface to activate the display backlight and then press the MENU key.
4. Using the UP and DOWN arrow keys highlight SETTINGS and then press ENTER.
5. Use the DOWN arrow key highlight the UNIT CONFIGURATIONS menu then press ENTER.
6. Highlight UNIT CONFIGURATIONS then press ENTER.
7. Highlight INDOOR FAN and then press ENTER.
8. Refer to the job specifications to set the following, determining the values per the RPM Calculator label (Fig. 4). Use the UP and DOWN arrow keys and the BACK key to set the values. Press ENTER after setting each value to continue to the next selection.

- COOL DESIGN SPEED
- IDF VENT SPD
- IDF HEAT SPD
- IDF FREE COOL SPD

Service test mode can also be used to temporarily operate the Evaporator Fan with a percentage (0-100%) command. The fan test menu will show the converted RPM from the percentage being commanded. Refer to the Service test section for more details.

Adjust the IDF Maximum Fan Speed (**IDF MAX SPEED**) to restrict higher fan speeds as needed for sensitive applications.

**IMPORTANT:** The IDF Maximum Fan Speed (**IDF MAX SPEED**) RPM must not produce a supply CFM that is lower than the minimum CFM allowed in the product data for heating and cooling. The IDF Maximum Fan Speed (**IDF MAX SPEED**) must also be greater than or equal to the highest operating mode speed setting.

## Condenser Fans and Motors

Condenser fans and motors are factory set and non-adjustable.

## Return-Air Filters

Check that correct filters are installed in filter tracks (see Physical Data table in unit Product Data). Do not operate unit without return-air filters. Determine the filter change run time (**DIRTY FILTER TIME**) to be set in the quick setup configurations menu. See Fig. 5 for filter access panel location.

## Outdoor-Air Inlet Screens

Outdoor-air inlet screens must be in place before operating unit.

## Accessory Installation

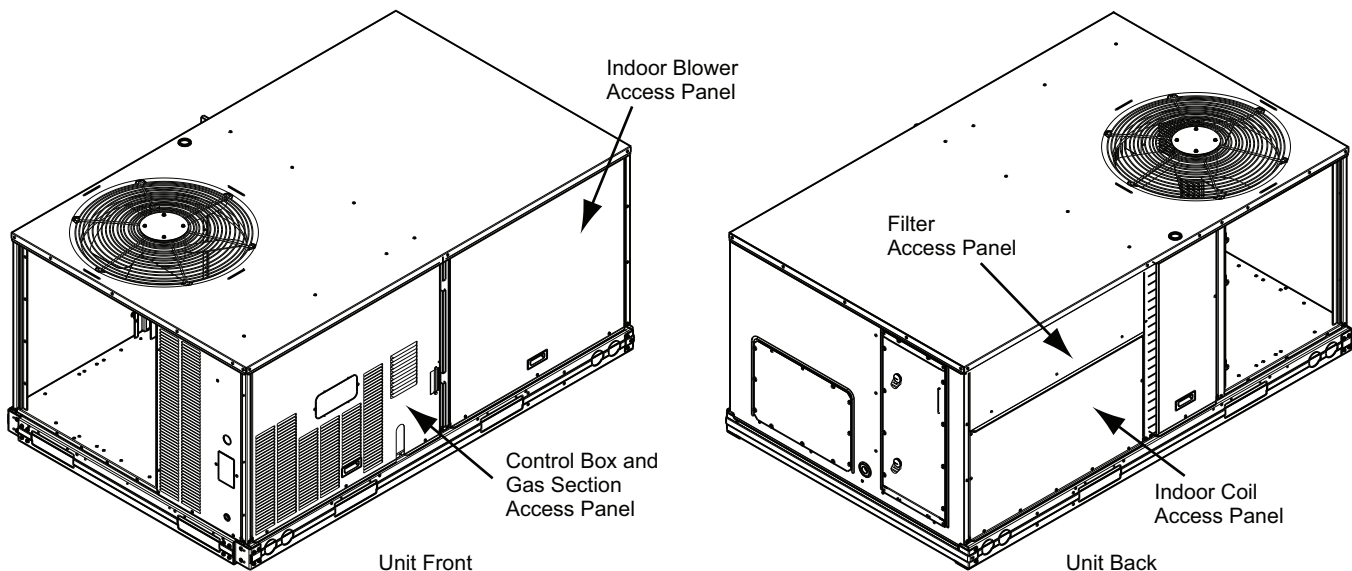
Check to make sure that all accessories including space thermostats and sensors have been installed and wired as required by the instructions and unit wiring diagrams.

## Gas Heat (48JC)

Inspect the gas heat section of the unit. Verify the number of burners match the number of heat exchanger openings and the burner assembly is properly aligned. If the orifices were changed out for elevation or Liquid Propane purposes, verify proper installation. Visually inspect other components in heat section.

Verify gas pressures before turning on heat as follows:

1. Close the field-supplied manual gas shut off valve, located external to the unit.
2. Connect a pressure gauge to the supply gas pressure tap, located on the field-supplied manual gas shut off valve (see Fig. 6).



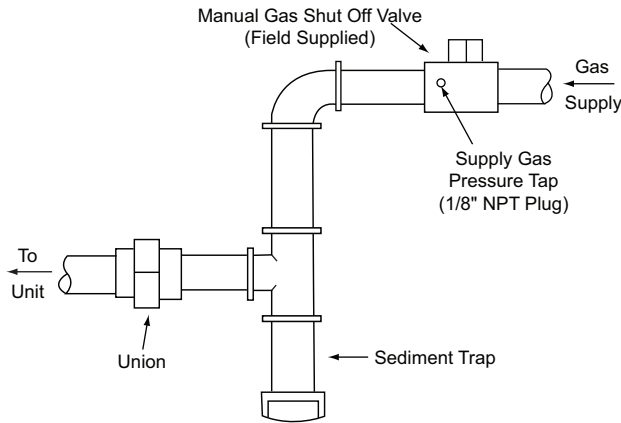
**Fig. 5 — Panel and Filter Locations**



3. Connect a pressure gauge to the manifold pressure tap on the burner assembly located inside the unit.
4. After the unit has run for several minutes, verify the supply gas pressure is adequate per the base unit installation instructions. If not, adjust accordingly.

NOTE: Supply gas pressure must not exceed 13.0-in. wg.

5. Set **HEAT 1 TEST** to OFF using the SystemVu controller interface.
6. Exit Service Test mode by setting **TEST MODE** to “OFF” using the SystemVu controller interface.



**Fig. 6 — Field Gas Piping**

## CONTROLS QUICK SET-UP

The following information will provide a quick guide to setting up and configuring the 48/50JC series units with SystemVu controls. Unit controls are pre-configured at the factory for factory-installed options. Field-installed accessories will require configuration at start-up. Initial System Startup is recommended for initial start-up. Additionally, specific job requirements may require changes to default configuration values. See Appendix A and other sections of these instructions for more details. Refer to the Major System Components or accessory installation instructions for specific wiring detail.

### Control Set Point and Configuration Log

During start up, accessory installation, and equipment service set points and/or configuration changes might have to be made. When setting set points or configuration settings, documentation is recommended. The Control Set Point and Configuration Log starting on page 149 should be filled out and left with the unit at all times, a copy should also be provided to the equipment owner. A USB jump drive can be used to back up the unit's configurations. Refer to the USB Operation section for details.

### Initial Start-Up

Initial Startup refers to the first time this particular unit has a startup performed. The SystemVu controller will continually display the Initial Startup prompt until it is completed. To complete the initial startup you must complete the Quick Setup, Network Setup, and the System Auto Test.

#### QUICK SETUP

This is a list of common adjusted configurations set during start-up. These are common accessories, and control means. Set the list in Table 3. After setting these per the specific unit set the **QUICK SET CHKLIST** point to done.

#### NETWORK SETUP

This is a shortcut to the Network Settings submenu. In this submenu are the specific network settings required to get the network piece up and running. After setting these per the specific unit set the **NETWORK CHKLIST** point to done.

**Table 3 — Quick Setup Menu Items**

SYSTEMVU DISPLAY	EXPANDED NAME	RANGE	DEFAULT
<b>QUICK SETUP CONFIG</b>	QUICK SETUP CONFIG MENU		
DATE	Current Date	MM/DD/YYYY	
TIME	Clock Hour and Minute	HH:MM	
STARTUP DELAY	Unit Startup Delay	10 to 600	30
UNIT CONTROL TYPE	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN	0
THERMOSTAT TYPE	Thermostat Hardware Type	0=CONV 2C2H, 1=DIGI 2C2H, 2=CONV 3C2H, 3=DIGI 3C2H	0
DIRTY FILTER TIME	Change Filter Timer	0 to 9999	600
HEATING STAG QTY	Number of Heating Stages	1 to 2	2 <sup>a</sup>
VENT METHOD	Ventilation Method	0=NONE 1=ECON 2=2POS DMPR 3=ERV 4=ECON ERV	0 <sup>a</sup>
FREECOOL MAX OAT	Free Cooling Max OAT	0 to 90	65
FIRE SW CHANNEL	Fire Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03 6=MBB DI05, 7-MBB Y3	0 <sup>a</sup>
COOL DESIGN SPEED	Cooling Design Point Spd	0 to 3000	1864 <sup>a</sup>
IDF VENT SPD	IDF Vent Speed	0 to 3000	900 <sup>a</sup>
IDF HEAT SPD	IDF Heat Speed	0 to 3000	2100 <sup>a</sup>
QUICK SET CHKLIST	QUICK SETUP CHECKLIST	0=Undone, 1=View, 2=Done	0

NOTE(S):

a. These defaults change based on the Unit model number

### SYSTEM AUTO TEST

Turning this to Start will run enable test mode and execute the System Auto Test. After the auto test has completed, set this to done.

### Thermostat Control

Wire accessory thermostat to the corresponding R, Y1, Y2, W1, W2, and G terminals on the Main Base board.

The Unit Control Type configuration, (**UNIT CONTROL TYPE**) default value is for thermostat (0) so there is no need to configure this item.

The Thermostat Hardware Type, (**THERMOSTAT TYPE**) selects the unit response to the thermostat inputs above.

NOTE: May not be compatible with heat anticipator thermostats.

### Space Temperature Sensor Control - Direct Wired (T-55 or T-56 or T-59)

Wire accessory space temperature sensor(s) to the T-55 terminals on the field connection terminal board located at the unit control box. Refer to Space Mounted Sensors section (page 61) for additional information.

The Unit Control Type configuration, (**UNIT CONTROL TYPE**) must be set to Space Sensor (1).

## Space Humidistat Control

For units with factory installed Humidi-MiZer® system option, the humidistat input is defaulted for use on the Y3 thermostat input screw terminal as a normally open switch. This can be changed with the Humidistat Switch Channel configuration (**HUMSTAT CHANNEL**) and the Humidistat switch type configuration (**HUMSTAT SW TYPE**).

## Space Relative Humidity Sensor Control

For units with factory installed Humidi-MiZer system option, a Relative Humidity (RH) sensor input can be used in addition to or in place of the Humidistat switch. This can be done by wiring into one of the configurable analog inputs and setting the Space Relative Humidity sensor channel (**SPRH SENSOR CHAN**) to the input channel selected. The most field accessible input channel is AI06 located at TB5-5 on the MBB (Main Base board).

## CCN Communication

First configure the building protocol **SETTINGS** → **NETWORK SETTINGS** → **BAS PROTOCOL** to CCN (default is 0 = NONE). Configure the following under the CCN menu (**SETTINGS** → **NETWORK SETTINGS** → **CCN**).

**CCN ELEMENT #** - Default is 1

**BUS NUMBER** - Default is 0

**CCN BAUDRATE** - Default is 2 = 38400

### CCN LINKAGE CONTROL

The CCN communication must be properly configured for the units and all other devices. Linkage configuration is automatically done by the supervisory CCN Linkage device.

The unit control type configuration, (**UNIT CONTROL TYPE**) must be set to space sensor (1).

The factory location of the SAT sensor will read accurately for heating and cooling for proper operation with linkage applications, therefore the SAT heating mode sensing configuration (**SAT DURING HEAT?**) is enabled from the factory. If a more accurate SAT reading is needed, the sensor can be re-located into the duct and no configuration adjustment needed.

## BACnet Communication

First configure the building protocol **SETTINGS** → **NETWORK SETTINGS** → **BAS PROTOCOL** to BACNET (default is 0 = NONE).

Configure the following under the BACNET menu (**SETTINGS** → **NETWORK SETTINGS** → **BACNET**).

**MAC ADDRESS** — Default is 1

**BUS NUMBER** — Default is 0

**BACNET BAUDRATE** — Default is 4 = 76800

### SYSTEM TOUCH DEVICE

The System Touch™ device connects to a BACnet communication bus, so the building protocol must be set to BACNET. (**SETTINGS** → **NETWORK SETTINGS** → **BAS PROTOCOL**). The following settings must be set in the System Touch menu. (**SETTINGS** → **NETWORK SETTINGS** → **BACNET** → **SYSTEM TOUCH**):

**DEVICE INSTANCE** – The default is 160099 and must be set to that of the job specific System Touch device.

**POLLING RATE** – The default is 0 to prevent scanning. This must be set to at least 10 to allow communication with the System Touch device.

## RNET Communication Space Sensors

The SystemVu controller will support the use of ZS sensors and Equipment Touch™ on the RNET communication bus connections J20 and J24. Set the **UNIT CONTROL TYPE** configuration to space sensor to enable unit control with these

sensors. RNET communication can only be enabled or disabled through BACnet communication.

NOTE: You must configure the SytemVu Communication Protocol to “BACnet” for proper Equipment Touch interface with the SystemVu controller.

## Field-Installed Accessories

Below are quick configuration settings for field-installed accessories. When factory-installed as options the points will already be configured. See the Space Mounted Sensors section (page 61), third party control, control connection tables, and CCN or Display parameter tables for any accessories not mentioned below and refer to installation manual of the accessory.

### ECONOMIZER

When an economizer is field-installed, the unit must be configured for it by setting **SETTINGS** → **UNIT CONFIGURATIONS** → **ECONOMIZER** → **VENT METHOD** to ECON. The default settings for the other economizer configurations should be satisfactory. If they need to be changed, additional information about these configuration settings can be found in the Economizer section.

### POWER EXHAUST

When power exhaust is field-installed, the unit must be configured for it by setting **SETTINGS** → **UNIT CONFIGURATIONS** → **ECONOMIZER** → **POWER EXHAUST CONFIGS** → **PE1 RELAY CHANNEL** to the channel the accessory was wired into. The default settings for the other power exhaust configurations should be satisfactory. If they need to be changed, additional information about these configurations can be found in the Power Exhaust section.

### ELECTRIC HEAT

When electric heat is field-installed, the number of electric heat stages must be configured by setting **SETTINGS** → **UNIT CONFIGURATIONS** → **HEATING** → **HEATING STAGE QTY** per the installed heater.

### FIRE SHUTDOWN

When Fire Shutdown or Smoke Detector sensors are field-installed, the unit must be configured for it by setting **SETTINGS** → **UNIT CONFIGURATIONS** → **SWITCH INPUTS CONFIGS** → **FIRE SW CHANNEL** to the channel number the switch was wired into.

### OUTDOOR ENTHALPY

When an Outdoor Enthalpy sensor is field-installed, the unit must be configured for it by setting **SETTINGS** → **UNIT CONFIGURATIONS** → **ANALOG INPUTS CONFIGS** → **OARH SENSOR CHAN** to the channel number the sensor was wired into.

### IAQ SENSOR

When a CO<sub>2</sub> sensor is field-installed, the unit must be configured for it by setting **SETTINGS** → **UNIT CONFIGURATIONS** → **ANALOG INPUT CONFIGS** → **IAQ SENSOR CHAN** selects the unit response to this input. Default conversion to 0 to 2000 ppm.

### OAQ SENSOR

When an Outdoor Air Quality sensor is field-installed, the unit must be configured for it by setting **SETTINGS** → **UNIT CONFIGURATIONS** → **ANALOG INPUT CONFIGS** → **OAQ SENSOR CHAN**. Default conversion to 0 to 2000 ppm.

### FILTER STATUS

When a Filter Status Switch is field-installed, the unit must be configured by setting the input channel it is wired to and normal state. **SETTINGS** → **UNIT CONFIGURATIONS** → **SWITCH INPUT CONFIGS** → **FILTER SW CHANNEL** and **FILTER SW TYPE**.

## PHASE MONITOR

When a phase monitor is field-installed, the unit must be configured by setting the input channel it is wired to and normal state **SETTING** → **UNIT CONFIGURATIONS** → **SWITCH INPUTS CONFIGS** → **PHASE MON CHANNEL** and **PHASE MON SW TYPE**.

## Programming Operating Schedules

When the building automation system you have the SystemVu controller configured for (**BAS PROTOCOL SELECT**) is None (0) or CCN (1) the SystemVu controller can follow a standard CCN occupancy table. The occupancy can be modified from any CCN tool or from the local display.

### OCCUPANCY SCHEDULE

For flexibility of scheduling, the occupancy programming is broken into eight separate periods. For each period the schedule contains the following fields: Day of Week, Occupied From, and Occupied To.

#### DAY OF WEEK

The day of week configuration consists of eight fields corresponding to the seven days of the week and a holiday field in the following order: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, and Holiday. If a 1 is configured in the corresponding place for a certain day of the week, the related "Occupied from" and "Occupied to" times for that period will take effect on that day of the week. If a 1 is placed in the holiday field, the related times will take effect on a day configured as a holiday. A zero means the schedule period will not apply to that day.

- Day of week: Range 0 or 1
- Default Values 0 for all of the periods.

#### OCCUPIED FROM

This field is used to configure the hour and minute, in 24 hour clock, that the mode for the controller will switch to occupied.

- Occupied From: Units Hours:Minutes
- Range 00:00 to 24:00
- (Minutes 00 to 59)
- Default Value 00:00

#### OCCUPIED TO

This field is used to configure the hour and minute, in 24 hour clock, that the mode for the controller switches from occupied to unoccupied.

- Occupied To: Units Hours:Minutes
- Range 00:00 to 24:00
- (Minutes 00 to 59)
- Default Value 00:00

When the building automation system configured to (**BAS PROTOCOL**) is BACnet, the occupancy and holiday information will be reset to defaults in preparation for receiving a BACnet occupancy object. While participating on a BACnet network these configurations cannot be changed at the local interface or with CCN tools. All scheduling is done from the BACnet interface designated to provide schedules.

## SERVICE TEST

The Service Test function can be used to verify proper operation of compressors, heating stages, indoor fan, outdoor fans, Humidi-MiZer system operation, power exhaust fans, economizer, crankcase heaters, and the alarm relay. Use of Service Test is recommended at initial system start up and during troubleshooting. (See Table 4 for point details)

Service Test mode has the following changes from normal operation:

- Outdoor air temperature limits for cooling circuits, economizer, and heating are ignored.
- Normal compressor time guards and other staging delays are reduced to one minute or less.
- Circuit strike out time is reduced to 1 minute instead of 15 minutes.
- It may take up to 30 seconds to actually enter test mode after activating the command.

Press the TEST button on the SystemVu interface anytime to access the Test menu. Service Test mode can only be turned ON/OFF at the unit display. Once turned ON, other entries may be made with the display or through CCN. To turn Service Test mode on, change the value of **TEST MODE** to ON. To turn service test mode off, change the value of **TEST MODE** to OFF. Service Test mode will be automatically turned off based on keypad inactivity and the Service Mode Test Time out (**TEST MODE TIM OUT**).

Test mode covers a variety of units with all test points visible at all times. Some tests may be prevented when not applicable for the specific unit as configured. Refer to the operations sections of this manual for details on the functions which make test cases applicable or not.

NOTE: Service Test mode may be password protected. Refer to Basic Control Usage section for more information. Depending on the unit model, factory-installed options, and field-installed accessories, some of the Service Test functions may not apply.

**Table 4 — Test Mode Unit Test Directory**

DISPLAY MENU/SUB MENU/NAME	EXPANDED NAME	VALUES
<b>UNIT TESTS</b>	Unit Tests Menu	
<b>TEST MODE</b>	Service Test Mode Enable	Off/On
<b>SERVICE TEST</b>	Service Test Menu	
<b>INDEPENDENTS</b>	INDEPENDENT TEST MENU	
<b>ECON POS TEST</b>	Economizer Position Test	0 to 100
<b>BUMP COMP SPEED</b>	Compressor Spd Bump test	0 to 6000
<b>RH DIS VALVE TEST</b>	Rht Dischg Valve Rly Tst	Off/On
<b>RH LIQ VALVE TEST</b>	Reheat Liq Valv Rly Test	Off/On
<b>CL LIQ VALVE TEST</b>	Cooling Liq Valv Test	Off/On
<b>CCH RELAY 1 TEST</b>	Crankcase Heater 1 test	Off/On
<b>ALARM RELAY TEST</b>	Alarm Output Relay Test	Off/On
<b>PE1 RELAY TEST</b>	Power Exhaust 1 Test	Off/On
<b>PE2 RELAY TEST</b>	Power Exhaust 2 Test	Off/On
<b>2POS/ERV RLY TEST</b>	2Position/ERV Relay Test	Off/On
<b>DAMPER CALIBRATION</b>	Damper Calibration Menu	
<b>CALIBRATE DAMPER</b>	Econ Damper Calibration	Off/On
<b>FAN TESTS</b>	Indoor and Outdoor Fan tests	
<b>IDF SPEED TEST</b>	Indoor Fan Speed Test	0 to 100
<b>CONVERTED IDF RPM</b>	Converted IDF Speed	XXXX

**Table 4 — Test Mode Unit Test Directory (cont)**

DISPLAY MENU/SUB MENU/NAME	EXPANDED NAME	VALUES
IDF MANUAL TRANS	IDF Manual Transition	Yes/No
ODF SPEED TEST	Outdoor Fan Speed Test	0 to 1200
ODF MANUAL TRANS	ODF Manual Transition	Yes/No
COOL	Cooling Status Menu	
COOL TEST CMP SPD	Cool Test Cmp Test	0 to 6000
IDF SPEED TEST	Indoor Fan Speed Test	0 to 100
ODF SPEED TEST	ODF Speed Test	0 to 1200
HUMIDIMIZER TEST	Humidimizer Level Test	0 = Off 1 = SUBCOOL 2 = REHEAT
HEAT	Heating Status Menu	
HEAT 1 TEST	Heating Stage 1 Test	Off/On
HEAT 2 TEST	Heating Stage 2 Test	Off/On
IDF SPEED TEST	Indoor Fan Speed Test	0 to 100
AUTOMATIC TEST	Automatic Test Menu	
AUTO INDP TEST	AUTO INDEPENDENT TEST	Yes/No
AUTO COOL TEST	RUN AUTO COOLING TEST	Yes/No
AUTO HEAT TEST	RUN AUTO HEATING TEST	Yes/No
AUTO SYSTEM TEST	RUN AUTO SYSTEM TEST	Yes/No

## Independent Outputs

The **INDEPENDENTS** submenu is used to change output status for the economizer, Humidi-MiZer system valves, power exhaust stages, crankcase heaters, the alarm relay, as well as perform a compressor bump test. These independent outputs can operate simultaneously with other Service Test modes. All outputs return to normal operation when Service Test is turned off. The compressor bump tests cannot be run while running cooling tests and will automatically turn off after one minute.

## Fan Test

The **FAN TESTS** submenu is used to setup or test speeds for the indoor fan and outdoor fan. In Indoor Fan Test, use the **IDF SPEED TEST** point to control the indoor fan speed in terms of %, and use the **CONVERTED IDF RPM** point as feedback to help set the fan speed settings in terms of RPM. The indoor fan transition type point, **IDF MANUL TRANS**, inform the test routine how to handle the fans while running the cooling or heating tests. Automatic will automatically transition the fans as the cooling or heating tests change. While the Manual transition will only run the fans as set by the test points.

Use the **ODF SPEED TEST** point to control the outdoor fan speed in terms of RPM. The outdoor fan transition type, **ODF MANUAL TRANS**, point informs the test routine how to handle the fans while running the cooling tests. Automatic will automatically transition the fans as the cooling tests change, while the Manual transition will only run the fans as set by the test points.

## Cooling Test

The **COOL** submenu is used to change output status for the Cooling System and Humidi-MiZer system operation. The **COOL TEST CMP SPD** point is used to run the system in cooling at the desired compressor speed, the indoor and outdoor fans will run at their respective energy efficient speeds. The **HEAT** submenu service test outputs are reset to OFF for the cooling service test. Indoor fans and outdoor fans are controlled normally to maintain proper unit operation when set for automatic transition. The **IDF SPEED TEST** and **ODF SPEED TEST** can be changed as needed for testing. These fans points show the requested speed not actual speed. All normal cooling faults and alerts are functional.

## Heating Test

The **HEAT** submenu is used to change output status for the individual heat stages, gas or electric. The **COOL** service test outputs are reset to OFF for the heating service test. Indoor fan is controlled normally to maintain proper unit operation when set for automatic transition. The **IDF SPEED TEST** and **ODF SPEED TEST** can be changed as needed for testing and shows the requested speed not actual speed. All normal heating faults and alerts are functional.

NOTE: When the IGC fan on command (**IGC FAN REQUEST**) is active the fan may run when not expected.

## Automatic Test

The **AUTOMATIC TEST** submenu is used to execute all the applicable tests to the system automatically. These include independent components, cooling, heating, and system. Table 5 shows the steps taken during the independent, cooling, and heating automatic tests. The Hold time represents the time at which that control waits before moving on to the next step.

The **AUTO SYSTEM TEST** will execute the independent auto test, then the cooling auto test, then the heating auto test. At the end of the system auto test a prompt will ask if you want to enter measured data and complete a service report.

NOTE: If an auto test step is not applicable to the specific unit's configurations it will be skipped.

**Table 5 — Independent, Cooling, and Heating Automatic Tests**

AUTO INDP TEST		
Step	Action	Hold (Sec)
1	Turn on Crankcase Heater Relay	0
2	Set ODF to Maximum Speed	30
3	Set ODF to Minimum Speed	30
4	Set ODF to Off	5
5	Set IDF speed to 100%	30
6	Turn on 2 position damper/ERV relay	30
7	Set Economizer Damper to 100%	60
8	Turn on power exhaust 1	10
9	Turn on power exhaust 2	10
10	Set Economizer Damper to 0%	60
11	Turn off power exhaust 2	10
12	Turn off power exhaust 1	10
13	Set IDF to the ventilation speed	30
14	Turn off 2 position damper/ERV relay	0
15	Turn on alarm relay	10
16	Turn off alarm relay	10
17	Set IDF to 0% speed	30
18	Turn off Crankcase Heater relay	0
AUTO COOL TEST		
Step	Action	Hold (Sec)
1	Set IDF auto transition	0
2	Set ODF auto transition	0
3	Set Cool Test Comp Spd to 4500	120
4	Set Cool Test Comp Spd to 2000	60
5	Set Cool Test Comp Spd to 0	60
6	Turn on Hot Gas Reheat Test	120
7	Switch to Subcooling Test	60
8	Turn off Subcooling Test	30
AUTO HEAT TEST		
Step	Action	Hold (Sec)
1	Set IDF auto transition	0
2	Turn on Heat 1 test	60
3	Turn on Heat 2 test	60
4	Turn off Heat 1 and Heat 2 tests	20

## THIRD PARTY CONTROL

Third party controls may interface with the unit SystemVu controller through the connections described below. See other sections of these instructions for more information on the related unit control and configurations.

### Cooling/Heating Control

The thermostat inputs are provided on TB1 of the board. The Unit Control Type configuration, **UNIT CONTROL TYPE**, must be 0 (TSTAT) to recognize the below inputs. Terminal R is the 24-VAC source for the following:

Y1 = first stage cooling  
Y2 = second stage cooling  
W1 = first stage heating  
W2 = second stage heating  
G = Indoor fan

### Dehumidification Control

For units with factory installed Humidi-MiZer system option, the humidistat input is defaulted for use on the Y3 thermostat input screw terminal as a normally open switch. This can be changed with the Humidistat Switch Channel configuration (**HUMSTAT CHANNEL**) and the Humidistat switch type configuration (**HUMSTAT SW TYPE**).

### Remote Occupancy

The remote occupancy input can be provided on one of the configurable inputs, most commonly TB3. The Remote Occupancy Switch configuration, **REMOTE OCC TYPE**, identifies the normally open or normally closed status of this input when unoccupied. The Remote Occupancy Channel configuration, **REMOTE OCC CHAN**, identifies the discrete input (DI) assigned for this function.

### Remote Shutdown

The remote shutdown input is provided for unit shutdown in response to switch input configured most commonly on TB3. The Remote Shutdown Switch configuration, **REM. SHUT-DOWN TYPE**, identifies the normally open or normally closed status of this input when there is no shutdown command. The Remote Shutdown Channel configuration, **REM. SHUT-DOWN CHAN**, identifies the discrete input (DI) assigned for this function.

### Alarm Output

The alarm output is provided on as a configurable relay, most commonly on TB2, to indicate when a current alarm is active. The output will be 24-VAC if a current alarm exists. The Alarm Relay Channel configuration, **ALM RELY CHANNEL**, identifies the discrete output (DO) assigned for this function.

### Economizer Damper Control

For units with the economizer option or accessory, the damper position can be directly controlled through the IAQ sensor input. The IAQ Analog Input configuration, **IAQ LEVEL CONTROL** will have to set to 2 (**CTL MINP**). When IA.CF = 2, an external 4 to 20 mA source is used to move the damper 0% to 100% directly.

## CONTROLS OPERATION

### Display Configuration

The **SETTINGS** → **DISPLAY SETTINGS** submenu is used to configure the local display settings.

#### **METRIC DISPLAY**

This variable is used to change the display from English units to Metric units.

### LANGUAGE

This variable is used to change the language of the SystemVu display.

#### **CONTRAST ADJUST**

This is used to adjust the contrast of the SystemVu display.

#### **PASSWORD ENABLE?**

This variable enables or disables the use of a user password. The password is used to restrict use of the control to change configurations.

#### **VIEW USER PASSWORD**

This menu allows the user to view the user password. The password must be entered or disabled to view it.

#### **CHANGE USER PASSWORD**

This menu allows the user to change the user password. The password must be entered or disabled to change it.

### Unit Configuration

Many configurations that indicate what factory options and/or field accessories are installed and other common operation variables are included in **SETTINGS** → **UNIT CONFIGURATION** submenu. Some of these configurations will be set in the factory for the factory-installed options (FIOPs). Field installed accessories and custom control functions will require configuration changes. The **SETTINGS** → **UNIT CONFIGURATION** → **GENERAL** submenu contains the following control configurations. Refer to other specific sections for other configurations.

#### **STARTUP DELAY**

This configuration sets the control start-up delay after the power is interrupted. This can be used to stagger the start-up of multiple units.

#### **UNIT CONTROL TYPE**

This configuration defines if temperature control is based on thermostat inputs or space temperature sensor input. TSTAT value is when then unit determines cooling and heating demand by the state of G, Y1, Y2, W1, and W2 inputs from a space thermostat. This value is the factory default. SPACE SEN value is when the unit determines cooling and heating demand based on the space temperature and the appropriate set point. RAT SEN value is when the unit determines cooling and heating demand based on the return air temperature and the appropriate set point. SPACE SEN or RAT SEN are also used as Linkage configuration.

#### **THERMOSTAT TYPE**

This configuration applies only if Unit Control Type is Thermostat. The value determines how the inputs are interpreted. See the specific operation sections for more information. The following descriptions define what each value means.

- 0 = CONV 2C2H — Conventional Thermostat 2 stage cool and 2 stage heat. This is the default setting.
- 1 = DIGI 2C2H — Digital Thermostat 2 stage cool and 2 stage heat.
- 2 = CONV 3C2H — Conventional Thermostat 3 stage cool and 2 stage heat.
- 3 = DIGI 3C2H — Digital Thermostat 3 stage cool and 2 stage heat.

NOTE: Do not use a 3H2C selection for JC units as this setting will not allow the unit to go into high cool.

#### **ADAPTIVE TSTAT**

This configuration applies only if the Unit control type is Thermostat. When this is YES the control will use Adaptive Control for cooling and heating staging. When this is set to NO the control will use the Traditional Thermostat Control, however during integrated cooling Adaptive is always used.

### **DIRTY FILTER TIME**

This configuration defines the life of the installed filter. A timer will count down from this number while the indoor fan is running. At the expiration of this timer, an alert will be activated to indicate a filter change is required.

### **TEST MODE TIMEOUT**

This configuration defines the time at which a test mode test has not changed state will automatically disable test mode. This configuration will disable the timeout when set to 0 (Disabled).

### **CCH MAX TEMP**

This configuration defines the temperature threshold for which the crankcase heater is no longer required to heat the compressor shell.

### **STD BARO PRESSURE**

This configuration is used to specify the job location's standard barometer pressure reading. This will feed the **BAROMETRIC PRESS** when a network is not writing to it. This should be used to account for job site elevation if enthalpy calculations are being used.

### **UNIT'S MAX SAT**

This setting is used to trigger the F412 — Run Away Heat Fault. Any time the unit supply air temperature is higher than this value the alarm will be generated and shutdown the unit. Default is 200°F (93°C).

### **UNIT'S MIN SAT**

This setting is used to trigger the F202 — Freeze Protection Fault. Any time the unit supply air temperature falls below this value the alarm will be generated and shutdown the unit. Default is 32°F (0°C).

### **AUTO SAT FAULTS?**

This setting allows the user to select whether the F202 — Freeze Protection Fault and F412 — Run Away Heat Fault can automatically reset with improved supply air temperatures, or if the unit remains in shutdown until the unit can be manually reset. Default is Yes to allow auto reset.

### **SA FREEZE PROTECT**

This setting allows the F202 — Freeze Protection Fault to be disabled if the function is not desired. The fault will not activate, and unit will continue to run with extreme low supply air temperatures. Default is enabled to allow the function.

### **LINK STAGEUP TIME**

This configuration sets the cooling and heating stage up time during linkage operation.

## **Configurable Switches and Analog Sensors**

SystemVu controller has optional configurable inputs. These consist of seven physical board switch inputs (discrete inputs) and three physical board analog inputs. There are more functions allowed for configuration than there are inputs. Each function will have a configuration for which channel it is assigned to. Each switch function will also have a switch type configuration which defines that switches normal state. Table 6 shows the configurable functions and what their normal and active states are. Table 7 shows the configurable analog input functions. The switch configurations can be found in the **SETTINGS → UNIT CONFIGURATIONS → SWITCH INPUT CONFIGS** sub-menu. The analog input configurations can be found in the **SETTINGS → UNIT CONFIGURATIONS → SWITCH INPUT CONFIGS** sub-menu. The configurable input assignment can be viewed in the **SERVICE → HARDWARE → ASSIGNED INPUTS/OUTPUTS** sub-menu.

Any of the Switch input functions can be configured and wired for use on any of the discrete input channels, see Table 8. Any of the analog sensor functions can be configured and wired for use in any of the analog input channels, see Table 9.

**Table 6 — Configurable Switch Input Function**

FUNCTION DESCRIPTION	NORMAL STATE	ACTIVE STATE
Humidistat	OFF	ON
Fire Shutdown	NORMAL	ALARM
Condensate Overflow	LOW	HIGH
Filter Status Switch	CLEAN	DIRTY
Remote Occupancy	UNOCC	OCCUPIED
Remote Shutdown	RUN	SHUTDOWN
General Status Switch	GOOD	ALARM
Enthalpy Switch Input	LOW	HIGH
Fan Status Switch Input	OFF	ON
Indoor Air Quality Override	NO	YES
Phase Monitor Switch Input	NORMAL	ALARM
Smoke Purge	OFF	ON
Smoke Pressurization	OFF	ON
Smoke Evacuation	OFF	ON

**Table 7 — Configurable Analog Input Functions**

FUNCTION DESCRIPTION	SENSOR TYPE	SENSOR VALUES
Space Relative Humidity Sensor	0-20mA	%RH
Outside Air Relative Humidity Sensor	0-20mA	%RH
Return Air Relative Humidity Sensor	0-20mA	%RH
Indoor Air CO <sub>2</sub> Sensor	0-20mA	PPM
Outside Air CO <sub>2</sub> Sensor	0-20mA	PPM
Outdoor Air CFM Sensor	0-20mA	CFM

**Table 8 — Configurable Discrete Input Channels**

CHANNEL NAME	BOARD CONNECTION	WIRE LOCATION
MBB DI12	MBB TB3-2	Included Connector on Board
MBB DI13	MBB TB3-4	Included Connector on Board
MBB DI14	MBB TB3-6	Included Connector on Board
MBB DI02	MBB J4-2	Special Connector on Board
MBB DI03	MBB J5-2	Special Connector on Board
MBB DI05	MBB HPS1-QC1	3/16" Quick Connector (male)
MBB Y3	MBB TB1 – Y3	Screw Terminal

**Table 9 — Configurable Analog Input Channels**

CHANNEL NAME	BOARD CONNECTION	WIRE LOCATION
MBB AI06	MBB TB5-5	Included Connector on Board
MBB AI07	MBB J7-1	Pink Wire in return air section
MBB AI08	MBB J7-2	Gray Wire in return air section

## **General Operation**

The 48/50JC units can provide cooling, dehumidification, heating, and ventilation. The operating mode (MODE) shows the highest level of operation of the unit at any given time. The operating sub-mode (SUB-MODE) shows the detail operation occurring while under a specific mode. Figure 7 shows the MODE and SUB-MODE values.

Each unit will operate under one of three basic types of control, thermostat, space temperature sensor, or return air temperature sensor. There are many inputs, configurations, safety factors, and conditions that ultimately control the unit. Refer to the specific operation sections for detail on a specific unit operation. The control will set the demand based on these types of control and conditions, which then drives the operating mode.



MODE	OFF	VENT	COOL	HEAT	TEST
SUB-MODE	STARTING UP	MODE TIMEGUARD	ECON FREE COOLING	HEATING	MANUAL TEST
	IDLE - NO DEMAND	SUPPLY FAN ON	UNOCC. FREE COOL	SA TEMPERING	AUTO TEST
	MODE TIMEGUARD		MECH. COOLING	HEATING PREVENTED	SHUTTING TEST OFF
	UNIT DISABLED		ECON/MECH COOLING	SHUTTING HEAT OFF	
	URGENT SHUTDOWN		DEHUMIDIFICATION		
	SAFETY CONTROL		DEHUM/MECH COOL		
	PURGING SMOKE		DEHUM PREVENTED		
	PRESSURIZING		COOLING PREVENTED		
	EVACUATING SMOKE		SHUTTING COOL OFF		

**Fig. 7 — Modes and Sub-Modes**

When thermostat control is enabled (**UNIT CONTROL TYPE**), the unit will operate based on discrete input commands (G, Y1, Y2, W1, and W2) and there is a one minute time delay between modes and when re-entering a mode. The G command calls for ventilation, the Y1 and Y2 commands call for cooling, and the W1 and W2 commands call for heating. Thermostat Control Type (**THERMOSTAT TYPE**) affects how cooling operates based on Y1 and Y2 commands and if cooling/heating stage time guards are applied.

When space temperature sensor control is enabled (**UNIT CONTROL TYPE**), the unit will try to maintain the Space Temperature (**SPACE TEMPERATURE**) between the effective cool and heat setpoints (**EFF COOL SETPOINT** and **EFF HEAT SETPOINT**). However, to minimize unnecessary cool to heat and heat to cool changes, there is a 10 minute delay after the last stage turns off before the control will switch modes. Linkage operation overrides the mode changeover delay to 15 seconds. The cooling and heating Mode Select Time guards (**COOL MODE T.GUARD** and **HEAT MODE T.GUARD**) show the remaining time before allowing the respective mode to be entered.

## Demand Determination

Based on the unit control type (**UNIT CONTROL TYPE**), alarm conditions, and user interaction, the control will determine an overall demand of the unit. Table 10 shows the

possible system demands with their priority level and summary description.

## THERMOSTAT DEMAND

When the unit control type is configured for thermostat (**UNIT CONTROL TYPE = TSTAT**) the level 6 demand in Table 10 will be determined by thermostat inputs and the Thermostat Type configuration (**THERMOSTAT TYPE**) as shown in the tables below. Table 11 shows the cooling thermostat inputs and how they map to the system demand. Table 12 shows the heating thermostat inputs and how they map to the system demand.

## Temperature Demand

During thermostat control when the demand is cooling, a cooling demand is also calculated (**RUN STATUS → MODE → COOLING DEMAND**). The **COOLING DEMAND** is determined based on the Y1 and/or Y2 inputs, the Return Air Temp, and the Low/High Cool demand on settings. The control will start the **COOLING DEMAND** equal to the **LOW COOL DMD ON** with a Y1 input, or equal to the **HIGH COOL DMD ON** with a Y2 input. The control will then use the Return air temperature to determine an imaginary setpoint to update the **COOLING DEMAND** during the cooling cycle. Any time the thermostat demand changes the **COOLING DEMAND** will be reset to the **LOW COOL DMD ON** or **HIGH COOL DMD ON** values.

**Table 10 — Demand List and Priority**

DEMAND	PRIORITY	DESCRIPTION
EMERGENCY	1	An emergency condition occurs which requires a unit shutdown
SMOKE CONTROL	2	A smoke input or building command is operating the unit.
SAFETY FAULT	3	A safety diagnostic requires the unit to run in safety mode.
SERVICE TEST	4	User request test mode
SHUTDOWN	5	A minor or user condition requires the unit to shutdown
NO DEMAND	6	There is no comfort demand from the building
FAN ONLY		Only circulation or ventilation is requested from the building
DEHUM		A dehumidification load is present in the building
LOW COOL		A low cooling load is present in the building
HIGH COOL		A high cooling load is present in the building
LOW COOL & DEHUM		A low cooling and dehumidification load is present in the building
HIGH COOL & DEHUM		A high cooling and dehumidification load is present in the building
UFC LOW COOL		A low cooling load is present in the building due to the unoccupied free cooling algorithm
UFC HIGH COOL		A high cooling load is present in the building due to the unoccupied free cooling algorithm
LOW HEAT		A low heating load is present in the building
HIGH HEAT		A high heating load is present in the building
SUPPLY AIR TEMPERING		Due to outside air, supply air is uncomfortably cool during ventilation

**Table 11 — Thermostat Cooling System Demands<sup>a</sup>**

THERMOSTAT INPUTS		THERMOSTAT TYPE			
Y1	Y2	CONV 2C2H <sup>b</sup>	CONV 3C2H	DIGI 2C2H	DIGI 3C2H
0	0	No Cool	No Cool	No Cool	No Cool
0	1	Alert & Low Cool	Alert & Low Cool	High Cool	High Cool
1	0	Low Cool	Low Cool	Low Cool	Low Cool
1	1	High Cool	High Cool	High Cool	High Cool

NOTE(S):

- a. Do not use a 3H2C selection for JC units as this setting will not allow the unit to go into high cool.  
b. Set the LOW COOL COMP as needed.

**Table 12 — Thermostat Heating System Demands**

THERMOSTAT INPUTS		THERMOSTAT TYPE	
W1	W2	CONV 2C2H CONV 3C2H	DIGI 2C2H DIGI 3C2H
0	0	No Heat	No Heat
0	1	Alert & Low Heat	High Heat
1	0	Low Heat	Low Heat
1	1	High Heat	High Heat

#### SPACE SENSOR DEMAND

When the unit control type is configured for space sensor (**UNIT CONTROL TYPE = SPACE SEN**) the level 6 demand in Table 10 will be determined by the space sensor inputs and setpoints as described below. The Effective Demand Temperature (**DEMAND CTRL TEMP**) represents the temperature which the control is using to control the space. This would come from the space sensor, building network, linkage, or the return air sensor.

#### Setpoint Determination

Setpoints are used to control the unit. The Cool Setpoint in Effect (**EFF COOL SETPOINT**) and the Heat Setpoint in Effect (**EFF HEAT SETPOINT**) are the points in which the unit is controlling to at a specific time. These points are read only points and change according to occupancy, the offset slider status, and network writes. The setpoint configurations are in the **SETTINGS → SPACE SET POINTS** submenu.

If the building is in occupied mode, the Occupied Cool Setpoint (**OCC COOL SETPOINT**) and the Occupied Heat Setpoint (**OCC HEAT SETPOINT**) are active. When the building is in unoccupied mode, the Unoccupied Cool Setpoint (**UNOCC COOL SETPNT**) and the Unoccupied Heat Setpoint (**UNOCC HEAT SETPNT**) are active. The heating and cooling set points are also separated by a minimum Heat-Cool Set Point Gap (**HEAT-COOL SP GAP**) that is user configurable from 2 to 10 degrees F. This parameter will not allow the setpoints to be set too close together, it will change the last setpoint adjusted if it is set within the GAP.

When the space sensor has a setpoint slider adjustment, the cool and heat setpoints (occupied) can be offset by sliding the bar from one side to the other. The SPT Offset Range (+/-) (**SPT SLIDER RANGE**) sets the total positive or negative degrees that can be added to the setpoints. With the slider in the middle, no offset is applied. Moving the slider to the “COOL” side will subtract from each setpoint, and sliding it to the “WARM” side will add to the setpoints. The slider offset being applied at any given time is displayed as Space Temperature Offset (**SLIDER OFFSET VAL**).

#### Temperature Demand

Space sensor staging control is an adaptive anticipation control that weighs the actual space demand against the trend of that demand. The control tries to anticipate the change in the space because of its current stage status. This anticipation is based on the demand trends. These trends will show the control how the space is reacting to the current running conditions and help it

decide when to change the actual demand of the system. The following points are in the **RUN STATUS → MODE** submenu:

#### COOLING DEMAND

This is the difference between the Cool Setpoint in Effect (**EFF COOL SETPOINT**) and the Effective Demand Temperature (**DEMAND CTRL TEMP**) representing the demand of the space for cooling.

#### COOL DEMAND TREND

This is the rate of change of the cooling demand in degrees per minute, representing how the space is changing its demand for cooling.

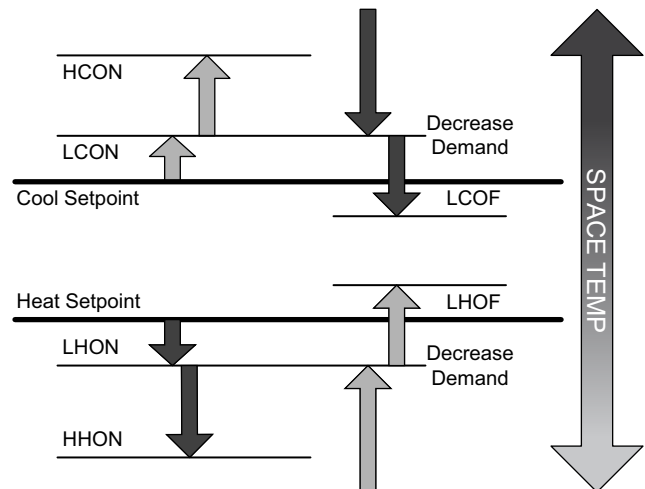
#### HEATING DEMAND

This is the difference between the Heat Setpoint in Effect (**EFF HEAT SETPOINT**) and the Effective Demand Temperature (**DEMAND CTRL TEMP**) representing the demand of the space for heating.

#### HEAT DEMAND TREND

This is the rate of change of the heating demand in degrees per minute, representing how the space is changing its demand for heating.

In general the system demand will increase based on the demand compared to the demand switch states in Fig. 8. The demand cannot increase until Time guard 1 (**DEMAND TIMEGUARD1**) expires. The LCON and LHON thresholds will also cause the system demand to be reduced. When the demand hits the off switch stages the system demand will be set to NO DEMAND. These switch stages are in the **SETTINGS → SET POINTS → TEMP DEMAND CONFIG** submenu.



**Fig. 8 — Space Sensor System Demand Switch States**

The cooling and heating demand level up configurations (**COOL DMD LEVEL UP** and **HEAT DMD LEVEL UP**) will restrict a system demand increase if the demand trend is less than the level up configuration. These level up configurations will also increase the system demand if the demand trend is greater than it for greater than the Time Guard 2 (**DEMAND TIMEGUARD2**).

The system demand will increase if it has remained at the same state for greater than Time Guard 3 (**DEMAND TIMEGUARD3**).

#### RAT DEMAND

When the unit control type is configured for return air sensor (**UNIT CONTROL TYPE = RAT SEN**) the level 6 demand in Table 8 will be determined the same as space sensor but using the return air temperature (**RETURN AIR TEMP**) instead of the space temperature (**SPACE TEMPERATURE**).

#### HUMIDITY DEMAND

When the unit is configured for either a Humidistat input (**HUMSTAT CHANNEL**) or Space Humidity Sensor (**SPRH SENS CHANNEL**) the level 5 demand in Table 8 will include a determination of dehumidification demand.

##### Humidistat

When receiving an active input from the Humidistat (**HUMID-ISTAT**), dehumidification will be demanded.

##### Space Relative Humidity

On units with a relative humidity sensor, when the received value of space relative humidity (**SPRH LEVEL**) has exceed the humidity set point (**SPRH SET POINT**), dehumidification will be demanded. This demand will remain until the space relative humidity has fallen below the humidity set point by more than the humidity set point deadband (**SPRH DEADBAND**). This would come from the space humidity sensor, or building network.

### Occupancy Determination

The building's occupancy is affected by a number of different factors. Occupancy affects the unit set points and the operation of the economizer. The factors affecting occupancy are listed below from highest to lowest priority.

#### LEVEL 1 PRIORITY

Level 1 classification is a force/write to occupancy and can occur two ways. Listed in order of priority: force on OCCUPIED, and a Linkage write. The CCN point OCCUPIED is forced via an external device such as a ComfortID™ controller or a service tool: when OCCUPIED is forced to YES, the unit is considered occupied, when OCCUPIED is forced to NO, the unit is considered unoccupied. If the unit is being controlled by Linkage, the occupancy is communicated and mapped to OCCUPIED as an input. Linkage does not force the point only write to it, therefore a force applied to OCCUPIED will override it.

If OCCUPIED is not being forced or written to, proceed to the level 2 priority.

#### LEVEL 2 PRIORITY

Level 2 is considered occupant interaction, and consists of ZS motion sensor, timed override, and remote occupancy switch. A timed override button press will override a remote occupancy switch if both are installed for operation. The motion sensor will override both timed override and remote occupancy switch. Refer to the ZS motion sensor section for more details.

While using the programmed schedule, occupancy can be temporarily switched from unoccupied to occupied by pressing the override button for approximately 3 seconds on the T-55, T-56, or T-59 space temperature sensor. The length of the override period when pressing the override button is determined by the Override Time Limit (**TIMED OVR LENGTH**). The hours remaining in override is displayed as Timed Override Hours (**TIMED OVR HOURS**). This point can also be changed from the local display or network to set or change the override period length.

Remote Occupancy Switch (**REMOTE OCC SWITCH**) can be forced or configured for operation based on an actual switch. The physical switch should be configured to either Normally Open or

Normally Closed when the user would like to control the occupancy with an external switch. This switch is field-supplied (24v, single pole, single throw [SPST]). There are two possible configurations for the remote occupancy switch:

1. (**REMOTE OCC TYPE = 0**) Normally Open Switch
2. (**REMOTE OCC TYPE = 1**) Normally Closed Switch

If the switch is configured to No Switch (**REMOTE OCC CHAN = None**), the switch input value will be ignored and software will proceed to level 3 priority. For each type of switch, the appropriate configuration and states are listed in the table below.

TYPE OF SWITCH	SWITCH CONFIGURATION	STATE OF SWITCH AND STATE OF OCCUPANCY
Occupied when Closed or Unoccupied when Open	Normal Open (0)	Open and Unoccupied
		Closed and Occupied
Occupied when Open or Unoccupied when Closed	Normal Closed (1)	Open and Occupied
		Closed and Unoccupied

#### LEVEL 3 PRIORITY

The following occupancy options are determined by the state of Occupancy Schedule Number (**SCHEDULE NUMBER**) and the Global Schedule Broadcast (**BROADCAST SCHEDL?**).

1. (**SCHEDULE NUMBER = 0**) The unit is always considered occupied and the programmed schedule is ignored. This is the factory default.
2. (**SCHEDULE NUMBER = 1-64**) Follow the local programmed schedule. Schedules 1 to 64 are local within the controller. The unit can only store one local schedule and therefore changing this number only changes the title of the schedule table.
3. (**SCHEDULE NUMBER = 65-99**) Follow the global programmed schedule. If the unit is configured as a Global Schedule Broadcaster (**BROADCAST SCHEDL? = YES**), the unit will follow the unit's programmed schedule and broadcast the schedule so that other devices programmed to follow this schedule number can receive the schedule. If the unit is not programmed as a Global Schedule Broadcaster (**BROADCAST SCHEDL? = NO**), the unit will receive broadcasted schedules from a unit programmed to broadcast this schedule number.

### Indoor Fan Operation

This unit employs an Electronic Commutated Motor (ECM) to operate the supply fan at different speeds in order to achieve energy savings through reduced fan power. This method is specifically not concerned with controlling static pressure in the supply duct, but rather with setting different fan speeds for different operating conditions, such as ventilation mode or variable speed mechanical cooling.

The fan control is NOT a Variable Air Volume (VAV) function. The fan adapts its speed based on 5 speed configurations, the mode, and current state to satisfy a demand. The five configurable fan speeds are: Maximum Speed (**MAXIMUM IDF SPEED**), Ventilation (**VENT IDF SPEED**), Heating (**HEATING IDF SPD**), Free Cool (**FREE COOL IDF SPD**) and Cooling design speed (**COOL DESIGN SPEED**). During Mechanical Cooling IDF will be controlled based on the Compressor Speed. The ECM is powered direct from the distribution block and is always on with power applied unless the CB is tripped. When the thermostat or space sensor control conditions require the fan on, the ECM will then be ramped to desired speed. Fan speed is always calculated by evaluating the current applicable conditions. Each fan speed condition is evaluated independently, and the highest fan speed is used. For example, if a cooling call occurs during Ventilation

mode, the unit mode will transition to cooling but the fan speed is set to the higher of the vent speed or cooling curve speed. If vent speed is set high then that speed will remain on while cooling. Refer to the speed configurations below for when the fan will run at them.

The Commanded Fan Speed (**OUTPUTS → GENERAL OUTPUTS → COMMANDED IDF RPM**) represents the controls commanded speed for the fan at any given time. This commanded speed is determined by the unit's current HVAC mode and the unit control type. For gas heating units, the IGC fan request output (**INPUTS → GEN.I → IGC.F**) is monitored by the control. This can result in additional modification of fan delays or other operation due to safety functions of the IGC control. See the Gas Heating operation section for more details. If configured for IAQ fan operation, the fan may be turned on to satisfy air quality demands. See the Indoor Air Quality section if using IAQ (indoor air quality) accessory sensors. The fan can run under thermostat or space sensor control and will remain on if compressors or heat relays are ever stuck on. If Shut Down on IDF Failure is enabled (**SHUT-DOWN IDF FAIL = Yes**), the fan and unit will be shutdown without delay on fan alarm conditions. Fan off delays are honored when exiting specific HVAC modes. The Fan-off Delay delays are as follows: Cooling (**COOL FANOFF DELAY**), and Heating (**HEAT FANOFF DELAY**).

#### INDOOR (SUPPLY) FAN MAXIMUM SPEED (IDF MAX SPEED)

Max speed is the highest fan speed allowed. This is set in terms of percentage instead of RPM and is defaulted to 100%. The max speed should be set lower if needed for building or duct protection. Most safety conditions for the unit will override the fan speed to this to help protect the unit.

**IMPORTANT:** **MAXIMUM IDF SPEED** is used in the minimum position curves and therefore important to set properly.

#### VENTILATION INDOOR FAN SPEED (IDF VENT SPD)

This configuration defines the fan speed used in Ventilation (fan-only) mode. Ventilation mode is when the supply fan is running, but there is no demand for heating or cooling. In thermostat mode, this is with just a G call. In space sensor control, this is when the unit is Occupied mode and the indoor fan is configured to always run while occupied (**OCCUPIED FAN?**). If the indoor fan is configured for intermittent fan (**OCCUPIED FAN? = No**), the Mode will be off instead of Ventilation and the fan will not run unless a heating or cooling mode is needed. During the unoccupied period, the fan will always operate intermittently. The economizer damper will adjust its position based on how far away this speed is from max speed for ventilation.

**IMPORTANT:** It is important that the ventilation rate is checked after setting this speed to verify that the unit can properly ventilate the space per requirements. Adjusting this configuration or the economizer minimum setting curve should be performed to meet job requirements.

#### HEATING INDOOR FAN SPEED (IDF HEAT SPD)

This configuration defines the fan speed used when in heating mode and running heat. On units equipped with Gas heat (**UNIT TYPE OF HEAT**), this heat speed will be delayed on based on the IGC's fan on call (**IGC FAN REQUEST**). Once the IGC request the fan the fan will run what this heating speed configuration is set for until heating is ended. On units configured for Electric heat (**UNIT TYPE OF HEAT**) and configured for Preheat without the fan (**PREHEAT W/O IDF**), this heat speed will be delayed on based on the Preheat fan delay time (**PREHEAT FAN DELAY**). Once this preheat time has expired or not configured for preheat, the fan will run at this heat speed while heat is on.

#### FREE COOLING INDOOR FAN SPEED (IDF FREE COOL SPD)

This configuration defines the initial fan speed used when in Free Cooling. Refer to the Economizer Controls Operation section for details on free cooling. The fan will stay at this configured speed whenever only the damper is being used for free cooling. If the damper is at 100% for 5 minutes the fan will ramp to the high cooling speed. It is locked there until the actual damper position falls below 75% at which time it will ramp back down to this configured speed.

#### COOLING DESIGN POINT SPEED (COOL DESIGN SPEED)

During Mechanical Cooling the indoor fan speed will vary with the compressor speed for optimal capacity and efficiency. The relationship of compressor RPM vs indoor fan RPM is factory set based on the unit model number. This cooling design point configuration allows the user to shift that RPM curve up or down based on the specific job site application. The default value for the **COOL DESIGN SPEED** is based on the unit model and is approximately 400CFM/ton with 1.0 in. unit static pressure. It is necessary to change this to the specified full load unit design point using the fan table label on the high voltage control box panel. See Fig. 4 for an example of this label.

#### Cooling Operation

The unit's cooling operation consists of: demand and mode determination, variable speed request to satisfy the demand, and handling a request with the unit's resources. These resources can include compressors, Humidi-MiZer system, an economizer, and fan speed based on options. This section covers mechanical cooling. For economizer free cooling, refer to the Economizer Operation section (starting on page 24).

For Humidi-MiZer system operation, refer to the Optional Humidi-MiZer Dehumidification System section (see page 20).

#### COOLING MODE CONTROL

The cooling HVAC mode (**OPERATING MODE**) has 9 different operating sub modes (**SUBMODE**): ECON FREE COOLING, UNOCC. FREE COOL, MECH. COOLING, ECON/MECH COOLING, DEHUMIDIFICATION, DEHUM/MECH COOLING, DEHUM PREVENTED, COOLING PREVENTED, and SHUTTING COOL OFF. These are all part of a general cooling mode and resemble the specific type of cooling that is being performed at any given time. All types of cooling are still performed under the general cooling function, and the expanded text is for user reference only.

For the unit to enter cooling mode, three things must be true: the indoor fan must be ok to use, the mode changeover time guard must be expired, and there must be a cooling or dehumidification demand (Y1, Y2, space cool demand, or humidity demand). The unit will remain in cooling for at least one minute or until all of the above conditions turn false. The cooling mode does not officially end until the compressor is off and the fan off delay has expired.

#### COOLING CONTROL

Once the unit is in a cooling mode, determine what the demand is and how to satisfy it. If an economizer is installed and can be used for cooling (**OK TO USE FREE COOLING? = Yes**), the unit will use it first (see economizer section for its operation). If the economizer cannot be used or additional cooling is needed, a mechanical cooling check is performed. OK to use Compressors? (**OK TO USE COMPS?**) will be set to yes when the outdoor temperature (**OUTDOOR AIR TEMP**) is above the Circuit A Lockout temperature (**CIR.A LOCKOUT OAT**) and the Circuit A is not locked out for diagnostic reasons (**CIRCUIT A LOCKOUT**). Based on unit configurations and demand the requested compressor speed (**CMP REQUESTED RPM**) will be determined as variable speed control and then the compressor control will correct the speed as needed.

### Variable Speed

The intent of this control is to satisfy the space cooling needs in terms of **COOLING DEMAND**, not to maintain a cooling capacity. The control uses the **COOLING DEMAND** as the error term in a PI control scheme. As the **COOLING DEMAND** increases or stays the same for an extended duration the control will increase the compressor speed request (**CMP REQUESTED RPM**). As the **COOLING DEMAND** decreases the control will start to decrease the compressor speed request (**CMP REQUESTED RPM**). There is an intended overshoot to allow turn off for some time when demand is satisfied, meaning that the **COOLING DEMAND** will go negative.

The compressor requested speed (**CMP REQUESTED RPM**) will be adjusted to keep the compressor within its operating envelope. The active envelope is displayed as a varying discharge limit based on the active suction pressure. The low and high discharge envelope limits are **ENVELOPE LO LIMIT** and **ENVELOPE HI LIMIT**, respectively. The adjustment on the requested speed is determined based on the compressor envelope offset settings (**OFFSET ON LO ENV** and **OFFSET ON HI ENV**). As the discharge temperature (**CIR.A DIS TEMP**) approached the high limit minus the high offset, the compressor request will be decreased to keep it below that offset value. As the discharge temperature (**CIR.A DIS TEMP**) approached the low limit plus the low offset, the compressor request will be increased to keep it above that offset value. Once the offset value is reached the low or high envelope alert will be activated to indicate a potential issue while still adjusting the speed. If the offset value is exceeded or the actual envelope limit is exceeded, the compressor will be turned off with an appropriate alarm. Refer to the alarm section for more details.

Any time the outdoor temperature (**OUTDOOR AIR TEMP**) falls below the low temperature compressor minimum speed temperature (**LO TEMP SPD TEMP**) the compressor will be prevented from running a speed less than the low temperature minimum speed (**MIN COOL LOCK SPD**). Any time the outdoor temperature (**OUTDOOR AIR TEMP**) rises above the high temperature minimum speed temperature (**HI TEMP SPD TEMP**) the compressor will be prevented from running a speed less than the high temperature minimum speed (**HI TEMP CMP SPEED**).

During variable speed there are two supply air temperature limits that apply, one restricts compressor speed control and the other will reduce the speed. If at any time the Supply-Air Temperature (**SUPPLY AIR TEMP**) falls below the Minimum Supply Air Temperature Upper Level (**UPPER MIN SAT**), the requested compressor speed will not be allowed to increase. If at any time the SAT falls below the Minimum Supply Air Temperature Lower Level (**LOWER MIN SAT**), the requested compressor speed will be reduced by 10% continuously until the supply air gets above **LOWER MIN SAT** or until running the minimum speed. If at any point the supply air temperature falls below 35°F for 10 seconds, the compressor will be turned off.

### COMPRESSOR CONTROL

The compressor control works hand and hand with variable speed control. As the variable speed determines the compressor requested speed, the compressor control governs the operation of the compressor to try and provide what is being requests. The availability of the compressors depends on time guards, circuit diagnostics, and oil recovery.

The compressor will always start up at the start speed (**COMP START SPEED** default 2000 rpm) for the first 40 seconds. The compressor will never be requested higher than the maximum speed (**COMP MAX SPEED** default 6000 rpm). The compressor minimum speed is set based on the model number and the efficiency curve. The compressor will follow a ramp up and down rate based on the respective settings. These settings mentioned above are not intended for user adjustment unless approved by service personnel.

There are time guards to protect the compressor, Compressor Minimum On Time (**COMP MIN ON TIME**) and Compressor Minimum Off Time (**COMP MIN OFF TIME**) apply before the compressor can be turned back on or turned off. Time guard A1 (**COMP A1 TIMEGUARD**) displays the time guard being enforced on the compressor real time. Circuit diagnostic tests are performed during operation which may or may not allow the compressor to be used. The availability of the compressor is shown as Compressor A1 Available (**COMP A1 AVAILABLE**). The lockout status of the compressor is shown as Compressor A1 Lockout (**COMP A1 LOCKOUT**). The actual stage representation of the compressor running at any given time is displayed as Actual Cooling Stages (**ACTIVE COOL STAGE**), this is used internally to keep logic throughout the control. Compressor output state is shown as compressor requested speed (**CMP REQUESTED RPM**). The true feedback from the compressor will only be displayed on the PWM converter board in the unit control box. The unit control does not have this feedback and therefore only used for service troubleshooting at the unit. Refer to the "Compressor VFD" section on page 64 for more details.

To ensure oil recovery if the compressor is ever running speeds less than the trip speed (**OIL RECOVERY TRIP**) for two hours, the speed will be increased to the **OIL RECOVERY SPD** for the **OIL RECOVERY TIME**.

### OUTDOOR FAN CONTROL

The outdoor fan has an electronically commutated motor (ECM) which can allow for variable speed. The unit control will operate the outdoor fan using a performance curve or a discharge temperature control. The outdoor fan speed output is displayed as **COMMANDED ODF RPM** and governed by its maximum and minimum speed settings (**ODF MAX SPEED**, **ODF MIN SPEED**).

The outdoor fan will start after the compressor has been on for 20 seconds. The ODF will start and remain at the minimum speed (**ODF MIN SPEED**) for 20 seconds. This behavior totals 40 seconds to match the 40 second compressor startup time. After this start period the outdoor fan will honor the ramp up and down speeds (**SETTINGS → UNIT CONFIGURATIONS → OUTDOOR FAN → RAMP UP PER SEC, RAMP DOWN PER SEC**) based on the controls desired speed. When the compressor is turned off the outdoor fan speed will remain at its last command speed for the delay off time (**ODF FAN OFF DELAY**).

During Normal or Discharge control operation, the outdoor commanded speed (**COMMANDED ODF RPM**) will be adjusted to help keep the compressor within its operating envelope. The active envelope is displayed as a varying discharge limit based on the active suction pressure. The low and high discharge envelope limits are **ENVELOPE LO LIMIT** and **ENVELOPE HI LIMIT**, respectively. The adjustment on the commanded speed is determined based on the outdoor fan envelope offset settings (**ODF HI ENV OFFSET** and **ODF LO ENV OFFSET**). As the discharge temperature (**CIR.A DIS TEMP**) approached the high limit minus the high offset, the outdoor fan command will be increased to keep it below that offset value. As the discharge temperature (**CIR.A DIS TEMP**) approached the low limit plus the low offset, the outdoor fan command will be decreased to keep it above that offset value. Once the offset value is reached the low or high envelope alert will be activated to indicate a potential issue while still adjusting the speed. Refer to the alarm section for more details. Anytime the outdoor fan is running, and the outdoor temperature is higher than the Override temperature (**ODF OVR TEMP**) the outdoor fan speed will be set to maximum (**ODF MAX SPEED**) and the override flag will be set (**ODF OVERRIDE**).

### Normal Operation

The normal operation of the outdoor fan is to follow a performance curve relative to the compressor speed. This curve is set in the factory based the model number and does not require any adjustment in the field. As the compressor speed changes the outdoor fan speed request (**REQUESTED ODF SPD**) will be updated according to the model curve. This requested speed will drive the commanded speed (**COMMANDED ODF RPM**) unless impacted by the envelop or override control.

### Discharge Control

The discharge control of the outdoor fan will vary the commanded speed of the ODF (**COMMANDED ODF RPM**) to maintain a targeted discharge temperature (**ODF SDT TARGET**). The requested speed (**REQUESTED ODF SPD**) during this operation will show the minimum speed. Discharge control will be active (**ODF SDT CONTROL = YES**) when the outdoor temperature is less than the Low Ambient temperature (**LOW AMBIENT TEMP**) or during Humidi-MiZer operation. The discharge temperature target can be adjusted for low ambient versus Humidi-MiZer using their respective target settings (**LO.AMB SDT TARGET** and **REHEAT SDT TARGET**). The commanded speed (**COMMANDED ODF RPM**) may be updated by the envelop or override control as needed.

### Optional Humidi-MiZer Adaptive Dehumidification System

Units with the factory-installed Humidi-MiZer system option are capable of providing multiple modes of improved dehumidification as a variation of the normal cooling cycle. The Humidi-MiZer system option includes additional valves in the liquid line and discharge line of the refrigerant circuit and a reheat coil downstream of the evaporator. The Humidi-MiZer system equipped configuration is factory set to Yes for Humidi-MiZer system equipped units (**REHEAT EQUIPPED = YES**). This enables Humidi-MiZer system operating modes and service test. Humidi-MiZer system operation requires the installation and configuration of a relative humidity switch input or a space relative humidity sensor. These provide the dehumidification demand to the control.

#### DEHUMIDIFICATION DEMAND

When using a humidistat or switch input, the demand for dehumidification is seen as Space Humidity Switch (**INPUTS → SWITCH INPUTS → HUMIDISTAT**) being Off or On. An Off value means humidity level is good and an On value means that dehumidification is needed.

When using an SPRH sensor, the demand is based on the Space Humidity Sensor (**INPUTS → ANALOG INPUTS → SPRH LEVEL**) value compared to the Space RH Setpoint (**SETTINGS → SPACE SETPOINTS → OCC SPRH SETPOINT** or **UNOCC SPRH SP**). If the Space Humidity Sensor (SPRH) value is above the Space RH Setpoint, then dehumidification is needed. If the Space Humidity Sensor (SPRH) value is below the Space RH Setpoint minus the Space RH Deadband (**SETTINGS → COOLING → SPRH DEADBAND**), then dehumidification is no longer needed.

NOTE: When there is a dehumidification demand, the economizer damper position is limited to its minimum damper position.

#### HUMIDI-MIZER SYSTEM MODES

With Humidi-MiZer system units there are two additional HVAC modes available for the user: Dehumidification and Dehum/Mech Cooling. Selection of the Dehum/Mech Cooling mode is determined by the dehumidification demand and the cooling demand. Table 13 shows the corresponding circuit mode and output status for the different demand combinations.

#### NORMAL COOLING

This mode is the standard rated cooling system performance, and occurs when there is cooling demand without dehumidification demand.

For 48/50JC 04-06 units, refrigerant flows through the outdoor condenser and is diverted away from the reheat coil with the closed Reheat Liquid Valve (RLV) and open Cooling Liquid Valve (CLV) into the expansion device. Figure 9 shows the complete refrigerant flow.

#### DEHUM/MECH COOLING (SUBCOOLING) MODE

This mode increases the latent heat removal and decreases sensible cooling compared to normal cooling. This occurs when there is a cooling and dehumidification demands.

For 48/50JC 04-06 units, refrigerant flows through the outdoor condenser and is diverted through the reheat coil with the open Reheat Liquid Valve (RLV) and closed Cooling Liquid Valve (CLV) into the expansion device. Figure 10 shows the complete refrigerant flow.

#### DEHUMIDIFICATION (HOT GAS REHEAT) MODE

This mode provides maximum latent cooling with little to no sensible capacity. This occurs when there is a dehumidification demand and no cooling demand.

For 48/50JC 04-06 units, refrigerant flows through the outdoor condenser and mixes with hot gas bypassing the condenser, then diverted through the reheat coil with the open Reheat Liquid Valve (RLV) and closed Cooling Liquid Valve (CLV) into the expansion device. Figure 11 shows the complete refrigerant flow.

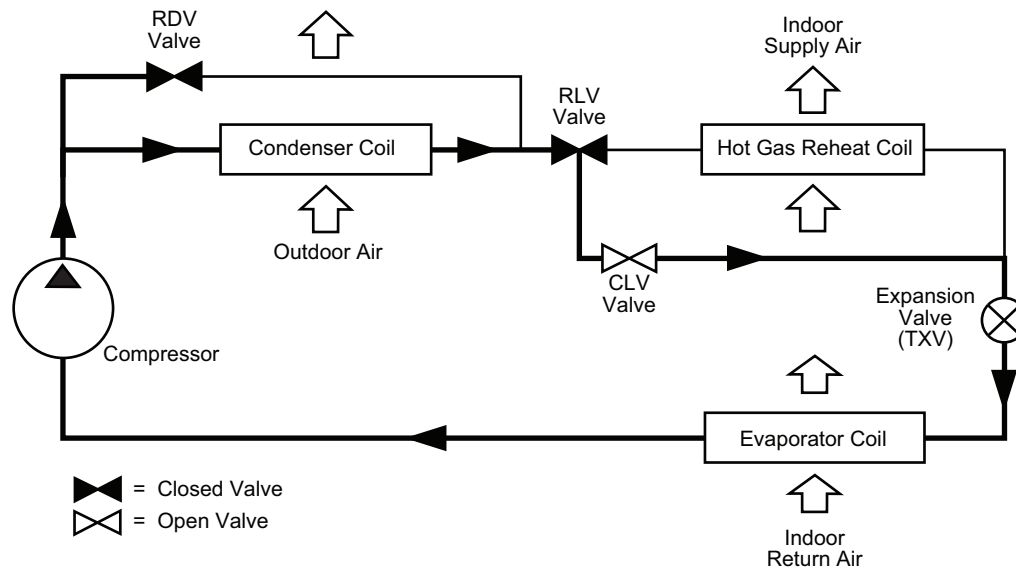
#### REHEAT CONTROL

When there is only a cooling demand, the unit will operate in normal cooling mode. When there is only dehumidification demand, the unit will operate in Dehumidification mode (Hot Gas Reheat). When there is both cooling demand and dehumidification demand, the unit will operate in Dehum/Mech Cooling mode (Subcooling). During Dehumidification and Dehum/Mech cooling mode, the unit will run at a fixed compressor speed (see Table 13 for unit based values) to maximize dehumidification and satisfy the dehumidification demand. The unit can be restricted from reheat operation by the outside temperature **HUMZ LOCKOUT OAT (SETTINGS → UNIT CONFIGURATIONS → COOLING → DEHUMIDIFICATION → REHEAT OAT LIMIT)** sets the lowest outside temperature the unit is allowed to run reheat control (Default = 40°F).

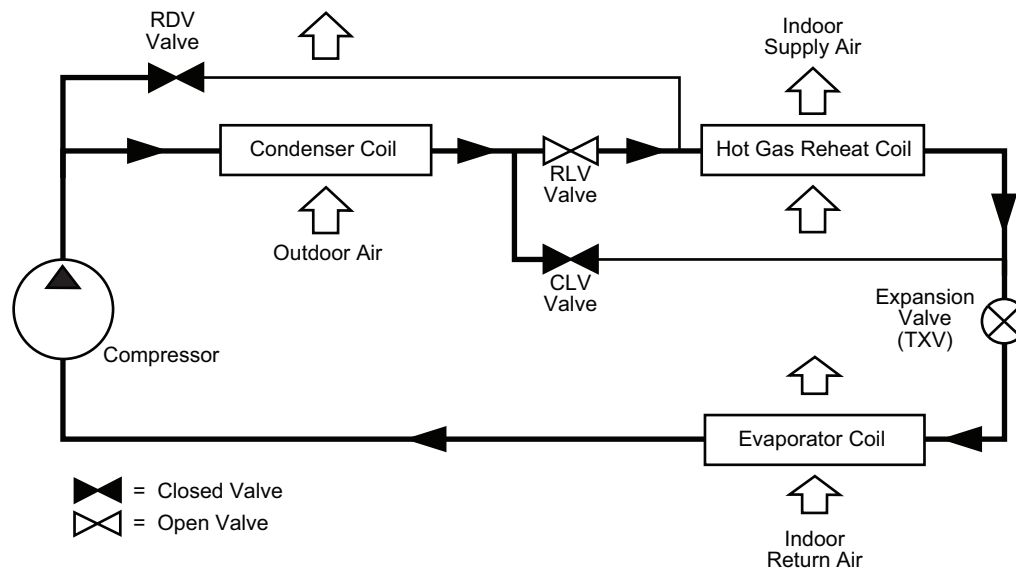


**Table 13 — Humidi-MiZer System Control Modes**

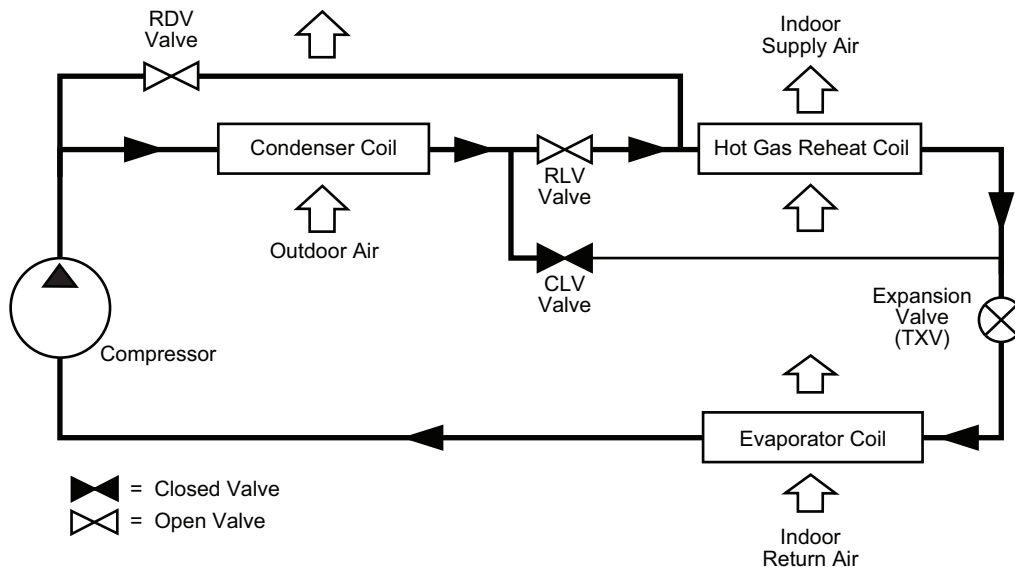
DEMAND AND MODE			OUTPUTS			
Dehumidification Demand	Cooling Demand	Mode	Compressor	RDV	CLV	RLV
No Power	No Power	No power	Off	De-energized (no flow)	De-energized (flow)	De-energized (flow)
No	No	Off	Off	De-energized (no flow)	De-energized (flow)	Energized (no flow)
No	Yes	COOL	At the cooling algorithm requested speed	De-energized (no flow)	De-energized (flow)	Energized (no flow)
Yes	No	DEHUM/MECH COOL	At 4400 rpm (3 ton) At 4500 rpm (4 ton) At 4100 rpm (5 ton)	De-energized (no flow)	Energized (no flow)	De-energized (flow)
Yes	Yes	DEHUM	At 4400 rpm (3 ton) At 4500 rpm (4 ton) At 4100 rpm (5 ton)	Energized (flow)	Energized (no flow)	De-energized (flow)



**Fig. 9 — Normal Cooling Mode – Humidi-MiZer System**



**Fig. 10 — Subcooling Mode – Humidi-MiZer System**



**Fig. 11 — Hot Gas Reheat Mode – Humidi-MiZer System**

#### REHEAT MODE DIAGNOSTIC HELP

The status of reheat mode sensor inputs may be viewed within the display **INPUTS** menu. The status of reheat mode outputs may be viewed within the display **OUTPUTS** or **RUN STATUS** → **MODE** menu. Additional diagnostic help, including status of circuit reheat temperature limit lockouts may be viewed within the Humidi-MiZer sub-menu of the cooling mode diagnostic table at **RUN STATUS** → **COOL** → **DEHUMIDIFICATION**. The Service Test mode may be used to force the system to operate Dehumidification mode (Hot Gas Reheat) and Dehum/Mech Cooling mode (Subcooling), or to independently operate the reheat valve control outputs.

The following forced operating states are available service test operations for a Humidi-MiZer system equipped unit:

#### **SERVICE TEST** → **COOL TEST** → **HUMIDIMIZER TEST**

A value of “0” sets reheat control test to “Off.”

#### **SERVICE TEST** → **COOL TEST** → **HUMIDIMIZER TEST**

A value of “1=SUBCOOL” sets Humidi-MiZer control test to “Dehum/Mech Cooling mode (Subcooling).”

#### **SERVICE TEST** → **COOL TEST** → **HUMIDIMIZER TEST**

A value of “2=REHEAT” sets Humidi-MiZer test to “Dehumidification mode (Hot Gas Reheat).”

#### **SERVICE TEST** → **INDEPENDENTS** → **RH LIQ VALVE TEST**

A value of “On” will turn on the Reheat Liquid Valve (RLV).

#### **SERVICE TEST** → **INDEPENDENTS** → **RH DIS VALVE TEST**

A value of “On” will turn on the Reheat Discharge Valve (RDV).

#### **SERVICE TEST** → **INDEPENDENTS** → **CL LIQ VALVE TEST**

A value of “On” will turn on the Cooling Liquid Valve (RDV).

#### Indoor Fan Based Dehumidification

Units that are not factory configured for Humidi-Mizer operation can be set for improved dehumidification operation through fan based humidification (FBD), **SETTINGS** → **UNIT CONFIGURATIONS** → **COOLING** → **FAN BASED DEHUM** → **FBD CONTROL TYPE**. Units are factory defaulted to **FBD CONTROL TYPE** = 0 which means that any dehum demand is ignored. There are two fan based dehumidification options, Max Comfort (**FBD CONTROL TYPE** = 1) and Max Dehumidification (**FBD CONTROL TYPE** = 2). Fan based dehumidification requires the installation and configuration of either a space relative humidity sensor or a relative humidity switch input.

Max Dehum and Max Comfort dehumidification require an existing demand for cooling to operate. This feature only modifies the fan speed during the cooling mode and will not enable the cooling mode by itself.

#### MAX DEHUM

When the **FBD CONTROL TYPE** is set to (2) Max Dehum, the control will try to satisfy the dehumidification demand. When the unit receives a dehum demand a PID control algorithm will modulate the indoor fan while the compressor is running to maintain minimum suction temperature (FBDH\_SST). The compressor requested speed will still follow the standard cooling demand approach, only the IDF will change for dehumidification demand.

#### MAX COMFORT

When the **FBD CONTROL TYPE** is set to (1) Max Comfort, the control will try to satisfy the dehumidification demand and minimize cold air dump. When the unit receives a dehum demand a PID control algorithm will modulate the indoor fan while the compressor is running to maintain the minimum FBD supply air comfort set point (FBDH\_SAT) while also maintaining the minimum suction temperature (FBDH\_SST). The compressor requested speed will still follow the standard cooling demand approach, only the IDF will change for dehumidification demand.

## Heating Operation

The unit's heating operation consists of: demand and mode determination, staging request to satisfy the demand, and handling a request with the unit's resources. These resources can be gas heat or electric heat. This section covers both gas heat units and electric heat units. The Type of Heat Installed (**UNIT TYPE OF HEAT**) configuration will be factory set to 1 for gas units and 0 for electric heat units. The unit enters a heating mode based on a demand, decides how to satisfy the demand, executes its plan, and then leaves the heating mode.

### HEATING MODE CONTROL

The heating HVAC mode (**OPERATING MODE**) has 3 different operating sub modes (**SUBMODE**): HEATING, HEATING PREVENTED, and SHUTTING HEAT OFF. These are all part of a general heating mode and resemble the action heat mode is taking at any given time. All types of heating are still performed under the general heating function, and the expanded text is for user reference only.

For the unit to be allowed to enter the heat mode, three things must be true: the indoor fan must be ok to use, the mode changeover time guard must be expired, and there must be a heating demand. The unit will remain in heating for at least one minute and until the demand is dropped or if any of the above conditions are false. The heating mode does not officially end until all heat stages are off, the fan off delay has expired, and the IGC fan request is dropped.

### SUPPLY-AIR TEMPERATURE SENSOR (SAT) HEAT MODE

The SAT Heat Mode Sensing (**SAT DURING HEAT?**) informs the unit that the supply air sensor is valid during heating in its current location. This configuration affects the Supply Air Temperature (**SUPPLY AIR TEMP**) value displayed as listed below.

When **SAT DURING HEAT?** is disabled, the Supply Air Temperature (**SUPPLY AIR TEMP**) value on the SystemVu display and the network will hold a zero when heat outputs come ON and for 5 minutes after.

When **SAT DURING HEAT?** is enabled, the Supply Air Temperature (**SUPPLY AIR TEMP**) sensor reading is displayed at the SystemVu controller and network during heating mode.

### HEATING STAGING CONTROL

Once the unit is in a heating mode, it determines what the demand is and how to satisfy it. Requested Heating Stages (**REQ. HEAT STAGES**) will be determined then passed to heat control to actually add the heating stages. To request stages the number of heat stages (**HEATING STAGE QTY**) must be greater than zero. As a gas unit this will be set in the factory, however 50JC units may have heat installed as accessories. If the Outdoor Air Temperature (**OUTDOOR AIR TEMP**) is greater than the Heating Lockout Temp (**HEAT LOCKOUT OAT**), all the heat stages will be locked out (**HEAT LOCKOUT**).

There are two ways of requesting stages when thermostat control is enabled, traditional thermostat control or adaptive control. Traditional thermostat control is used if set for non-adaptive thermostat (**ADAPTIVE TSTAT = NO**). If set for adaptive thermostat (**ADAPTIVE TSTAT = YES**), the unit will use adaptive control for staging. When configured for space sensor or RAT control (**UNIT CONTROL TYPE**) the unit will use adaptive control for staging. With either staging method there are then two supply air temperature limits, the Maximum SAT Lower Level (**LOWER MAX SAT**) the Maximum SAT Upper Level (**UPPER MAX SAT**). Any time the supply air temperature rises above lower level the heat staging will be limited to what is currently on and no additional stages will be added until the supply air temperature falls back below the lower level. If the supply air temperature rises above the upper level, then heating will be reduced by removing one stage. That stage will not be added again until the Supply Air

Temperature falls below the lower level. If the supply air temperature stays above the upper level, then another stage will be removed. If the upper and lower levels are configured so that they are close together, the last stage of heat might cycle rapidly, slowed only by its minimum on and off-time requirements.

### Adaptive Control

Stage timers and Supply air trend apply when determining the request for stages. The first request (**REQ. HEAT STAGES = 1**) comes immediately when starting the staging process. The Heat Stage Increase Time (**HEAT STAGEUP TIME**) has to expire and the Supply-Air Trend (**SUPPLY AIR TREND**) has to be above the Heating supply air trend level (**HEAT SAT-TREND LEV**) before another stage can be added. Requested stages will only be allowed to increase as the actual system demand allows (**DEMAND**). A "LOW HEAT" will only allow one requested stage and "HIGH HEAT" 2 stages. The requested stages will be reduced if the heating demand is lowered or dropped completely, or if the supply air falls below the lower level (**LOWER MIN SAT**).

### Traditional Thermostat Control

Stage timers and Supply air trend do not apply when determining the request for stages. Request staging will follow the thermostat inputs directly. "LOW HEAT" will request one stage. "HIGH HEAT" will request 2 stages.

### HEAT RELAY CONTROL

The heat relay control is responsible for energizing or de-energizing the heat stage relays and works hand and hand with the staging control. As the staging control requests stages, the heat relay control determines what actual heat relays are available or energized and tries to provide stages for what is requested. The availability of heat relays depends on the heat installed, how many stages, and time guards. The Number of Heat Stages (**HEATING STAGE QTY**) configuration tells the control how many heat relays can be used. Heat Stage 1 Timeguard (**HEAT 1 TIMEGUARD**) and Heat Stage 2 Timeguard (**HEAT 2 TIMEGUARD**) display the time a respective heat relay has before it can change state. The available stages at any given time are displayed as heat 1 available and heat 2 available (**HEAT 1 AVAILABLE** and **HEAT 2 AVAILABLE**). The actual heat relays on at any given time are displayed as Actual Heating Stages (**ACTIVE HEAT STAGE**). Heat Stage 1 Relay (**HEAT 1 RELAY**) and Heat Stage 2 Relay (**HEAT 2 RELAY**) are displayed on when the respective relay is energized. There are time guards to protect from short cycling, Heat Minimum On Time (**HEAT MIN ON**) and Heat Minimum Off Time (**HEAT MIN OFF**) apply before a heat relay can be turned back on or turned off.

## Integrated Gas Controller (IGC)

The heat staging is determined as described above and the Integrated Gas Controller (IGC) initiates the gas heat module start-up. The Integrated Gas Controller (IGC) minimum on-time of 1 minute will be followed even if Heat Minimum On Time (**HEAT MIN ON**) is lower and during Service Test. The IGC has a fixed 90 second fan off delay regardless of the SystemVu controller fan off delay setting (**HEAT FANOFF DELAY**). A light emitting diode (LED) is provided on the IGC to indicate status. During normal operation the LED is continuously on. See the Troubleshooting section if the LED is off or flashing. The IGC is located behind the gas section access panel door.

When the control energizes Heat Stage 1 Relay (**HEAT 1 RELAY**), power is sent to the W terminal on the IGC board. A check is made to ensure that the rollout switch and limit switch are closed. The induced-draft motor is then energized, and when speed is proven with the Flue Gas Pressure switch, the ignition activation period begins. The burners will ignite within 5 seconds. If the burners do not light, there is a 22-second delay before another 5-second attempt. If the burners still do not light, this sequence is repeated for 15 minutes. After the 15 minutes have elapsed, if the burners still have not lit, heating is locked out. The control will

reset when the request for heat is temporarily removed. When ignition occurs the IGC board will continue to monitor the condition of the rollout switch, limit switches, the Flue Gas Pressure switch, as well as the flame sensor. If the unit is controlled through a room thermostat or space sensor set for auto-fan, 45 seconds after ignition occurs the indoor-fan motor will be energized (and the outdoor-air dampers will open to their minimum position). If for some reason the over temperature limit opens prior to the start of the indoor fan blower, on the next attempt, the 45-second delay will be shortened to 5 seconds less than the time from initiation of heat to when the limit tripped. Gas will not be interrupted to the burners and heating will continue. Once modified, the fan on delay will not change back to 45 seconds unless power is reset to the control. When the control energizes Heat Stage 2 Relay (**HEAT 2 RELAY**), power is supplied to the second stage of the main gas valve. If both stage 1 and stage 2 of the gas valve close, gas will be turned off to the main burners.

## Supply Air Tempering

Supply Air Tempering control operates the gas or electric heat to maintain a minimum supply air temperature during conditions where very cold outdoor air causes the supply air temperature to fall below the configured Supply Air Tempering Setpoint. This occurs during periods where DCV is active and increasing the amount of outdoor air or in cases where the system is operating at very low airflow and the calculated economizer position has increased to maintain a constant ventilation rate.

The user can enable/disable Supply Air Tempering.

The following conditions must be true for the supply air tempering algorithm to operate:

- The SA Tempering is set to Yes (**OK TO SA TEMPER = YES**)
- The indoor fan is on
- The System Mode is in Vent (Ventilation or Supply Fan Only) or IAQ Override.
- The Outdoor Air Temperature < Maximum temperature (**TEMPER MAX OAT**).
- Heat type is gas or electric and Number Of Heat Stages > 0

If all the above are true, the SystemVu controller will monitor the SAT sensor value and operate the first stage of heat to temper the supply air as required in order to maintain the configured SA Tempering Setpoint.

## Economizer Operation

The Economizer is used for ventilation, and cooling. If the Indoor fan is not on, the economizer will not operate. If an economizer is installed, then Vent Method (**VENT METHOD = ECON**) should be set to economizer. The unit produces a 4-20mA signal which is then changed to a 2-10V signal with a 500 ohm resistor, which can control the economizer actuator. The economizer output signal is displayed by the Economizer Commanded Position (**ECON CMD POSITION**). The actuator's built-in 2 to 10VDC feedback signal is read in as an analog input to know the actual position which is displayed as Economizer Actual Position (**ECON ACT POSITION**). The economizer system also permits this unit to perform smoke control functions based on external control switch inputs. Refer to the Smoke Control section for detailed discussions.

## MINIMUM VENTILATION

The economizer will open to allow ventilation when the indoor fan is turned on and the unit is in the occupied state. The economizer damper position at any given time for ventilation is displayed as the Min Position in Effect (**EFFECTIVE MIN POS**). This minimum position can be effected by the indoor fan speed (**COMMANDED IDF RPM**) and indoor air quality. To maintain a constant airflow through the economizer, as the indoor fan speed decreases or increases the damper minimum position will increase or decrease, respectively. This relationship curve is shown in Fig. 12.

NOTE: The software point names are used in Fig. 12 as to not clutter the graph. These points are not individually set and therefore only visible from a network for troubleshooting.

These units can also be equipped with optional CO<sub>2</sub> sensors for additional indoor air quality control. When unit is equipped with a return duct CO<sub>2</sub> sensor or return duct CO<sub>2</sub> sensor and outside air CO<sub>2</sub> sensor the Economizer minimum position vs. fan speed curve will be recalculated based on the CO<sub>2</sub> level of the return and/or outside air as shown in Fig. 12. When performing Demand Controlled Ventilation, the damper's Min Position in Effect (**EFFECTIVE MIN POS**) will operate in the shaded area of Fig. 12 based on the IAQ Level (IAQ) and the Commanded Fan Speed (**COMMANDED IDF RPM**). See the "Indoor Air Quality (IAQ)" section on page 27 for more details on Demand Controlled Ventilation (DCV).

The damper position curve can be field adjusted per application if needed.

1. Activate test mode to control the fan and dampers to achieve the correct numbers.
2. Set the fan speed percentage (%) to the highest speed allowed for building and duct integrity. This is 100% by default and typically left there. If different make sure that the IDF maximum fan speed (**IDF MAX SPEED**) is updated to this tested value.

**IMPORTANT:** Ensure that this tested speed is the same as the **IDF MAX SPEED** and is higher than the **COOL DESIGN SPEED**.

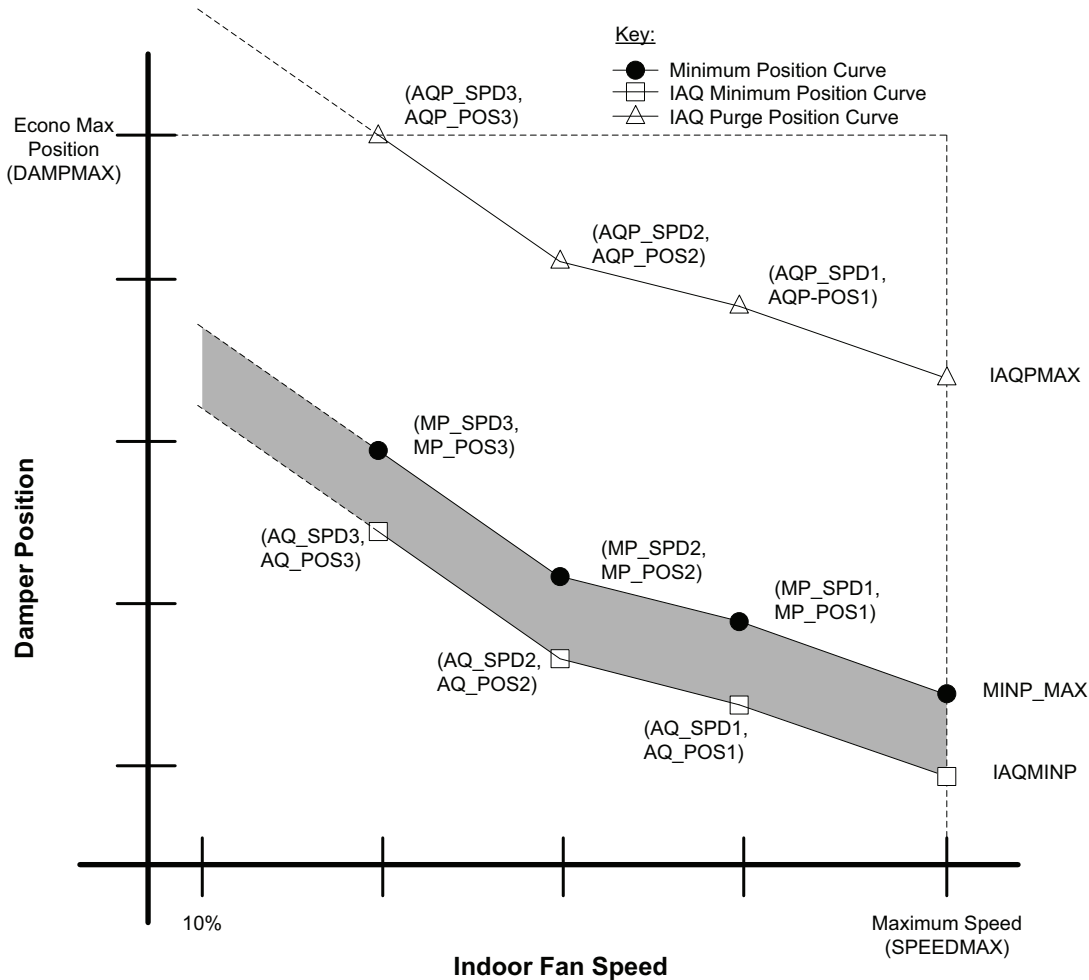
3. Open the damper to the position which satisfies the highest ventilation requirement running maximum fan speed, and then set the Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) to this damper position.
4. Set the fan speed to a realistic operating speed in the upper range, and then set the User Minimum Position Speed 1 (**MIN POS SPEED 1**) equal to that speed. This should be somewhere in the 70% range.
5. Open the damper to the position which satisfies the highest ventilation requirement running speed 1 fan speed, and then set the User Minimum Position Damper Position 1 (**MIN POS DAMP 1**) to this damper position.
6. Set the fan speed to a realistic operating speed in the mid-range, and then set the User Minimum Position Speed 2 (**MIN POS SPEED 2**) equal to that speed. This should be somewhere in the 50% range.

7. Open the damper to the position which satisfies the highest ventilation requirement running speed 2 fan speed, and then set the User Minimum Position Damper Position 2 (**MIN POS DAMP 2**) to this damper position.
8. Set the fan speed to a realistic operating speed in the low-range, and then set the User Minimum Position Speed 3 (**MIN POS SPEED 3**) equal to that speed. This should be lowest fan speed in planned operating range, typically the vent speed.
9. Open the damper to the position which satisfies the highest ventilation requirement running speed 3 fan speed, and then set the User Minimum Position Damper Position 3 (**MIN POS DAMP 3**) to this damper position.

The shape of the curves in Fig. 12 are determined by the configuration parameters: User Minimum Position Speed 1 (**MIN POS SPEED 1**), User Minimum Position Damper Position 1 (**MIN POS DAMP 1**), User Minimum Position Speed 2

(**MIN POS SPEED 2**), User Minimum Position Damper Position 2 (**MIN POS DAMP 2**), User Minimum Position Speed 3 (**MIN POS SPEED 3**), User Minimum Position Damper Position 3 (**MIN POS DAMP 3**), and Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**). These configurations are preset at the factory of default purposes. The Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) should be changed based on the air balance of the unit for proper ventilation.

The user adjustable points discussed above are defaulted to zero from the factory which forces the control to use a set of default points. The default points should not be left for permanent operation, as it may cause inadequate ventilation. Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) and at least one set of user points User Minimum Position Speed 1 (**MIN POS SPEED 1**) and User Minimum Position Damper Position 1 (**MIN POS DAMP 1**) should be used to create a linear curve to cover the broad scope of fan operation.



**Fig. 12 — Minimum Damper Position Curves**

## Free Cooling

The economizer will be enabled for cooling (**OK TO FREE COOL? = Yes**) if the supply air temperature sensor reading is valid, there are no applied lockouts, and economizer is operational. Economizer Operational (**ECON OPERATIONAL?**) indicates if an economizer is installed (**VENT METHOD = ECON**) and feedback indicates it is operational. The three economizer lockouts that determine if free cooling should be used to help with cooling are: Dry Bulb Lockout (**DRY BULB LOCKOUT**), Enthalpy Lockout (**ENTHALPY LOCKOUT**), and Unoccupied Free Cooling Lockout (**UFC LOCKOUT?**). Any one of these lockouts will disable economizer free cooling. See below for how each lockout occurs.

When the economizer is available for free cooling (**OK TO FREE COOL? = Yes**) and the compression is not on, the damper will start opening from the damper's minimum Position in Effect (**EFFECTIVE MIN POS**) based on the supply air temperature (**SUPPLY AIR TEMP**) to provide free cooling. A low cooling demand (**DEMAND = LOW COOL**) will utilize the Low Free Cooling SAT Setpoint (**LOW COOL SAT SP**) as the Free Cooling Setpoint (**FREECOOL SAT SP**) to control the economizer. A medium or high cooling demand (**DEMAND = HIGH COOL**) will utilize the High Free Cooling SAT Setpoint (**HIGH COOL SAT SP**) as the Free Cooling Setpoint (**FREECOOL SAT SP**) to control the economizer.

During free cooling the fan will start at the dedicated free cooling speed (**FREE COOL IDF SPD**). After the economizer (**ECON CMD POSITION**) reaches 100% (or Max) for 5 minutes, the fan will be changed to the High Cool Speed (**HIGH COOL IDF SPD**). When a high cooling demand (**DEMAND = HIGH COOL**) is active the control will use the High Cool Speed (**HIGH COOL IDF SPD**). The compressor will be allowed for use after the fan and economizer are 100% (or Max) for 5 minutes. Once compression is turned on the economizer and fan will remain at 100% until the call for cooling is removed or until the unit is no longer allowed to free cool (**OK TO FREE COOL = No**).

### DRY BULB LOCKOUT

Dry Bulb Lockout (**DRY BULB LOCKOUT**) occurs when any of the following are true:

- The Outdoor Air Temperature (**OUTDOOR AIR TEMP**) is invalid.
- When Differential Dry Bulb Control is disabled (**DIFF DRY BULB CTL = Disable**) and the Outdoor Air Temperature (**OUTDOOR AIR TEMP**) is greater than the configured Free Cooling Maximum Temperature (**FREE COOL MAX OAT**) or less than the configured Free Cooling Minimum Temperature (**FREE COOL MIN OAT**).
- When Differential Dry Bulb Control is enabled (**DIFF DRY BULB CTL = Enable**) and the return air temperature (**RETURN AIR TEMP**) plus the Differential Dry Bulb deadband (**DIFF DB DEADBAND**) is lower than the outdoor air temperature (**OUTDOOR AIR TEMP**).

### ENTHALPY LOCKOUT

The control uses the Outdoor Air Temperature (**OUTDOOR AIR TEMP**), Outdoor Relative Humidity (**OARH LEVEL**), and Barometric Pressure (**BAROMETRIC PRESS**) to calculate the Outdoor Enthalpy (**OUTDOOR ENTHALPY**). The control uses the Return Air Temperature (**RETURN AIR TEMP**), Return Relative Humidity (**RARH LEVEL**), and Barometric Pressure (**BAROMETRIC PRESS**) to calculate the Return Enthalpy (**RETURN ENTHALPY**). Enthalpy Lockout (**ENTHALPY LOCKOUT**) occurs when any of the following are true:

- When Differential Enthalpy Control is disabled (**DIFF ENTHALPY CTL = Disable**) and the outdoor enthalpy

(**OUTDOOR ENTHALPY**) is greater than the Maximum Outdoor Enthalpy limit (**ENTHALPY HI LIMIT**).

- When Differential Dry Bulb Control is enabled (**DIFF DRY BULB CTL = Enable**) and the outdoor enthalpy (**OUTDOOR ENTHALPY**) is greater than the return enthalpy (**RETURN ENTHALPY**). The Differential Enthalpy deadband (**ENTHALPY DEADBAND**) is used in the case of unlocking the Enthalpy lockout (**ENTHALPY LOCKOUT**).
- The Enthalpy switch input (**ENTHALPY SWITCH**) is reading high.

### UNOCCUPIED FREE COOLING LOCKOUT

Unoccupied Free Cooling lockout (**UFC LOCKOUT?**) occurs when the unit is in the unoccupied period (**OCCUPIED NOW? = No**) and the Outdoor Air Temperature (**OUTDOOR AIR TEMP**) is less than the Unoccupied Free Cooling low temperature (**UFC LOW TEMP**).

### Unoccupied Free Cooling

The unoccupied free cooling algorithm attempts to maintain the building space half way between the Occupied Cool Set Point (**OCC COOL SETPOINT**) and Occupied Heat Set Point (**OCC HEAT SETPOINT**) using only the economizer when the conditions in the building and the outdoors are suitable, during unoccupied periods. Three different points define this algorithm: Unoccupied Free Cooling configuration (**WHEN TO UNOCC FC**), Free Cooling Preoccupancy Time configuration (**UFC PREOCC TIME**), and Free cooling allowed (**OK TO FREE COOL?**).

**WHEN TO UNOCC FC = 0 (Disabled)**

Free Cooling will only occur if the space exceeds the unoccupied setpoints.

**WHEN TO UNOCC FC = 1 (Preoccupancy)**

Unoccupied free cooling can only occur when the time until the next occupied period is less than the Unoccupied Free Cool Pre-Occupancy Time (**UFC PREOCC TIME**) in minutes.

**WHEN TO UNOCC FC = 2 (Unoccupied)**

Unoccupied free cooling can occur throughout the entire unoccupied period. The space temperature must be higher than the mid-point between the occupied cooling and heating setpoints.

### Power Exhaust

Power Exhaust is a function used to assist in the building exhaust air if the barometric relief damper is not enough. It can be one or two motors which can be controlled independently to provide 2 stages of exhaust. These two power exhaust stages are controlled by relays on the Main Base board, and therefore need to be configured on relay channels. To assign the channels set the **PE1 RELAY CHANNEL** and **PE2 RELAY CHANNEL** as needed.

NOTE: Factory installed power exhaust is only one channel and is on Relay 06.

When a power exhaust 1 relay channel is configured, the control will create a PE1 curve, example shown in Fig. 13. This curve is created by applying the difference of the power exhaust stage 1 at maximum fan speed (**PE1 POS @ MAX SPD**) and the Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) in relationship to the minimum position curve. When a power exhaust 2 relay channel is configured, the control will create a PE2 curve, example shown in Fig. 13. This curve is created by applying the difference of the power exhaust stage 2 at maximum fan speed (**PE2 POS @ MAX SPD**) and the Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) in relationship to the minimum position curve.

Power exhaust 1 (**PE1 RELAY**) and power exhaust 2 (**PE2 RELAY**) are controlled using their respective curves as a threshold. When the operating point of the Commanded Fan Speed (**IDF SPEED OUTPUT**) and Economizer Commanded Position (**ECON CMD POSITION**) is above the power exhaust 1 curve, the Power exhaust 1 (**PE1 RELAY**) will be



turned on. When the operating point falls below the curve minus the power exhaust turn off deadband (**PE OFF DEADBAND**) the Power exhaust 1 (**PE1 RELAY**) will be turned off. Power exhaust 2 operates the same as Power exhaust 1 except using the PE2 curve.

## Indoor Air Quality (IAQ)

Indoor air quality is typically measured using a CO<sub>2</sub> sensor whose measurements are displayed in parts per million (ppm). Outdoor air quality may be measured with a CO<sub>2</sub> sensor for indoor-outdoor differential demand ventilation control. The factory-installed indoor air quality CO<sub>2</sub> sensor is mounted in the return section. A field-installed indoor air quality CO<sub>2</sub> sensor may be mounted in the return or in the occupied space. The indoor air quality modes of operation can be affected by the IAQ Analog Input Config (**ANALOG IAQ CTRL**) and other related and limit configurations as described below.

### IAQ (ANALOG INPUT)

When IAQ assigned channel (**IAQ SENSOR CHAN**) is set for an analog input that input channel will be mapped to the Indoor Air Quality (**IAQ LEVEL**). The control is configured for indoor air quality sensors which provide 4 to 20 mA signal for 0 to 2000 ppm CO<sub>2</sub>. If the sensor being used has a different range, the ppm display range must be reconfigured by entering new values for the IAQ Sensor Value at 4mA (**IAQ PPM @ 4MA**) and IAQ Sensor Value at 20mA (**IAQ PPM @ 20MA**).

### ANALOG IAQ CTRL = 0 (No IAQ)

This signifies that there is no IAQ sensor installed. The economizer damper will operate based on the minimum position curve.

### ANALOG IAQ CTRL = 1 (DCV)

During Demand Controlled Ventilation (DCV), the damper modulates on or between two ventilation curves depending upon the difference between the Indoor Air Quality (**IAQ LEVEL**) and the Outdoor Air Quality (**OAQ LEVEL**). The lower of these two curves is referred to as the IAQ Minimum Position Curve, and the higher curve is the Minimum Position curve discussed in the Minimum Ventilation section under Economizer Operation. Refer to that section on how the minimum position curve is created. See Example Curves in Fig 12.

The IAQ Minimum Position curve is created by applying the difference of the IAQ position at maximum fan speed (**IAQ POS @ MAX SPD**) and the Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) in relationship to the minimum position curve. The IAQ position at maximum fan speed (**IAQ POS @ MAX SPD**) should be set to an economizer position that brings in enough fresh air to remove contaminants and CO<sub>2</sub> generated by sources other than people. The Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) should be set to an economizer position that brings in fresh air to remove contaminants and CO<sub>2</sub> generated by all sources including people when the indoor fan is operating at the IDF Maximum Fan Speed (**MAXIMUM IDF SPEED**). The Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) value is the design value for maximum occupancy.

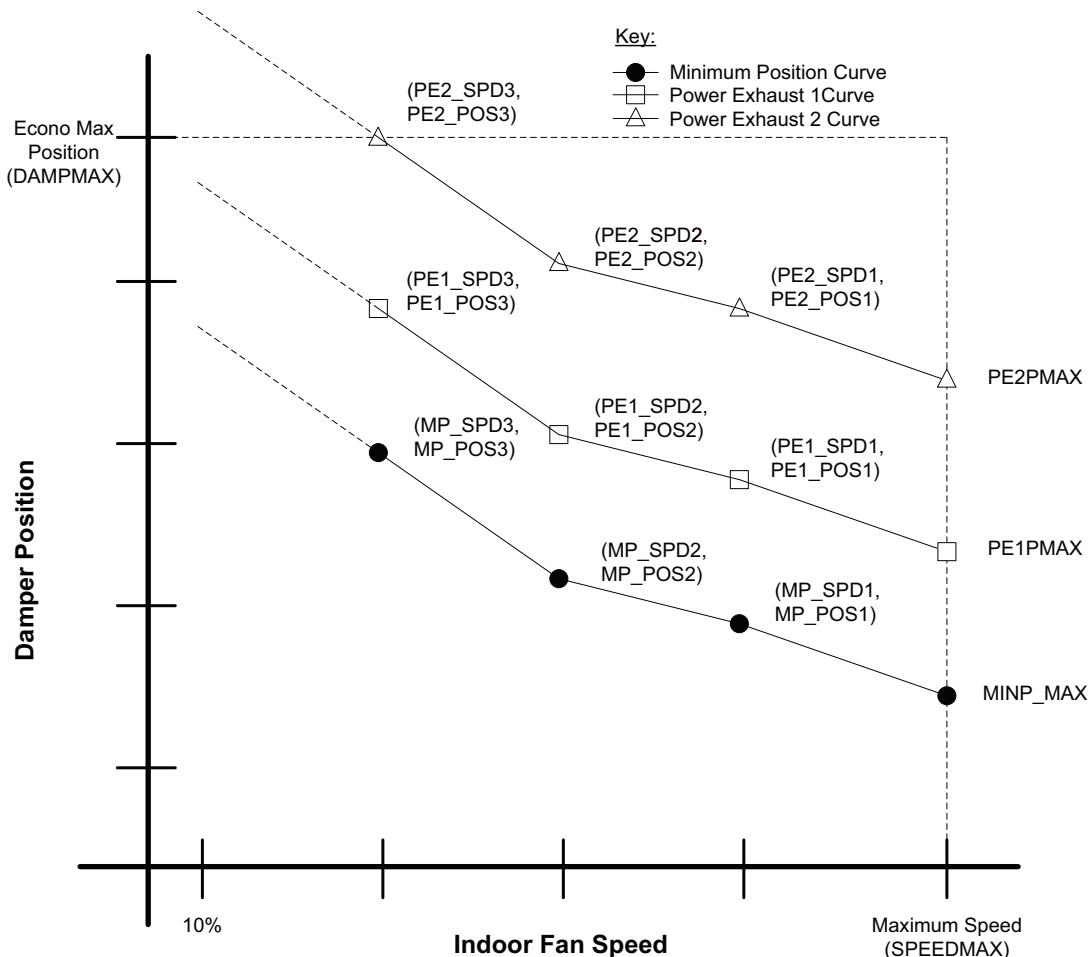


Fig. 13 — Power Exhaust Operation Curves

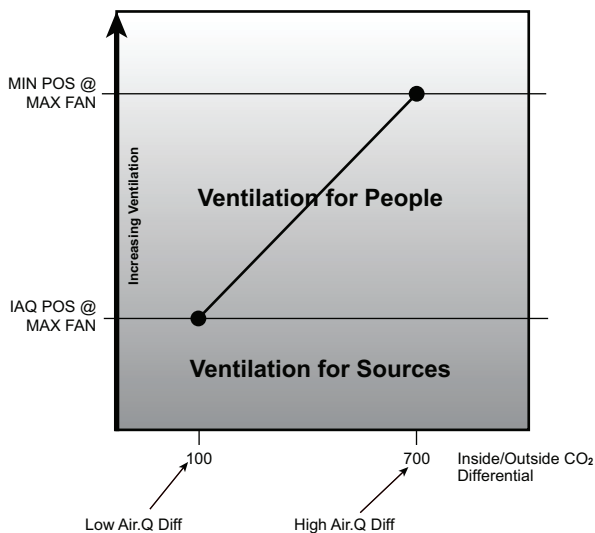
The economizer Min Position in Effect (**EFFECTIVE MIN POS**) will follow the IAQ Minimum Position curve while the Indoor Air Quality level (**IAQ LEVEL**) is less than the Outdoor Air Quality Level (**OAQ LEVEL**). The control will begin to open the damper more than the IAQ Minimum Position curve when the IAQ level begins to exceed the OAQ level by a configurable amount. This amount is referred to as AQ Differential Low (**LOW AIR.Q DIFF**). When the differential between IAQ and OAQ reaches AQ Differential High (**HIGH AIR.Q DIFF**), the economizer Min Position in Effect (**EFFECTIVE MIN POS**) will follow the Minimum Position Curve. When the IAQ/OAQ differential is between AQ Differential Low (**LOW AIR.Q DIFF**) and AQ Differential High (**HIGH AIR.Q DIFF**), the control will modulate the damper between the IAQ Minimum Position Curve and the Minimum Position Curve in a linear manner as shown as the shaded area in Fig. 12. As a simple example Fig. 14 shows the Min Position in Effect (**EFFECTIVE MIN POS**) relationship while the Commanded Fan Speed (**ECON CMD POSITION**) is held at the maximum speed.

#### **ANALOG IAQ CTRL = 2 (Override IAQ)**

Override IAQ is reserved for a future release.

#### **ANALOG IAQ CTRL = 3 (Control Minimum Position)**

An external 4 to 20 mA source is used to set the Min Position in Effect (**EFFECTIVE MIN POS**). The 4mA signal corresponds to 0% and the 20 mA signal corresponds to 100%. In this mode, configuration such as Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**), IAQ position at maximum fan speed (**IAQ POS @ MAX SPD**) and the economizer minimum position and DCV minimum position curves in Fig. 12 and Fig. 14 are not used. If the indoor fan is not operating, the economizer position will be zero. The actual damper position may exceed the economizer Min Position in Effect (**EFFECTIVE MIN POS**) to provide economizer cooling.



**Fig. 14 — Example**

#### **OUTDOOR AIR QUALITY (ANALOG INPUT)**

The default for the Outdoor Air Quality (**OAQ LEVEL**) is 400 ppm CO<sub>2</sub> when the OAQ sensor is not assigned an input channel. When OAQ Assigned channel (**OAQ SENSOR CHAN**) is set for an analog input that input channel will be mapped to the Outdoor Air Quality (**OAQ LEVEL**). The outdoor air quality sensor provides a 4 to 20 mA signal corresponding to 0 to 2000 ppm CO<sub>2</sub>. If a field supplied sensor has a different range, the ppm display range must be reconfigured by entering new values for the OAQ Sensor Value at 4mA (**OAQ PPM @ 4MA**) and OAQ Sensor Value at 20mA (**OAQ PPM @ 20MA**).

## **Pre-occupancy Purge**

The control has the option for a pre-occupancy purge to refresh the air in the space prior to occupancy. This feature is enabled by setting **PREOCC PURGE ENBL** to Yes. This function is also referred to as the IAQ purge function.

The IAQ Purge will operate under the following conditions:

- Purge is enabled
- the unit is in the unoccupied state
- Current Time is valid
- Next Occupied Time is valid
- time is one hour prior to next occupied period
- the OAT is greater than the lockout (**PREOCC LOW LIMIT**)

The IAQ Purge Position curve is created by applying the difference of the IAQ purge position at maximum fan speed (**PURGE POS @ MAX**) and the Economizer minimum at maximum fan speed (**MIN POS @ MAX FAN**) in relationship to the minimum position curve. The IAQ purge position at maximum fan speed (**PURGE POS @ MAX**) should be set to an economizer position that brings in enough fresh air over an hour period to remove contaminants and CO<sub>2</sub> during the unoccupied period. When the preoccupancy purge function is active (**IN PREOCC PURGE?**), the economizer Min Position in Effect (**EFFECTIVE MIN POS**) will follow the IAQ Purge Position curve.

## **Temperature Compensated Start**

Space control set points are usually set to 2 different levels for unoccupied period and occupied period. Unoccupied set points saves energy, while occupied set points provide occupant comfort. The time period it takes for the RTU to bring the space from its current condition in unoccupied mode to its occupied set point is referred to as start bias time, or bias time. The algorithm to calculate this bias time is called Temperature Compensated Start. This is required for ASHRAE 90.1 compliance. When temperature compensated start is running (**TCS ACTIVE?**) the control uses the occupied set points to control the space.

When Temperature compensated start is enabled (**ADAPTIVE TCS?**), no other configuration parameters are needed for this algorithm, because the algorithm will automatically adjust the Bias Time based on the data collected during the period of last time optimal start. The inputs to the calculation algorithm includes space temperature, unoccupied set points, occupied set points, outdoor air temperature, and supply air temperature. Bias time is changed dynamically per RTU operation.

When Temperature compensated start is disabled (**ADAPTIVE TCS?**), the control will use the User Temperature compensated Start bias time (**USER TCS BIAS TIME**) in determining when to start controlling to the occupied set points. If the User Temperature compensated Start bias time (**USER TCS BIAS TIME**) is set to zero, the control will switch to the occupied setpoints at the time of occupancy.

## **Smoke Control**

There are four smoke control modes that can be used to control smoke within areas serviced by the unit: Pressurization mode, Evacuation mode, Smoke Purge mode, and Fire Shutdown. Evacuation, Pressurization and Smoke Purge modes are post event clean up modes, while Fire Shutdown is a detection and prevention mode. All four functions are configurable on any of the switch input channels. These functions can also be triggered through building commands. Refer to the Configurable Inputs and Outputs section for more details on inputs.

Multiple smoke inputs are handled in a priority scheme. Fire Shutdown is the highest priority and will override all other smoke control. The three other modes are in the following priority order: Evacuation, Purge, then Pressurization.

## FIRE SHUTDOWN MODE

This mode will cause an immediate and complete shutdown of the unit.

## EVACUATION MODE

This mode attempts to lower the pressure of the space to prevent infiltrating an adjacent space with its smoke. Closing the economizer (thereby opening the return air damper), turning on the power exhaust and shutting down the indoor fan decrease pressure in the space.

## SMOKE PURGE MODE

This mode attempts to draw out smoke from the space after the emergency condition. Opening the economizer (thereby closing the return-air damper), turning on both the power exhaust and indoor fan will evacuate smoke and bring in fresh air.

## PRESSURIZATION MODE

This mode attempts to raise the pressure of a space to prevent smoke infiltration from an adjacent space. Opening the economizer (thereby closing the return air damper), shutting down power exhaust and turning the indoor fan on will increase pressure in the space.

### *Airflow Control During the Fire/Smoke Modes*

All non-smoke related control outputs will get shut down in the fire/smoke modes. Those related to airflow will be controlled as explained below. The following matrix specifies all actions the control shall undertake when each mode occurs.

DEVICE	FIRE SHUTDOWN	EVACUATION	PURGE	PRESSURIZATION
Economizer	Off	EVAC WITH DAMPER <sup>a</sup>	100% open	100% open
Power Exhaust 1 and 2	Off	On	On	Off
Indoor Fan	Off	Off	IDF MAX SPEED	IDF MAX SPEED
All Other Components	Off	Off	Off	Off

NOTE(S):

- a. **SETTINGS → UNIT CONFIGURATIONS → GENERAL → EVAC WITH DAMPER** is a unit configuration that determines what the economizer damper does during the Evacuation smoke control mode. When set to yes the damper will open during Evacuation mode. When set to no, the damper will be closed during Evacuation mode.

NOTE: The importance of the EVAC WITH DAMPER setting depends on the intent of the Evacuation function. The tradition building Evacuation mode would be best with the off as it is using other spaces pressurization to help move the air. To truly help evacuate the direct space this setting should be yes.

## Linkage

The SystemVu controller will support 3V™, VAV and VVT™ zoning system on a CCN system or Open VVT and VAV systems on a BACnet MS/TP System. All that is required is to configure the Open or 3V Master zone to use the SystemVu rooftop unit as its air source. The SystemVu control will need to be configured for the proper network protocol (**BAS PROTOCOL**) and set for Space Sensor Control (**UNIT CTRL TYPE**). The SystemVu controller will reply to the zoning system and change its operating parameters to meet the demand of the zoning system. Status of this process can be viewed in the airside linkage tab of the property pages in the i-Vu® application or by viewing the linkage maintenance table with a CCN tool.

## Carrier Comfort Network® (CCN) Operation

The SystemVu controller can be configured to connect to a CCN system. The SystemVu controller has one RS-485 BMS port that can be configured from the local display for BACnet or CCN. The BMS configuration parameters can be found in the **SETTINGS → NETWORK SETTINGS** submenu. The

first configuration is the BMS system. For CCN systems change this configuration from NONE to CCN then set the CCN BAUD rate, the bus and element number. Then you will be able to find the controller with any CCN tool and upload the CCN tables in the controller for use by the tool.

## BACnet Network Operation

The SystemVu controller is ready to connect to BACnet. The SystemVu controller has one RS-485 BMS port that can be configured from the local display for BACnet or CCN. The default setting is NONE and the Default BACnet Baud rate is 76800. These settings are found on the **SETTINGS → NETWORK SETTINGS** submenu of the local display. There are four other settings for i-Vu compatibility and for setting the device ID and MAC address of the controller. See the following table for assistance.

BACnet ID AUTO/MANUAL	i-Vu AUTO SCHEME	HOW DEVICE IS DERIVED	MAC RANGE
Manual	ON or OFF	Local display BACnet ID - BACnet Writes not allowed	0-127
Auto	OFF	Device ID Prefix + MAC - BACnet writes allowed	0-99
Auto	ON	Device ID Prefix + MAC (prefix updated by color cache) - BACnet writes not allowed	0-99

Before connecting to the BACnet system determine the system requirements and use the following guide to configure the BACnet settings. Then power the controller down, connect to the BACnet MS/TP network and you are ready to discover your controller.

For i-Vu systems with auto addressing desired the controller is already set with the defaults from the factory ready to connect to this type of system; just set the MAC address of the controller from 0 to 99 and then power down and connect to the network. The router will find and send the network number to the controller and the controller will set it device ID with the network base appended by the MAC address.

For i-Vu and other BACnet systems when it is required to send the device ID to the controller change the ALC/i-Vu auto ID scheme to no and set the MAC address from 0 to 99 like before. Then connect to the network and write the device ID to the controller at the MAC address you set. The controller will accept and retain the device ID written to the device ID property of the object ID.

To manually set the device ID from the local display set the BACnet auto/manual to manual. This allows use of the full range of 1 to 127 for the MAC address and set the device ID in the BACnet ID selection of the local display. It can only be set from the local display and will not accept a write to the device ID property in the object ID.

## Alarm Handling

There are a variety of different alerts and faults in the system, the term alarm is used to reference alerts and faults. Alerts are indicated by AXXX (where XXX is the alert number) on the display and generally signify a warning of some sort or the improperly functioning circuit can restart without human interaction. If a fault occurs, indicated by FXXX (where XXX is the fault number), a major function of the unit is inoperable or the damaged circuit will generally not restart without an alarm reset via the display or CCN.

The response of the control system to various alerts and faults depends on the seriousness of the particular alert or fault. In the mildest case, an alert does not affect the operation of the unit in any manner. An alert can also cause a “strike.” A “striking” alert will cause the circuit to shut down for 15 minutes. This feature reduces the likelihood of false alarms causing a properly working system to be shut down incorrectly. If three strikes occur before the circuit has an opportunity to show that it can function properly, the circuit will strike out, causing the shut-

down fault for that particular circuit. Once activated, the shut-down fault can only be cleared via an alarm reset.

However, circuits with strikes will be given an opportunity to reset their strike counter to zero. As discussed above, a strike typically causes the circuit to shut down. Fifteen minutes later, that circuit will once again be allowed to run. If the “troubled” circuit runs continuously for a user defined time (**SETTINGS** → **UNIT CONFIGURATIONS** → **COOLING** → **STRIKE CLEAR TIME**) with no detectable problems the strike counter will be reset to zero. Default value is 5 minutes.

#### ALARM RELAY OUTPUT

The alarm relay output is a configurable normally open 24-VAC output defaulted to relay 11 on the Main Base Board (MBB) TB2 connector. Selection of which alerts and faults will result in closing of the alarm relay may be set in the Alarm Relay Configuration (**SETTINGS** → **UNIT CONFIGURATIONS** → **ALARM RELAY**). Setting a configuration to YES will result in the alarm output relay to energize when that particular condition is in an alarm state. Setting a configuration to NO will result in no action by the alarm output relay for that particular condition.

NOTE: An accessory filter switch can be used along with the alarm relay output function to indicate dirty filter service need. See the Troubleshooting section for more information on viewing, diagnosing, and clearing alerts and alarms.

### TROUBLESHOOTING

The SystemVu display shows actual operating conditions of the unit while it is running. If there are alarms or there have been alarms, they will be displayed in either the active faults, active alerts, or the history alarm list (see Table 14 starting on page 36). Service Test mode allows proper operation of the compressors, fans, and other components to be checked while the unit is not operating. See Service Test (on page 11).

#### Complete Unit Stoppage

There are several conditions that can cause a complete unit stoppage, including:

- A fault is active which causes the unit to shut down.
- Cooling and heating loads are satisfied.
- Programmed occupancy schedule.
- General power failure.
- Tripped 24-volt transformer circuit breakers.
- Blown fuse or circuit breakers
- Unit is turned off through the network.

#### Restart Procedure

Before attempting to restart the machine, check the faults and alerts list to determine the cause of the shut down. If the shut-down fault for a particular control function has occurred, determine and correct the cause before allowing the unit to run under its own control again. When there is problem, the unit should be diagnosed in Service Test mode. The faults must be reset before the control function can operate in either Normal mode or Service Test mode.

#### Faults and Alerts

##### VIEWING AND CLEARING UNIT ALARMS

Presence of active alarms will be indicated on the SystemVu display by the Alarm Status lights. When alerts are active the yellow “ALERT” light will be lit. When faults are active the red “FAULT” light will be lit. When the unit is operational, then green “RUN” light will be lit. The SystemVu controller

standby screen will be updated with the active alarms for easy access. Presence of active alarms may also be signaled on the Alarm Output terminals. Each alarm may also be broadcast on the CCN network. Active alarms and past alarm history can be reviewed and cleared via the local display or a network device. The following menu locations are used for the local display:

##### **ACTIVE FAULTS**

Displays the list of active faults in order of occurrence.

##### **ACTIVE ALERTS**

Displays the list of active alerts in order of occurrence.

##### **HISTORY**

Displays the list of active and previously active faults and alerts in order of occurrence with time and date.

##### **RESET FAULTS/ALERTS**

User command to manually reset faults and alerts.

Each alarm can have up to 3 data points stamped along with date and time to assist in troubleshooting. Pressing ENTER on the alarm or expanded screen will provide these data points.

#### DIAGNOSTIC ALARM CODES AND POSSIBLE CAUSES

##### **Fault F010 — MBB LOW VOLTAGE**

This fault occurs when the MBB supply voltages falls below 17 volts AC. When this occurs the control will shut down the unit. This will automatically clear when the supply voltage rises above 19 volts AC. The cause of this fault is usually a brownout condition, low supply voltage, or supply power missing a phase.

##### **Fault F011 – MBB REFERENCE VOLTAGE**

This fault occurs when the MBB internal microprocessor’s DC reference voltages is out of range. When this occurs the control will shut down the unit. This will automatically clear when the DC reference voltage goes back in range. The cause of this fault is usually a MBB failure or supply voltage out of range.

##### **Alert A012 – MBB ZERO CROSSING**

This alert occurs when the MBB supply voltage frequency is out of range. When this occurs the control will issue an alert. This will automatically clear when the supply voltage goes back in range. The cause of this fault is usually a MBB failure or supply voltage frequency to high or to low.

##### **Fault F013 – MBB FUSE 2 OPEN**

This fault occurs when the MBB’s internal fuse number 2 exceeds threshold temperature. When this occurs the control will shut down the unit. This will automatically clear when the fuse temperature gets back in range. The cause of this fault is usually a switch input has a wiring error (short) or the switch pulled too much current. Discrete input number 2, Fire Shutdown input, and the IGC fan request are connected to fuse 2.

##### **Fault F014 – MBB FUSE 3 OPEN**

This fault occurs when the MBB’s internal fuse number 3 exceeds threshold temperature. When this occurs the control will shut down the unit. This will automatically clear when the fuse temperature gets back in range. The cause of this fault is usually a switch input has a wiring error (short) or the switch pulled too much current. Configurable discrete input numbers 12, 13, and 14 are connected to fuse 3.

##### **Alert A015 – MBB RNET VOLTAGE RANGE**

This alert occurs when the MBB’s Rnet 12 volt output is out of range. When this occurs the control will issue an alert, and any accessory connected to the Rnet plug may not operate properly. This will automatically clear when the voltage goes back in range. The cause of this fault is usually a MBB failure or supply voltage out of range.

#### ***Alert A016 – MBB 24VDC RANGE***

The Alert A016 is an indicator that the MBB's 24vdc output falls below 17 volts DC. When this occurs, the control will put the Analog Input number's 06, 07, and 08 into error state. This will automatically clear when the voltage rises above 19 volts DC. The cause of this fault can be a defect on one of the AI 06, 07, 08 devices, a low voltage control transformer defect, an issue with the incoming supply voltage being out of range, or a MBB voltage regulator circuit failure.

Check the above items in order.

A serious defect on one of the AI 06, 07, 08 devices can also trigger any of the following alerts: A160, A161, A162, A163, A168, A169. If any of these alerts are observed in conjunction with an A016 alert, the affected device should be replaced.

For troubleshooting purposes, the wires for AI 06,07,08 terminate on the MBB per Table 9 on page 14.

#### ***Alert A017 – MBB 5VDC RANGE***

This alert occurs when the MBB's 5vdc output falls below 4.5 volts DC. When this occurs the control will put the Transducer inputs into error state. This will automatically clear when the voltage rises above 4.5 volts DC. The cause of this fault is usually a MBB failure or supply voltage out of range.

#### ***Fault F018 – MBB EEPROM FAILURE***

The unit will completely shut down. The serial EEPROM chip on the MBB which stores the unit's configuration is not responding. Recovery is automatic but MBB board replacement may be necessary. Cycling the power to the control should be tried before board replacement.

#### ***Alert A019 – MBB CLOCK FAILURE***

The alert occurs when the RTC clock chip on the MBB is not responding. Time and date functions will not operate, such as local occupancy schedules. The unit will default to 24/7 unoccupied mode. Recovery is automatic but MBB board replacement may be necessary. Cycling power to the control and reconfiguring the time and date should be tried before board replacement.

#### ***Fault F020 – SOFTWARE ERROR***

The unit will completely shut down. The software on the MBB is not responding. Recovery is automatic if the software is able to reset the board but software change may be necessary. Cycling the power to the control should be tried before board replacement.

#### ***Alert A100 – SAT SENSOR FAILURE***

This alert occurs when the fan supply temperature sensor is in an error state. Economizer cooling cannot occur while this alert is active. The unit will not be able to honor SAT limits. This alert resets automatically. The cause of the alert is usually a faulty thermistor, a shorted or open thermistor caused by a wiring error, or a loose connection.

#### ***Alert A101 – FST SENSOR RANGE***

This alert occurs when the fan supply temperature sensor is outside the range -40°F to 245°F (-40°C to 116°C). This alert resets automatically. The cause of the alert is usually a faulty thermistor, a shorted or open thermistor caused by a wiring error, or a loose connection.

#### ***Alert A102 – FST OPEN SENSOR***

This alert occurs when the fan supply temperature sensor reads as an open circuit. This alert resets automatically. The cause of the alert is usually a faulty thermistor or an open thermistor caused by a wiring error, or a loose connection.

#### ***Alert A103 – FST SHORTED SENSOR***

This alert occurs when the fan supply temperature sensor reads as a short circuit. This alert resets automatically. The cause of the alert is usually a faulty thermistor or a shorted thermistor caused by a wiring error, or a loose connection.

#### ***Alert A104 – OAT SENSOR RANGE***

This alert occurs when the outdoor air temperature is outside the range -40°F to 245°F (-40°C to 116°C). All ambient temperature lockout limits for cooling and heating are ignored. All cooling control logic will assume OAT is high. For economizer equipped units, the economizer will not operate to provide cooling. The economizer will still operate for ventilation. The control will use normal operation for outdoor fan control. For units with CCH crankcase heat relay control, the crankcase heat relay will be turned on if any compressor is off. This alert resets automatically. The cause of the alert is usually a faulty thermistor, a shorted or open thermistor caused by a wiring error, or a loose connection.

#### ***Alert A105 – OAT OPEN SENSOR***

See Alert A104

#### ***Alert A106 – OAT SHORTED SENSOR***

See Alert A104

#### ***Alert A107 – RAT SENSOR RANGE***

This alert occurs when the return air temperature is outside the range -40°F to 245°F (-40°C to 116°C). Differential dry bulb crossover control can not occur. Free cooling can only be controlled by the OAT and enthalpy switch. The economizer mechanically disconnected alert will not be diagnosed. This alert resets automatically. The cause of the alert is usually a faulty thermistor, a shorted or open thermistor caused by a wiring error, or a loose connection.

#### ***Alert A108 – RAT OPEN SENSOR***

See Alert A107

#### ***Alert A109 – RAT SHORTED SENSOR***

See Alert A107

#### ***Alert A110 – SPT SENSOR RANGE***

This alert occurs when the temperature is outside the range -40°F to 245°F (-40°C to 116°C). Cooling and heating will not operate. For economizer equipped units, the economizer will still operate for ventilation. This alert resets automatically. The cause of the alert is usually a faulty thermistor in the T-55, T-56, or T-58 device, a shorted or open thermistor caused by a wiring error, or a loose connection.

#### ***Alert A111 – SPT OPEN SENSOR***

See Alert A110

#### ***Alert A112 – SPT SHORTED SENSOR***

See Alert A110

#### ***Alert A130 – CIR.A SSP SENSOR RANGE***

This alert occurs when the pressure is outside the range -6.7 to 420 psig. A circuit cannot run when this alert is active. The cause of the alert is usually a faulty transducer, faulty 5-v power supply, or a loose connection. Use the transducer voltage drop table to determine where the error is introduced.

#### ***Alert A131 – CIR.A SSP OPEN SENSOR***

See Alert A130

#### ***Alert A132 – CIR.A SSP SHORT SENSOR***

See Alert A130

#### ***Alert A133 – CIR.A SDP SENSOR RANGE***

This alert occurs when the pressure is outside the range 14.5 to 667 psig. A circuit cannot run when this alert is active. The cause of the alert is usually a faulty transducer, faulty 5-v power supply, or a loose connection. Use the transducer voltage drop table to determine where the error is introduced.

#### ***Alert A134 – CIR.A SDP OPEN SENSOR***

See Alert A133

#### ***Alert A135 – CIR.A SDP SHORT SENSOR***

See Alert A133

#### **Alert 150 – OACFM OPEN SENSOR**

This alert occurs when the Outdoor Air CFM sensor input is 0 mA and the sensor is configured and installed. Check sensor and wiring. This alert clears automatically.

#### **Alert 151 – OACFM SHORTED SENSOR**

This alert occurs when the Outdoor Air CFM sensor input shorted and the sensor is configured as installed. Check sensor and wiring. This alert clears automatically.

#### **Alert A160 – OARH OPEN SENSOR**

This alert occurs when the Outdoor Air Relative Humidity sensor input is 0 mA and the sensor is configured as installed. Outside Air Enthalpy cannot be calculated therefore no enthalpy crossover can be used and only dry bulb will be used in determining free cooling. Check sensor and wiring. This alert clears automatically.

#### **Alert A161 – OARH SHORTED SENSOR**

This alert occurs when the Outdoor Air Relative Humidity sensor input shorted and the sensor is configured as installed. Outside Air Enthalpy cannot be calculated therefore no enthalpy crossover can be used and only dry bulb will be used in determining free cooling. Check sensor and wiring. This alert clears automatically.

#### **Alert A162 – RARH OPEN SENSOR**

This alert occurs when the Return Air Relative Humidity sensor input is 0 mA and the sensor is configured as installed. Return Air Enthalpy cannot be calculated therefore no differential enthalpy crossover can be used. Dry bulb and single enthalpy will be used in determining free cooling. Check sensor and wiring. This alert clears automatically.

#### **Alert A163 – RARH SHORTED SENSOR**

This alert occurs when the Return Air Relative Humidity sensor input shorted and the sensor is configured as installed. Return Air Enthalpy cannot be calculated therefore no differential enthalpy crossover can be used. Dry bulb and single enthalpy will be used in determining free cooling. Check sensor and wiring. This alert clears automatically.

#### **Alert A164 – IAQ OPEN SENSOR**

This alert occurs when the IAQ input is 0 mA and the sensor is configured as installed. IAQ operation will be disabled. Check sensor and wiring. This alert clears automatically.

#### **Alert A165 – IAQ SHORTED SENSOR**

This alert occurs when the IAQ input is shorted and the sensor is configured as installed. IAQ operation will be disabled. Check sensor and wiring. This alert clears automatically.

#### **Alert A166 – OAQ OPEN SENSOR**

This alert occurs when the OAQ input is 0 mA and the sensor is configured as installed. OAQ operation will be disabled. Check sensor and wiring. This alert clears automatically.

#### **Alert A167 – OAQ SHORTED SENSOR**

This alert occurs when the OAQ input is shorted and the sensor is configured as installed. OAQ operation will be disabled. Check sensor and wiring. This alert clears automatically.

#### **Alert A168 – SPACE RELATIVE HUMIDITY OPEN SENSOR**

This alert occurs when the SPRH input is 0 mA and the sensor is configured as installed. Check sensor and wiring. This alert clears automatically.

#### **Alert A169 – SPACE HUMIDITY SHORTED SENSOR**

This alert occurs when the SPRH input is shorted and the sensor is configured as installed. Check sensor and wiring. This alert clears automatically.

#### **Alert A170 – ECON FEEDBACK RANGE**

This alert occurs when the Economizer analog feedback signal is outside the range of 1.3vdc to 10.3vdc and the feedback is configured to use. A short is 10.5vdc and an open circuit is less

than 0.1vdc. Economizer diagnostics operation will be disabled. This is usually caused by a wiring problem, actuator failure, or the wrong actuator. Investigate using the Low Voltage Schematic; make sure the feedback signal from the actuator is correct. This alert clears automatically.

#### **Alert A171 – ECON FEEDBACK OPEN**

See Alert A170

#### **Alert A172 – ECON FEEDBACK SHORTED**

See Alert A170

#### **Alert A190 – TSTAT HEAT/COOL CALLS**

This alert occurs in Thermostat mode when Y1 or Y2 is energized simultaneously with W1 or W2. Verify thermostat and thermostat wiring. The software will enter either the cooling or heating mode depending upon which input turned on first. This alert resets automatically when Y1 and Y2 are not on simultaneously with W1 and W2.

#### **Alert A191 – TSTAT IMPROPER COOL**

This alert occurs in Thermostat mode when Y2 or Y3 is energized and Y1 is not. Verify thermostat and thermostat wiring. When this occurs the control will treat the inputs as a number instead of specific input. Example a Y2 and Y3 would mean 2 cooling inputs so the control would treat that as a Y1 and Y2 was active. This alert resets automatically when Y1 is turned On.

#### **Alert A192 – TSTAT IMPROPER HEAT**

This alert occurs in Thermostat mode when W2 is energized and W1 is not. Verify thermostat and thermostat wiring. When W2 turns On, the software will behave as if W1 and W2 are both On. When W2 turns Off, the software will behave as if W1 and W2 are both Off. This alert resets automatically when W1 is turned On.

#### **Fault F200 – FIRE SHUTDOWN**

This fault occurs when the fire shutdown input is either open or closed depending upon its configuration. This fault is usually caused by an auxiliary device that is trying to shut down the unit, e.g., smoke detector. This will cause a unit shutdown condition. Verify that the configuration is set correct, verify the wiring and auxiliary device. This fault resets automatically.

#### **Fault F201 – CONDENSATE OVERFLOW**

This fault occurs when the COFS input is either open or closed depending upon its configuration. This fault is usually caused by water reaching a high level in the drain pan. This will cause a cooling lockout. Verify that the configuration is set correct, verify the wiring and auxiliary device. This fault resets automatically.

#### **Fault F202 – FREEZE PROTECTION**

This fault occurs when the SAT falls below the minimum SAT setting (**UNIT'S MIN SAT**) for 30 seconds. The control will enter the safety shutdown condition. This fault will automatically reset if allowed (**AUTO SAT FAULTS? = YES**) and the SAT rises above the minimum SAT (**UNIT'S MIN SAT**) plus 15. The cause of this fault is usually excessive cold outdoor air, low air flow, or low charge.

#### **Alert A203 – DIRTY FILTER**

This alert occurs when the Filter Status switch senses a plugged filter for 5 continuous seconds after the indoor fan has been running for 10 seconds or if the fan has run for longer than the change filter time. Because the Dirty Air Filter switch can be configured normally opened or closed, the switch might be open or closed. Verify that the configurations are set correct, verify the wiring and filter status switch. The hose should be connected to the low side of the switch. The alert resets automatically if it was tripped due to the filter switch. If the alert is tripped because of the timer, it will need to be reset after the filter has been replaced or inspected. Rest the time with the **RESET FILTER TIME** point is located under **RUN STATUS** → **GENERAL** or **INPUTS** → **GENERAL INPUTS**.



#### **Fault F204 – REMOTE SHUTDOWN**

This fault occurs when the remote shutdown input is either open or closed depending upon its configuration and configured to set a fault. This fault is usually caused by an auxiliary emergency device that is trying to shut down the unit. This will cause a unit shutdown condition. Verify that the configuration is set correct, verify the wiring and auxiliary device. This fault resets automatically.

#### **Fault F205 – IDF MANUAL LIMIT TRIP**

This fault occurs when the indoor fan limit switch input is lost. The switch is a manual reset limit that is normally closed. This fault is usually caused by excess heat seen at the indoor fan. This fault will cause a unit shutdown condition. Since the switch is manual reset the button on the switch will have to be reset before resetting this fault in the software.

#### **Fault F206 – PHASE MONITOR TRIP**

This fault occurs when the phase monitor input is either open or closed depending upon its configuration. This fault is usually caused by loss of phase or improper phasing of a 3 phase power supply. This will cause a unit shutdown condition. Verify that the configuration is set correct, verify the wiring and supply power. This fault resets automatically.

#### **Alert A210 – GENERAL STATUS**

This alert occurs when the general status input is either open or closed depending upon its configuration and configured to set a alert. This alert is usually caused by an auxiliary switch device that is trying to send a warning about the unit. Verify that the configuration is set correct, verify the wiring and auxiliary device. This alert resets automatically.

#### **Fault F211 – GENERAL STATUS**

This fault occurs when the general status input is either open or closed depending upon its configuration and configured to set a fault. This fault is usually caused by an auxiliary switch device that is trying to shut down the unit. This will cause a unit shutdown condition. Verify that the configuration is set correct, verify the wiring and auxiliary device. This fault resets automatically.

#### **Fault F310 – CIRA DOWN DUE TO FAIL**

This fault occurs when both compressors on circuit A have 3 strikes. Investigate the alerts that caused the strikes to occur, and correct or test as needed. Manual alarm reset or power cycle is required to rest this fault.

#### **Fault F311 – CIRA LOW CHARGE**

This fault occurs when the compressors are off and both the discharge and suction pressure are less than the low charge level (**LOW CHARGE LEVEL**) and OAT is greater than the low charge limit (**NO LOW CHARGE OAT**). The cause of the fault is usually low refrigerant pressure or faulty pressure transducers. This fault only occurs when the compressor is OFF because the low refrigerant pressure alert will handle this situation when the compressor is operating. Manual alarm reset or power cycle is required to rest this fault.

#### **Alert A312 – CIRA UNEXPECTED OFF**

These alerts occur when the suction pressure raises the configured amount and the pressure ratio drop the configured amount both in a 30 second window during compressor operation. When this occurs, the control turns off the compressors and logs a strike for which compressor that was on. These alerts reset automatically. The possible causes are: high-pressure switch (HPS) open compressor internal protection, or a wiring error (a wiring error might not allow the compressor to start). This alert can be enabled and disabled under menu: **SETTINGS → UNIT CONFIGURATIONS → COOLING → COMPRESSOR TRANSITION → DIAG. COMP OFF**.

#### **Alert A313 – CIRA HIGH DISCHARGE**

The alert occurs when discharge temperature (**CIRA DIS TEMP**) for the respective suction temperature (**CIRA SUC TEMP**) is greater than the envelope high limit (**ENVELOPE HI LIMIT**) for 30 seconds, shown as the shaded area on Fig. 15. This alert will also trip when the discharge is between the compressor upper envelope and envelope high limit for greater than 3 minutes (between the dashed and solid line on Fig. 15) the compressor and log a strike on the circuit. See Fig. 15 for high discharge representation. This alert is similar to the A 325 High Discharge Temperature, but represents the normal or higher suction side of the envelope. The usual cause of this is overcharge, blockage, plugged filter drier, or extreme outdoor conditions.

#### **Alert A314 – CIRA HPS TRIP**

This alert occurs when the discharge pressure rises above the high pressure limit (**CIRA SDP LIMIT**). This alert resets automatically when the pressure falls below 505 PSI for 30 seconds. The control will add a strike to the circuit when this alert occurs. The control will also set the ODFs to maximum speed. The cause of the alert is usually an overcharged system, high outdoor ambient temperature coupled with dirty outdoor coil, plugged filter drier, or ODF speeds being set too low.

#### **Alert A315 – CIRA LOW DISCHARGE**

The alert occurs when discharge temperature (**CIRA DIS TEMP**) for the respective suction temperature (**CIRA SUC TEMP**) is less than the envelope low limit (**ENVELOPE LO LIMIT**) for 30 seconds, shown as the shaded area on Fig. 15. This alert will also trip when the discharge is between the compressor lower envelope and envelope low limit for greater than 3 minutes (between the dashed and solid line on Fig. 15). The alert resets if the discharge temperature can be brought back above the limits before the trip timers expire. The alert will shut off the compressor and log a strike on the circuit. See Fig. 15 for low discharge representation. This alert is similar to the alert A317 Pressure Ratio, but represents the lower suction side of the envelope. The usual cause of this is undercharge, low air flow or dirty filter, blockage, or extreme outdoor conditions.

#### **Alert A316 – CIRA LOW SUCTION**

This alert occurs when the compressor is operating and the evaporating temperature (converted from the suction pressure) is less than configured low suction control levels, **LOW SUC LEVEL 1**, **LOW SUC LEVEL2**, or **LOW SUC LEVEL3**. The circuit SST value must be less than **LOW SUC LEVEL 1** (for 5 minutes), **LOW SUC LEVEL 2** (for 4 minutes), or **LOW SUC LEVEL 3** (for 3 minutes when using the economizer and 1.5 minutes when not using the economizer) for the alert to occur. When the outdoor temperature is less than 40°F, the above values are reduced 1°F for every 2°F OAT is below 40°F. All the above timers will reset if the suction temperature rises above **LOW SUC OK TEMP** for 1 minute. This alert causes a strike for the respective circuit. This alert will activate when the coil becomes frosted. However, during the 15-minute reset period, the coils will thaw and strike should clear and restart if there is nothing else wrong with the circuit. The alert resets automatically. The cause of the alert is usually low refrigerant charge, dirty filters, evaporator fan operating backwards, loose or broken belt, plugged filter drier, faulty transducer, excessively cold return air, or stuck open economizer when the ambient temperature is low. This alert will trigger a fan override (**IDF SPD OVERRIDE**) which sets the indoor fan speed to maximum speed. This override will remain active until the HVAC mode is reset.

### Alert A317 – CIR.A PRESSURE RATIO

The alert occurs when discharge temperature (*CIR.A DIS TEMP*) for the respective suction temperature (*CIR.A SUC TEMP*) is less than the envelope low limit (*ENVELOPE LO LIMIT*) for 30 seconds, shown as the shaded area on Fig. 15. This alert will also trip when the discharge is between the compressor lower envelope and envelope low limit for greater than 3 minutes (between the dashed and solid line on Fig. 15). The

alert resets if the discharge temperature can be brought back above the limits before the trip timers expire. The alert will shut off the compressor and log a strike on the circuit. See Fig. 15 for pressure ratio representation. This alert is similar to alert A315 Low Discharge, but represents the normal or higher suction side of the envelope. The usual cause of this is under-charge, blockage, or extreme outdoor conditions.

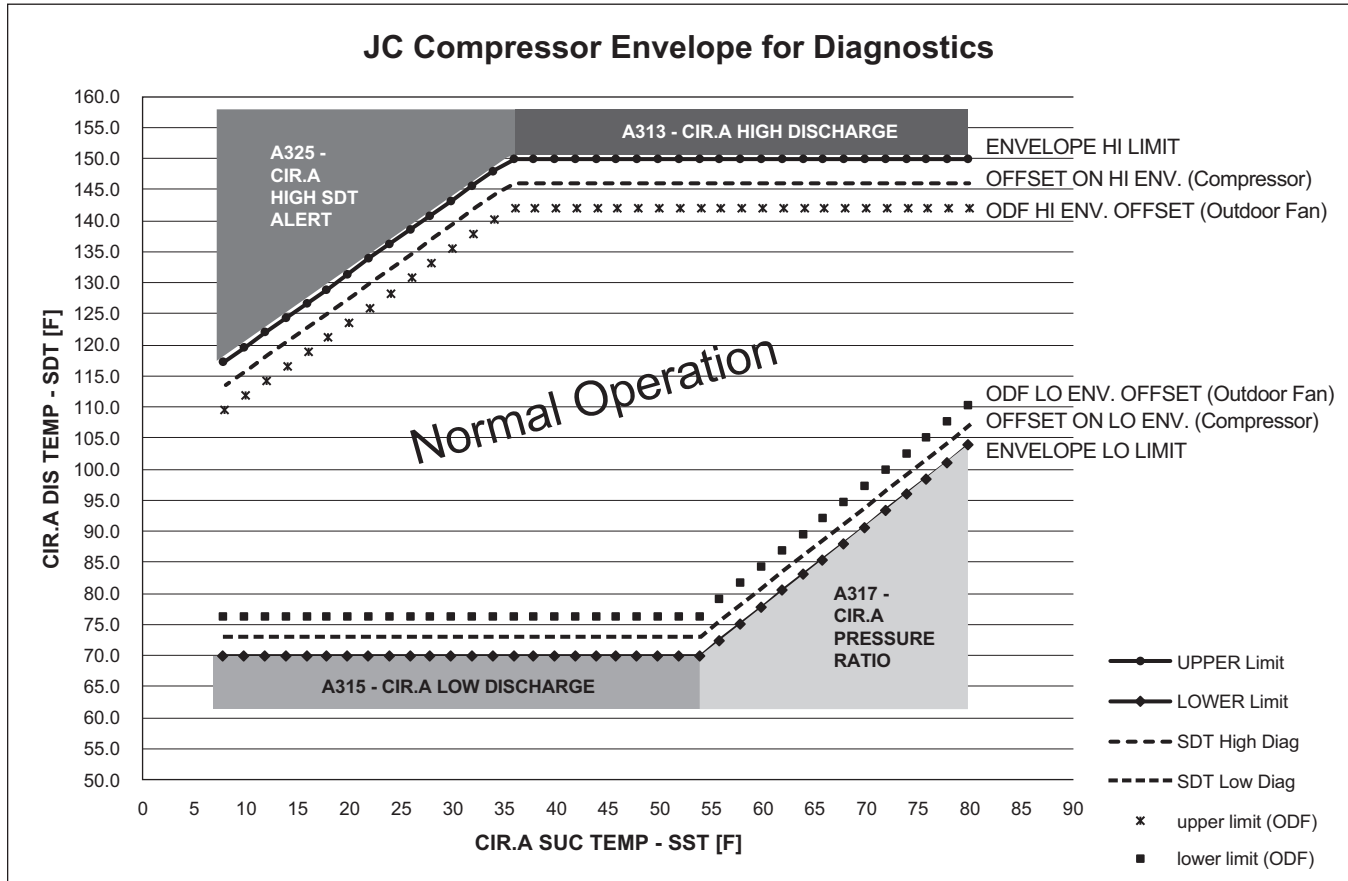


Fig. 15 — Compressor Envelope for Diagnostics

### **Fault F318 – COMPRESSOR STUCK ON**

This fault occurs when the Suction pressure does not raise the minimum suction amount (**CIR.A MIN SUC.P**) and the ratio did not fall at least the off pressure ratio (**OFF.P.RATIO**) when the compressor is turned off. When this occurs, the control turns off the compressor, and enters a safety shutdown condition. The possible causes are a faulty VFD or frozen compressor relay on MBB. Manual alarm reset or power cycle is required to rest this fault. This alert can be Enabled and disabled under menu: **SETTINGS → UNIT CONFIGURATIONS → COOLING → COMPRESSOR TRANSITION → DIAG. COMP OFF**.

### **Fault F319 – C.A1 DOWN DUE TO FAIL**

This fault occurs when compressor A1 has 3 strikes. Investigate the alerts that caused the strikes to occur, and correct or test as needed. Manual alarm reset or power cycle is required to rest this fault.

### **Alert A320 – C.A1 REVERSE ROTATION**

This alert occurs when 20 seconds after the compressor turns on, the suction rose and the discharge pressure dropped. This alert causes a strike for the compressor. The alert resets automatically. The cause of the alert is usually compressor wiring causing reverse rotation or a faulty compressor. See converter board for fault code.

### **Alert A321 – C.A1 FAIL TO PRESSURE**

This alert occurs when 20 seconds after the compressor turns on, the suction did not drop more than suction amount (**CIR.A MIN SUC.P**) and discharge pressure did not rise more than discharge amount (**CIR.A MIN DIS.P**). This alert causes a strike for the compressor. The alert resets automatically. The cause of the alert is usually compressor wiring causing reverse rotation or a faulty compressor. See converter board for fault code.

### **Alert A325 – CIR A HIGH DISCHARGE TEMPERATURE**

The alert occurs when discharge temperature (**CIR.A DIS TEMP**) for the respective suction temperature (**CIR.A SUC TEMP**) is greater than the envelope high limit (**ENVELOPE HI LIMIT**) for 30 seconds, shown as the shaded area on Fig. 15. This alert will also trip when the discharge is between the compressor upper envelope and envelope high limit for greater than 3 minutes (between the dashed and solid line on Fig. 15). The alert resets if the discharge temperature can be brought back below the limits before the trip timers expire. The alert will shut off the compressor and log a strike on the circuit. See Fig. 15 for high discharge temperature representation. This alert is similar to alert A313 High Discharge, but represents the lower suction side of the envelope. The usual cause of this is a combination of lower suctions and high discharge conditions, blockage, or extreme conditions.

### **Alert A326 – CIR A HIGH ENVELOPE**

There are two upper envelope curves determined from the compressor and outdoor fan envelope offsets (**OFFSET ON HI ENV**, **ODF HI ENV OFFSET** respectively) and shown as dashed lines on Fig. 15. These are offsets from the compressor real-time operating envelope limit (**ENVELOPE HI LIMIT**) represented as a discharge temperature respective to the running suction temperature. The alert occurs when the saturated discharge temperature (**CIR.A DIS TEMP**) is greater than either the compressor or the outdoor fan upper envelope curve for a given suction temperature (**CIR.A SUC TEMP**) value. The alert resets when the discharge temperature falls below both the compressor and the outdoor fan curves for 30 seconds. During the alert the compressor speed will be reduced, and the outdoor fan speed will be increased to help bring discharge back below the curve. This alert will not turn off the compressor and is meant as a pre-condition indicator. See Fig. 15 for high envelope representation. The usual cause of this is overcharge, plugged outdoor coil, or extreme outdoor conditions.

### **Alert A327 – CIR A LOW ENVELOPE**

There are two lower envelope curves determined from the compressor and outdoor fan envelope offsets (**OFFSET ON LO**

**ENV**, **ODF LO ENV OFFSET** respectively) and shown as dashed lines on Fig. 15. These are offsets from the compressor real-time operating envelope limit (**ENVELOPE LO LIMIT**) represented as a discharge temperature respective to the running suction temperature. The alert occurs when the saturated discharge temperature (**CIR.A DIS TEMP**) is less than either the compressor or the outdoor fan lower envelope curve for a given suction temperature (**CIR.A SUC TEMP**) value. The alert resets when the discharge temperature rises above both the compressor and the outdoor fan curves for 30 seconds. During the alert the compressor speed will be increased, and the outdoor fan speed will be decreased to help bring discharge back above the curve. This alert will not turn off the compressor and is meant as a pre-condition indicator. See Fig. 15 for low envelope representation. The usual cause of this is undercharge, plugged return filter, or extreme outdoor conditions.

### **Alert A410 – IGC IGNITION FAILURE**

This alert occurs when the IGC fan request does not activate 15 minutes after turning heat 1 on when configured for Gas Heat. The control will lockout all the heat stages. This alert will automatically reset after the IGC fan request occurs. The cause of this alert is usually faulty wiring of the IGC, no gas flow, or wrong configuration.

### **Fault F411 – ROLLOUT WITHOUT HEAT**

This fault occurs when the IGC fan request activates and the heat has been off for at least 3 minutes when configured for Gas Heat. The control will enter the safety shutdown condition. This alert will automatically reset after the IGC fan request turns off for 10 minutes. The cause of this fault is usually faulty wiring of the IGC, or rollout switch trip without a heat call.

### **Fault F412 – RUN AWAY HEAT**

This fault occurs when the SAT rises above the maximum SAT. The control will enter the safety shutdown condition. This fault will automatically reset after if configured to and the SAT falls 50 degrees below the maximum SAT. The cause of this alert is usually heat stuck on causing high SAT, or low air flow.

### **Alert A510 – INDOOR FAN STATUS**

This alert occurs when a fan status switch is installed, the unit is configured not to shut down on fan status, and the fan status switch does not match the state of the fan. The cause of this is usually a configuration error on the switch state in the software or the setting on the actual switch itself.

### **Fault F511 – IDF OFF WHEN COMMAND ON**

This fault occurs when the unit is configured to shut down on fan status and the fan is requested greater than zero and the fan status switch indicates the fan is off. The cause of this alert is usually a configuration error on the switch state in the software or the setting on the actual switch itself. Manual alarm reset or power cycle is required to reset this fault.

### **Fault F512 – IDF ON WHEN COMMAND OFF**

This fault occurs when the unit is configured to shut down on fan status and the fan is requested off and the fan status switch indicates the fan is off. The cause of this alert is usually a configuration error on the switch state in the software or the setting on the actual switch itself. Manual alarm reset or power cycle is required to reset this fault.

### **Alert A700 – ECON NOT MODULATING**

This alert occurs when the economizer feedback is enabled and the actual speed does not reach the commanded speed in the economizer travel time configuration value. This alert will automatically reset when the actual position does reach the commanded position. This is usually caused by installation of the wrong actuator, no economizer gear motion, or actuator direction control switch (CCW, CW) wrong. Check damper blades, gears, and actuator. This alert will usually be accompanied by another descriptive informational alert.

### ***Alert A701 – ECON STUCK CLOSED***

This alert occurs when damper not modulating alert is active and actual damper position is zero. This alert will be reset once the damper not modulating alert becomes inactive. This alert will also be reset upon resetting all current alarm commands.

### ***Alert A702 – ECON STUCK OPEN***

This alert occurs when damper not modulating alert is active, commanded damper position is zero and actual damper position is greater than two. This alert will be reset once the damper not modulating alert becomes inactive. This alert will also be reset upon resetting all current alarm commands.

### ***Alert A703 – IDF MECH DISCONNECTED***

This alert occurs when Alert A700 is not active yet the control determines that the economizer changes are not aligning with the temperature changes. This will require a manual reset to ensure the economizer is inspected. This is usually caused by the actuator not properly secured to the damper shaft.

### ***Alert A710 – ECON NOT COOLING***

This alert occurs when freecooling is active, damper modulation alert is active and the actual damper position is less than the requested damper position by two. This alert will be reset once the damper not modulating alert becomes inactive and it is also reset when all the current alarm commands are reset.

### ***Alert A711 – ECON IMPROPER COOLING***

This alert occurs when freecooling is inactive, damper modulation alert is active and the actual damper position is greater than minimum position. This alert will be reset once the damper not modulating alert becomes inactive and it is also reset when all the current alarm commands are reset.

### ***Alert A712 – EXCESSIVE OUTDOOR AIR***

This alert occurs when freecooling is inactive, damper modulation alert is active and the actual damper position is greater than minimum position. This alert will be reset once the damper not modulating alert becomes inactive and it is also reset when all the current alarm commands are reset.

**Table 14 – SystemVu Controller Alarm Codes**

FAULT OR ALERT	ACTION TAKEN BY CONTROL	RESET METHOD	PROBABLE CAUSE
<b>F010-MBB LOW VOLTAGE</b>	Unit Shutdown	Automatic	Brownout condition, low supply voltage, supply power missing a phase.
<b>F011-MBB REFERENCE VOLTAGE</b>	Unit Shutdown	Automatic	MBB failure or supply voltage low
<b>A012-MBB ZERO CROSSING</b>	Alert Generated	Automatic	MBB failure or supply voltage frequency to high or too low.
<b>F013-MBB FUSE 2 OPEN</b>	Unit Shutdown	Automatic	A switch input has a wiring error or the switch pulled too much current.
<b>F014-MBB FUSE 3 OPEN</b>	Unit Shutdown	Automatic	A switch input has a wiring error or the switch pulled too much current.
<b>A015-MBB RNET VOLTAGE RANGE</b>	Alert Generated	Automatic	MBB failure or supply voltage low
<b>A016-MBB 24VDC RANGE</b>	4-20mA inputs will be in error	Automatic	MBB failure or supply voltage low
<b>A017-MBB 5VDC RANGE</b>	Transducer inputs will be in error	Automatic	MBB failure or supply voltage low
<b>F018-MBB EEPROM FAILURE</b>	Unit Shutdown	Automatic	Software failure or MBB failure
<b>A019-MBB CLOCK FAILURE</b>	No time, date, and schedule operation	Automatic	Software failure or MBB failure
<b>F020-SOFTWARE ERROR</b>	Unit Shutdown	Automatic	Corrupt Software or software failure
<b>A100-SAT SENSOR ERROR</b>	No free cooling, and no SAT limit protection	Automatic	Faulty, shorted, or open thermistor caused by wiring error or loose connection.
<b>A101-FST SENSOR RANGE</b>	Alert Generated	Automatic	Faulty or incorrect thermistor caused by improper ohm reading
<b>A102-FST OPEN SENSOR</b>	Alert Generated	Automatic	Missing or open thermistor caused by wiring error or loose connection.
<b>A103-FST SHORTED SENSOR</b>	Alert Generated	Automatic	Faulty or shorted thermistor caused by wiring error or loose connection.
<b>A104-OAT SENSOR RANGE</b>	No free cooling, no low ambient operation	Automatic	Faulty or incorrect thermistor caused by improper ohm reading
<b>A105-OAT OPEN SENSOR</b>	No free cooling, no low ambient operation	Automatic	Missing or open thermistor caused by wiring error or loose connection.
<b>A106-OAT SHORTED SENSOR</b>	No free cooling, no low ambient operation	Automatic	Faulty or shorted thermistor caused by wiring error or loose connection.
<b>A107-RAT SENSOR RANGE</b>	No differential DB crossover	Automatic	Faulty or incorrect thermistor caused by improper ohm reading
<b>A108-RAT OPEN SENSOR</b>	No differential DB crossover	Automatic	Missing or open thermistor caused by wiring error or loose connection.
<b>A109-RAT SHORTED SENSOR</b>	No differential DB crossover	Automatic	Faulty or shorted thermistor caused by wiring error or loose connection.
<b>A110-SPT SENSOR RANGE</b>	No heating or cooling	Automatic	Faulty or incorrect thermistor caused by improper ohm reading
<b>A111-SPT OPEN SENSOR</b>	No heating or cooling	Automatic	Missing or open thermistor caused by wiring error or loose connection.
<b>A112-SPT SHORTED SENSOR</b>	No heating or cooling	Automatic	Faulty or shorted thermistor caused by wiring error or loose connection.
<b>A130-CIR.A SSP SENSOR RANGE</b>	Shutdown Circuit A	Automatic	Faulty transducer, faulty 5-V power supply, or loose connection
<b>A131-CIR.A SSP OPEN SENSOR</b>	Shutdown Circuit A	Automatic	Faulty transducer, faulty 5-V power supply, or loose connection
<b>A132-CIR.A SSP SHORT SENSOR</b>	Shutdown Circuit A	Automatic	Faulty transducer, faulty 5-V power supply, or loose connection
<b>A133-CIR.A SDP SENSOR RANGE</b>	Shutdown Circuit A	Automatic	Faulty transducer, faulty 5-V power supply, or loose connection
<b>A134-CIR.A SDP OPEN SENSOR</b>	Shutdown Circuit A	Automatic	Faulty transducer, faulty 5-V power supply, or loose connection
<b>A135-CIR.A SDP SHORT SENSOR</b>	Shutdown Circuit A	Automatic	Faulty transducer, faulty 5-V power supply, or loose connection
<b>A150-OUTDOOR AIRFLOW IN CFM OPEN SENSOR</b>	No OACFM Operations	Automatic	Wiring problem, or configuration error
<b>A151-OUTDOOR AIRFLOW IN CFM SHORTED SENSOR</b>	No OACFM Operations	Automatic	Wiring problem, or configuration error
<b>A160-OARH OPEN SENSOR</b>	No Enthalpy crossover	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.
<b>A161-OARH SHORTED SENSOR</b>	No Enthalpy crossover	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.
<b>A162-RARH OPEN SENSOR</b>	No Differential Enthalpy crossover	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.
<b>A163-RARH SHORTED SENSOR</b>	No Differential Enthalpy crossover	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.
<b>A164-IAQ OPEN SENSOR</b>	No IAQ Operations	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.
<b>A165-IAQ SHORTED SENSOR</b>	No IAQ Operations	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.
<b>A166-OAQ OPEN SENSOR</b>	No OAQ Operations	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.

**Table 14 — SystemVu Controller Alarm Codes (cont)**

FAULT OR ALERT	ACTION TAKEN BY CONTROL	RESET METHOD	PROBABLE CAUSE
A167-OAQ SHORTED SENSOR	No OAQ Operations	Automatic	Bad sensor, bad wiring, or sensor configured incorrectly.
A168-SPACE RELATIVE HUMIDITY OPEN SENSOR	No dehumidifying	Automatic	Bad sensor, bad wiring, sensor configured incorrectly, loss of communication to SIOB.
A169-SPACE RELATIVE HUMIDITY SHORTED SENSOR	No dehumidifying	Automatic	Bad sensor, bad wiring, sensor configured incorrectly, loss of communication to SIOB.
A170-ECON FEEDBACK RANGE	No economizer diagnostics	Automatic	Wiring problem with actuator, or configuration error
A171-ECON FEEDBACK OPEN	No economizer diagnostics	Automatic	Wiring problem with actuator, or configuration error
A172-ECON FEEDBACK SHORTED	No economizer diagnostics	Automatic	Wiring problem with actuator, or configuration error
A190-TSTAT HEAT/COOL CALLS	Run unit in mode activated first	Automatic	Bad Thermostat or Thermostat Wiring
A191-TSTAT IMPROPER COOL	Run cooling per number of active inputs	Automatic	Bad Thermostat or Thermostat Wiring
A192-TSTAT IMPROPER HEAT	Run heating per number of active inputs	Automatic	Bad Thermostat or Thermostat Wiring
F200-FIRE SHUTDOWN	Unit Shutdown	Automatic	Smoke detected by smoke detector
F201-CONDENSATE OVERFLOW	Cooling Shutdown	Automatic	Drain pan plugged, sensor error, or configuration error
F202 - FREEZE PROTECTION	Unit Shutdown	Automatic	SAT is too low, caused by cold outdoor air, low air flow, or stuck on cooling.
A203-DIRTY FILTER	Alert Generated	Automatic	Dirty Filter or filter timer expired
F204-REMOTE SHUTDOWN	Unit Shutdown	Automatic	Remote activation of the shutdown switch
F205- IDF MANUAL LIMIT TRIP	Unit Shutdown	Automatic	Limit Switch on Indoor Fan trips due to high temperature at the motor
F206-PHASE MONITOR TRIP	Unit Shutdown	Automatic	Power supply phase missing or out of phase
A210-GENERAL STATUS	Alert Generated	Automatic	General Switch activation or wrong configuration
F211-GENERAL STATUS	Unit Shutdown	Automatic	General Switch activation or wrong configuration
F310-CIRA DOWN DUE TO FAIL	Shutdown Circuit A	Manual	Compressors have 3 strikes or has been locked out by another alarm
F311-CIRA LOW CHARGE	Shutdown Circuit A	Manual	Low refrigerant or faulty pressure transducer
A312-CIR.A UNEXPECTED OFF	Strike for active compressors	Automatic	Compressor failure, transducer failure, or nuisance operating conditions
A313-CIR.A HIGH DISCHARGE	Unload compression and up ODF to High cool speed	Automatic	An overcharged system, high outdoor ambient temperature coupled with dirty outdoor coil, plugged filter drier, or ODF speed too low.
A314-CIR.A HPS TRIP	Add compressor strikes	Automatic	An overcharged system, high outdoor ambient temperature coupled with dirty outdoor coil, plugged filter drier, or ODF speed too low.
A315-CIR.A LOW DISCHARGE	Add compressor strikes	Automatic	An undercharged system, low outdoor ambient temperature coupled with dirty outdoor coil, plugged filter drier, or ODF speed too high
A316- CIR.A LOW SUCTION	Add compressor strikes	Automatic	Low refrigerant charge, dirty filters, evaporator fan turning backwards, loose or broken fan belt, plugged filter drier, faulty transducer, excessively cold return air, or stuck open economizer when the ambient temperature is low.
A317-CIR.A PRESSURE RATIO	Add compressor strikes	Automatic	Low refrigerant charge, plugged filter drier, faulty transducer, the ambient temperature is low and the ODF is running too fast.
F318-COMPRESSOR STUCK ON	Unit in Safety Shutdown	Manual	Wiring issue, nuisance conditions, or Compressor VFD issue
F319-C.A1 DOWN DUE TO FAIL	Lockout Compressor A1	Manual	Compressor A1 has 3 strikes or has been locked out by another alarm
A320-C.A1 REVERSE ROTATION	Add Strike for compressor A1	Automatic	Wiring causing reverse rotation or faulty compressor
A321-C.A1 FAIL TO PRESSURE	Add Strike for compressor A1	Automatic	Wiring causing reverse rotation, or compressor VFD error, or faulty compressor
A325-C.A HIGH SDT ALERT	Add Strike for compressor A1	Automatic	Charge issue, high outdoor ambient temperature coupled with dirty outdoor coil, plugged filter drier, or ODF speed too low.
A326-C.A HIGH ENVELOPE	Alert Generated	Automatic	Nuisance conditions, An overcharged system, high outdoor ambient temperature coupled with dirty outdoor coil, plugged filter drier, or ODF speed too low.
A327-C.A LOW ENVELOPE	Alert Generated	Automatic	Nuisance conditions, An undercharged system, low outdoor ambient temperature coupled with dirty outdoor coil, plugged filter drier, or ODF speed too high
A410- IGC IGNITION FAILURE	Lockout Heat	Automatic	Faulty wiring of the IGC, failed or stuck pressure switch, no gas flow, or wrong configuration.
F411-ROLLOUT WITHOUT HEAT	Unit in Safety Shutdown	Automatic	Faulty wiring of the IGC, or rollout switch trip without a heat call
F412-RUN AWAY HEAT	Unit in Safety Shutdown	Automatic	Heat stuck on causing high SAT, or low air flow
A510- INDOOR FAN STATUS	Alert Generated	Automatic	Motor failure, or configuration error.
F511- IDF OFF WHEN COMMAND ON	Unit Shutdown	Manual	Fan stuck on, or Configuration incorrect.
F512-IDF ONWHEN COMMAND OFF	Unit Shutdown	Manual	Tripped Circuit Breaker. Bad indoor fan motor. Configuration incorrect.
A700-ECON NOT MODULATING	Alert Generated	Automatic	No economizer motion. Check damper blades, gears, and actuator. Actuator direction control switch (CCW, CW) wrong.
A701-ECON STUCK CLOSED	Alert Generated	Automatic	No economizer motion. Check damper blades, gears, and actuator. Actuator direction control switch (CCW, CW) wrong.
A702-ECON STUCK OPEN	Alert Generated	Automatic	No economizer motion. Check damper blades, gears, and actuator. Actuator direction control switch (CCW, CW) wrong.
A703-ECON MECH DISCONNECTED	Alert Generated	Manual	No economizer motion. Check damper blades, gears, and actuator. Actuator direction control switch (CCW, CW) wrong.
A710-ECON NOT COOLING	Alert Generated	Automatic	No economizer motion. Check damper blades, gears, and actuator. Actuator direction control switch (CCW, CW) wrong.
A711-ECON IMPROPER COOLING	Alert Generated	Automatic	No economizer motion. Check damper blades, gears, and actuator. Actuator direction control switch (CCW, CW) wrong.
A712-EXCESSIVE OUTDOOR AIR	Alert Generated	Automatic	No economizer motion. Check damper blades, gears, and actuator. Actuator direction control switch (CCW, CW) wrong.

## Control Module Communication

### RED LED

Proper operation of the MBB control board can be visually checked by looking at the red status LED. When operating correctly, the red status LED should blink at a rate of once every 2 seconds. If the red LED is not blinking, verify that correct power is being supplied. A blinking red LED at the rate of once per second means that software is not loaded on the board. Also, be sure that the board is supplied with the current software. If necessary, reload current software. A board LED that is lit continuously should be replaced.

### GREEN LED

The MBB has one green LED. The Local Equipment Network (LEN) LED should always be blinking whenever power is on. If LEN LED is not blinking, check LEN connections for potential communication errors (MBB J15, J16, J17, and on the Display J2). Communication between modules is accomplished by a 3-wire sensor bus. These 3 wires run in parallel from module to module. The MBB J17 and Display J2 connectors provide both power and communication directly at the connector for accessories like the Navigator display. The MBB J15 connector provides a LEN interface to the indoor fan VFD.

### YELLOW LED

The MBB has one yellow LED which is used to indicate Building Automated System (BAS) communication activity. The LED will blink when the MBB transmits a message on the bus.

## Communication Failures

If Navigator displays Communication Failure the green or yellow LEDs do not flash on the boards then the problem could be the communication chip on one of the control boards (MBB). Use an ohm meter to measure the resistance on the communication pins of the boards to determine if the board is bad. If the reading is less than half the value indicated in Table 15, then the board needs to be replaced.

**IMPORTANT:** The resistive values should be read when the board is powered off, the unit is locked out, and board connectors are disconnected.

## Cooling Troubleshooting

Use the SystemVu Display or a CCN device to view the cooling status display and the cooling diagnostic display (see Appendices) for information on the cooling operation. Check the current alarms and alarm history for any cooling alarm codes and correct any causes. (See Table 14.) Verify any unique control configurations per installed site requirements or accessories.

If alarms conditions are corrected and cleared, operation of the compressors and fans may be verified by using the Service Test mode. (See Table 4.) See Table 16 for general cooling service analysis.

**Table 15 – Communication Resistances**

Device	(LEN) Resistance between Pins / Connector			(BAS) Resistance between Pins / Connector			(RNET) Resistance between Pins / Connector		
	Pins 1 to 3	Pins 1 to 2	Pins 2 to 3	Pins 1 to 3	Pins 1 to 2	Pins 2 to 3	Pins GND to +	Pins GND to –	Pins + to –
<b>MBB</b>	19.92 KΩ	10.63 KΩ	9.51 KΩ	19.92 KΩ	10.63 KΩ	9.51 KΩ	2.25 KΩ	1 KΩ	3.3 KΩ

**Table 16 – Cooling Service Analysis**

PROBLEM	CAUSE	REMEDY
<b>Compressor and Fan Will Not Start.</b>	Power failure.	Call power company.
	Fuse blown or circuit breaker tripped.	Replace fuse or reset circuit breaker.
	Disconnect off.	Power disconnect.
	Compressor time guard to prevent short cycling.	Check using SystemVu Display.
	Thermostat or occupancy schedule set point not calling for Cooling.	Check using SystemVu Display.
	Outdoor temperature too low.	Check Compressor Lockout Temperature using SystemVu Display.
	Active alarm.	Check active alarms using SystemVu Scrolling Marquee.
<b>Compressor Cycles (other than normally satisfying thermostat).</b>	Insufficient line voltage.	Determine cause and correct.
	Active alarm.	Check active alarms using SystemVu Scrolling Marquee.
<b>Compressor Operates Continuously.</b>	Unit undersized for load.	Decrease load or increase size of unit.
	Thermostat or occupancy schedule set point too low.	Reset thermostat or schedule set point.
	Dirty air filters.	Replace filters.
	Low refrigerant charge.	Check pressure, locate leak, repair, evacuate, and recharge.
	Condenser coil dirty or restricted.	Clean coil or remove restriction.
<b>Excessive Condenser Pressures.</b>	Dirty condenser coil.	Clean coil.
	Refrigerant overcharge.	Recover excess refrigerant.
	Faulty TXV.	1. Check TXV bulb mounting and secure tightly to suction line and insulate. 2. Replace TXV (and filter drier) if stuck open or closed.
	Condenser air restricted or air short cycling.	Determine cause and correct.
	Restriction in liquid tube.	Remove restriction.
<b>Condenser Fans Not Operating.</b>	No Power to contactors.	Fuse blown or plug at motor loose.



**Table 16 — Cooling Service Analysis (cont)**

<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
<b>Excessive Suction Pressure.</b>	High heat load.	Check for sources and eliminate
	Faulty TXV.	1. Check TXV bulb mounting and secure tightly to suction line and insulate. 2. Replace TXV (and filter drier) if stuck open or closed.
	Refrigerant overcharged.	Recover excess refrigerant.
<b>Suction Pressure Too Low.</b>	Dirty air filters.	Replace air filters.
	Low refrigerant charge.	Check pressure, locate leak, repair, evacuate, and recharge.
	Faulty TXV.	1. Check TXV bulb mounting and secure tightly to suction line and insulate. 2. Replace TXV (and filter drier) if stuck open or closed.
	Insufficient evaporator airflow.	Check belt tension. Check for other restrictions.
	Temperature too low in conditioned area (low return-air temperature).	Reset thermostat or occupancy schedule.

LEGEND

**TXV** — Thermostatic Expansion Valve

## Humidi-MiZer System Troubleshooting

Use the SystemVu control display or a CCN device to view the cooling status display and the cooling diagnostic display. See Optional Humidi-MiZer Dehumidification System starting on page 20 for information on the cooling operation and the related Humidi-MiZer system operation. Check the current alarms and alarm history for any cooling alarm codes and correct any causes (see Table 14 on page 36). Verify any unique control configurations per installed site requirements or accessories. If

alarm conditions are corrected and cleared, operation of the compressors, fans, and Humidi-MiZer system valves may be verified by using the Service Test mode (see Table 4 on page 11). In addition to general cooling service analysis (Table 16 on page 38), see Table 17 (below) for general Humidi-MiZer system service analysis.

NOTE: Wiring, operation, and charge are different on a Humidi-MiZer system unit compared to a standard unit.

**Table 17 — Humidi-MiZer System Service Analysis**

PROBLEM	CAUSE	REMEDY
<b>Subcooling Reheat Mode Will Not Activate.</b>	General cooling mode problem.	See Cooling Service Analysis (Table 14).
	No dehumidification demand.	See No Dehumidification Demand, below.
	Circuit CLV or RLV valve problem.	See CLV or RLV Valve Operation, below.
<b>Hot Gas Reheat Mode Will Not Activate.</b>	General cooling mode problem.	See Cooling Service Analysis (Table 14).
	No dehumidification demand.	See No Dehumidification Demand, below.
	CLV or RLV valve problem.	See CLV or RLV Valve Operation, below.
	Circuit RDV valve is not open.	See RDV Valve Operation, below.
	Outdoor temperature too low.	Check Reheat Circuit Limit Temperatures Unit <b>CONFIGURATIONS → COOLING → HUMZ LOCKOUT OAT</b>
<b>No Dehumidification Demand.</b>	Relative humidity setpoint is too low — Humidistat	Check/reduce setting on accessory humidistat.
	Relative humidity setpoint is too low — RH sensor.	Check Space RH Setpoints ( <b>SETPOINTS → SPRH</b> )
	Software configuration error for accessory humidistat.	Check Space Humidity Switch ( <b>SETTINGS → UNIT CONFIGURATIONS → SWITCH INPUTS CONFIGS → HUMSTAT CHANNEL</b> )
	Software configuration error for accessory humidity sensor.	Check RH Sensor ( <b>SETTINGS → UNIT CONFIGURATIONS → ANALOG INPUTS CONFIGS → SPRH SENSOR CHANNEL</b> )
	No humidity signal.	Check wiring. Check humidistat or humidity sensor.
<b>CLV or RLV Valve Operation.</b>	No 24V signal to input terminals.	Check using Service test mode
		Check Wiring.
		Check transformer and circuit breaker or fuses.
	Solenoid coil burnout.	Check continuous over-voltage is less than 10%.
		Check under-voltage is less than 15%.
		Check for missing coil assembly parts. Check for damaged valve enclosing tube.
	Stuck valve.	Replace valve. Replace filter drier.
<b>RDV Valve Operation. (NOTE: Normally Closed When De-energized)</b>	No 24V signal to input terminals.	Check using Service test mode
		Check wiring.
		Check transformer and circuit breaker or fuses.
	Solenoid coil burnout.	Check continuous over-voltage is less than 10%.
		Check under-voltage is less than 15%.
		Check for missing coil assembly parts. Check for damaged valve enclosing tube.
	Stuck valve.	Replace valve. Replace filter drier.
<b>Low Sensible Capacity in Normal Cool or Subcooling Reheat Modes.</b>	RDV valve open or leaking.	See RDV Valve Operation, above.
<b>Low Suction Pressure and High Superheat During Normal Cool Mode.</b>	General cooling mode problem.	See Cooling Service Analysis (Table 14).
	RDV valve open or leaking.	See RDV Valve Operation, above.
<b>RDV Valve Cycling On/Off.</b>	Hot Gas Reheat mode low suction pressure limit.	Normal Operation During Mixed Circuit Subcooling and Hot Gas Reheat Modes at Lower Outdoor Temperatures.

### LEGEND

**CLV** — Cooling Liquid Valve  
**LDV** — Liquid Diverter Valve  
**RDV** — Reheat Discharge Valve  
**RLV** — Reheat Liquid Valve  
**RH** — Relative Humidity

## Economizer Troubleshooting

Use the SystemVu display to view the economizer status. Check the current alerts and faults and the alarm history for economizer specific alerts or any relevant faults or alerts and correct those issues. Use test mode to troubleshoot by ramping the economizer up and down with and without the indoor fan and power exhaust fan on. Inspect the mechanical economizer for actuator, gear, or blade damage. Ensure the actuator is mounted with the correct spring return (close damper when no power applied to unit). Ensure there is a 500 ohm resistor across the actuator as the 4-20mA output signal must be converted to 2-10V.

Feedback from the actuator is a 2 to 10 volt feedback. If the feedback does not reach 2 volts when commanded to 0% a negative trim (**ECO FEEDBACK TRIM** in the Service Calibration menu) can be put on the feedback to stop Economizer alarms occurring at 0%. If this done the max damper position (**ECON MAX POS** in the Economizer Settings menu) must be set less than 100% to prevent Economizer alarms at 100% since the trimmed value will not reach 100% at 10 Volts. Both signals can be measured with a meter on the signal and feedback wires J7 pins 4 and 3 respectively and referenced to ground J7 pin 8 while the values can be displayed on the local display.

The Economizer alerts can be summarized as a failure to modulate the damper blades. This can be due to the actuator not being properly connected to the damper, or because the actuator's feedback signal is indicating that damper is not performing as commanded. The mechanical disconnect diagnostic will run

when conditions are appropriate to determine proper air temperature changes. This uses the OAT, RAT, and SAT to tell if the damper is mixing the outdoor air with the return air. The other alerts inform where the damper is stuck relative to the commanded position.

See Table 18 for economizer service analysis.

### ECONOMIZER CALIBRATION

For best accuracy of the damper actuator or if nuisance 700 alarms occur, a damper calibration should be performed. The damper calibration will drive the damper open then closed to find max and minimum values and correct its range of motion limits. The correction factors can be viewed after the calibration is done under the **SERVICE → CALIBRATION → ECON DAMPER CAL** menu.

To initiate an economizer calibration put the unit in test mode then turn on the Calibrate Damper (**SERVICE TEST → INDEPENDENTS → CALIBRATE DAMPER**). To ensure best performance, it is recommended that you readjust the actuator to the damper assembly. First power off unit (spring return the damper), loosen the actuator clamp, while pushing the outside air damper closed, tighten the clamp, and then perform the calibration. The calibration can take up to 5 minutes to complete and will inform you when completed. If any alerts were active for activated during the calibration, wait a few minutes to see if they go away. If not, using test mode open then close the damper to clear them, or reset alarms.

**Table 18 — Economizer Service Analysis**

PROBLEM	POSSIBLE CAUSE	REMEDY
<b>Damper Does Not Move.</b>	Indoor Fan is off.	Check for proper thermostat connection.
		Unit is not configured for continuous fan operation and the thermostat is not calling for heating or cooling.
		Unit is in Unoccupied mode and there is no call for heating or cooling.
		Tripped circuit breaker.
		No power to the unit.
		Unit is off via CCN command.
	Actuator is unplugged at motor or at economizer board.	Check wiring connections.
	Unit is not configured for economizer.	Configure unit for economizer per the instructions.
<b>Economizer Operation is Limited to Minimum Position.</b>	Outdoor-air temperature is above economizer high temperature lockout.	Adjust the high temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Outdoor-air temperature is below economizer low temperature lockout.	Adjust the low temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Damper is jammed.	Identify the obstruction and safely remove.
	Minimum position is set incorrectly.	Adjust minimum position setting.
	Outdoor-air temperature is above economizer high temperature lockout.	Adjust the high temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Outdoor-air temperature is below economizer low temperature lockout.	Adjust the low temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Enthalpy or differential dry bulb are preventing free cooling.	Check enthalpy and return air compared to outside air temperature.
<b>Economizer Position is Less Than Minimum Position.</b>	Outdoor-air thermistor is faulty.	Replace outdoor-air thermistor.
	Low suction pressure problem with a compressor.	Economizer is operating correctly, identify compressor problem.
	IAQ is controlling minimum damper position.	Adjust the IAQ settings if incorrect, otherwise, the economizer is operating correctly.
<b>Economizer Does Not Return to Minimum Position.</b>	Unit is in Unoccupied mode.	Adjust unit occupied schedule if incorrect, otherwise, economizer is operating correctly.
	Unit is operating under free cooling.	Economizer is operating correctly.
<b>Damper Does Not Close on Power Loss.</b>	Damper is jammed or spring return is backwards.	Identify the obstruction and safely remove.
<b>Economizer is Not at Configured Minimum Position</b>	Unit is operating under free cooling or a force is applied to the commanded position.	Economizer is operating correctly.

#### LEGEND

CCN — Carrier Comfort Network  
IAQ — Indoor Air Quality

## Heating Troubleshooting

Use the unit SystemVu Display or a CCN device to view the heating status display and the heating diagnostic display (see Appendices) for information on the heating operation. Check the current alarms and alarm history for any heating alarm codes and correct any causes. (See Table 14.) Verify any unique control configurations per installed site requirements or accessories. If alarms conditions are corrected and cleared, operation of the heat stages and indoor fan may be verified by using the Service Test mode. (See Table 4.)

### GAS HEAT (48JC UNITS)

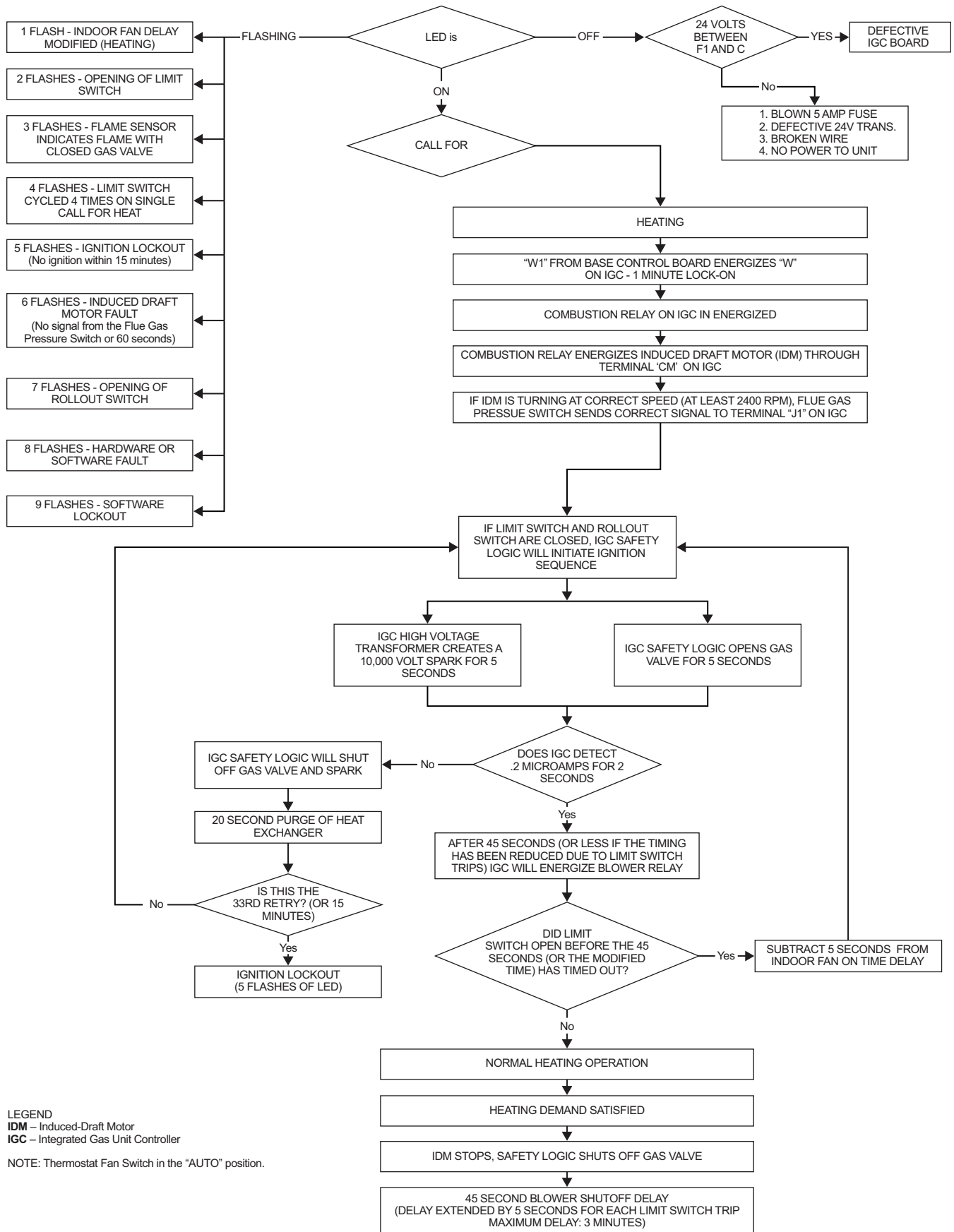
See Table 19 for general gas heating service analysis. See Fig. 16 for service analysis of the IGC board logic. Check the status LED on the IGC board for any flashing alarm codes and correct any causes. (See Table 20.)

### ELECTRIC HEAT (50JC UNITS)

See Table 21 for electric heating service analysis.

**Table 19 — Gas Heating Service Analysis**

PROBLEM	CAUSE	REMEDY
<b>Heat Will Not Turn On.</b>	Unit is NOT configured for heat.	Check heating configurations using the SystemVu Display.
<b>Burners Will Not Ignite.</b>	Active alarm.	Check active alarms using SystemVu Display and the IGC flash codes.
	No power to unit.	Check power supply, fuses, wiring, and circuit breakers.
	No power to IGC (Integrated Gas Control).	Check fuses and plugs.
	Heaters off due to time guard to prevent short cycling.	Check using SystemVu Display and the IGC flash codes.
	Thermostat or occupancy schedule set point not calling for Cooling.	Check using SystemVu Display.
	No gas at main burners.	Check gas line for air and purge as necessary. After purging gas line of air, allow gas to dissipate for at least 5 minutes before attempting to re-light unit.
	Water in gas line.	Drain water and install drip.
<b>Inadequate Heating.</b>	Dirty air filters.	Replace air filters.
	Gas input too low.	Check gas pressure at manifold. Refer to gas valve adjustment.
	Thermostat or occupancy schedule set point only calling for W1.	Allow time for W2 to energize or adjust setpoints.
	Unit undersized for load.	Decrease load or increase of size of unit.
	Restricted airflow.	Remove restriction. Check SAT compared to the SAT heating limits.
	Too much outdoor air.	Check economizer position and configuration. Adjust minimum position using SystemVu Display.
	Limit switch cycles main burners.	Check rotation of blower, thermostat heat anticipator settings, and temperature rise of unit. Adjust as needed.
<b>Poor Flame Characteristics.</b>	Incomplete combustion (lack of combustion air) results in: Aldehyde odors, CO, sooting flame, or floating flame.	Check all screws around flue outlets and burner compartment. Tighten as necessary.
		Cracked heat exchanger, replace.
		Unit is over-fired, reduce input. Adjust gas line or manifold pressure.
		Check vent for restriction. Clean as necessary.
<b>Burners Will Not Turn Off.</b>		Check orifice to burner alignment.
	Unit is in Minimum on-time.	Check using SystemVu Display and the IGC flash codes.
	Unit running in Service Test mode.	Check using SystemVu Display.
	Main gas valve stuck.	Turn off gas supply and unit power. Replace gas valve.



**Fig. 16 – IGC Service Analysis Logic**

**Table 20 — IGC Board LED Alarm Codes<sup>a,b,c,d</sup>**

LED FLASH CODE	DESCRIPTION	ACTION TAKEN BY CONTROL	RESET METHOD	PROBABLE CAUSE
<b>On</b>	Normal Operation	—	—	—
<b>Off</b>	Hardware Failure	No gas heating.	—	Loss of power to the IGC. Check 5 amp fuse on IGC, power to unit, 24V circuit breaker, transformer, and wiring to the IGC.
<b>1 Flash</b>	Indoor Fan On/Off Delay Modified	5 seconds subtracted from On delay. 5 seconds added to Off delay (3 min max).	Power reset.	High temperature limit switch opens during heat exchanger warm-up period before fan-on delay expires. High temperature limit switch opens within 10 minutes of heat call (W) Off. See Limit Switch Fault.
<b>2 Flashes</b>	Limit Switch Fault	Gas valve and igniter Off. Indoor fan and inducer On.	Limit switch closed, or heat call (W) Off.	High temperature limit switch is open. Check the operation of the indoor (evaporator) fan motor. Ensure that the supply-air temperature rise is within the range on the unit nameplate. Check wiring and limit switch operation.
<b>3 Flashes</b>	Flame Sense Fault	Indoor fan and inducer On.	Flame sense normal. Power reset for LED reset.	The IGC sensed a flame when the gas valve should be closed. Check wiring, flame sensor, and gas valve operation.
<b>4 Flashes</b>	Four Consecutive Limit Switch Fault	No gas heating.	Heat call (W) Off. Power reset for LED reset.	4 consecutive limit switch faults within a single call for heat. See Limit Switch Fault.
<b>5 Flashes</b>	Ignition Fault	No gas heating.	Heat call (W) Off. Power reset for LED reset.	Unit unsuccessfully attempted ignition for 15 minutes. Check igniter and flame sensor electrode spacing, gaps, etc. Check flame sense and igniter wiring. Check gas valve operation and gas supply.
<b>6 Flashes</b>	Induced Draft Motor Fault/Pressure Switch Fault	If heat off: no gas heating. If heat on: gas valve Off and inducer On.	Inducer sense normal, or heat call (W) Off.	Inducer sense On when heat call Off, or inducer sense Off when heat call On. Check wiring, voltage, and operation of IGC motor. Check Inducer Pressure Switch.
<b>7 Flashes</b>	Rollout Switch Lockout	Gas valve and igniter Off. Indoor fan and inducer On.	Power reset.	Rollout switch has opened. Check gas valve operation. Check induced-draft blower wheel is properly secured to motor shaft.
<b>8 Flashes</b>	Internal Control Lockout	No gas heating.	Power reset.	IGC has sensed internal hardware or software error. If fault is not cleared by resetting 24 v power, replace the IGC.
<b>9 Flashes</b>	Temporary Software Lockout	No gas heating.	1 hour auto reset, or power reset.	Electrical interference is disrupting the IGC software.

NOTE(S):

- a. There is a 3-second pause between alarm code displays.
- b. If more than one alarm code exists, all applicable alarm codes will be displayed in numerical sequence.
- c. Alarm codes on the IGC will be lost if power to the unit is interrupted.
- d. If the flue gas pressure switch is stuck shut on initial call for heat, no fault code will be displayed on IGC.

**LEGEND**

**IGC** — Integrated Gas Unit Control  
**LED** — Light-Emitting Diode

**Table 21 — Electric Heat Service Analysis**

PROBLEM	CAUSE	REMEDY
<b>Heat Will Not Turn On.</b>	Active alarm.	Check active alarms using SystemVu™ Display.
	Unit is NOT configured for heat.	Check heating configurations using the SystemVu Display
	No power to unit.	Check power supply, fuses, wiring, and circuit breakers.
	Unit is in minimum heat off-time, or minimum cool-heat changeover time.	Check using SystemVu Display.
	Thermostat or occupancy schedule setpoint not calling for heating.	Check using SystemVu Display.
	Heat forced off in Service Test mode.	Check using SystemVu Display. Turn Service Test mode off.
	No 24 VAC at heater contactor.	Check transformer and circuit breaker.
		Check auto-reset limit switches on heater.
		Check manual-reset limit switch (LS) on indoor fan housing.
	Open temperature limit switch on heater.	Check minimum airflow. Check limit switch when it is cool, replace if open.
<b>Inadequate Heating.</b>	Dirty air filters.	Replace air filters.
	Thermostat or occupancy schedule setpoint only calling for W1.	Allow time for W2 to energize or adjust setpoints.
	Heat undersized for load.	Decrease load or increase size of heater.
	Restricted airflow	Remove restriction. Check SAT compared to the SAT heating limits.
	Too much outdoor air.	Check economizer position and configuration. Adjust minimum position.
	Limit switch cycles heaters.	Check rotation of blower and minimum airflow.
	Bad heater elements.	Power off unit and remove high voltage wires. Check resistance of element, replace if open.
<b>Heat Will Not Turn Off.</b>	Unit is in minimum heat on-time.	Check using SystemVu Display.
	Thermostat or occupancy schedule setpoint still calling for heating.	Check using SystemVu Display.
	Heat forced on in Service Test mode.	Check using SystemVu Display. Turn Service Test mode off.
	Heater contactor failed.	Power off unit. Check contactor and replace if closed.



## Phase Protection

The phase loss protection option will monitor the three-phase electrical system to provide phase reversal and phase loss protection.

### PHASE REVERSAL PROTECTION

If the control senses an incorrect phase relationship, the relay (K1) will be de-energized (opening its contact). If the phase relationship is correct, the relay will be energized. The control has a self-bypass function after a pre-set time. If the control determines that the three phases stay in a correct relationship for 10 consecutive minutes, the relay will stay energized regardless of the phase sequence of three inputs as long as 24-VAC control voltage is applied. This self-bypass function will be reset if all three phases are restored in a phase loss event.

### PHASE LOSS PROTECTION

If the reverse rotation board senses any one of the three phase inputs has no AC voltage, the relay will be de-energized (opening its contact). This protection is always active as long as 24-VAC control voltage is applied, and is not affected by the self by-pass function of the phase sequence monitoring function. However, in the event of phase loss, the relay will be re-energized only if all three phases are restored and the three phases are in the correct sequence.

A red LED is provided to indicate the function of the board. See the following table.

LED STATUS	FUNCTION
<b>On Continuously</b>	Relay contact closed (normal operation).
<b>Blinking</b>	Relay contact open (phase loss or phase reversal has occurred) — No power will be supplied to the control system.
<b>Off</b>	24-VAC control power not present (off).

NOTE: Low control voltage levels (below 24 VAC) to the MBB can cause a wide variety of nuisance alarms alerts and faults. If multiple nuisance conditions are observed check the primary and secondary voltage for the control voltage transformer serving the MBB. 208/230 volt units should be checked for correct control voltage transformer wiring per the installation instructions.

In addition, please note that this product requires a stable three-phase Wye power supply for optimal operation. Other types of power supplies may result in unreliable unit performance or premature component failures.

## Thermistor Troubleshooting

The SystemVu controller uses thermistors to sense temperatures used to control operation of the unit. Resistances at various temperatures are listed in Table 22. Thermistor pin connection points are shown in the Major System Components section. The general locations of the thermistors are shown the Major System Components section.

### AIR TEMPERATURES

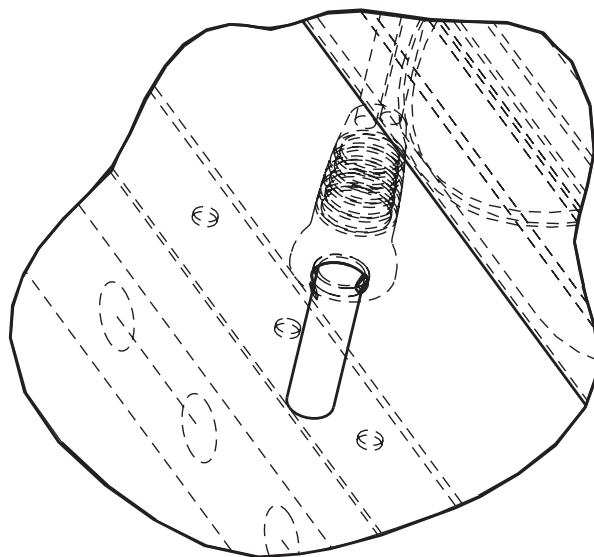
Air temperatures are measured with 10K thermistors. This includes supply-air temperature (SAT), outdoor-air temperature (OAT), space temperature sensors (T55, T56, T59), and return air temperature (RAT).

The supply air temperature (SAT) and outdoor air temperature (OAT) thermistors use a snap-mount to attach through the unit sheet metal panels. The snap-mount tabs must be flattened on the tip end of the sensor to release for removal from the panel. (See Fig. 17.) To reinstall, make sure the snap-mount tabs extend out.

### THERMISTOR/TEMPERATURE SENSOR CHECK

A digital volt-ohmmeter is required to perform this check.

Connect the digital volt-ohmmeter across the appropriate thermistor terminals at the J8 connector on the Main Base Board (see Major System Components section). Using the voltage reading obtained, read the sensor temperature from Table 22 (on page 46).



**Fig. 17 — SAT and OAT Thermistor Mounting**

To check thermistor accuracy, measure temperature at probe location with an accurate thermocouple-type temperature-measuring instrument. Insulate thermocouple to avoid ambient temperatures from influencing reading. Temperature measured by thermocouple and temperature determined from thermistor voltage reading should be close, within 5°F if care was taken in applying thermocouple and taking readings.

If a more accurate check is required, unit must be shut down and thermistor removed and checked at a known temperature (freezing point or boiling point of water) using either voltage drop measured across thermistor at the J8 connector, or by determining the resistance with unit shut down and thermistor disconnected from J8. Compare the values determined with the value read by the control in the Temperatures mode using the SystemVu display.

### Sensor Trim

Corrective offsets can be applied to all the analog inputs. Trim can be used as a form of calibration. The trim works by adding or subtracting the specified amount on the specified analog input. These corrections should only be used when a proper calibrated tool is used to compare to the sensors reading. These corrections are only applied to the local sensor values, a building systems (BAS) communicating values will not account for these corrections. Use the **SERVICE** → **CALIBRATION** menu on the SystemVu Display to adjust these values.

### Transducer Troubleshooting

The electronic control uses suction and discharge pressure transducers to measure the pressure of the refrigerant circuits. The pressure/voltage characteristics of these transducers are in shown in Table 23 (on page 47) for suction transducers and Table 24 (on pages 49-51) for discharge transducers. The 5vdc power is applied to legs A and B of the transducer and legs B to C represent the signal voltage. To use the voltage drop table for troubleshooting, read the voltage across A and B, then subtract the voltage reading from B to C. The voltage drop can be looked up in Table 23 and Table 24 depending on the type of transducer. The accuracy of these transducers can be verified by connecting an accurate pressure gauge to the second refrigerant port in the suction and discharge lines.

**Table 22 — Temperature (°F) vs Resistance/Voltage Drop Values for OAT, RAT, SAT, and SPT Thermistors  
(10K at 25°C Type II Resistors)**

TEMP (°F)	RESISTANCE (Ohms)	VOLTAGE DROP (V)	TEMP (°F)	RESISTANCE (Ohms)	VOLTAGE DROP (V)	TEMP (°F)	RESISTANCE (Ohms)	VOLTAGE DROP (V)
-25	196,453	4.758	41	25,396	3.587	107	4,984	1.663
-24	189,692	4.750	42	24,715	3.559	108	4,876	1.639
-23	183,300	4.741	43	24,042	3.531	109	4,769	1.615
-22	177,000	4.733	44	23,399	3.503	110	4,666	1.591
-21	171,079	4.724	45	22,770	3.474	111	4,564	1.567
-20	165,238	4.715	46	22,161	3.445	112	4,467	1.544
-19	159,717	4.705	47	21,573	3.416	113	4,370	1.521
-18	154,344	4.696	48	20,998	3.387	114	4,277	1.498
-17	149,194	4.686	49	20,447	3.357	115	4,185	1.475
-16	144,250	4.676	50	19,903	3.328	116	4,096	1.453
-15	139,443	4.665	51	19,386	3.298	117	4,008	1.431
-14	134,891	4.655	52	18,874	3.268	118	3,923	1.409
-13	130,402	4.644	53	18,384	3.238	119	3,840	1.387
-12	126,183	4.633	54	17,904	3.208	120	3,759	1.366
-11	122,018	4.621	55	17,441	3.178	121	3,681	1.345
-10	118,076	4.609	56	16,991	3.147	122	3,603	1.324
-9	114,236	4.597	57	16,552	3.117	123	3,529	1.304
-8	110,549	4.585	58	16,131	3.086	124	3,455	1.284
-7	107,006	4.572	59	15,714	3.056	125	3,383	1.264
-6	103,558	4.560	60	15,317	3.025	126	3,313	1.244
-5	100,287	4.546	61	14,925	2.994	127	3,244	1.225
-4	97,060	4.533	62	14,549	2.963	128	3,178	1.206
-3	94,020	4.519	63	14,180	2.932	129	3,112	1.187
-2	91,019	4.505	64	13,824	2.901	130	3,049	1.168
-1	88,171	4.490	65	13,478	2.870	131	2,986	1.150
0	85,396	4.476	66	13,139	2.839	132	2,926	1.132
1	82,729	4.461	67	12,814	2.808	133	2,866	1.114
2	80,162	4.445	68	12,493	2.777	134	2,809	1.096
3	77,662	4.429	69	12,187	2.746	135	2,752	1.079
4	75,286	4.413	70	11,884	2.715	136	2,697	1.062
5	72,940	4.397	71	11,593	2.684	137	2,643	1.045
6	70,727	4.380	72	11,308	2.653	138	2,590	1.028
7	68,542	4.363	73	11,031	2.622	139	2,539	1.012
8	66,465	4.346	74	10,764	2.592	140	2,488	0.996
9	64,439	4.328	75	10,501	2.561	141	2,439	0.980
10	62,491	4.310	76	10,249	2.530	142	2,391	0.965
11	60,612	4.292	77	10,000	2.500	143	2,343	0.949
12	58,781	4.273	78	9,762	2.470	144	2,297	0.934
13	57,039	4.254	79	9,526	2.439	145	2,253	0.919
14	55,319	4.235	80	9,300	2.409	146	2,209	0.905
15	53,693	4.215	81	9,078	2.379	147	2,166	0.890
16	52,086	4.195	82	8,862	2.349	148	2,124	0.876
17	50,557	4.174	83	8,653	2.319	149	2,083	0.862
18	49,065	4.153	84	8,448	2.290	150	2,043	0.848
19	47,627	4.132	85	8,251	2.260	151	2,003	0.835
20	46,240	4.111	86	8,056	2.231	152	1,966	0.821
21	44,888	4.089	87	7,869	2.202	153	1,928	0.808
22	43,598	4.067	88	7,685	2.173	154	1,891	0.795
23	42,324	4.044	89	7,507	2.144	155	1,855	0.782
24	41,118	4.021	90	7,333	2.115	156	1,820	0.770
25	39,926	3.998	91	7,165	2.087	157	1,786	0.758
26	38,790	3.975	92	6,999	2.059	158	1,752	0.745
27	37,681	3.951	93	6,838	2.030	159	1,719	0.733
28	36,610	3.927	94	6,683	2.003	160	1,687	0.722
29	35,577	3.903	95	6,530	1.975	161	1,656	0.710
30	34,569	3.878	96	6,383	1.948	162	1,625	0.699
31	33,606	3.853	97	6,238	1.921	163	1,594	0.687
32	32,654	3.828	98	6,098	1.894	164	1,565	0.676
33	31,752	3.802	99	5,961	1.867	165	1,536	0.666
34	30,860	3.776	100	5,827	1.841	166	1,508	0.655
35	30,009	3.750	101	5,698	1.815	167	1,480	0.645
36	29,177	3.723	102	5,571	1.789	168	1,453	0.634
37	28,373	3.697	103	5,449	1.763	169	1,426	0.624
38	27,597	3.670	104	5,327	1.738	170	1,400	0.614
39	26,838	3.654	105	5,210	1.713	171	1,375	0.604
40	26,113	3.615	106	5,095	1.688	172	1,375	0.595

**Table 22 — Temperature (°F) vs Resistance/Voltage Drop Values for OAT, RAT, SAT, and SPT Thermistors (10K at 25°C Type II Resistors) (cont)**

TEMP (°F)	RESISTANCE (Ohms)	VOLTAGE DROP (V)	TEMP (°F)	RESISTANCE (Ohms)	VOLTAGE DROP (V)	TEMP (°F)	RESISTANCE (Ohms)	VOLTAGE DROP (V)
173	1,326	0.585	191	964	0.440	209	714	0.333
174	1,302	0.576	192	947	0.433	210	702	0.328
175	1,278	0.567	193	931	0.426	211	691	0.323
176	1,255	0.558	194	915	0.419	212	680	0.318
177	1,233	0.549	195	900	0.413	213	670	0.314
178	1,211	0.540	196	885	0.407	214	659	0.309
179	1,190	0.532	197	870	0.400	215	649	0.305
180	1,169	0.523	198	855	0.394	216	639	0.300
181	1,148	0.515	199	841	0.388	217	629	0.296
182	1,128	0.507	200	827	0.382	218	620	0.292
183	1,108	0.499	201	814	0.376	219	610	0.288
184	1,089	0.491	202	800	0.370	220	601	0.284
185	1,070	0.483	203	787	0.365	221	592	0.279
186	1,052	0.476	204	774	0.359	222	583	0.275
187	1,033	0.468	205	762	0.354	223	574	0.272
188	1,016	0.461	206	749	0.349	224	566	0.268
189	998	0.454	207	737	0.343	225	557	0.264
190	981	0.447	208	725	0.338			

**Table 23 — Pressure (psig) vs. Voltage Drop Values for Suction Pressure Transducers**

PRESSURE (psig)	VOLTAGE DROP (V)	PRESSURE (psig)	VOLTAGE DROP (V)	PRESSURE (psig)	VOLTAGE DROP (V)	PRESSURE (psig)	VOLTAGE DROP (V)
0	0.466	43	0.889	86	1.312	129	1.736
1	0.476	44	0.899	87	1.322	130	1.745
2	0.486	45	0.909	88	1.332	131	1.755
3	0.495	46	0.919	89	1.342	132	1.765
4	0.505	47	0.928	90	1.352	133	1.775
5	0.515	48	0.938	91	1.362	134	1.785
6	0.525	49	0.948	92	1.371	135	1.795
7	0.535	50	0.958	93	1.381	136	1.805
8	0.545	51	0.968	94	1.391	137	1.814
9	0.554	52	0.978	95	1.401	138	1.824
10	0.564	53	0.988	96	1.411	139	1.834
11	0.574	54	0.997	97	1.421	140	1.844
12	0.584	55	1.007	98	1.430	141	1.854
13	0.594	56	1.017	99	1.440	142	1.864
14	0.604	57	1.027	100	1.450	143	1.873
15	0.614	58	1.037	101	1.460	144	1.883
16	0.623	59	1.047	102	1.470	145	1.893
17	0.633	60	1.056	103	1.480	146	1.903
18	0.643	61	1.066	104	1.490	147	1.913
19	0.653	62	1.076	105	1.499	148	1.923
20	0.663	63	1.086	106	1.509	149	1.932
21	0.673	64	1.096	107	1.519	150	1.942
22	0.682	65	1.106	108	1.529	151	1.952
23	0.692	66	1.116	109	1.539	152	1.962
24	0.702	67	1.125	110	1.549	153	1.972
25	0.712	68	1.135	111	1.558	154	1.982
26	0.722	69	1.145	112	1.568	155	1.992
27	0.732	70	1.155	113	1.578	156	2.001
28	0.741	71	1.165	114	1.588	157	2.011
29	0.751	72	1.175	115	1.598	158	2.021
30	0.761	73	1.184	116	1.608	159	2.031
31	0.771	74	1.194	117	1.618	160	2.041
32	0.781	75	1.204	118	1.627	161	2.051
33	0.791	76	1.214	119	1.637	162	2.060
34	0.801	77	1.224	120	1.647	163	2.070
35	0.810	78	1.234	121	1.657	164	2.080
36	0.820	79	1.243	122	1.667	165	2.090
37	0.830	80	1.253	123	1.677	166	2.100
38	0.840	81	1.263	124	1.686	167	2.110
39	0.850	82	1.273	125	1.696	168	2.120
40	0.860	83	1.283	126	1.706	169	2.129
41	0.869	84	1.293	127	1.716	170	2.139
42	0.879	85	1.303	128	1.726	171	2.149

**Table 23 — Pressure (psig) vs. Voltage Drop Values for Suction Pressure Transducers (cont)**

<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>
172	2.159	235	2.779	297	3.389	359	4.000
173	2.169	236	2.789	298	3.399	360	4.009
174	2.179	237	2.799	299	3.409	361	4.019
175	2.188	238	2.809	300	3.419	362	4.029
176	2.198	239	2.818	301	3.429	363	4.039
177	2.208	240	2.828	302	3.438	364	4.049
178	2.218	241	2.838	303	3.448	365	4.059
179	2.228	242	2.848	304	3.458	366	4.068
180	2.238	243	2.858	305	3.468	367	4.078
181	2.247	244	2.868	306	3.478	368	4.088
182	2.257	245	2.877	307	3.488	369	4.098
183	2.267	246	2.887	308	3.498	370	4.108
184	2.277	247	2.897	309	3.507	371	4.118
185	2.287	248	2.907	310	3.517	372	4.128
186	2.297	249	2.917	311	3.527	373	4.137
187	2.307	250	2.927	312	3.537	374	4.147
188	2.316	251	2.936	313	3.547	375	4.157
189	2.326	252	2.946	314	3.557	376	4.167
190	2.336	253	2.956	315	3.566	377	4.177
191	2.346	254	2.966	316	3.576	378	4.187
192	2.356	255	2.976	317	3.586	379	4.196
193	2.366	256	2.986	318	3.596	380	4.206
194	2.375	257	2.996	319	3.606	381	4.216
195	2.385	258	3.005	320	3.616	382	4.226
196	2.395	259	3.015	321	3.626	383	4.236
197	2.405	260	3.025	322	3.635	384	4.246
198	2.415	261	3.035	323	3.645	385	4.255
199	2.425	262	3.045	324	3.655	386	4.265
200	2.434	263	3.055	325	3.665	387	4.275
201	2.444	264	3.064	326	3.675	388	4.285
202	2.454	265	3.074	327	3.685	389	4.295
203	2.464	266	3.084	328	3.694	390	4.305
204	2.474	267	3.094	329	3.704	391	4.315
205	2.484	268	3.104	330	3.714	392	4.324
206	2.494	269	3.114	331	3.724	393	4.334
207	2.503	270	3.124	332	3.734	394	4.344
208	2.513	271	3.133	333	3.744	395	4.354
209	2.523	272	3.143	334	3.753	396	4.364
210	2.533	273	3.153	335	3.763	397	4.374
211	2.543	274	3.163	336	3.773	398	4.383
212	2.553	275	3.173	337	3.783	399	4.393
213	2.562	276	3.183	338	3.793	400	4.403
214	2.572	277	3.192	339	3.803	401	4.413
215	2.582	278	3.202	340	3.813	402	4.423
216	2.592	279	3.212	341	3.822	403	4.433
217	2.602	280	3.222	342	3.832	404	4.442
218	2.612	281	3.232	343	3.842	405	4.452
219	2.622	282	3.242	344	3.852	406	4.462
220	2.631	283	3.251	345	3.862	407	4.472
221	2.641	284	3.261	346	3.872	408	4.482
222	2.651	285	3.271	347	3.881	409	4.492
223	2.661	286	3.281	348	3.891	410	4.502
224	2.671	287	3.291	349	3.901	411	4.511
225	2.681	288	3.301	350	3.911	412	4.521
226	2.690	289	3.311	351	3.921	413	4.531
227	2.700	290	3.320	352	3.931	414	4.541
228	2.710	291	3.330	353	3.940	415	4.551
229	2.720	292	3.340	354	3.950	416	4.561
230	2.730	293	3.350	355	3.960	417	4.570
231	2.740	294	3.360	356	3.970	418	4.580
232	2.749	295	3.370	357	3.980	419	4.590
233	2.759	296	3.379	358	3.990	420	4.600
234	2.769						

**Table 24 — Discharge Pressure Transducer (psig) vs. Voltage**

<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>
14.5	0.500	81	0.908	148	1.318	215	1.729
16	0.509	82	0.914	149	1.325	216	1.735
17	0.515	83	0.920	150	1.331	217	1.741
18	0.521	84	0.926	151	1.337	218	1.747
19	0.528	85	0.932	152	1.343	219	1.754
20	0.534	86	0.938	153	1.349	220	1.760
21	0.540	87	0.944	154	1.355	221	1.766
22	0.546	88	0.951	155	1.361	222	1.772
23	0.552	89	0.957	156	1.367	223	1.778
24	0.558	90	0.963	157	1.374	224	1.784
25	0.564	91	0.969	158	1.380	225	1.790
26	0.570	92	0.975	159	1.386	226	1.797
27	0.577	93	0.981	160	1.392	227	1.803
28	0.583	94	0.987	161	1.398	228	1.809
29	0.589	95	0.993	162	1.404	229	1.815
30	0.595	96	1.000	163	1.410	230	1.821
31	0.601	97	1.006	164	1.416	231	1.827
32	0.607	98	1.012	165	1.423	232	1.833
33	0.613	99	1.018	166	1.429	233	1.839
34	0.620	100	1.024	167	1.435	234	1.846
35	0.626	101	1.030	168	1.441	235	1.852
35	0.626	102	1.036	169	1.447	236	1.858
36	0.632	103	1.043	170	1.453	237	1.864
37	0.638	104	1.049	171	1.459	238	1.870
38	0.644	105	1.055	172	1.466	239	1.876
39	0.650	106	1.061	173	1.472	240	1.882
40	0.656	107	1.067	174	1.478	241	1.888
41	0.662	108	1.073	175	1.484	242	1.895
42	0.669	109	1.079	176	1.490	243	1.901
43	0.675	110	1.085	177	1.496	244	1.907
44	0.681	111	1.092	178	1.502	245	1.913
45	0.687	112	1.098	179	1.508	246	1.919
46	0.693	113	1.104	180	1.515	247	1.925
47	0.699	114	1.110	181	1.521	248	1.931
48	0.705	115	1.116	182	1.527	249	1.938
49	0.711	116	1.122	183	1.533	250	1.944
50	0.718	117	1.128	184	1.539	251	1.950
51	0.724	118	1.134	185	1.545	252	1.956
52	0.730	119	1.141	186	1.551	253	1.962
53	0.736	120	1.147	187	1.557	254	1.968
54	0.742	121	1.153	188	1.564	255	1.974
55	0.748	122	1.159	189	1.570	256	1.980
56	0.754	123	1.165	190	1.576	257	1.987
57	0.761	124	1.171	191	1.582	258	1.993
58	0.767	125	1.177	192	1.588	259	1.999
59	0.773	126	1.184	193	1.594	260	2.005
60	0.779	127	1.190	194	1.600	261	2.011
61	0.785	128	1.196	195	1.606	262	2.017
62	0.791	129	1.202	196	1.613	263	2.023
63	0.797	130	1.208	197	1.619	264	2.029
64	0.803	131	1.214	198	1.625	265	2.036
65	0.810	132	1.220	199	1.631	266	2.042
66	0.816	133	1.226	200	1.637	267	2.048
67	0.822	134	1.233	201	1.643	268	2.054
68	0.828	135	1.239	202	1.649	269	2.060
69	0.834	136	1.245	203	1.656	270	2.066
70	0.840	137	1.251	204	1.662	271	2.072
71	0.846	138	1.257	205	1.668	272	2.079
72	0.852	139	1.263	206	1.674	273	2.085
73	0.859	140	1.269	207	1.680	274	2.091
74	0.865	141	1.275	208	1.686	275	2.097
75	0.871	142	1.282	209	1.692	276	2.103
76	0.877	143	1.288	210	1.698	277	2.109
77	0.883	144	1.294	211	1.705	278	2.115
78	0.889	145	1.300	212	1.711	279	2.121
79	0.895	146	1.306	213	1.717	280	2.128
80	0.902	147	1.312	214	1.723	281	2.134

**Table 24 — Discharge Pressure Transducer (psig) vs. Voltage (cont)**

<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>	<b>PRESSURE (psig)</b>	<b>VOLTAGE DROP (V)</b>
282	2.140	350	2.557	418	2.974	486	3.390
283	2.146	351	2.563	419	2.980	487	3.397
284	2.152	352	2.569	420	2.986	488	3.403
285	2.158	353	2.575	421	2.992	489	3.409
286	2.164	354	2.581	422	2.998	490	3.415
287	2.170	355	2.587	423	3.004	491	3.421
288	2.177	356	2.593	424	3.010	492	3.427
289	2.183	357	2.600	425	3.016	493	3.433
290	2.189	358	2.606	426	3.023	494	3.439
291	2.195	359	2.612	427	3.029	495	3.446
292	2.201	360	2.618	428	3.035	496	3.452
293	2.207	361	2.624	429	3.041	497	3.458
294	2.213	362	2.630	430	3.047	498	3.464
295	2.220	363	2.636	431	3.053	499	3.470
296	2.226	364	2.643	432	3.059	500	3.476
297	2.232	365	2.649	433	3.066	501	3.482
298	2.238	366	2.655	434	3.072	502	3.488
299	2.244	367	2.661	435	3.078	503	3.495
300	2.250	368	2.667	436	3.084	504	3.501
301	2.256	369	2.673	437	3.090	505	3.507
302	2.262	370	2.679	438	3.096	506	3.513
303	2.269	371	2.685	439	3.102	507	3.519
304	2.275	372	2.692	440	3.108	508	3.525
305	2.281	373	2.698	441	3.115	509	3.531
306	2.287	374	2.704	442	3.121	510	3.538
307	2.293	375	2.710	443	3.127	511	3.544
308	2.299	376	2.716	444	3.133	512	3.550
309	2.305	377	2.722	445	3.139	513	3.556
310	2.311	378	2.728	446	3.145	514	3.562
311	2.318	379	2.734	447	3.151	515	3.568
312	2.324	380	2.741	448	3.157	516	3.574
313	2.330	381	2.747	449	3.164	517	3.580
314	2.336	382	2.753	450	3.170	518	3.587
315	2.342	383	2.759	451	3.176	519	3.593
316	2.348	384	2.765	452	3.182	520	3.599
317	2.354	385	2.771	453	3.188	521	3.605
318	2.361	386	2.777	454	3.194	522	3.611
319	2.367	387	2.784	455	3.200	523	3.617
320	2.373	388	2.790	456	3.206	524	3.623
321	2.379	389	2.796	457	3.213	525	3.629
322	2.385	390	2.802	458	3.219	526	3.636
323	2.391	391	2.808	459	3.225	527	3.642
324	2.397	392	2.814	460	3.231	528	3.648
325	2.403	393	2.820	461	3.237	529	3.654
326	2.410	394	2.826	462	3.243	530	3.660
327	2.416	395	2.833	463	3.249	531	3.666
328	2.422	396	2.839	464	3.256	532	3.672
329	2.428	397	2.845	465	3.262	533	3.679
330	2.434	398	2.851	466	3.268	534	3.685
331	2.440	399	2.857	467	3.274	535	3.691
332	2.446	400	2.863	468	3.280	536	3.697
333	2.452	401	2.869	469	3.286	537	3.703
334	2.459	402	2.875	470	3.292	538	3.709
335	2.465	403	2.882	471	3.298	539	3.715
336	2.471	404	2.888	472	3.305	540	3.721
337	2.477	405	2.894	473	3.311	541	3.728
338	2.483	406	2.900	474	3.317	542	3.734
339	2.489	407	2.906	475	3.323	543	3.740
340	2.495	408	2.912	476	3.329	544	3.746
341	2.502	409	2.918	477	3.335	545	3.752
342	2.508	410	2.925	478	3.341	546	3.758
343	2.514	411	2.931	479	3.347	547	3.764
344	2.520	412	2.937	480	3.354	548	3.770
345	2.526	413	2.943	481	3.360	549	3.777
346	2.532	414	2.949	482	3.366	550	3.783
347	2.538	415	2.955	483	3.372	551	3.789
348	2.544	416	2.961	484	3.378	552	3.795
349	2.551	417	2.967	485	3.384	553	3.801



**Table 24 — Discharge Pressure Transducer (psig) vs. Voltage (cont)**

PRESSURE (psig)	VOLTAGE DROP (V)	PRESSURE (psig)	VOLTAGE DROP (V)	PRESSURE (psig)	VOLTAGE DROP (V)	PRESSURE (psig)	VOLTAGE DROP (V)
554	3.807	583	3.985	612	4.163	641	4.341
555	3.813	584	3.991	613	4.169	642	4.347
556	3.820	585	3.997	614	4.175	643	4.353
557	3.826	586	4.003	615	4.181	644	4.359
558	3.832	587	4.010	616	4.187	645	4.365
559	3.838	588	4.016	617	4.193	646	4.371
560	3.844	589	4.022	618	4.200	647	4.377
561	3.850	590	4.028	619	4.206	648	4.384
562	3.856	591	4.034	620	4.212	649	4.390
563	3.862	592	4.040	621	4.218	650	4.396
564	3.869	593	4.046	622	4.224	651	4.402
565	3.875	594	4.052	623	4.230	652	4.408
566	3.881	595	4.059	624	4.236	653	4.414
567	3.887	596	4.065	625	4.243	654	4.420
568	3.893	597	4.071	626	4.249	655	4.426
569	3.899	598	4.077	627	4.255	656	4.433
570	3.905	599	4.083	628	4.261	657	4.439
571	3.911	600	4.089	629	4.267	658	4.445
572	3.918	601	4.095	630	4.273	659	4.451
573	3.924	602	4.102	631	4.279	660	4.457
574	3.930	603	4.108	632	4.285	661	4.463
575	3.936	604	4.114	633	4.292	662	4.469
576	3.942	605	4.120	634	4.298	663	4.475
577	3.948	606	4.126	635	4.304	664	4.482
578	3.954	607	4.132	636	4.310	665	4.488
579	3.961	608	4.138	637	4.316	666	4.494
580	3.967	609	4.144	638	4.322	667	4.500
581	3.973	610	4.151	639	4.328		
582	3.979	611	4.157	640	4.334		

## RESTORE FACTORY DEFAULTS

Incorrect software configurations can cause nuisance alarms and erratic unit behavior. In the event that an improper software configuration is suspected, the software settings can be restored to factory defaults as follows:

1. Record all network settings and TAB settings as needed.
2. Verify model and serial number are exactly the same as on the control box label. The model number must have all letters and NO dashes in it. The model and serial can be viewed as follows: **MAIN MENU → SERVICE → UNIT INFORMATION**.
  - a. If the model and serial are NOT correct, correct them as follows: **MAIN MENU → SERVICE → ADVANCED SERVICE → EDIT MODEL NUMBER/EDIT SERIAL NUMBER**.
3. Restore Factory Defaults as follows: **MAIN MENU → SERVICE → ADVANCED SERVICE → RESTORE DEFAULTS → KEEP CONFIGS = N**.

The process takes several minutes. When completed if you did not keep configs, you will need to re-enter BAS, TAB, etc. settings.

## MAJOR SYSTEM COMPONENTS

### General

The 48/50JC single package rooftop units are equipped with SystemVu electronic control system that monitors all operations of the rooftop. The control system is composed of several main control components and available factory-installed options or field-installed accessories as listed in sections below. See Fig. 18-23 for examples of typical control and power schematics.

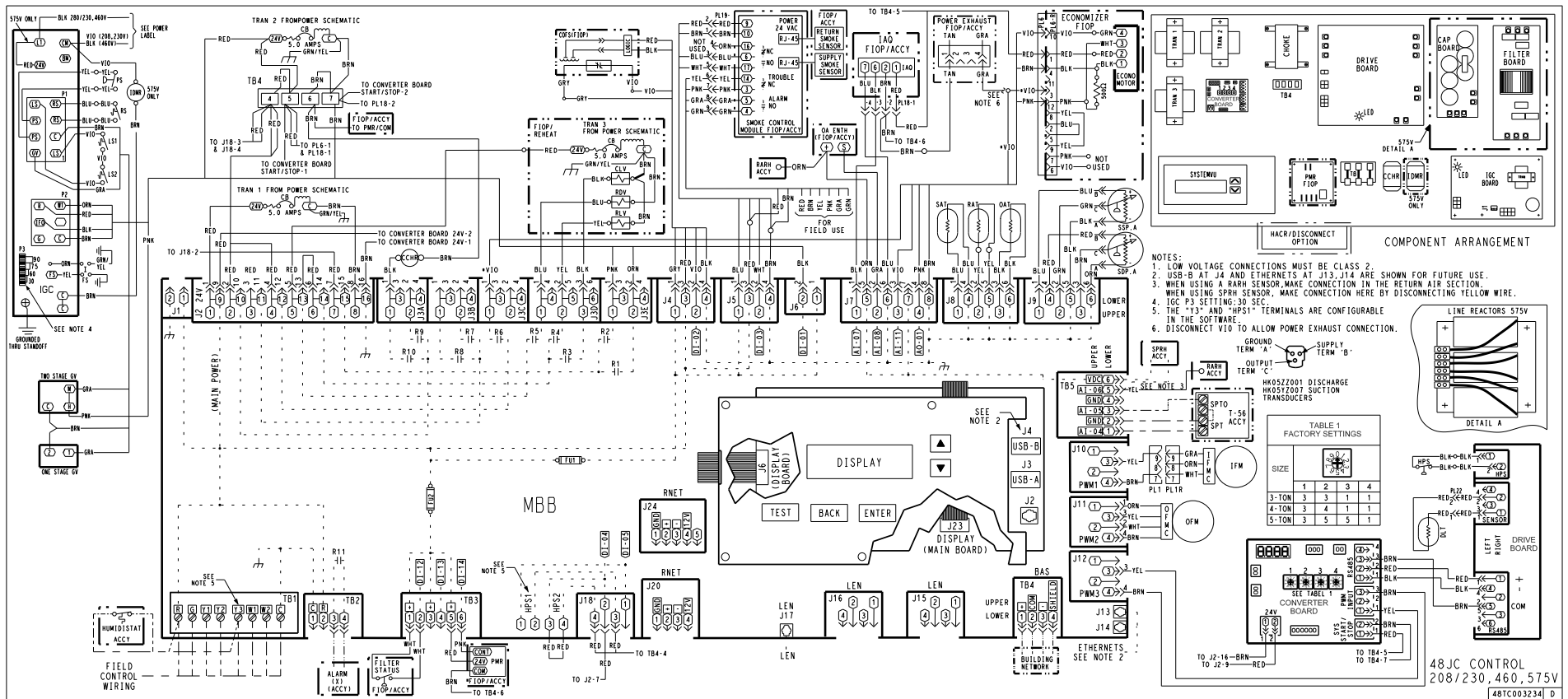


Fig. 18 — 48JC 04-06 SystemVu Control Schematic

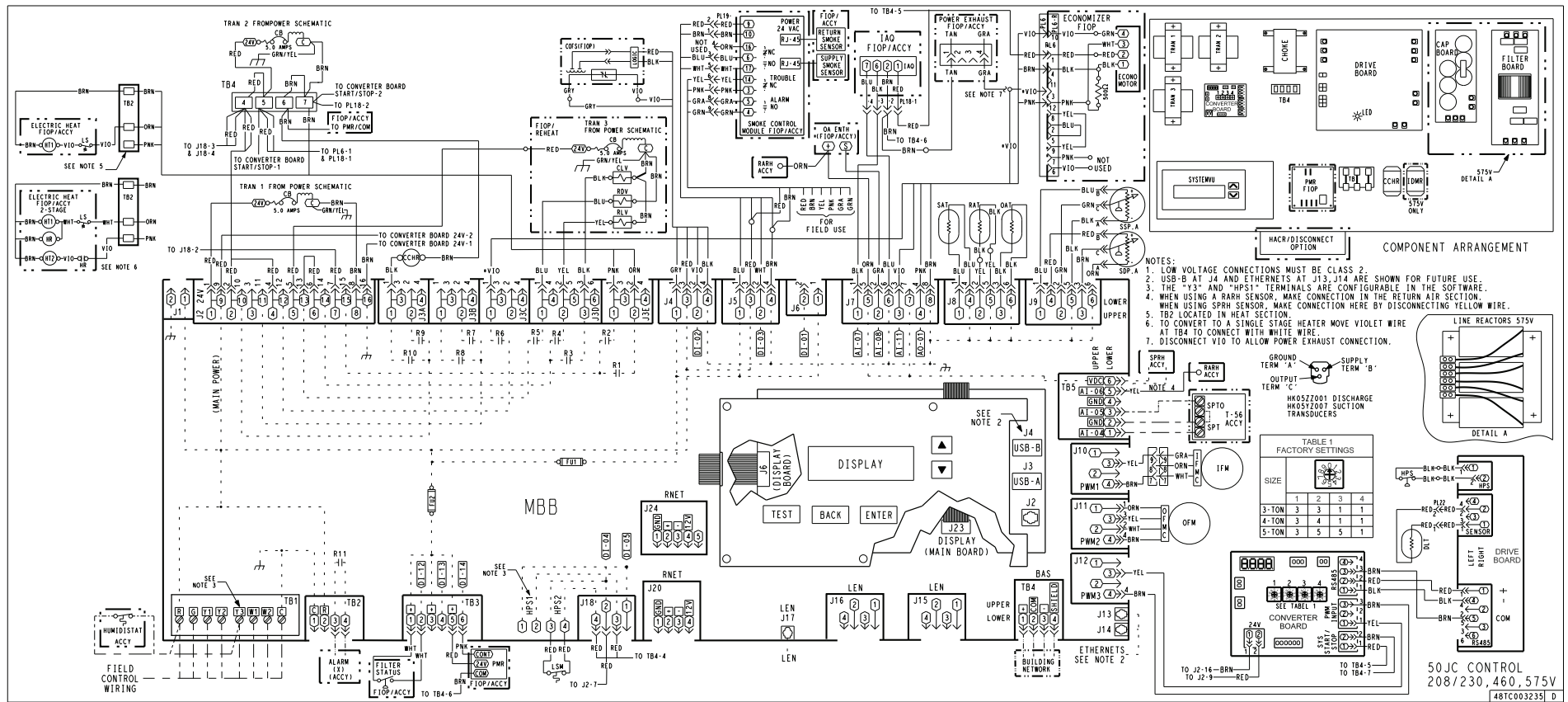
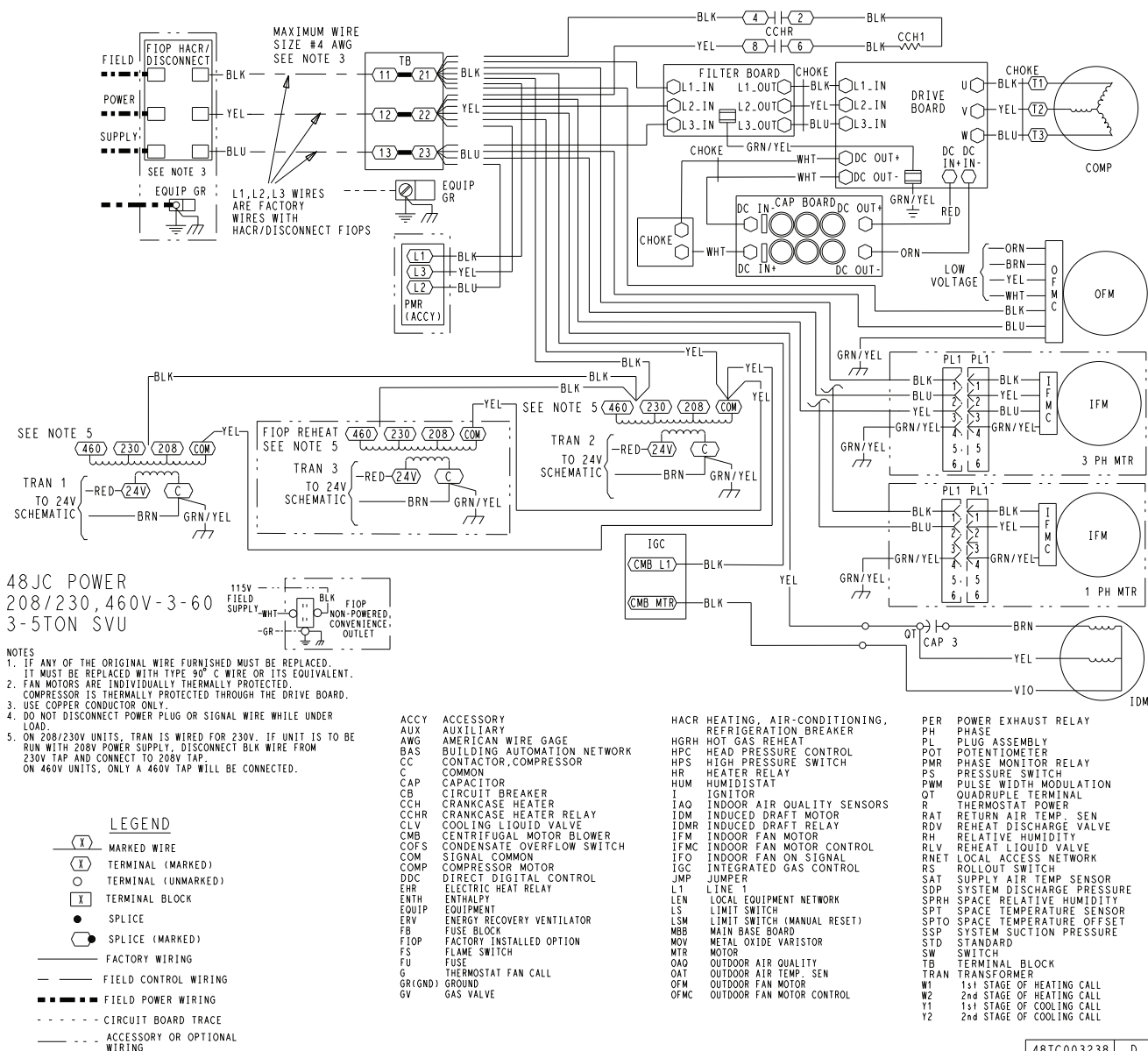


Fig. 19 — 50JC 04-06 SystemVu Control Schematic



**Fig. 20 — 48JC 04-06 SystemVu Power Schematic (208/230, 460V-3-60 unit shown)**

48JC POWER  
575V-3-60  
3-5TON SVU

#### NOTES

1. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90° C WIRE OR ITS EQUIVALENT.
2. FAN MOTORS ARE INDIVIDUALLY THERMALLY PROTECTED. COMPRESSOR IS THERMALLY PROTECTED THROUGH THE DRIVE BOARD.
3. USE COPPER CONDUCTOR ONLY.
4. DO NOT DISCONNECT POWER PLUG OR SIGNAL WIRE WHILE UNDER LOAD.
5. THESE FUSES ARE MANUFACTURED BY COOPER BUSSMANN, P/N - FNO-R-1.

#### LEGEND

(X)	MARKED WIRE
(X)	TERMINAL (MARKED)
( )	TERMINAL (UNMARKED)
(X)	TERMINAL BLOCK
•	SPLICE
○	SPLICE (MARKED)
---	FACTORY WIRING
- - -	FIELD CONTROL WIRING
- - -	FIELD POWER WIRING
- - -	CIRCUIT BOARD TRACE
- - -	ACCESSORY OR OPTIONAL WIRING

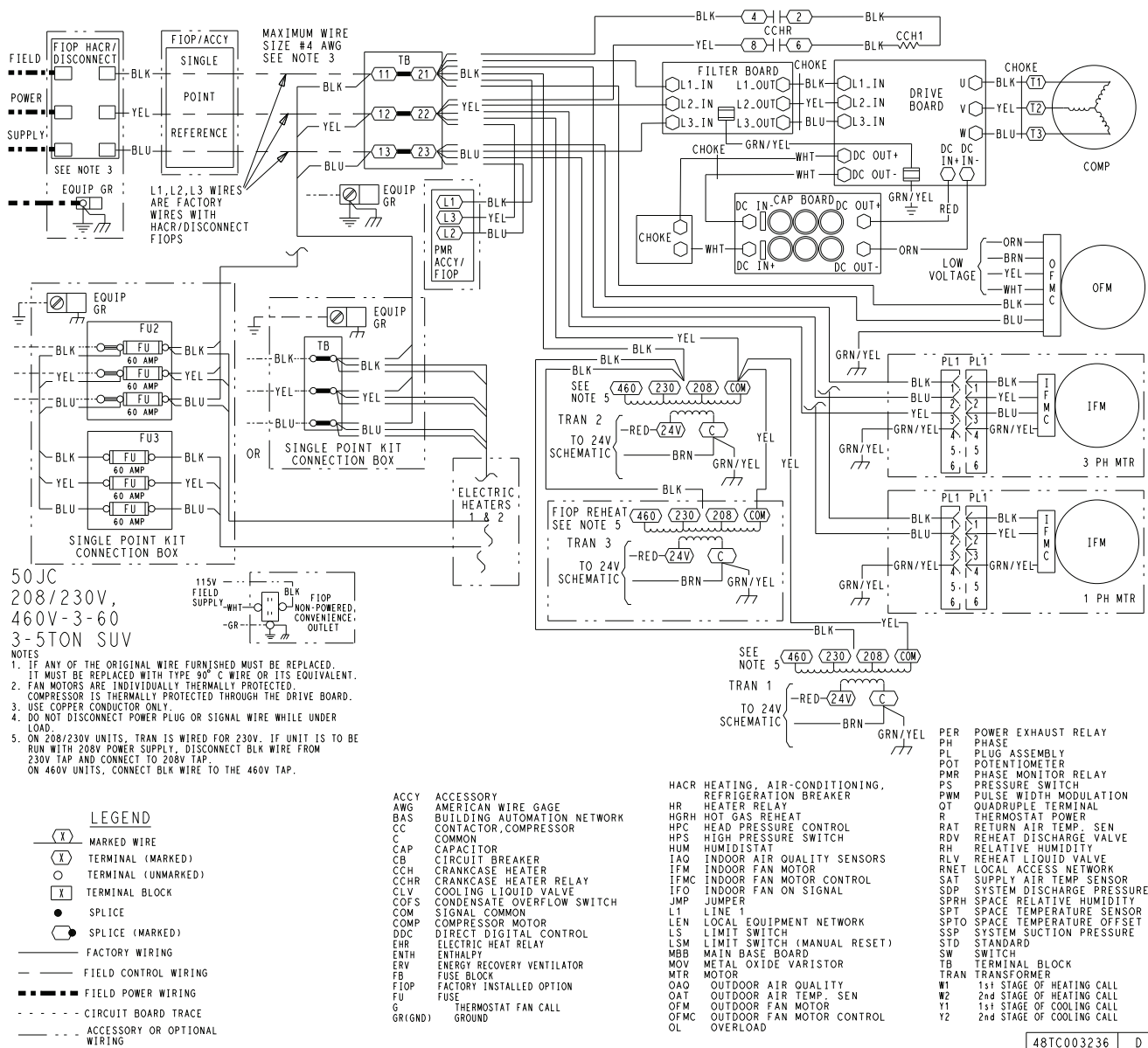
ACCY	ACCESSORY
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
BAS	BUILDING AUTOMATION NETWORK
CC	CONTACTOR, COMPRESSOR
C	COMMON
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CCH	CRANKCASE HEATER
CCHR	CRANKCASE HEATER RELAY
CLV	COOLING LIQUID VALVE
CMB	CENTRIFUGAL MOTOR BLOWER
COFS	CONDENSATE OVERFLOW SWITCH
COM	SIGNAL COMMON
COMP	COMPRESSOR MOTOR
DDC	DIRECT DIGITAL CONTROL
EHR	ELECTRIC HEAT RELAY
ENTH	ENTHALPY
EQUIP	EQUIPMENT
ERV	ENERGY RECOVERY VENTILATOR
FB	FUSE BLOCK
FIOP	FACTORY INSTALLED OPTION
FS	FLAME SWITCH
FU	FUSE
G	THERMOSTAT FAN CALL
GR(ND)	GROUND
GV	GAS VALVE
HACR	HEATING, AIR-CONDITIONING, REFRIGERATION BREAKER
HGRH	HOT GAS REHEAT

HPC	HEAD PRESSURE CONTROL
HPS	HIGH PRESSURE SWITCH
HR	HEATER RELAY
HUM	HUMIDISTAT
I	IGNITOR
IAQ	INDOOR AIR QUALITY SENSORS
IDM	INDUCED DRAFT MOTOR
IDMR	INDUCED DRAFT RELAY
IFM	INDOOR FAN MOTOR
IFMC	INDOOR FAN MOTOR CONTROL
IFO	INDOOR FAN ON SIGNAL
IGC	INTEGRATED GAS CONTROL
I	IGNITOR
JMP	JUMPER
L1	LINE 1
LEN	LOCAL EQUIPMENT NETWORK
LS	LIMIT SWITCH
LSM	LIMIT SWITCH (MANUAL RESET)
MBB	MAIN BASE BOARD
MOV	METAL OXIDE VARISTOR
MTR	MOTOR
OAO	OUTDOOR AIR QUALITY
OAT	OUTDOOR AIR TEMP. SEN
OFM	OUTDOOR FAN MOTOR
OFMC	OUTDOOR FAN MOTOR CONTROL

PER	POWER EXHAUST RELAY
PH	PHASE
PL	PLUG ASSEMBLY
POT	POTENTIOMETER
PMR	PHASE MONITOR RELAY
PS	PRESSURE SWITCH
PWM	PULSE WIDTH MODULATION
QT	QUADRUPLE TERMINAL
R	THERMOSTAT POWER
RAT	RETURN AIR TEMP. SEN
RDV	REHEAT DISCHARGE VALVE
RH	RELATIVE HUMIDITY
RLV	REHEAT LIQUID VALVE
RNET	LOCAL ACCESS NETWORK
RS	ROLLOUT SWITCH
SAT	SUPPLY AIR TEMP SENSOR
SOP	SYSTEM DISCHARGE PRESSURE
SPRH	SPACE RELATIVE HUMIDITY
SPT	SPACE TEMPERATURE SENSOR
SPTO	SPACE TEMPERATURE OFFSET
SSP	SYSTEM SUCTION PRESSURE
STD	STANDARD
SW	SWITCH
TB	TERMINAL BLOCK
TRAN	TRANSFORMER
W1	1st STAGE OF HEATING CALL
W2	2nd STAGE OF HEATING CALL
Y1	1st STAGE OF COOLING CALL
Y2	2nd STAGE OF COOLING CALL

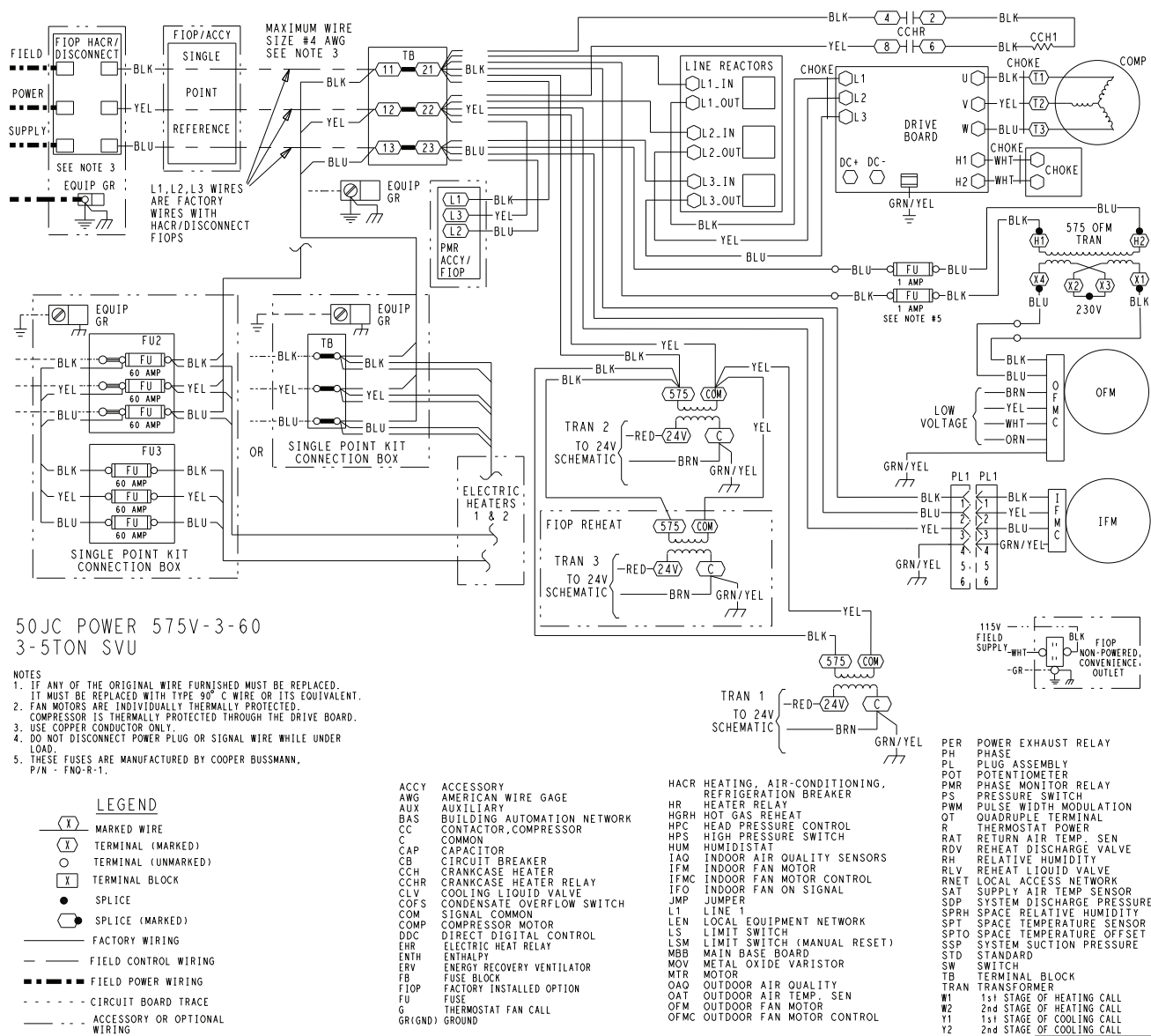
48TC003239 D

Fig. 21 — 48JC 04-06 SystemVu Power Schematic (575V-3-60 unit shown)



**Fig. 22 — 50JC 04-06 SystemVu Power Schematic (208/230, 460V-3-60 unit shown)**

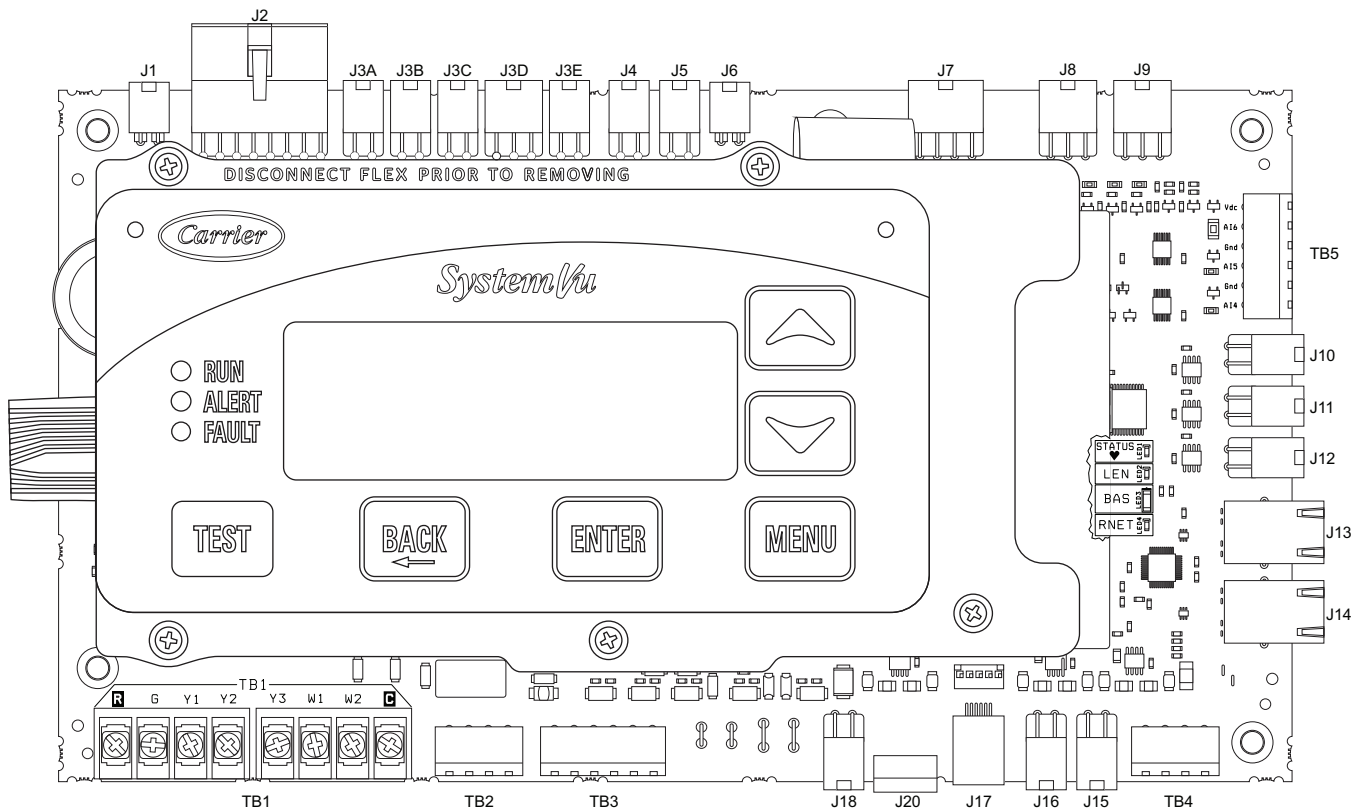




**Fig. 23 — 50JC 04-06 SystemVu Power Schematic (575V-3-60 unit shown)**

## Main Base Board (MBB)

See Fig. 24 and Table 25. The majority of the I/O is connected to the MBB which executes the controls operation of the unit from the software that is loaded onto it.



**Fig. 24 — Main Base Board (MBB)**

**Table 25 — Main Base Board (MBB) Connections**

DISPLAY NAME	SENSOR LOCATION	I/O TYPE	POINT NAME	CONNECTION PIN NUMBER
<b>INPUTS</b>				
Input power from TRAN2	Control Box	24 VAC		J2, 1 and 8
Configurable (COFS)	Drain Pan	24 VAC	COFS	J4, 1- 4
Configurable (FIRE SHUTDOWN)	Supply/Return/Space	Switch input	FIREDOWN	J5, 1- 4
IGC FAN REQUEST	Gas section	Switch input	IGC_IFO	J6, 1- 2
Configurable (IAQ LEVEL)	Return/Space	0- 20 mA	IAQ	J7, 1, 5-6
Configurable (OARH LEVEL)	Economizer	0- 20 mA	OARH	J7, 2, 6-7
ECON ACT POSITION	Economizer	2- 10Vdc	DAMPPOS	J7, 3, 8
FAN SUPPLY TEMP	Indoor fan deck	10k thermistor	FST	J8, 1, 4
RETURN AIR TEMP	Return	10k thermistor	RAT	J8, 2, 5
OUTDOOR AIR TEMP	Outdoor coil	10k thermistor	OAT	J8, 3, 6
CIR.A SUC. PRESS	Circuit A Suction pipe	0-5 VDC pressure transducer	SSP_A	J9, 1- 2, 5
CIR.A DIS. PRESS	Circuit A Discharge pipe	0-5 VDC pressure transducer	SDP_A	J9, 4- 3, 6
Configurable		0- 20 mA		TB5, 4- 6
SLIDER OFFSET VAL	Space	10k thermistor	SPTO	TB5, 2- 3
SPACE TEMPERATURE	Space	10k thermistor	SPACE_T	TB5, 1- 2
Configurable		Switch Input		QC, 1-2J18, 1, 3
IDF LIMIT SWITCH	Indoor Fan	Switch Input	IDF_LSM	QC, 3-4J18, 2,4
Configurable (FILTER STATUS SW)	FIOF/Field-installed	Switch Input	FILTSAT	TB3, 1- 2
Configurable	Field- installed	Switch Input		TB3, 3- 4
Configurable (PHASE MONITOR SW)	Control Box	Switch Input	PWR_STAT	TB3, 5- 6
TSTAT G INPUT	Space	Switch Input	G	TB1, G
TSTAT Y1 INPUT	Space	Switch Input	Y1	TB1, Y1
TSTAT Y2 INPUT	Space	Switch Input	Y2	TB1, Y2
Configurable (HUMIDISTAT)	Field- installed	Switch Input	HUMDSTAT	TB1, Y3
TSTAT W1 INPUT	Space	Switch Input	W1	TB1, W1
TSTAT W2 INPUT	Space	Switch Input	W2	TB1, W2
<b>OUTPUTS</b>				
Optional power out	Not Used	24 VAC		J1, 1- 2
ECON CMD POSITION		0- 20 mA	DAMPCMD	J7, 4, 8
COMMANDED IDF RPM	Indoor fan section	PWM1	FSPD_RPM	J10, 1-4
COMMANDED ODF RPM	Outdoor fan section	PWM2	ODFSPEED	J11, 1-4
CMP REQUESTED RPM	Control Box	PWM3	CMPRQSPD	J12, 1-4
Configurable (ALARM RELAY)		Relay 11	ALMOUT	TB2, 3- 4
CCH RELAY	Not Used	Relay 10	CCHR1	J3A, 1, 3
not used	Not Used	Relay 9		J3A, 2, 4
not used	Not Used	Relay 8		J3B, 1, 3
not used	Not Used	Relay 7		J3B, 2, 4
Configurable (PE1 RELAY)		Relay 6	PE1	J3C, 1- 4
RH DISCH VALVE		Relay 5	RDV_A	J3D, 1, 4
RH LIQUID VALVE		Relay 4	RLV_A	J3D, 2, 5
COOL LIQUID VALVE		Relay 3	CLV_A	J3D, 3, 6
HEAT 2 RELAY		Relay	HEAT_2	J3E, 1, 3
HEAT 1 RELAY		Relay	HEAT_1	J3E, 2, 4
<b>COMMUNICATION</b>				
Building Automated System (BAS)	Building	Communication		TB4, 1- 4
Ethernet	Not Used	Communication		J13, J14
Expansion LEN Bus	Not Used	Communication		J15, 1-4
Expansion LEN Bus	Not Used	Communication		J16, 1-4
Local Equipment Network (LEN)		Communication		J17
RNET Sensors	Building	Communication		J20, 1-4
Display Copper Cable		Communication		J23
RNET Service Access		Communication		J24, 1-5
<b>DISPLAY CONNECTIONS</b>				
Display Copper Cable		Communication		J1
Local Equipment Network (LEN)		Communication		J2
USB- A		Communication		J3
USB- B	Not Used	Communication		J4
Keypad Ribbon Cable		Communication		J6

## Integrated Gas Control (IGC) Board

The IGC is provided on gas heat units. The IGC controls the direct spark ignition system and monitors the rollout switch, limit switch, and flue gas pressure switch. See Fig. 25 and Table 26.

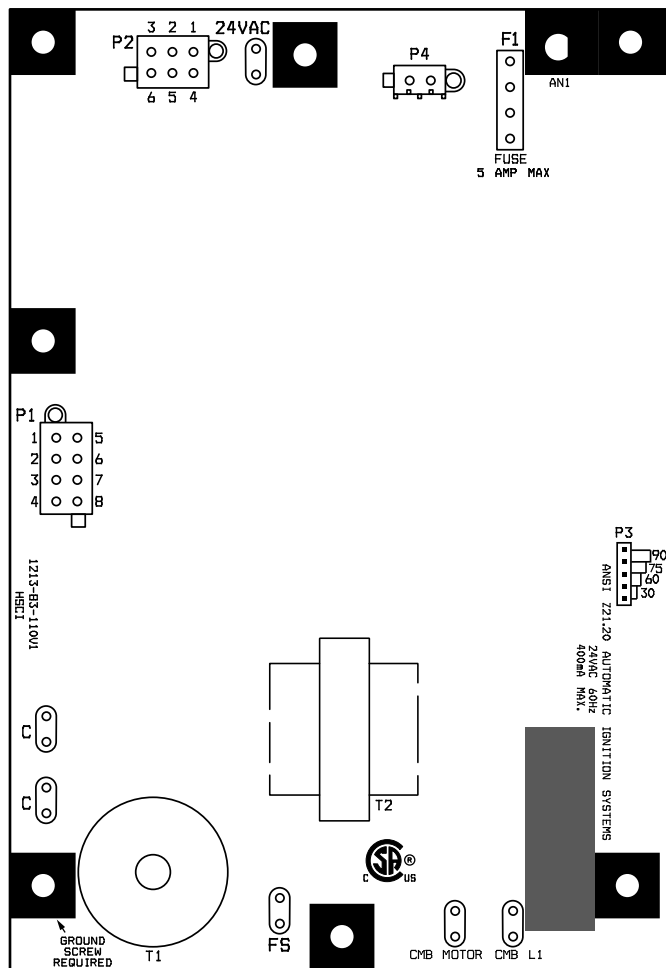


Fig. 25 — Integrated Gas Control (IGC) Board

Table 26 — Integrated Gas Control (IGC) Board Connections

TERMINAL LABEL	POINT DESCRIPTION	SENSOR LOCATION	TYPE OF I/O	CONNECTION PIN NUMBER
<b>INPUTS</b>				
<b>24VAC, C</b>	Power for IDR on 575v units	control box	24 VAC	Quick Connects
<b>C</b>	Input power common	TB4 to IGC	24 VAC	P2, 1
<b>R</b>	Input power from TRAN 1	TB4 to IGC	24 VAC	P2, 6
<b>L1</b>	High voltage supply or 24vac	control box	208/230v, 460v, or 24vac	Quick Connect
<b>FS</b>	Flame sensor	gas section	switch input	Quick Connect
<b>W</b>	Heat stage 1 Call	MBB to IGC	24 VAC	P2, 3
<b>G</b>	Indoor Fan Call	not used	24 VAC	P2, 4
<b>RS</b>	Rollout switch	gas section	switch input	P1, 3- 4
<b>LS</b>	Limit switch gas	section switch	input	P1, 1 and 8
<b>PS</b>	Pressure Differential switch	gas section	switch input	P1, 6- 7
<b>FOD</b>	Fan Off Delay jumper	control box	jumper	P3
<b>OUTPUTS</b>				
<b>CM</b>	Induced draft combustion motor or IDR	gas section	line VAC or 24vac	Quick Connect
<b>T1</b>	Ignition Spark	gas section	high voltage spark	Quick Connect
<b>IFO</b>	Indoor fan request	control box	relay	P2, 5
<b>C</b>	Common for Gas Valve	gas section	24 VAC	P1, 2
<b>GV (W1)</b>	Gas valve (heat stage 1)	gas section	relay	P1, 5
<b>GV (W2)</b>	Gas Valve (heat stage 2, from MBB)	gas section	Not on IGC	

## Protective Devices

### COMPRESSOR PROTECTION

The variable speed compressor is protected by its VFD using current limits, the Discharge line thermistor (DLT), and high pressure switch. Refer to the Compressor VFD section for more details. SystemVu controls further protect the system with diagnostics for the compressor envelope and pressure monitoring. Refer the alarm section for more details.

### EVAPORATOR FAN MOTOR PROTECTION

The ECM motor is protected from locked rotor and over-current protection through the electronic control module attached to the motor.

### CONDENSER FAN MOTOR PROTECTION

The motor is internally protected against overload.

### SATURATED SUCTION PRESSURE (SSP)

If the SSP for a particular circuit is reading below the alarm set point for an extended period of time, that circuit will be shut down. After 15 minutes, the alarm will automatically reset. If this alarm occurs 3 times consecutively, the circuit will remain locked out until an alarm reset is initiated via CCN or manually via the SystemVu controller display (see Alarms and Alerts section for more details).

### CONDENSATE OVERFLOW SWITCH (COFS)

A separate factory installed device can detect a full drain pan. This device consists of a pan sensor to detect the water level and a relay control switch to read the sensor. The control switch is located in the supply fan section and feeds into the SystemVu control to trip a condensate overflow fault. The relay switch is a normally open device that closes when power is applied. If the sensor detects high water levels for 10 seconds straight, it will open the contact removing the input provided to the SystemVu control. The switch will also turn its red LED on. If the water level is low enough for 5 minutes the relay will close again applying the input back to the SystemVu controller. A blinking red LED on the switch indicates that the sensor has been disconnected.

## Space Mounted Sensors

### SPACE TEMPERATURE SENSOR (T-55)

The T-55 space temperature sensor (part no. 33ZCT55SPT) is a field-installed accessory. The sensor is installed on a building interior wall to measure room air temperature. The T-55 sensor also includes an override button on the front cover to permit occupants to override the Unoccupied Schedule (if programmed).

TB5-1 . . . . . Sensor Input

TB5-2 . . . . . Sensor Common

### SPACE TEMPERATURE SENSOR (T-56)

The T-56 space temperature sensor (part no. 33ZCT56SPT) is a field-installed accessory. This sensor includes a sliding scale on the front cover that permits an occupant to adjust the space temperature set point remotely. The T-56 sensor also includes an override button on the front cover to allow occupants to override the unoccupied schedule (if programmed).

TB5-1 . . . . . Sensor Input

TB5-2 . . . . . Sensor Common

TB5-2 . . . . . Setpoint Offset Input

### SPACE TEMPERATURE SENSOR AVERAGING

See Fig. 26 for space temperature averaging with T-55 sensors only. If the use of one T-56 sensor is required, refer to Fig. 27.

### ZS SPACE SENSOR

The ZS Standard, Plus, or Pro can be wired into J20 or J24 of the SystemVu controller, J20 provides an easy field connection plug. A maximum of 5 ZS sensors can be connected but a separate power supply may be needed. Use the ZS SENSOR CFG menu (**SETTINGS** → **NETWORK SETTINGS**) when setting up the ZS sensors in SystemVu. The Sensor addresses have to be unique and set in the actual sensors via DIP also. The Typical default for the ZS Sensor is address 1. Follow the ZS installation instruction for further details on the sensors. ZS sensor data can be monitored on SystemVu in the ZS Sensor Info menu (**INPUTS** → **NETWORK** → **ZS SENSOR INFO**).

J20-1 . . . . . Sensor Common

J20-2 . . . . . Sensor Communication Positive (+)

J20-3 . . . . . Sensor Communication Negative (-)

J20-4 . . . . . Sensor +12vdc Power

### ZS MOTION SENSOR

The ZS motion sensor(s) can be integrated with SystemVu and paired with a local schedule, used as a standalone remote occupancy sensor, or used to offset occupied setpoints. The motion sensor will transition the SystemVu controller from “unoccupied” to an “occupied” state when used as a schedule override or remote occupancy. When used as offset setpoints the occupancy state will not change. The ZSM SENSOR CONFIG setting tells the control which of the three types of application is desired with the motion sensors.

The ZS motion sensors have a built in 5 minute off delay. SystemVu as the ability to add time to this off delay with the **MOTION TIMEOUT** setting. When using the sensor with a local schedule or standalone remote occupancy sensor, the control will transition to an “unoccupied” state after this **MOTION TIMEOUT** time with no motion detection. When using the sensor for temperature offset only, the control will offset the occupied setpoints after this **MOTION TIMEOUT** time with no motion detected. Sensor placement and application is important to keep the space tempered appropriately. Sensor placement should include an unobstructed view of motion in the desired space being served. If the space is large, multiple sensors (up to 5) may be used to cover the area. The ZS motion sensor should only be used in a space that has constant motion when it is occupied.

## SCHEDULE OVERRIDE

ZS motion sensor(s) can be utilized with a SystemVu local schedule. During this operation the SystemVu controller will switch between “occupied” and “unoccupied” modes based on the local schedule. The ZS motion sensor(s) will override the local schedule during “unoccupied” mode forcing SystemVu to transition from “unoccupied” to an “occupied” state and following the occupied heating and cooling setpoints.

NOTE: The following steps are menus paths followed by specific settings (→ “Settings”) for enabling ZS motion sensor control with a local schedule.

1. **SETTINGS → UNIT CONFIGURATION → GENERAL → UNIT CONTROL TYPE → Space Sen (1)**
2. **SETTINGS → UNIT CONFIGURATIONS → SWITCH INPUT CONFIGS → REMOTE OCC CHAN → None (0)**
3. **SETTINGS → SCHEDULE → SCHEDULE NUM → Local Schedule (1)**
4. **SETTINGS → NETWORK SETTINGS → ZS SENSOR CFG → ZSM SENSOR CONFIG → LOCOCC (2)**

## STANDALONE REMOTE OCCUPANCY SENSOR

ZS motion sensor(s) can be utilized as a standalone remote occupancy switch. This will allow SystemVu to remain in an “unoccupied” state and use the ZS motion sensor(s) to “occupy” SystemVu. In this application SystemVu will maintain the space between its “unoccupied heating” and “unoccupied cooling” setpoints when the space is not in use. When the motion sensor is activated SystemVu will occupy the unit and follow the occupied heating and cooling setpoints.

NOTE: The following steps are menus paths followed by specific settings (→ “Settings”) for enabling ZS motion sensor control only.

1. **SETTINGS → UNIT CONFIGURATION → GENERAL → UNIT CONTROL TYPE → Space Sen (1)**
2. **SETTINGS → UNIT CONFIGURATIONS → SWITCH INPUT CONFIGS → REMOTE OCC CHAN → (choose any open DI between DI-1 to DI-7)**
3. **SETTINGS → SCHEDULE → SCHEDULE NUM → Always Occupied (0)**
4. **SETTINGS → NETWORK SETTINGS → ZS SENSOR CFG → ZSM SENSOR CONFIG → REMLOC (1)**

## TEMPERATURE OFFSET ONLY SENSOR

ZS motion sensor(s) can be utilized as a temperature offset only sensor. This will allow SystemVu to remain in an “occupied” state and use the ZS motion sensor(s) to offset the occupied setpoints. In this application SystemVu will maintain the space between its “occupied heating” and “occupied cooling” setpoints but apply a demand limit level of one. When the motion sensor is activated SystemVu will remove the demand limit level and the unit will follow the occupied heating and cooling setpoints. The unit’s occupancy state does not change during this application, and this control is not functional during the unoccupied mode. The specific amount of setpoint offset can be changed with the demand limit level 1 settings for heating and cooling (**COOL DMD LIM LEV1** and **HEAT DMD LIM LEV1**). Demand limit status can be viewed real time in the **RUN STATUS → MODE → DMD LIMIT STATUS** menu and through the building network.

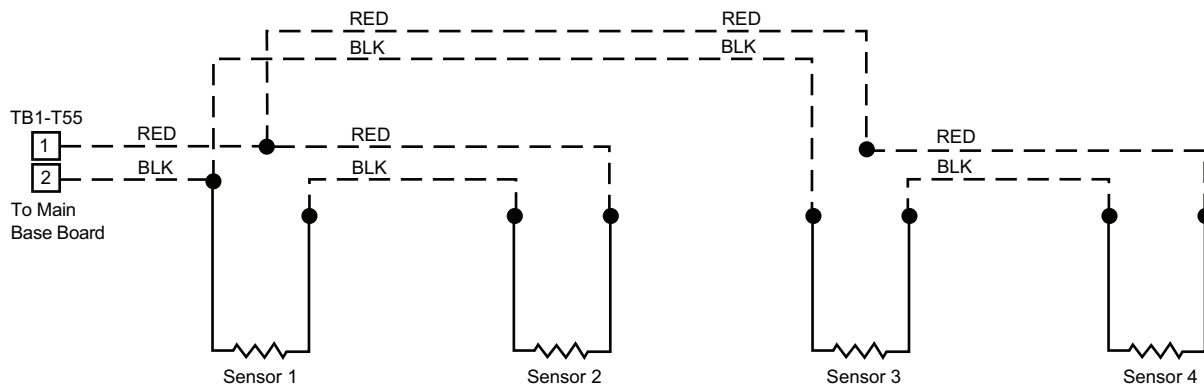
NOTE: The following steps are menus paths followed by specific settings (→ “Settings”) for enabling ZS motion sensor control only.

1. **SETTINGS → UNIT CONFIGURATION → GENERAL → UNIT CONTROL TYPE → Space Sen (1)**
2. **SETTINGS → SPACE SETPOINTS → DMD LIMIT CONFIG → COOL DMD LIM LEV1 → (choose desired offset in degrees)**
3. **SETTINGS → SPACE SETPOINTS → DMD LIMIT CONFIG → HEAT DMD LIM LEV1 → (choose desired offset in degrees)**
4. **SETTINGS → NETWORK SETTINGS → ZS SENSOR CFG → ZSM SENSOR CONFIG → TEMP ONLY (3)**

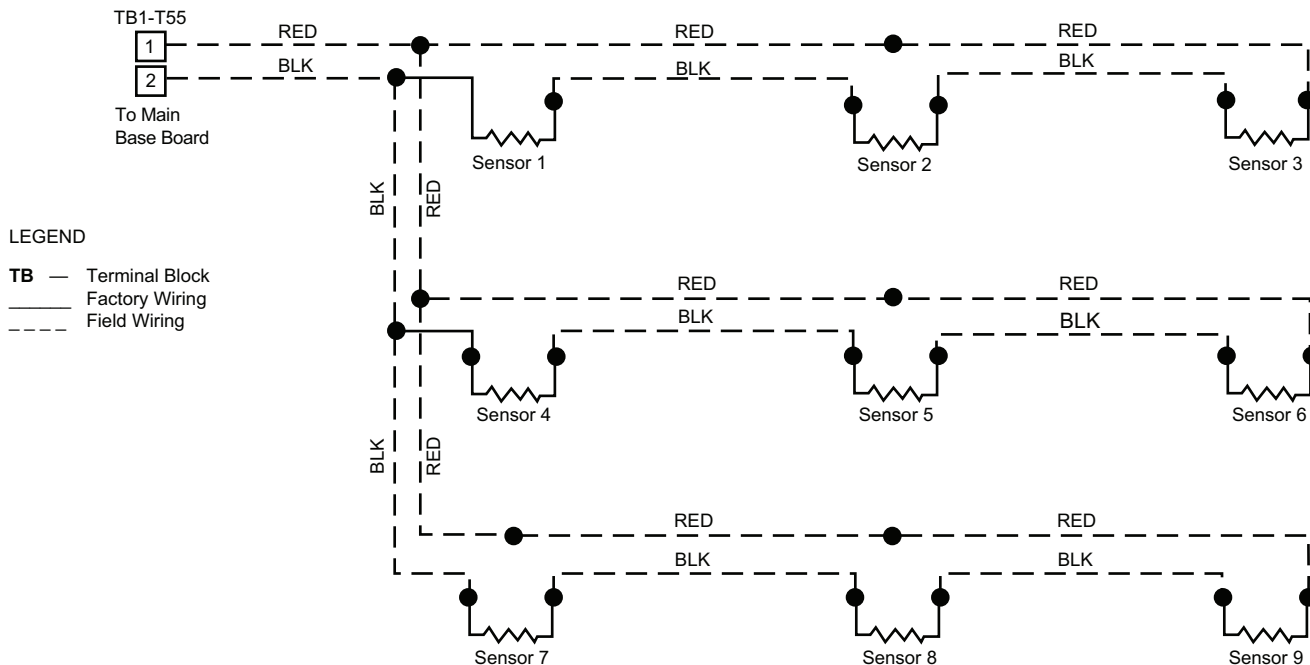
NOTE: When using this type of application with the ZS Motion sensors, if a building demand limit is imposed on the control it will override this control. If the building demand limit is activated first, this control will override the building demand level.

## ZS MOTION SENSOR TROUBLESHOOTING

- ZS motion sensor not performing as expected.
  - Motion sensor blocked.
  - Motion sensor out of range. May need multiple motion sensors to cover the occupied area.
  - Improper sensor placement.
  - Settings incorrect. Follow “SystemVu Motion Sensor Setting Guide”.
  - Occupancy or demand limiting commands from the building control system.
- ZS sensor not communicating to SystemVu.
  - Network settings are not configured.
  - ZS sensor not addressed.
  - ZS sensor wired incorrectly.

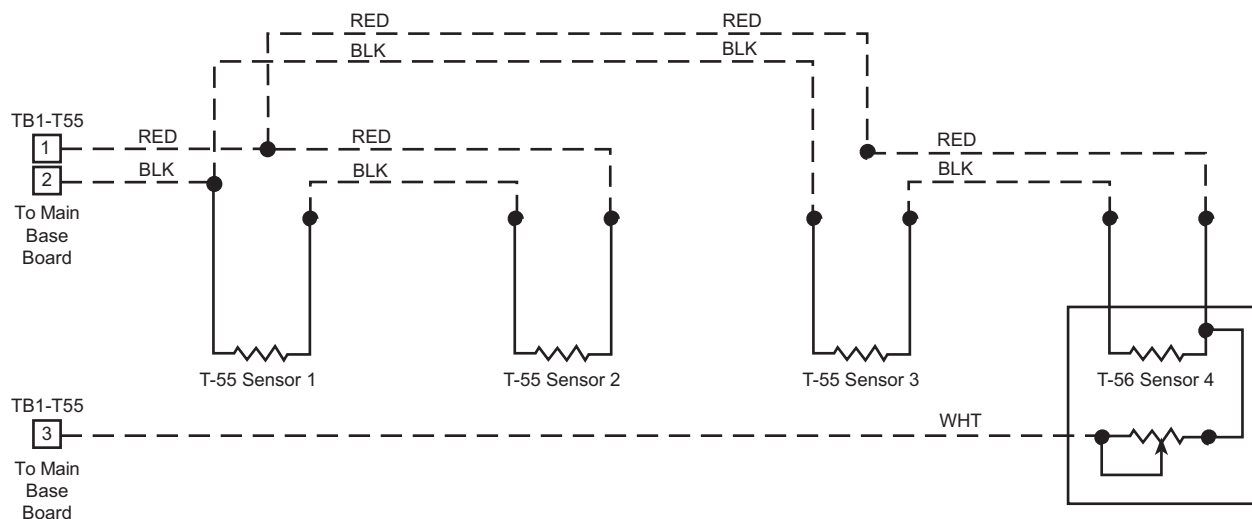


Space Temperature Averaging — 4 T-55 Sensor Application



Space Temperature Averaging — 9 T-55 Sensor Application

**Fig. 26 — Space Temperature Sensor Averaging**

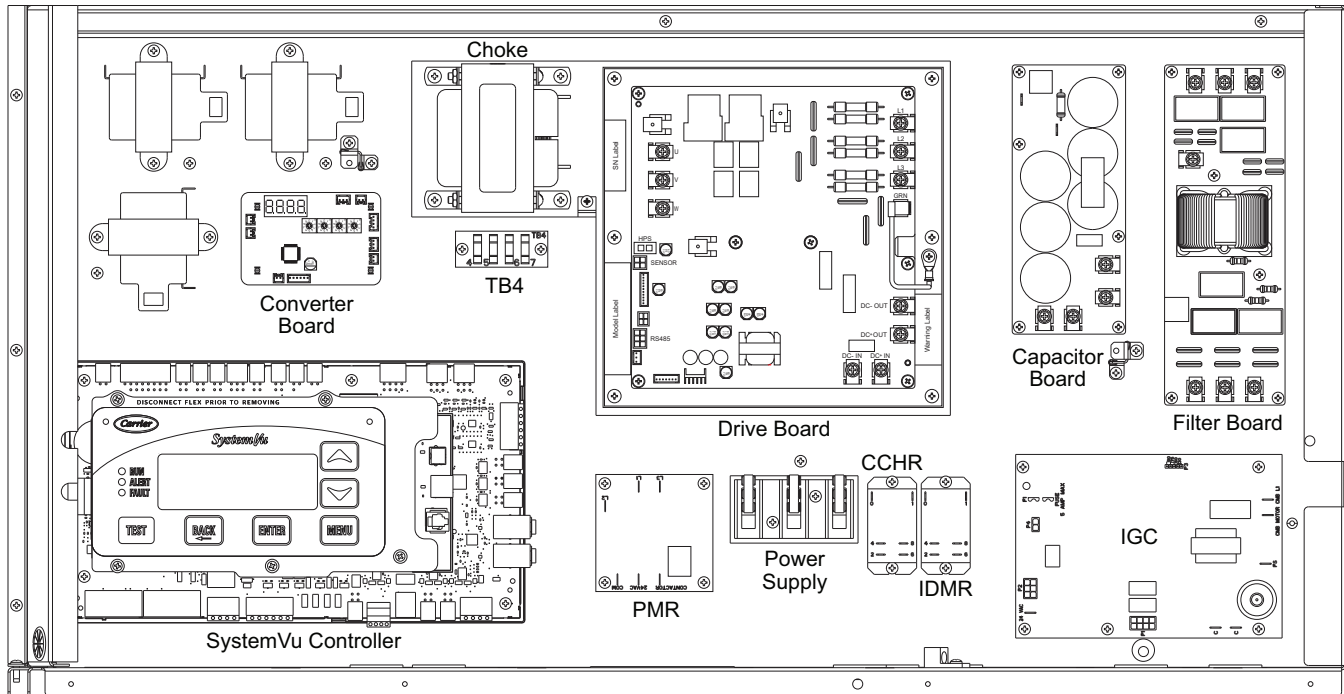


**Fig. 27 — Space Temperature Sensor Averaging with 3 T-55 Sensors and One T-56 Sensor**



## Compressor VFD

The 48/50JC units are equipped with a variable speed compressor. To control this compressor a Variable Frequency Drive (VFD) is required. This VFD does not look like the typical VFD the industry might be used to. This VFD is not packaged into its own housing to appear as a single component, it is comprised of five electronic components mounted in the unit's control box. See Fig. 28. for the Control box layout. The five components are: The main drive board, filter board, capacitor board, choke, and converter board. On 575 volt units the filter board and capacitor board are replaced with three-phase line reactor.



**Fig. 28 — Control Box Layout**

## DRIVE BOARD

The drive board is the heart of the VFD. It contains the safety logic and the power conversations needed for the variable speed operation. This drive board will take in the 60 Hz supply voltage and modify it to drive the speed of the compressor, this is done with voltage and frequency. The drive board is responsible for monitoring the safety high pressure switch (HPS) and ensure the compressor is immediately turned off upon HPS trip. There is a discharge line thermistor (DLT) also provided that the drive board monitors. This is for situations where there are high line temperatures without the pressure being high enough to indicate a problem. The drive board has built in logic independent of the SystemVu logic to fold back the speed of the compressor in the event of a high current or high temperature situation. This high current is determine based on the speed ranges, so not just one current limit. The drive board has its own built in startup and speed ramp protections, however these are smaller than what the SystemVu controller uses. Review the Compressor Control section for SystemVu controller start and ramp functions. There is a heat sink mounted on the back of this drive board to help cool the

electronics. The drive board only communicates via Modbus and has local LEDs to show status and errors. The converter board will be used as the primary interface to this drive board, so refer to that section for more details. See Fig. 29 and Table 27 on page 65 for more details on the drive board.

### ⚠ CAUTION

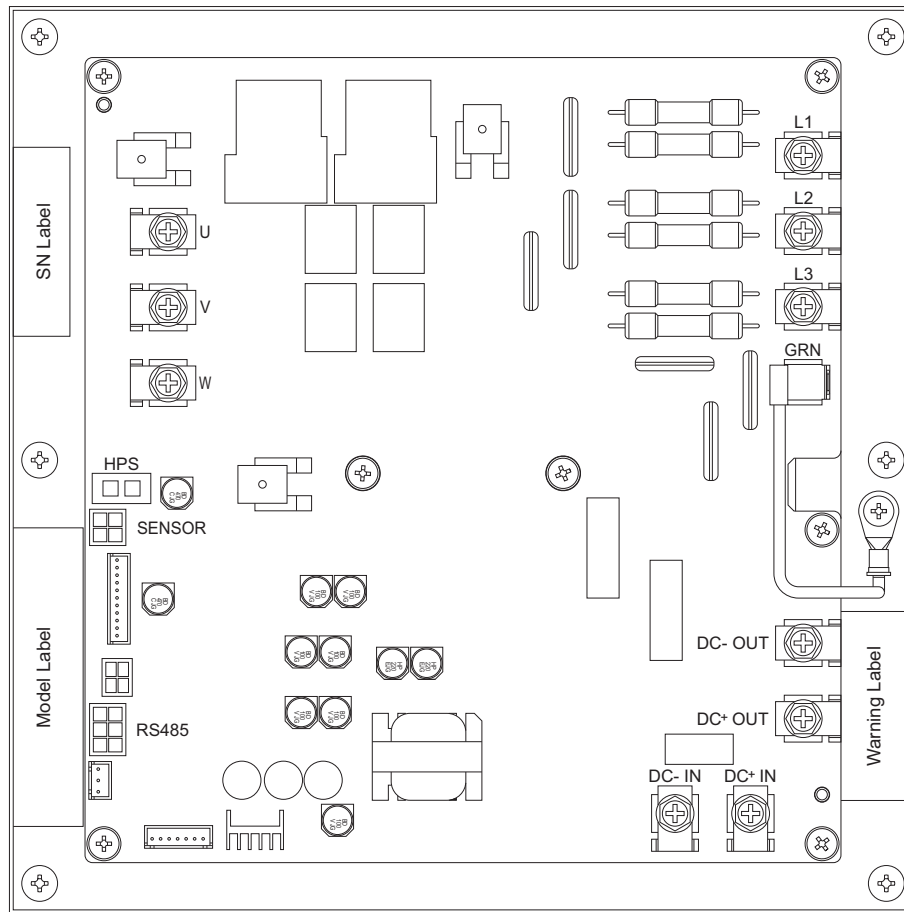
#### UNIT DAMAGE HAZARD

Do not bypass the Drive board and pass the standard power supply to the compressor, damage may occur.

### ⚠ CAUTION

#### UNIT DAMAGE HAZARD

If replacing the Drive board remove the whole assembly (heat sink and electronic board together). Never separate this assembly on the replacement part.



**Fig. 29 — Drive Board**

**Table 27 — Drive Board Inputs/Outputs**

TERMINAL LABEL	DESCRIPTION	TYPE	CONNECTOR
HPS	High Pressure switch input	3.3vdc	2 Pins
SENSOR	DLT sensor input	10k thermistor	Pins 1 and 2 (inner 2 pins)
RS485	Modbus communication with the converter board	RS485 Communication	Pins 1,4, and 5
L1, L2, L3	Supply Power from the filter board	AC high voltage	3x screw terminals
GRN	Supply Ground	Chassis Ground	2x 1/4-in. Quick Connect
DC+OUT, DC-OUT	DC bus out to capacitor board	DC high voltage	2x 1/4-in. Quick Connect
DC+IN, DC-IN	DC bus in from the capacitor board	DC high voltage	2x 1/4-in. Quick Connect
U, V, W	Output to the compressor	AC High voltage	3x screw terminals

CONVERTER BOARD

The converter board is the primary interface for troubleshooting as well as SystemVu controller’s interface to the VFD. The purpose of the converter board is to provide an interface to the drive board while converting the SystemVu control signal into the Modbus communication the drive board requires. The converter board is also responsible for providing configurations to the drive board. This is done through the four rotary switches mounted on the board. The required settings are listed below and printed on the unit schematics. See Fig. 30, Table 28, and Table 29 on page 66. for more details on the converter board.

The converter board has a four-digit display to provide feedback for troubleshooting. It will read “IDLE” when in standby waiting for a signal, and the software version “S##.#” will alternate with “IDLE” during standby. It will show the actual compressor running RPM while performing cooling. It will display an “E-##” if an error occurs in the converter board or drive board. Use the converter board error code table (Table 31) for troubleshooting. If the drive board is folding back the speed to protect the current the running RPM will alternate with “Sd##” where the number indicates the reason for fold back. See Table 30 for the foldback codes.

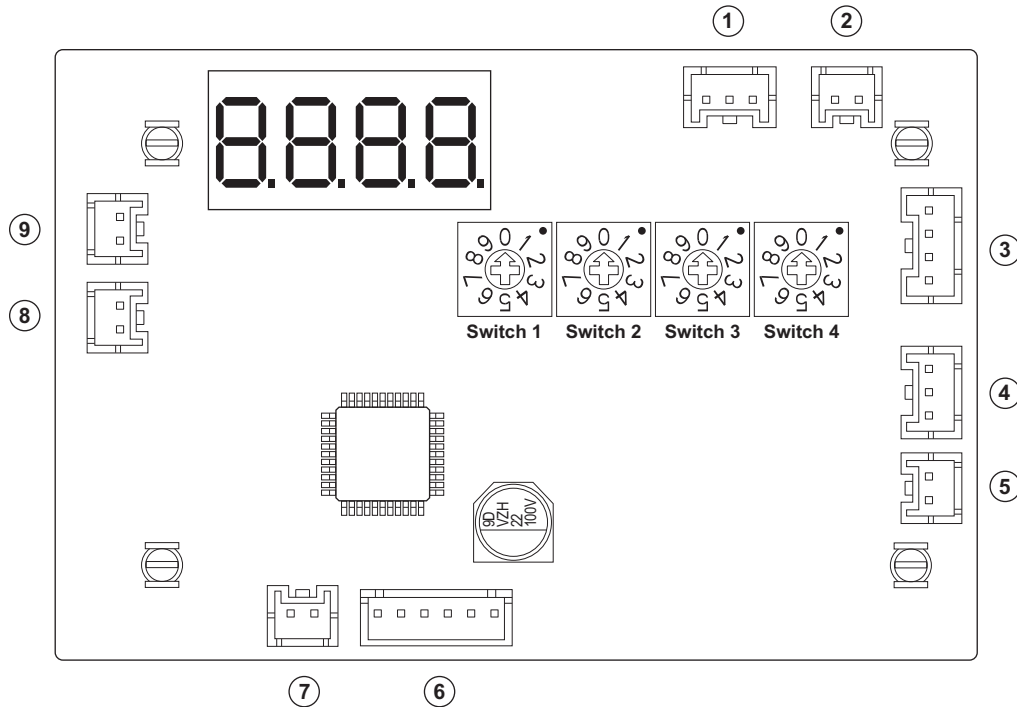


Fig. 30 — Converter Board

Table 28 — Converter Board Inputs/Outputs

REFERENCE NUMBER	DESCRIPTION	TYPE	CONNECTOR
1	Not used	—	—
2	Not used	—	—
3	Modbus communication with the drive board	RS485 Communication	Pins 1,2, and 3
4	Input control from SystemVu	PWM signal	Pins 1 and 3
5	Start/Stop input	24vac	Pins 1 and 2
6	Not used	—	—
7	Power supply	24vac	Pins 1 and 2
8	Not used	—	—
9	Not used	—	—

Table 29 — Converter Board Switch Settings

SIZE	SWITCH 1	SWITCH 2	SWITCH 3	SWITCH 4
04 (3Ton)	3	3	1	1
05 (4Ton)	3	4	1	1
06 (5Ton)	3	5	5	1

Table 30 — Converter Board Foldback Codes

FOLDBACK CODE	FOLDBACK DESCRIPTION
Sd01	Configuration Status (EEPROM/FLASH)
Sd02	Speed Foldback Flag (Output Voltage Limit)
Sd03	PFC Temperature Foldback Status
Sd04	AC Input Current Foldback Status
Sd05	Compressor Phase Current Foldback Status
Sd06	Compressor Power Module Temperature Foldback Status
Sd07	DLT Temperature Foldback Status
Sd08	Output Capacity Foldback Status
Sd09	Autosaved Data Status
Sd10	Speed Foldback Flag (Torque Limit)

**Table 31 — Converter Board Error Codes**

ERROR CODE	FAULT DESCRIPTION	DRIVE MODBUS REGISTER	ACTION/CAUSE
E-01	Compressor Phase Over Current	Reg.78 80 Bit0	<ol style="list-style-type: none"> <li>1. Check the U/V/W connections on the drive side</li> <li>2. Check the compressor motor windings</li> <li>3. Check the compressor is operating within specified limits.</li> <li>4. Sensor on Drive not reading properly - Replace Drive.</li> </ol>
E-02	AC Input Over Current (SW)	Reg.78 80 Bit1	<ol style="list-style-type: none"> <li>1. Check that the line voltage is no more than 15% below the specified voltage for the drive. Check the line voltage for noise.</li> <li>2. Check the compressor is operating within specified limits.</li> <li>3. If the problem persists, then it is possibly a drive component issue. Replace the drive.</li> </ol>
E-03	DC Bus Over Voltage (SW)	Reg.78 80 Bit2	<ol style="list-style-type: none"> <li>1. Check that the line voltage is no more than 15% above the specified voltage for the drive.</li> <li>2. Check the DC bus voltage if it is &gt;385VDC.</li> <li>3. Check the compressor is operating within the specified limits.</li> <li>4. If the problem still persists, then it is possibly a drive component issue. Replace the drive.</li> </ol>
E-04 <sup>a</sup>	DC Bus Under Voltage	Reg.78 80 Bit3	<ol style="list-style-type: none"> <li>1. Check that the line voltage is no more than 15% below the specified voltage for the drive.</li> <li>2. Check the DC bus voltage if it is &lt;385VDC.</li> <li>3. Check the compressor is operating within the specified limits.</li> <li>4. If the problem still persists, then it is possibly a drive component issue. Replace the drive.</li> </ol>
E-05	AC Input Over Voltage	Reg.78 80 Bit4	<ol style="list-style-type: none"> <li>1. Check that the line voltage is no more than 15% above the specified voltage for the drive.</li> <li>2. Check the DC bus voltage if it is &gt;385VDC.</li> <li>3. Check the compressor is operating within the specified limits.</li> <li>4. If the problem still persists, then it is possibly a drive component issue. Replace the drive.</li> </ol>
E-06	AC Input Under Voltage	Reg.78 80 Bit5	<ol style="list-style-type: none"> <li>1. Check that the line voltage is no more than 15% below the specified voltage for the drive.</li> <li>2. Check the DC bus voltage if it is &lt;385VDC.</li> <li>3. Check the compressor is operating within the specified limits.</li> <li>4. If the problem still persists, then it is possibly a drive component issue. Replace the drive.</li> </ol>
E-07	Inverter Desaturation	Reg.78 80 Bit6	<ol style="list-style-type: none"> <li>1. Check if all input cables are connected or any line is missing.</li> <li>2. Check that the line voltage is no more than 15% below the specified voltage for the drive.</li> </ol> <p>If the problem still persists, then it is possibly a drive component issue. Replace the drive.</p>
E-09	High Pressure Switch Fault	Reg.78 80 Bit8	<ol style="list-style-type: none"> <li>1. Condensing Pressure beyond limit. system issue.</li> <li>2. Check the high pressure switch.</li> </ol>
E-12 <sup>b</sup>	Compressor Power Module Over Temp	Reg.78 80 Bit11	<ol style="list-style-type: none"> <li>1. Verify proper airflow over the heat-sink of the drive. Remove any obstructions.</li> <li>2. Check that the compressor is operating within specified limits.</li> <li>3. Check the mounting screws on the drive, make sure they are tight. If the fault, persists replace the drive.</li> </ol>
E-13	PFC-IGBT Over Temp	Reg.78 80 Bit12	<ol style="list-style-type: none"> <li>1. Verify proper airflow over the heat-sink of the drive. Remove any obstructions.</li> <li>2. Check that the compressor is operating within specified limits.</li> <li>3. Check the mounting screws on the drive, make sure they are tight. If the fault, persists replace the drive.</li> </ol>
E-14	Compressor Startup Fault	Reg.78 80 Bit13	<ol style="list-style-type: none"> <li>1. Cycle power on the drive.</li> <li>2. If the problem persists replace the drive.</li> </ol>
E-17	DC Voltage Low	Reg.79 81 Bit0	<ol style="list-style-type: none"> <li>1. Check that the line voltage is no more than 15% below the specified voltage for the drive.</li> <li>2. Check the DC bus voltage if it is &lt;385VDC.</li> <li>3. Check the compressor is operating within specified limits.</li> <li>4. If the problem still persists, then it is possibly a drive component issue. Replace the drive.</li> </ol>
E-18	Compressor Phase Over Current (Intermediate)	Reg.79 81 Bit1	<ol style="list-style-type: none"> <li>1. Check the U/V/W connections on the drive side.</li> <li>2. Check the compressor motor windings</li> <li>3. Check the compressor is operating within specified limits.</li> <li>4. Sensor on Drive not reading properly - Replace Drive.</li> </ol>

**Table 31 — Converter Board Error Codes (cont)**

ERROR CODE	FAULT DESCRIPTION	DRIVE MODBUS REGISTER	ACTION/CAUSE
E-19	Compressor Phase Current Foldback Timeout	Reg.79 81 Bit2	Check if the compressor is operating outside the specified speed range.
E-20	Compress Power Module Temperature Foldback Timeout	Reg.79 81 Bit3	Compressor phase current $\geq$ foldback protection value (for 30 seconds). Check if the compressor is operating outside the specified speed range.
E-21	AC Input Current Foldback Timeout	Reg.79 81 Bit4	1. Check that the line voltage is no more than 15% below the specified voltage for the drive. 2. Check the compress is operating within specified limits. 3. If problem persists, replace the drive.
E-22	DLT Temperature Timout	Reg.79 81 Bit5	1. Check the DLT/Scroll Thermistor connection. 2. Check the compressor is operating within specified limits.
E-23	Auto Config Communication Timeout	Reg.79 81 Bit6	Baud rate or Parity of the system controller not matching with drive. Check whether system controller is working, the Power Cycle the drive.
E-24	Modbus Communication Lost	Reg.79 81 Bit7	1. Check Modbus communication cable connections. 2. Check the communications parameters are set right. 3. Power cycle the drive. 4. If problem persists. replace the drive.
E-25	DLT High Temp	Reg.79 81 Bit8	1. Check the DLT/Scroll Thermistor connection. 2. Check the compressor is operating within specified limits.
E-27	Board Temperature High	Reg.79 81 Bit10	1. Verify proper airflow over the heatsink of the drive. Remove any obstructions. 2. Check that the compressor is operating within specified limits. 3. Check the mounting screws on the drive, make sure they are tight. 4. If the problem still persists replace the drive.
E-28	Compressor Power Module Temperature High	Reg.79 81 Bit11	1. Verify proper airflow over the heatsink of the drive. Remove any obstructions. 2. Check that the compressor is operating within specified limits. 3. Check the mounting screws on the drive, make sure they are tight. 4. If the problem still persists replace the drive.
E-31	Comms to DSP Communication Lost	Reg.79 81 Bit14	1. Check Modbus communication cable connections. 2. Check the communication parameters are set right. 3. Power cycle the drive. 4. If problem persists replace the drive.
E-33	Compressor Phase Current Imbalance	Reg.82 84 Bit0	1. Verify proper airflow over the heatsink of the drive. Remove any obstructions. 2. Check that the compressor is operating within specified limits. 3. Check the mounting screws on the drive, make sure that they are tight. 4. If the problem still persists replace the drive.
E-35	Micro Electronic Fault	Reg.82 84 Bit2	1. DSP self-check error, restart the drive fault should go away. 2. If problem persists replace the drive.
E-39	Compressor Model Configuration Error	Reg.82 84 Bit6	1. Compressor model and configuration code do not match. 2. Check the setting on the Digital switches
E-40	High Pressure Sensor Type Configuration Error	Reg.82 84 Bit7	1. Pressure sensor and configuration code do not match. 2. Check the setting on the Digital switches
E-41	Compressor U-Phase OverCurrent/Sensor Fault	Reg.82 84 Bit8	1. Check the U/V/W connections on the drive side and compressor side. 2. Check the compressor motor windings.
E-42	Compressor V-Phase OverCurrent/Sensor Fault	Reg.82 84 Bit9	1. Check the U/V/W connections on the drive side and compressor side. 2. Check the compressor motor windings.
E-43	Compressor W-Phase OverCurrent/Sensor Fault	Reg.82 84 Bit10	1. Check the U/V/W connections on the drive side and compressor side. 2. Check the compressor motor windings.
E-51	DLT Temp Sensor Open or Short Fault	Reg.83 85 Bit2	1. Check the DLT/Scroll Thermistor connection. 2. Check the compressor is operating within specified limits.

**Table 31 — Converter Board Error Codes (cont)**

ERROR CODE	FAULT DESCRIPTION	DRIVE MODBUS REGISTER	ACTION/CAUSE
<b>E-54</b>	Power Module Temperature Sensor Open/Short Fault	Reg.83 85 Bit5	1. Verify proper airflow over the heatsink of the drive. Remove any obstructions. 2. Check that the compressor is operating within specified limits. 3. Check the mounting screws on the drive, make sure that they are tight. 4. If the problem still persists replace the drive.
<b>E-55</b>	PFC-IGBT Temperature Sensor Fault Open/Short Fault	Reg.83 85 Bit6	Temperature sensing device on the drive are possibly defective. If problem persists replace the drive.
<b>E-62</b>	Stator Heater Overcurrent	Reg.83 85 Bit13	Compress windings are drawing more current than expected in stator heater mode. If problem persist contact application engineer.
<b>E-64</b>	Fault Limit Lockout	Reg.83 85 Bit15	10 lockout errors in 10 hours. Troubleshoot the original errors.
<b>E-66</b>	Analog Communication Fault		Check the connection between the Converter board and the drive.
<b>E-67</b>	Configuration Setup Fault		1. Check the Digital switches settings. 2. Replace the Converter board.

NOTE(S):

- See "Important note regarding the E-04 error code" below.
- See "Important note regarding the E-12 error code" below.

**Important note regarding the E-04 error code**

When a power loss of less than 5 seconds duration occurs (rapid transient power event), an E-04 code can be displayed on the Analog Board.

THIS WILL PREVENT THE COMPRESSOR FROM RUNNING WHICH CAN THEN CAUSE NUISANCE ALARMS ON THE SYSTEMVU (i.e., F310, A317, F319, A320, A321, etc.). For more specific information and descriptions of these error codes, see Table 14 on page 36.

**IMPORTANT:** The actual root cause is a **LOCK OUT of the ANALOG BOARD**.

In this instance, the only way to reset and correct the E-04 error code is to either POWER CYCLE the unit or by INTERRUPTING THE START/STOP SIGNAL. If power cycling the unit, power must be turned off for at least 30 seconds.

If power quality at a facility is such that multiple rapid transient power events occur per day, multiple nuisance alarms can occur. This can be mitigated by the installation of a phase monitor to interrupt the start/stop signal to the Analog Board. Contact your local Carrier distributor for instructions if this option is deemed necessary.

**Important note regarding the E-12 error code**

In very high ambient locations where temperatures routinely exceed 105°F in the summer months and there is no shade present to interrupt the radiant heat from the sun, note the following:

On 5 ton units (06 size), nuisance E-12 error codes can occur on the Analog Board and Inverter Board during these high ambient temperature conditions. This can also lead to nuisance alarms shown on the SystemVu board (i.e., F310, A312, A317, etc.). For more specific information and descriptions of these error codes, see Table 14 on page 36.

Carrier recommends making the following changes to the software settings to ensure optimal operation of the inverter in high ambient locations:

- **MAIN MENU → SETTINGS → UNIT CONFIGURATION → COOLING → COMPRESSOR CONFIGURATION = CHANGE TO 5000 RPM**
- **MAIN MENU → SETTINGS → UNIT CONFIGURATION → OUTDOOR FAN → ODF MAX SPEED = CHANGE TO 1200 RPM**
- **MAIN MENU → SETTINGS → UNIT CONFIGURATION → OUTDOOR FAN → ODF FAN DELAY = CHANGE TO 60 SECONDS**
- **MAIN MENU → SETTINGS → UNIT CONFIGURATION → OUTDOOR FAN → ODF OVR TEMP = CHANGE TO 100 DEG**

In extreme circumstances it may be necessary to further adjust the above settings. Contact your local Carrier distributor for additional instructions as needed.

FILTER BOARD

The Filter board is a support board that helps filter out noise and spikes on the voltage supplied to the Drive board. For trouble-shooting, make sure the AC voltage is the same going into the board and coming out of the board. See Fig. 31 and Table 32 for more details on the filter board.

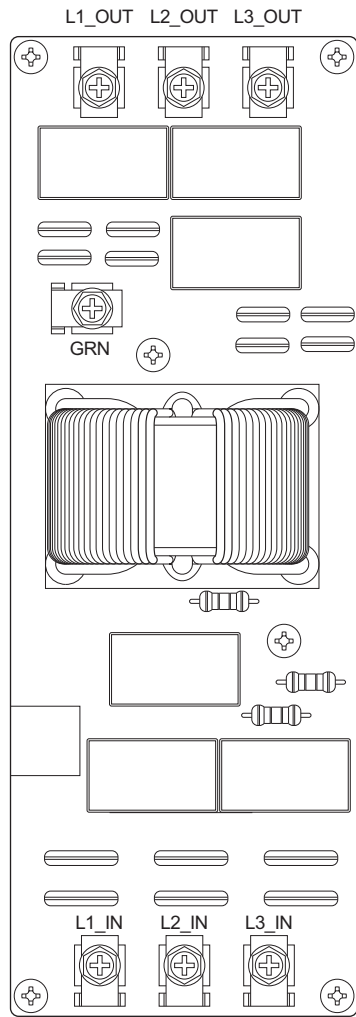



Fig. 31 — Filter Board

Table 32 — Filter Board Inputs/Outputs

TERMINAL LABEL	DESCRIPTION	TYPE	CONNECTOR
L1_IN, L2_IN, L3_IN	Supply Power	AC High voltage	3x screw terminals
GRN	Supply Ground	Chassis Ground	1x screw terminal
L1_OUT, L2_OUT, L3_OUT	Supply Power to Drive board	AC High voltage	3x screw terminals



CAPACITOR BOARD

 **WARNING**

**ELECTRICAL SHOCK HAZARD**

Failure to follow this warning could result in personal injury, or death.

Unit is equipped with capacitors that take time to discharge after power disconnect. Before performing service or maintenance operations on this unit, ensure the power has been off to the unit and locked out for at least 5 minutes. After removal of the high voltage cover, ensure all LED lights are off.

The Capacitor board is a support board that helps stabilize the DC bus used by the drive board. There is a green LED mounted on the board to indicate it has live voltage. The polarity is sensitive since this is a DC voltage. Inspect the Capacitors for bulging when troubleshooting. See Fig. 32 and Table 33 below for more details on the capacitor board.

LINE REACTOR

The line reactor is only used on 575 volt units. It is mounted and used in place of the filter board and capacitor board. The line reactor protects the drive board from noise and spikes on the supply voltage. This is a three-phase line reactor so there is a filter for each line of the three-phase power. There are two terminals for each phase and not direction sensitive. For troubleshooting, check the voltage for each phase going in and out of the line reactor to ensure they are the same.

CHOKES

The choke is the heaviest component and used to protect the DC bus from voltage spikes. This is wired between the +DC output of the drive board and the +DC input to the capacitor board. It is not direction sensitive so the wires can be swapped. Make sure the voltage is the same leaving the drive board as entering the capacitor board.

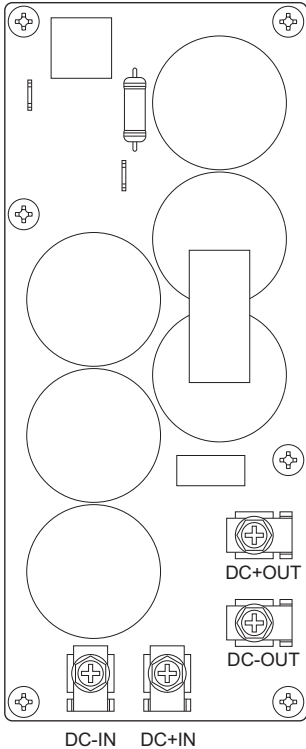


Fig. 32 – Capacitor Board

Table 33 – Capacitor Board Inputs/Outputs

TERMINAL LABEL	DESCRIPTION	TYPE	CONNECTOR
DC+OUT, DC-OUT	DC Bus Out to Drive Board	DC High voltage	2x 1/4-in. Quick Connect
DC+IN, DC-IN	DC Bus In from Drive Board	DC High voltage	2x 1/4-in. Quick Connect

## Carrier Comfort Network (CCN) Interface

The units can be connected to the CCN if desired. The communication bus wiring is a shielded, 3-conductor cable with drain wire and is field supplied and installed. The system elements are connected to the communication bus in a daisy chain arrangement. (See Fig. 33.) The positive pin of each system element communication connector must be wired to the positive pins of the system elements on either side of it. This is also required for the negative and signal ground pins of each system element. Wiring connections for CCN should be made at the CIB. (See Fig. 18 and 19.) Consult the CCN Contractor's Manual for further information.

NOTE: Conductors and drain wire must be 20 AWG (American Wire Gauge) minimum stranded, tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon<sup>1</sup>, or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of -20°C to 60°C is required. See table below for acceptable wiring.

MANUFACTURER	PART NO.
Alpha	2413 or 5463
Belden	8772
Carol	C2528
West Penn	302

It is important when connecting to a CCN communication bus that a color-coding scheme be used for the entire network to simplify the installation. It is recommended that red be used for the signal positive, black for the signal negative and white for the signal ground. Use a similar scheme for cables containing different colored wires.

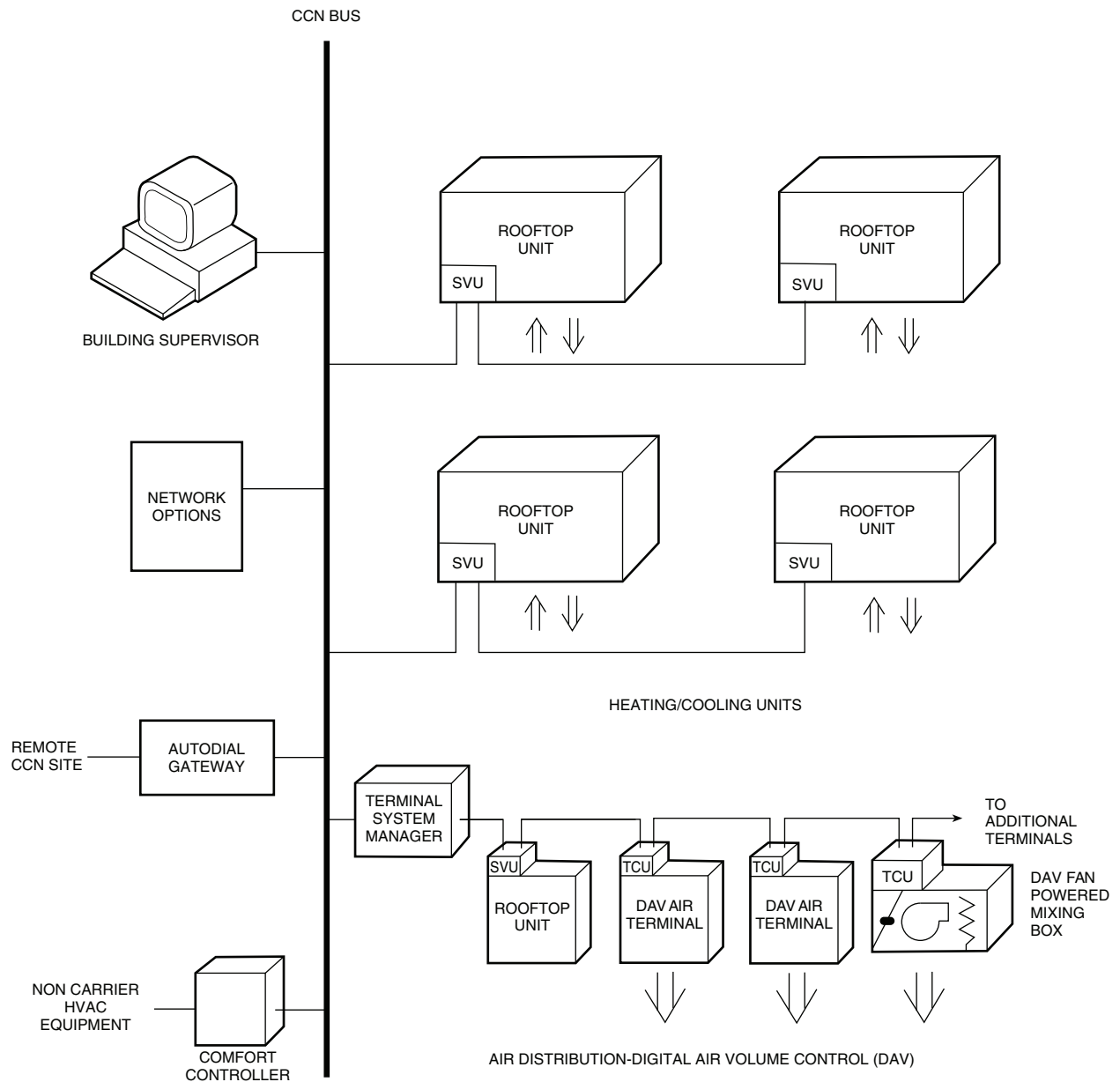
At each system element, the shields of its communication bus cables must be tied together. The shield screw on CIB can be used to tie the cables together. If the communication bus is entirely within one building, the resulting continuous shield must be connected to a ground at one point only. The shield screw on CIB is not acceptable for grounding. If the communication bus cable exits from one building and enters another, the shields must be connected to grounds at the lightning suppressor in each building where the cable enters or exits the building (one point per building only).

To connect the unit to the network:

1. Turn off power to the control box.
2. Cut the CCN wire and strip the ends of the red (+), white (ground), and black (-) conductors. (Substitute appropriate colors for different colored cables.)
3. Connect the red wire to (+) terminal on CIB, the white wire to COM terminal, and the black wire to the (-) terminal.
4. The RJ14 CCN connector on CIB can also be used, but is only intended for temporary connection (for example, a laptop computer running Carrier network software).
5. Restore power to unit.

**IMPORTANT:** A shorted CCN bus cable will prevent some routines from running and may prevent the unit from starting. If abnormal conditions occur, unplug the connector. If conditions return to normal, check the CCN connector and cable. Run new cable if necessary. A short in one section of the bus can cause problems with all system elements on the bus.

1. Third-party trademarks and logos are the property of their respective owners.



#### LEGEND

**CCN** — Carrier Comfort Network®  
**DAV** — Digital Air Volume  
**HVAC** — Heating, Ventilation, and Air Conditioning  
**SVU** — SystemVu™ Controller  
**TCU** — Terminal Control Unit

**Fig. 33 — CCN System Architecture**



## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY

**Table A — Run Status Main Menu Layout**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
SHUTDOWN UNIT?	Local Unit Shutdown Requested	Yes/No		Command	LOCSHUT
RUN STATUS	Run Status Menu				
MODE	Mode Menu				
MODE	Operating Mode	See Appendix B		Readable	MODETEXT
SUB-MODE	Operating Sub-Mode	See Appendix B			SUBMTEXT
DEMAND	System Demand	See Appendix B			SYS_DMDT
LINKAGE ACTIVE	Linkage Active	Yes/No			LNK_ACT
EFF COOL SETPOINT	Cool Setpoint In Effect	xx.x	°F		CSP_EFF
EFF HEAT SETPOINT	Heat Setpoint In Effect	xx.x	°F		HSP_EFF
DEMAND CTRL TEMP	Effective Demand Temp	xxx.x	°F		TEMP_EFF
OCC SPRH SETPOINT	Occupied SPRH Setpoint	0 to 100	%	Configurable	SPRH_OSP
UNOCC SPRH SP	Unoccupied SPRH Setpoint	0 to 100	%	Configurable	SPRH_USP
COOL MODE T.GUARD	Cool Mode Select Time Guard	xxx	sec		COOLMSTG
HEAT MODE T.GUARD	Heat Mode Select Time Guard	xxx	sec		HEATMSTG
COOLING DEMAND	Space Cooling Demand	xx.x	°F delta		COOL_DMD
COOL DEMAND TREND	Cooling Demand Trend	xx.x			CLDTREND
HEATING DEMAND	Heating Space Demand	xx.x	°F delta		HEAT_DMD
HEAT DEMAND TREND	Heat Space Demand Trend	xx.x			HTDTREND
DMD LIMIT STATUS	Demand Limit Status				
COOL DMD LIM OFF	Cool Demand Limiting	Yes/No			CDMLMOFF
HEAT DMD LIM OFF	Heat Demand Limiting	Yes/No			HDMLMOFF
COOL DMD LIM LEV	Cool Demand Limit Level	0 to 3			CDMDLLEV
HEAT DMD LIM LEV	Heat Demand Limit Level	0 to 3			HDMELLEV
CL DMD LIM OFFSET	Cool Demand Limit Offset	0	°F		COOLDLMO
HT DMD LIM OFFSET	Heat Demand Limit Offset	0	°F		HEATDLMO
COOL	Cooling Status Menu				
COMMANDED IDF RPM	IDF Commanded RPM	xxxx	RPM		FSPD_RPM
CMP REQUESTED RPM	Compressor Requested Speed	xxxx	RPM		CMPRQSPD
COMMANDED ODF RPM	Commanded ODF Speed	xxxx	RPM		ODFSPEED
ECON CMD POSITION	Econ Commanded Position	0 to 100	%	Forcible	DAMPCMD
REQ. DEHUM LEVEL	Requested Dehum Level	0 = Normal, 1 = Subcool, 2 = Reheat			REQDHLEV
MECHANICAL COOLING	Mechanical Cooling Detail Sub-Menu				
OK TO MECH COOL	OK to Use Compressors?	Yes/No			OKMECHCL
MECH COOL ACTIVE	Mechanical Cool Active?	Yes/No			MECHCOOL
MAX COOLING SPEED	Max Allowed Cool Speed	1500 to 6000	RPM	Forcible	MAXREQSD
OIL RECOVERY	Oil Recovery Process	Yes/No			CMP_ORAF
ACTIVE COOL STAGE	Actual Cool Stage Active	x			ACTCSTGS
COMP A1 TIMEGUARD	Compressor A1 Time Guard	xxx	sec		TIMGD_A1
SUPPLY AIR TREND	Supply Air Temp Trend	xxx.x			SATTREND
COMP A1 STRIKES	Compressor A1 Strikes	x			A1STRIKE
CIRCUIT A LOCKOUT	Circuit A Locked Out	Yes/No			CIRALOCK
LO TEMP SPD LOCK	Lo Temp Min Speed Lockout	Yes/No			LAMN_LCK
HI TEMP SPD LOCK	Hi Temp Min Speed Lockout	Yes/No			HANM_LCK
COMP A1 LOCKOUT	Compressor A1 Locked Out	Yes/No			CA1_LOCK
COMP A1 AVAILABLE	Compressor A1 Available	Yes/No			CA1_AVAL
ENVELOPE HI LIMIT	Active Envelope Hi Limit	xxx	°F		CMPESDTH
ENVELOPE LO LIMIT	Active Envelope Lo Limit	xxx	°F		CMPESDLT
COMP HI ENVELOPE	Comp Hi Envelope Active	On/Off			CMPHIENV
COMP LO ENVELOPE	Comp Lo Envelope Active	On/Off			CMPLIENV
REQUESTED ODF SPD	Cool Requested ODF Speed	0 to 5000	RPM		RQODFSPD
ODF SDT CONTROL	ODF Control to SDT	Yes/No			VSODF_EN
ODF SDT TARGET	ODF SDT Control Point	xx			LASDT_SP
ODF OVERRIDE	Outdoor Fan Override	0 to 1			ODF_OVR
ODF HI ENVELOPE	ODF Hi Envelope Active	On/Off			LAHISDMD
ODF LO ENVELOPE	ODF Lo Envelope Active	On/Off			LALOSDMD
FREE COOLING	Free Cooling Detail Sub-menu				
OK TO FREE COOL	OK to Use Free Cooling?	Yes/No			OKFREECL
IN FREE COOLING	Free Cooling Active	Yes/No			FREECOOL
FREECOOL SAT SP	Free Cooling SAT Setpoint	xx.x	°F		FC_SATSP

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table A — Run Status Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
REQ. DAMPER POS	Requested Damper Pos	0 to 1	%		REQDAMP
ECON OPERATIONAL?	Econ Damper Operational	Yes/No			DAMPGOOD
DRY BULB LOCKOUT	Dry Bulb Lockout	Yes/No		Forcible	DBLOCK
ENTHALPY LOCKOUT	Enthalpy Lockout	Yes/No		Forcible	ENTHLOCK
OK TO UNOCC FC?	OK to Unocc Free Cool?	Yes/No			OKTOUFC
IN UNOC FREECOOL?	Unocc Free Cool Active	Yes/No			UFC_ACT
UFC LOCKOUT?	Unocc Free Cool Lockout	Yes/No			UNOCLOCK
DEHUMIDIFICATION	Dehumidification				
OK TO DEHUM	OK to Dehumidify	Yes/No			OKTODHUM
OK TO USE FBD	OK to Use Fan Dehum	Yes/No			OKTOFBD
OK TO REHEAT	OK to Use Humidimizer	Yes/No			OKTOHUMZ
FBD SST LOCK OUT	FBDH SST Lockout	Yes/No			FBDSSSTLO
FBD SAT LOCK OUT	FBDH SAT Lockout	Yes/No			FBDSATLO
HEAT	Heating Status Menu				
COMMANDED IDF RPM	IDF Commanded RPM	0 to 5000	RPM		FSPD_RPM
IGC FAN REQUEST	IGC Fan On Request (IFO)	On/Off			IGC_IFO
REQ. HEAT STAGES	Requested Heating Stages	0 to 2			REQHSTGS
ACTIVE HEAT STAGE	Actual Heat Stage Active	x			ACTHSTGS
OK TO USE HEAT	OK to Run Heat	Yes/No			OKTOHEAT
MAX HEAT STAGES	Max Allowed Heat Stages	0 to 2		Forcible	MAXHSTGS
HEAT 1 TIMEGUARD	Heat Stage 1 Time Guard	xxx	sec		TIMGD_H1
HEAT 2 TIMEGUARD	Heat Stage 2 Time Guard	xxx	sec		TIMGD_H2
SUPPLY AIR TREND	Supply Air Temp Trend	xxx.x			SATTREND
HEAT LOCKOUT	All Heat Stages Lockout	Yes/No		Forcible	ALLHTLOC
HEAT 1 AVAILABLE	Heat Stage 1 Available	Yes/No			HT1_AVAL
HEAT 2 AVAILABLE	Heat Stage 2 Available	Yes/No			HT2_AVAL
OK TO SA TEMPER	OK to Supply Air Tempering	Yes/No			OKTOTEMP
VENTILATION	Ventilation Status Menu				
VENT MODE	Ventilation Status	See Appendix B			VENTTEXT
EFFECTIVE MIN POS	Min Position in Effect	0 to 100	%	Forcible	MIN_POS
ECON ACT POSITION	Damper Actual Position	0 to 100	%		DAMPPOS
COMMANDED IDF RP	IDF Commanded RPM	0 to 5000	RPM		FSPD_RPM
OCCUPIED NOW	Currently Occupied	Yes/No		Forcible	OCCUPIED
OCCUPIED STANDBY	Occupied Standby	Yes/No			OCCSTDBY
IN PREOCC PURGE?	In Preoccupancy Purge?	Yes/No			PREOCCON
IN FREE COOLING	Free Cooling Active	Yes/No			FREECOOL
DIFF AIR QUALITY	Differential Air Quality	-5000 to 5000	PPM		AQ_DIFF
OK TO PREOC PURGE	OK to Preoccupancy Purge	Yes/No			OKPREOCC
IN IAQ OVERRIDE	Is IAQ Override Active?	Yes/No			IAQ_OVRD
DCV CURVE OFFSET	IAQ DCV Curve Offset	0 to 1	%		IAQ_OFFS
INDOOR FAN	Indoor Fan Status Menu				
COMMANDED IDF RPM	IDF Commanded RPM	0 to 5000	RPM		FSPD_RPM
IDF SPD OVERRIDE	IDF Speed Override Flag	On/Off			FAN_OVRD
IDF ERROR STATUS	IDF Operation Errors?	Yes/No			IDFBAD
GENERAL	General Run Data Menu				
FILTER TIME LEFT	Filter Hours Remaining	xxxx	hrs		FILTLEFT
RESET FILTER TIME	Reset Filter Timer	Yes/No		Command	RESETFLT
IN DAYLIGHT SAVE?	DST Currently Active	Yes/No			DST_ACTV
TCS ACTIVE?	Temp Compensate Start On	Yes/No			TCS_ACT
OCCUPANCY	Occupancy Data				
OCCUPIED NOW	Currently Occupied	Yes/No		Forcible	OCCUPIED
OCCUPIED STANDBY	Occupied Standby	Yes/No			OCCSTDBY
MINS UNTIL OCC	Mins Until Next Occupied	x-1 to 10080	min		MINTILOC
ACTIVE OCC CTRL	Active Occupancy Control	0=24/7 OCC, 1=SCHEDULE, 2=BAS CTRL, 3=REMOC CTL, 4=TIME OVRD, 5=LINKAGE, 6=FORCED, 7=MOTION			OCC_CTRL

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table A — Run Status Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
LINKAGE OCC REQ	Linkage Occupied Request	0=Unocc, 1=Occupied, 2=Disabled		Forcible	LNK_OCC
TIMED OVRD REMAIN	Timed Override Hours	0 to 240	min	Forcible	OVR_EXT
REMOTE OCC SWITCH	Remote Occupancy Switch	On/Off		Forcible	REMOCC
BMS OCC REQUEST	BMS Occupancy Request	0=UNOCC, 1=OCCUPIED, 2=DISABLED		Forcible	BMS_OCC
LOCAL OCC REQUEST	Local Scheduled Occupancy Request	0=Unocc, 1=Occupied		Forcible	LOC_OCC
ACTIVE PERIOD	Active Schedule Period	0 to 8			PER_NO
HOLIDAY TOMORROW?	Tomorrow is a Holiday	Yes/No			HOL_TMRW
HOLIDAY TODAY?	Today is a Holiday	Yes/No			HOLTODAY
NEXT OCC DAY	Next Occupied Day	DDD			NXTOCDAY
NEXT OCC TIME	Next Occupied Time	hh:mm			NXTOCTIM
NEXT UNOCC DAY	Next Unoccupied Day	DDD			NXTUNDAY
NEXT UNOCC TIME	Next Unoccupied Time	hh:mm			NXTUNTIM
PREV UNOCC DAY	Previous Unoccupied Day	DDD			PRVUNDAY
PREV UNOCC TIME	Previous Unoccupied Time	hh:mm			PRVUNTIM

**Table B — Settings Main Menu Layout**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>SETTINGS</b>	Setting Menu				
<b>SPACE SET POINTS</b>	Space Setpoints Adjustment Menu				
OCC COOL SETPOINT	Occupied Cool Setpoint	55 to 80	°F	78	OCSP
OCC HEAT SETPOINT	Occupied Heat Setpoint	55 to 80	°F	68	OHSP
UNOCC COOL SETPNT	Unoccupied Cool Setpoint	65 to 95	°F	85	UCSP
UNOCC HEAT SETPNT	Unoccupied Heat Setpoint	40 to 80	°F	60	UHSP
HEAT-COOL SP GAP	Heat-Cool Setpoint Gap	2 to 10	°F	5	HCSP_GAP
SPT SLIDER RANGE	SPT Offset Range (±)	0 to 5	°F	5	SPTO_RNG
OCC SPRH SETPOINT	Occupied SPRH Setpoint	0 to 100	%	50	SPRH_OSP
UNOCC SPRH SET PT	Unoccupied SPRH Setpoint	0 to 100	%	80	SPRH_USP
SPRH RH DEADBAND	Space RH Deadband	2 to 20	%	8	SPRH_DB
SA TEMPERING SP	SA tempering Setpoint	30 to 80	°F	55	SATEMPSP
<b>TEMP DEMAND CONFIG</b>	Temperature Demand Config Menu				
LOW COOL DMD ON	Low Cool Demand On	-1 to 2	°F	0.5	DMDLCON
HIGH COOL DMD ON	High Cool Demand On	0.5 to 20	°F	1.5	DMDHCON
LOW COOL DMD OFF	Low Cool Demand Off	-1 to 2	°F	-0.5	DMDLCOFF
COOL DMD LEVEL UP	Cool Demand Level Up	-2 to 2	°F	-0.2	CDMD_LUP
LOW HEAT DMD ON	Low Heat Demand On	-1 to 2	°F	0.5	DMDLHON
HIGH HEAT DMD ON	High Heat Demand On	0.5 to 20	°F	2	DMDHHON
LOW HEAT DMD OFF	Low Heat Demand Off	-1 to 2	°F	-0.5	DMDLHOFF
HEAT DMD LEVEL UP	Heat Demand Level Up	-2 to 2	°F	-0.2	HDMD_LUP
DEMAND TIMEGUARD1	Space Demand Time Guard 1	60 to 600	sec	120	TDMD_TG1
DEMAND TIMEGUARD2	Space Demand Time Guard 2	0 to 600	sec	240	TDMD_TG2
DEMAND TIMEGUARD3	Space Demand Time Guard 3	5 to 120	min	10	TDMD_TG3
<b>DMD LIMIT CONFIG</b>	Demand Limit Config				
COOL DMD LIM LEV1	Cool DMD Offset level 1	0 to 99	°F	1	CLDOLEV1
COOL DMD LIM LEV2	Cool DMD Offset level 2	0 to 99	°F	3	CLDOLEV2
COOL DMD LIM LEV3	Cool DMD Offset level 3	0 to 99	°F	5	CLDOLEV3
HEAT DMD LIM LEV1	Heat DMD Offset level 1	0 to 99	°F	1	HTDOLEV1
HEAT DMD LIM LEV2	Heat DMD Offset level 2	0 to 99	°F	3	HTDOLEV2
HEAT DMD LIM LEV3	Heat DMD Offset level 3	0 to 99	°F	5	HTDOLEV3
<b>CLOCK</b>	Clock Adjustment Menu				
DATE	Current Date	MM/DD/YYYY			DATE
TIME	Clock Hour and Minute	xx:xx	hh:mm		TIME
<b>DAYLIGHT SAVINGS</b>	Daylight Savings Config Menu				
DAYLIGHT SAVINGS?	DST Allowed?	Enable/Disable		Enable	DST_CFG

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
DST START MONTH	DST Start Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		3	STARTM
DST START WEEK	DST Start Week	1 to 5		2	STARTW
DST START DAY	DST Start Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		7	STARTD
DST MINS TO ADD	DST Minutes to Add	0 to 90	min	60	MINADD
DST STOP MONTH	DST Stop Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		11	STOPM
DST STOP WEEK	DST Stop Week	1 to 5		1	STOPW
DST STOP DAY	DST Stop Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		7	STOPD
DST MINS TO SUB	DST Minutes to Subtract	0 to 90	min	60	MINSUB
START TIME IN DAY	Time in Day to Start DST	0 to 600	min	120	DST_TOD
SCHEDULES	Schedules Adjustment Menu				
SCHEDULE NUMBER	CCN Schedule Number	0 = Always Occu- pied, 1-64 = Local Schedule, 65-99 = Global Schedule		0 = Always Occupied	SCHEDNUM
OCCUPANCY SCHEDULE	Occupancy Schedule Data				
HOLIDAY ADJUSTMENT MENU	Holiday Adjustment Menu				
ALLOW G. HOLIDAY?	Accept Global Holidays?	Yes/No		No	HOLIDAYT
TIMED OVR LENGTH	Timed Override Duration	0 to 4	hrs	4	OTL_CFG
CAN CANCEL T.OVR	Allow SPT Override Cancel	Yes/No		No	CLROVCFG
UNIT CONFIGURATIONS	Unit Configs Menu				
GENERAL	General Unit Configs Menu				
STARTUP DELAY	Unit Startup Delay	10 to 600	sec	30	STARTDLY
UNIT CONTROL TYPE	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN		0=TSTAT	CTRLTYPE
THERMOSTAT TYPE	Thermostat Hardware Type	0=CONV 2C2H, 1=DIGI 2C2H, 2=CONV 3C2H, 3=DIGI 3C2H		0=CONV 2C2H	STATTYPE
VENT METHOD	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP 1: Economizer FIOP	VENTTYPE
2POS/ERV CHANNEL	2-Position Damper/ERV Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		0	EV2PCHAN
ADAPTIVE TSTAT	TSTAT Adaptive Staging	Yes/No		Yes	ADPTSTAT



## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>DIRTY FILTER TIME</b>	Change Filter Timer	0 to 9999	hrs	600	FILT LIFE
<b>TEST MODE TIMEOUT</b>	Test Inactivity Time Out	0=Disabled, 1=30 minutes, 2=1 hour, 3=2 hours, 4=4 hours, 5=8 hours, 6=12 hours		4	TEST_ITO
<b>CCH MAX TEMP</b>	CCH Max Temperature	40 to 90	°F	65	CCHMAXT
<b>STD BARO PRESSURE</b>	Std Barometric Pressure	13 to 35	Hg	29.92	STD_BARP
<b>LINK STAGEUP TIME</b>	Linkage Stage inc. time	60 to 600	sec	180	LSTAGINC
<b>UNIT'S MAX SAT</b>	Unit's Maximum SAT	130 to 210	°F	200	UMAX_SAT
<b>UNIT'S MIN SAT</b>	Unit's Minimum SAT	30 to 70	°F	32	UMIN_SAT
<b>AUTO SAT FAULTS?</b>	Auto Clear SAT Limit Fault	Yes/No		No	SATLACLR
<b>SA FREEZE PROTECT</b>	SAT Freeze Protection	Enable/Disable		Enable	SATFZPRO
<b>ADAPTIVE TCS?</b>	Adaptive Temp Comp Start	Enable/Disable		Disable	TCS_CFG
<b>USER TCS BIAS TIME</b>	User TCS Start Bias Time	0 to 180	min	0	TCSUBIAS
<b>EVAC WITH DAMPER</b>	Smoke Evac with Damper	Yes/No		Yes	EVACDAMP
<b>SWITCH INPUTS CONFIGS</b>	DI Config Menu				
<b>FIRE SW CHANNEL</b>	Fire Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 5: FIOP	FIRECHAN
<b>FIRE SHUTDOWN SW</b>	Fire Shutdown Switch	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	FIRE_CFG
<b>HUMSTAT CHANNEL</b>	Humidistat Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No Humidi-MiZer FIOP 7: Humidi-MiZer FIOP	HUMDCHAN
<b>HUMSTAT SW TYPE</b>	Humidistat Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	HUMD_CFG
<b>FILTER SW CHANNEL</b>	Filter Status Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 1: FIOP	FILTCHAN
<b>FILTER SW TYPE</b>	Filter Status Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	FILT_CFG
<b>REMOTE OCC CHAN</b>	Remote Occupancy Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=None	RMOCCHAN
<b>REMOTE OCC TYPE</b>	Remote Occupancy Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	RMOC_CFG
<b>REM.SHUTDOWN CHAN</b>	Remote Shutdown Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=None	ROFFCHAN
<b>REM.SHUTDOWN SW T</b>	Remote Shutdown Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	ROFF_CFG
<b>REM.SHUTDOWN TYPE</b>	Remote Shutdown ALM Type	0=Normal, 1=Emergency		0=Normal	ROFFTYPE

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
COFS CHANNEL	COFS Assigned Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 4: FIOP	COFSCHAN
COFS TYPE	COFS Switch Type	0=NORM OPEN, 1=NORM CLSD		1=NORM CLSD	COFS_CFG
GEN STATUS CHAN	General Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=None	GEN_CHAN
GEN STAT SW TYPE	General Status Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	GENS_CFG
SHUTDOWN GEN STAT	General Status Shutdown?	Yes/No		Yes	GENFATAL
ENTHALPY SW CHAN	Enthalpy Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	ENTHCHAN
ENTHALPY SW TYPE	Enthalpy Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	ENTH_CFG
FAN STAT CHANNEL	Fan Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	FNSTCHAN
FAN STAT SW CFG	Fan Status Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	FANSTICFG
IAQ OVERRIDE SW CH	IAQ Override Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	IAQOCHAN
IAQ OVRD SW TYPE	IAQ Override Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	IAQOSCFG
PHASE MON CHANNEL	Phase Monitor Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 3: FIOP	PMR_CHAN
PHASE MON SW TYPE	Phase Monitor Switch Type	0=NORM OPEN, 1=NORM CLSD		1=NORM CLSD	PMR_CFG
SMOKE PURGE CHAN	Smoke Purge Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	PURGCHAN
SMOKE PURGE TYPE	Smoke Purge Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	PURG_CFG

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>SMOKE PRESS CHAN</b>	Smoke Pressure Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	PRESCHAN
<b>SMOKE PRESS TYPE</b>	Smoke Pressure Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	PRES_CFG
<b>SMOKE EVAC CHAN</b>	Smoke Evacuation Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	EVACCHAN
<b>SMOKE EVAC TYPE</b>	Smoke Evacuation Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	EVAC_CFG
<b>ANALOG INPUT CONFIGS</b>	Analog Inputs Config Menu				
<b>SPRH SENS CHANNEL</b>	SPRH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	SPRHCHAN
<b>SPRH RH @ 4MA</b>	SPRH Sensor Value @ 4mA	0 to 100	%	0	SPRH_4MA
<b>SPRH RH @ 20MA</b>	SPRH Sensor Value @ 20mA	0 to 100	%	100	SPRH20MA
<b>IAQ SENSOR CHAN</b>	IAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: No FIOP 2:FIOP	IAQ_CHAN
<b>IAQ PPM @ 4MA</b>	IAQ Sensor Value @ 4mA	0 to 5000	PPM	0	IAQ_4MA
<b>IAQ PPM @ 20MA</b>	IAQ Sensor Value @ 20mA	0 to 5000	PPM	2000	IAQ_20MA
<b>OAQ SENSOR CHAN</b>	OAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	OAQ_CHAN
<b>OAQ PPM @ 4MA</b>	OAQ Sensor Value @ 4mA	0 to 5000	PPM	0	OAQ_4MA
<b>OAQ PPM @ 20MA</b>	OAQ Sensor Value @ 20mA	0 to 5000	PPM	2000	OAQ_20MA
<b>OARH SENSOR CHAN</b>	OARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: No FIOP 3: FIOP	OARHCHAN
<b>OARH RH @ 4MA</b>	OARH Sensor Value @ 4mA	0 to 100	%	0	OARH_4MA
<b>OARH RH @ 20MA</b>	OARH Sensor Value @ 20mA	0 to 100	%	100	OARH20MA
<b>RARH SENS CHANNEL</b>	RARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	RARHCHAN
<b>RARH RH @ 4MA</b>	RARH Sensor Value @ 4mA	0 to 100	%	0	RARH_4MA
<b>RARH RH @ 20MA</b>	RARH Sensor Value @ 20mA	0 to 100	%	100	RARH20MA
<b>OACFM SENSOR CHAN</b>	OACFM Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	OACFMCHAN
<b>OACFM @ 4MA</b>	OACFM Value @ 4mA	0 to 2000	CFM	0	OACFM_4MA
<b>OACFM @ 20MA</b>	OACFM Value @ 20mA	2000 to 5000	CFM	2000	OACFM20MA
<b>COOLING</b>	Cooling Configs Menu				
<b>COOLING RESPONSE</b>	Custom Cooling Response	0=FASTER, 1=FAST, 2=MEDIUM, 3=SLOW, 4=SLOWER		2=MEDIUM	COOLRESP
<b>COMP MIN ON TIME</b>	Compressor Min On Time	180 to 600	sec	300	C_MINON
<b>COMP MIN OFF TIME</b>	Compressor Min Off Time	120 to 600	sec	180	C_MINOFF
<b>STRIKE CLEAR TIME</b>	Runtime to Reset Strikes	120 to 999	sec	300	MIN_ON_S
<b>UPPER MIN SAT</b>	Cool Min SAT Upper Level	35.0 to 65.0	°F	50	SATMIN_H
<b>LOWER MIN SAT</b>	Cool Min SAT Lower Level	35.0 to 65.0	°F	43	SATMIN_L
<b>COOL FANOFF DELAY</b>	Cooling Fan-Off Delay	0 to 600	sec	75	COOL_FOD

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>DEHUMIDIFICATION</b>	Dehumidification				
<b>REHEAT EQUIPPED</b>	Humidimizer Equipped	Yes/No		No: No Humidi-MiZer FIOF Yes: Humidi-MiZer FIOF	HUMZ_EN
<b>REHEAT OAT LIMIT</b>	Humidimizer Lockout Temp	-20 to 75	°F	40	OATLHUMZ
<b>REHEAT SDT TARGET</b>	Humidimizer SDT Setpoint	75 to 150		90	HUM_SDT
<b>FAN BASED DEHUM</b>	Fan Based Dehum CFG Menu				
<b>FBD CONTROL TYPE</b>	Fan Based Dehum Type	0=NONE, 1=Comfort, 2=Max		0=NONE	FBD_TYPE
<b>FBD COOL DELTA</b>	FBDH Low Setpoint	-20 to 0	°F delta	-2.5	FBDLO_SP
<b>FBD MAX SST SP</b>	FBDH Max Mode SST Setpoint	20 to 60	°F	38	FBDSSSTSP
<b>FBD SST MIN VALUE</b>	FBDH Min SST Threshold	10 to 60	°F	32	FBDH_SST
<b>FBD CMFT SAT SP</b>	FBDH Comfort SAT Setpoint	35 to 80	°F	46	FBDH_SAT
<b>FBD CMFT SAT DT</b>	FBD Comfort SAT Delta	0 to 30	°F	11	FBDSDTDT
<b>FBD MIN FAN SPD</b>	FBDH Min Fan Speed	0 to 5000	RPM	810: Size 04 840: Size 05 1054: Size 06	FDRPMMIN
<b>FBD MAX FAN SPD</b>	FBDH Max Fan Speed	0 to 5000	RPM	1890: Size 04 Standard Static Fan 2190: Size 04 Medium Static Fan 2490: Size 04 High Static Fan 1900: Size 05 Standard Static Fan 2170: Size 05 Medium Static Fan 2660: Size 05 High Static Fan 2150: Size 06 Standard Static Fan 2390: Size 06 Medium Static Fan 2836: Size 06 High Static Fan	FDRPMMAX
<b>LOW AMBIENT</b>	Low Ambient Config Menu				
<b>CIR.A LOCKOUT OAT</b>	Circuit A Lockout Temp	-20 to 75	°F	0	OATLCMPA
<b>LO TEMP SPD TEMP</b>	Low Temp Cmp Min Speed Temp	0 to 50	°F	25	LACMPTMP
<b>LOW AMBIENT TEMP</b>	Low Ambient Temperature	0 to 80	°F	64	LA_TEMP
<b>MIN COOL LOCK SPD</b>	Lo Temp Comp Min Temp	900 to 4000	RPM	3400	LACPMNSP
<b>LO AMB SDT TARGET</b>	Low Ambient SDT Setpoint	60 to 160		90	LA_SDT
<b>CHARGE DIAGNOSTICS</b>	Refrigerant Charge Diagnostic Config Menu				
<b>LOW CHARGE LEVEL</b>	Low Refrigerant Charge Level	0 to 150	PSI	50	LOCHARGE
<b>NO LOW CHARGE OAT</b>	Low Charge Disable Temp	-40 to 50	°F	10	LOCH_LOT
<b>CIR.A SDP LIMIT</b>	Circuit A High Pressure Limit	400 to 700	PSI	640	HIPLIM_A
<b>LOW DISCHRG DIAG</b>	Low Discharge Diagnostic	0 to 1		0	DISLDPAL
<b>LOW SUCTION DIAG.</b>	Low Suction Diagnostic Config Menu				
<b>LOW SUC OK TEMP</b>	Suction OK Temperature	10 to 50	°F	18	SSTOK
<b>LOW SUC LEVEL 1</b>	Low Suction Level 1 Temp	10 to 50	°F	20	SSTLEV1
<b>LOW SUC LEVEL 2</b>	Low Suction Level 2 Temp	5 to 50	°F	15	SSTLEV2
<b>LOW SUC LEVEL 3</b>	Low Suction Level 3 Temp	0 to 50	°F	10	SSTLEV3
<b>LO SUC DIAG DELAY</b>	Delay On Low SST Check	0 to 300	sec	0	SSTCKDLY
<b>COMPRESSOR TRANSITION</b>	Compressor Transition Diagnostic Config Menu				
<b>COMP L2 DIAG DLY</b>	Comp Level 2 Diag Delay	1 to 300	sec	45	CDDTLEV2
<b>DIAG. COMP OFF<sup>a</sup></b>	Diag Comp Unexpected Off	Enable/Disable		Disable	CD_UEOFF
<b>CIR STUCK ON DIAG</b>	Circuit Stuck On Diag.	Enable/Disable		Disable	DCKTOFF
<b>CIR.A MIN DIS.P</b>	Min Discharge Change	0 to 99	PSI	8	MDP_DISA
<b>CIR.A MIN SUC.P</b>	Min Suction Change	0 to 99	PSI	10	MDP_SUCA
<b>OFF P.RATIO</b>	Circuit A P.Ratio Off Change	-1 to 1		-0.3	OFFPR_A
<b>COMPRESSOR CONFIGURATION</b>	Compressor Config Menu				
<b>COMP MAX SPEED</b>	Compressor Maximum Speed	900 to 6000	RPM	6000	CMPMAXSP <sup>b</sup>
<b>COMP START SPEED</b>	Compressor Start Speed	900 to 5000	RPM	2000	CMPSTSPD
<b>HI TEMP SPD TEMP</b>	Hi Temp Comp Min Speed Temp	80 to 150	°F	110	HACMPTMP
<b>HI TEMP CMP SPEED</b>	Hi Temp Comp Min Speed	900 to 4000	RPM	2700	HACPMNSP

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
OFFSET ON HI ENV.	Offset From Hi Envelope	0 to 100	°F	4	CMPSDTHI
OFFSET ON LO ENV.	Offset From Lo Envelope	0 to 100	°F	4	CMPSDTLO
ALERT ON ENVELOPE	Alert on Envelope Hi/Lo	Enable/Disable		Enable	ENVALDIS
OIL RECOVERY TRIP	Oil Recovery Trip Speed	0 to 10000	RPM	1800	CMP_ORAS
OIL RECOVERY SPD	Oil Recovery Run Speed	0 to 10000	RPM	3600	CMP_ORRS
OIL RECOVERY TIME	Oil Recovery Duration	0 to 3600	sec	300	CMP_ORRT
RAMP UP PER SEC	Comp Ramp Up Rate per Second	58 to 1000	RPM	62	CMPRAMPU
RAMP DOWN PER SEC	Comp Ramp Down Rate per Second	58 to 1000	RPM	152	CMPRAMPD
HEATING	Heating Config Menu				
UNIT TYPE OF HEAT	Type of Heat Installed	0=ELECTRIC, 1=GAS			HEATTYPE
HEATING STAGE QTY	Number of Heating Stages	0 to 2		Heating stage QTY default is: 2: all except below 0: 50 Series without FIOP heaters 1: 48 Series Low Heat, Low NOx Gas Heat, 48JC 05-06 Med Heat, 50JC 04-06 Low Heat, 50JC 04-05 Med Heat, 50JC 04 High Heat 230v and 460v, 50JC 05 High Heat 230v, 50JC 06 Med Heat 460v and 575v	NUMHSTGS
HEAT MIN ON	Heat Minimum On Time	60 to 600	sec	120	H_MINON
HEAT MIN OFF	Heat Minimum Off Time	60 to 600	sec	120	H_MINOFF
HEAT STAGEUP TIME	Heat Stage Increase Time	120 to 999	sec	450	HSTAGINC
HEAT SATTREND LEV	Heating SAT Trend Level	-1 to 1		0.2	SAT_TLH
LOWER MAX SAT	Heat Max SAT Lower Level	85 to 200	°F	140	SATMAX_L
UPPER MAX SAT	Heat Max SAT Upper Level	85 to 200	°F	170	SATMAX_H
HEAT FANOFF DELAY	Heating Fan-off Delay	10 to 600	sec	30 (50 series) 45 (48 series)	HEAT_FOD
HEAT LOCKOUT OAT	Heating Lockout Temp	40 to 125	°F	75	OATLHEAT
SAT DURING HEAT?	SAT Heat Mode Sensing	Enable/Disable		Enable	SAT_HEAT
IGC IFO TIMEOUT	No IGC IFO input Timeout	0 to 60	min	5	NO_IGCTM
PREHEAT W/O IDF?	Pre-Heat HX without IDF?	Enable/Disable		Disable	PREHT_HX
PREHEAT FAN DELAY	Pre-Heat Fan On Delay	0 to 120	sec	30	PREHT_TM
SA TEMPER ENABLED	Supply Air Temper Enable	Yes/No		No	SATEMPEN
SA TEMPERING SP	SA tempering Setpoint	20 to 60	°F	55	SATEMPSP
TEMPER MAX OAT	Max OAT for SA Tempering	40 to 125	°F	65	OATSTEMP
INDOOR FAN	Indoor Fan Configs Menu				
OCCUPIED FAN?	Fan On When Occupied	Yes/No		Yes	FANON_OC
COOL DESIGN SPEED	Cooling Design Point Speed	0 to 3000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	IDFDGSPD

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>IDF VENT SPD</b>	IDF Vent Speed = RPM	0 to 5000	RPM	737: Size 04 Standard Static Fan 854: Size 04 Medium Static Fan 971: Size 04 High Static Fan 741: Size 05 Standard Static Fan 847: Size 05 Medium Static Fan 1038: Size 05 High Static Fan 839: Size 06 Standard Static Fan 932: Size 06 Medium Static Fan 1106: Size 06 High Static Fan	RPM_VENT
<b>IDF HEAT SPD</b>	IDF Heat Speed = RPM	0 to 5000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	RPM_HEAT
<b>IDF FREE COOL SPD</b>	IDF Free Cool Speed = RPM	0 to 3000	RPM	1106: Size 04 Standard Static Fan 1281: Size 04 Medium Static Fan 1457: Size 04 High Static Fan 1112: Size 05 Standard Static Fan 1269: Size 05 Medium Static Fan 1556: Size 05 High Static Fan 1258: Size 06 Standard Static Fan 1398: Size 06 Medium Static Fan 1659: Size 06 High Static Fan	RPM_FCL
<b>IDF MAX SPEED</b>	IDF Maximum Fan Speed	80 to 100	%	100	SPEEDMAX
<b>FAULT ON ERROR</b>	Shut Down on IDF Failure	Yes/No		Yes	FATALFAN
<b>OUTDOOR FAN</b>	Out Fan Configs Menu				
<b>ODF MIN SPEED</b>	ODF Minimum Speed	0 to 1200	RPM	160	ODFMINS
<b>ODF MAX SPEED</b>	ODF Maximum Speed	0 to 1200	RPM	1100	ODFMAXSP <sup>c</sup>
<b>ODF FAN OFF DELAY</b>	ODF Fan-Off Delay	0 to 60	sec	30	ODF_FOD
<b>ODF OVR TEMP</b>	ODF Override Temperature	80 to 140	°F	110	ODFHTOVR <sup>d</sup>
<b>ODF HI ENV OFFSET</b>	High Envelope ODF Offset	0 to 100	°F	8	ODFSDTHI
<b>ODF LO ENV OFFSET</b>	Low Envelope ODF Offset	0 to 100	°F	6	ODFSDTLO
<b>RAMP UP PER SEC</b>	ODF Ramp Up Rate per Second	0 to 1000	RPM	600	ODFRAMPU
<b>RAMP DOWN PER SEC</b>	ODF Ramp Down Rate per Second	0 to 1000	RPM	600	ODFRAMPD
<b>ECONOMIZER</b>	Economizer Configs Menu				
<b>VENT METHOD</b>	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP	VENTTYPE
<b>ECON MAX POS</b>	Econ Max Damper Position	0 to 1	%	1	DAMPMAX
<b>ECON TRAVEL TIME</b>	Economizer Travel Time	0 to 65535	sec	150	ECONOTRV

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>MINIMUM POSITION CONFIGS</b>	Minimum Position Configs menu				
<b>MIN POS @ MAX FAN</b>	Econ Min at Max Fan Speed	0 to 1	%	0	MINP_MAX
<b>MIN POS SPEED 1</b>	Min Pos - User Speed 1	0 to 1	%	0	MP_USPD1
<b>MIN POS DAMP 1</b>	Min Pos - User Pos 1	0 to 1	%	0	MP_UPOS1
<b>MIN POS SPEED 2</b>	Min Pos - User Speed 2	0 to 1	%	0	MP_USPD2
<b>MIN POS DAMP 2</b>	Min Pos - User Pos 2	0 to 1	%	0	MP_UPOS2
<b>MIN POS SPEED 3</b>	Min Pos - User Speed 3	0 to 1	%	0	MP_USPD3
<b>MIN POS DAMP 3</b>	Min Pos - User Pos 3	0 to 1	%	0	MP_UPOS3
<b>FREE COOL CONFIGS</b>	Free Cooling Specific Configs Menu				
<b>LOW COOL SAT SP</b>	Low Free Cool SAT Setpoint	40 to 80	°F	65	LCSASP
<b>HIGH COOL SAT SP</b>	High Free Cool SAT Setpoint	40 to 80	°F	55	HCSASP
<b>FREE COOL MAX OAT</b>	Free Cooling Max OAT	0 to 90	°F	65	MAXFREET
<b>FREE COOL MIN OAT</b>	Free Cooling Min Temp	-30 to 70	°F	0	MINFREET
<b>DIFF DRY BULB CTL</b>	Diff. Dry Bulb Control	Enable/Disable		Disable	DIFFBULB
<b>DIFF DB DEADBAND</b>	Diff. Dry Bulb Deadband	0 to 20	°F	3	OATRATDB
<b>ENTHALPY HI LIMIT</b>	Max Enthalpy OA limit	-9.5 to 99	BTU/LB	28	FREEMAXE
<b>DIFF ENTHALPY CTL</b>	Diff. Enthalpy Control	Enable/Disable		Disable	DIFFENTH
<b>ENTHALPY DEADBAND</b>	Enthalpy Cross Deadband	0 to 20	BTU/LB	2	OAERAEDB
<b>UNOCCUPIED FREE COOL WHEN TO UNOCC FC</b>	Unoccupied Free Cooling Configs Menu				
	When to Unocc Free Cool?	0=Disabled, 1=PreOcc, 2=Unocc		1=PreOcc	UFC_CFG
<b>UFC PREOCC TIME</b>	UFC Preocc Time	1 to 9999	min	120	UFCTIME
<b>UFC LOW TEMP</b>	Unocc Free Cool Low Temp	-100 to 100	°F	50	OATLUFC
<b>POWER EXHAUST CONFIGS</b>	Power Exhaust Configs Menu				
<b>PE1 RELAY CHANNEL</b>	PE1 Relay Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		0: no FIOP 2: FIOP	PE1_CHAN
<b>PE1 POS @ MAX SPD</b>	PE Stage 1 at Max Speed	0 to 1	%	0	PE1_PMAX
<b>PE OFF DEADBAND</b>	PE Turn Off Deadband	0 to 1	%	0	PE_OFFDB
<b>PE2 RELAY CHANNEL</b>	PE2 Relay Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		0=NONE	PE2_CHAN
<b>PE2 POS @ MAX SPD</b>	PE Stage 2 at Max Speed	0 to 1	%	0	PE2_PMAX
<b>ECON ACT MECH DISC DIAG</b>	Econ Actuator Mechanical disconnect diagnostic menu				
<b>MDD-H/C END DLY</b>	T24 Heat/Cool End Delay	0 to 60	min	25	T24CHDLY
<b>MDD-MIN MOVE</b>	T24Econ Min Move for SAT	0.1 to 0.2	%	0.1	T24ECSTS
<b>MDD-SAT DB</b>	Damper SAT Deadband	0 to 20	°F	12	T24SATDB
<b>MDD-MIN RAT-OAT</b>	T24 Min Diff in RAT-OAT	5 to 20	°F	15	T24RATDF
<b>MDD-MIN TEST POS</b>	T24 Test Minimum Pos	0 to 0.50	%	0.15	T24TSTMN
<b>MDD-MAX TEST POS</b>	T24 Test Maximum Pos	0.50 to 1	%	0.85	T24TSTMX
<b>AIR QUALITY</b>	Air Quality Configs Menu				
<b>ANALOG IAQ CTRL</b>	Analog Input IAQ Control	0=NO IAQ, 1=DCV, 2=IAQ OVRD, 3=CTRL MINP		0: no FIOP	IAQANCFG
<b>IAQ POS @ MAX SPD</b>	IAQ Position at Max Fan	0 to 1	%	0.1	IAQMNP
<b>LOW AIR.Q DIFF</b>	AQ Differential Low	0 to 5000		100	DAQ_LOW
<b>HGH AIR.Q DIFF</b>	AQ Differential High	0 to 5000		700	DAQ_HIGH
<b>PREOCC PURGE ENBL</b>	IAQ Preoccupancy Purge	Yes/No		Yes	IAQPURGE
<b>PURGE POS @ MAX</b>	IAQ Purge Pos at Max IDF	0 to 1	%	0.1	IAQPMAX
<b>PREOCC LOW LIMIT</b>	Preocc Purge Lockout OAT	0 to 70	°F	50	IAQP_LA
<b>PREOCC PURGE TIME</b>	Preocc Purge Duration	5 to 120	min	15	IAQPTIME
<b>AQ DIF HI-IAQ OVR</b>	AQ Diff High IAQ Override	0 to 5000	PPM	700	AQD_HIGH
<b>AQ DIF LO-IAQ OVR</b>	AQ Diff Low-IAQ Override	0 to 5000	PPM	100	AQD_LOW
<b>IAQ OVRD ENABLE</b>	IAQ override enable	Yes/No		No	IAQOVREN
<b>AQ OVR SW FAN CTL</b>	Switch Input IAQ Fan Control	0=Never, 1=Occupied, 2=Always		0=NEVER	IAQSWFAN

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>AQ OVR AI FAN CTL</b>	Analog Input IAQ Fan CTL	0=Never, 1=Occupied, 2=Always		0=NEVER	IAQANFAN
<b>AQ OVR POSITION</b>	IAQ Override Position	0 to 100	%	100	IAQOVPOS
<b>ALARM RELAY</b>	Alarm Relay Config Menu				
<b>ALM RELAY CHANNEL</b>	ALM Relay Assigned Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		0=NONE	ALM_CHAN
<b>THERMOSTAT ALERTS</b>	Thermostat Alerts	Yes/No		Yes	TSTAT_AL
<b>HARDWARE ALERTS</b>	Hardware Failures Alerts	Yes/No		Yes	HW_AL
<b>SAT/RAT ALERTS</b>	SAT/RAT Sensor Alerts	Yes/No		Yes	SATRATAL
<b>OAT SENSOR ALERTS</b>	OAT Thermistor Alerts	Yes/No		Yes	OATRL_AL
<b>SPACE SENS ALERTS</b>	Space Sensors Alerts	Yes/No		Yes	SPACE_AL
<b>TRANSDUCER ALERTS</b>	Transducer Sensor Alerts	Yes/No		Yes	TRANS_AL
<b>RH SENSOR ALERTS</b>	RH Sensor Failure Alert	Yes/No		Yes	RHS_AL
<b>CO2 SENSOR ALERTS</b>	Air Quality CO2 Alerts	Yes/No		Yes	CO2S_AL
<b>OACFM SENS ALERTS</b>	OACFM Alarm Relay	Yes/No		No	OACFM_AL
<b>ECONOMIZER ALERTS</b>	Economizer Alerts	Yes/No		Yes	ECON_AL
<b>AIR FILTER ALERTS</b>	Dirty Filter Alerts	Yes/No		Yes	FILT_AL
<b>GEN STATUS ALERTS</b>	General Status Alerts	Yes/No		Yes	GENS_AL
<b>REFRIG CIR ALERTS</b>	Refrigerant Circuit Alerts	Yes/No		Yes	CKT_AL
<b>COMPRESSOR ALERTS</b>	Compressor Alerts	Yes/No		Yes	COMP_AL
<b>HEATING ALERTS</b>	Heating Failure Alerts	Yes/No		Yes	HEAT_AL
<b>INDOOR FAN ALERTS</b>	Indoor Fan Alerts	Yes/No		Yes	FAN_AL
<b>ON ACTIVE FAULTS</b>	Relay On Active Faults	Yes/No		Yes	FAULT_AL
<b>SERVICE CONFIG MENU</b>	Service Config Menu				
<b>IDF CURVE LO RPM</b>	IDF Curve Low RPM	0 to 5000	RPM	189: Size 04 Standard Static Fan 219: Size 04 Medium Static Fan 249: Size 04 High Static Fan 190: Size 05 Standard Static Fan 217: Size 05 Medium Static Fan 266: Size 05 High Static Fan 215: Size 06 Standard Static Fan 239: Size 06 Medium Static Fan 284: Size 06 High Static Fan	IFMLORPM
<b>IDF CURVE HI RPM</b>	IDF Curve High RPM	0 to 5000	RPM	1890: Size 04 Standard Static Fan 2190: Size 04 Medium Static Fan 2490: Size 04 High Static Fan 1900: Size 05 Standard Static Fan 2170: Size 05 Medium Static Fan 2660: Size 05 High Static Fan 2150: Size 06 Standard Static Fan 2390: Size 06 Medium Static Fan 2836: Size 06 High Static Fan	IFMHIRPM
<b>CMP-FAN CURVE X1</b>	Cmp-Fan Curve Point X1	0 to 6000	RPM	2000: Size 04 1600: Size 05 1900: Size 06	CMPCRVX1
<b>CMP-FAN CURVE X2</b>	Cmp-Fan Curve Point X2	0 to 6000	RPM	2800: Size 04 2567: Size 05 2633: Size 06	CMPCRVX2
<b>CMP-FAN CURVE X3</b>	Cmp-Fan Curve Point X3	0 to 6000	RPM	4400: Size 04 4500: Size 05 4100: Size 06	CMPCRVX3
<b>CCH RELAY1 ENABLE</b>	CCH Relay 1 Enabled	Yes/No		Yes	CCHR1_EN



## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>CMP-IDF CURVE Y1</b>	Cmp-IDF Curve Point Y1	0 to 3000	RPM	810: Size 04 840: Size 05 1054: Size 06	IDFCRVY1
<b>CMP-IDF CURVE Y2</b>	Cmp-IDF Curve Point Y2	0 to 3000	RPM	980: Size 04 1120: Size 05 1450: Size 06	IDFCRVY2
<b>CMP-IDF CURVE Y3</b>	Cmp-IDF Curve Point Y3	0 to 3000	RPM	1160: Size 04 1390: Size 05 1798: Size 06	IDFCRVY3
<b>CMP-ODF CURVE Y1</b>	Cmp-ODF Curve Point Y1	0 to 1150	RPM	700: Size 04 500: Size 05 800: Size 06	ODFCRVY1
<b>CMP-ODF CURVE Y2</b>	Cmp-ODF Curve Point Y2	0 to 1150	RPM	800: Size 04 825: Size 05 950: Size 06	ODFCRVY2
<b>CMP-ODF CURVE Y3</b>	Cmp-ODF Curve Point Y3	0 to 1150	RPM	1100	ODFCRVY3
<b>BOOST IDF RATE</b>	Comp Boost IDF Speed Rate	0 to 1	RPM	0.1	IDFBSTRT
<b>ECONO PID - KP</b>	ECONO PID - KP	0.00 to 99.90		2.5	ECONO_P
<b>ECONO PID - KI</b>	ECONO PID - KI	0.00 to 99.90		0.12	ECONO_I
<b>ECONO PID - KD</b>	ECONO PID - KD	0.00 to 99.90		1	ECONO_D
<b>ECONO PID - RATE</b>	ECONO PID - RATE	10 to 180	sec	15	ECONO_DT
<b>FBD PID - KP</b>	FBD PID - KP	0 to 99.99		0.01	FBDPID_P
<b>FBD PID - KI</b>	FBD PID KI	0 to 99.999		0	FBDPID_I
<b>FBD PID - KD</b>	FBD PID KD	0 to 99.999		0	FBDPID_D
<b>FBD KI RES VAL</b>	FBD KI Reset Value	0.00 to 99.90		0	FBDKIRES
<b>NEW HARDWARE</b>	Quick Menu for New Hardware				
<b>UNIT CONTROL TYPE</b>	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN		0=TSTAT	CTRLTYPE
<b>VENT METHOD</b>	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0=no FIOP 1=FIOP	VENTTYPE
<b>SPRH SENSOR CHAN</b>	SPRH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	SPRHCHAN
<b>IAQ SENSOR CHAN</b>	IAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: no FIOP 2: FIOP	IAQ_CHAN
<b>OAQ SENSOR CHAN</b>	OAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	OAQ_CHAN
<b>OARH SENSOR CHAN</b>	OARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: no FIOP 3: FIOP	OARHCHAN
<b>RARH SENS CHANNEL</b>	RARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	RARHCHAN
<b>OACFM SENS CHANNEL</b>	OACFM Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08, 4=SI0B AI10		0=NONE	OACFMCHAN
<b>FIRE SW CHANNEL</b>	Fire Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=no FIOP 5=FIOP	FIRECHAN

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>HUMSTAT CHANNEL</b>	Humidistat Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No Humidi-MiZer FIOP 7: Humidi-MiZer FIOP	HUMDCHAN
<b>FILTER SW CHANNEL</b>	Filter Status Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 1: FIOP	FILTCHAN
<b>REMOTE OCC CHAN</b>	Remote Occupancy Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	RMOCCHAN
<b>REM.SHUTDOWN CHAN</b>	Remote Shutdown Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	ROFFCHAN
<b>COFS CHANNEL</b>	COFS Assigned Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 4: FIOP	COFSCHAN
<b>GEN STATUS CHAN</b>	General Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	GEN_CHAN
<b>ENTHALPY SW CHAN</b>	Enthalpy Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	ENTHCHAN
<b>FAN STAT CHANNEL</b>	Fan Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	FNSTCHAN
<b>IAQ OVERRIDE SW CH</b>	IAQ Override Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	IAQOCHAN

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
<b>PHASE MON CHANNEL</b>	Phase Monitor Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 3: FIOP	PMR_CHAN
<b>SMOKE PURGE CHAN</b>	Smoke Purge Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP	PURGCHAN
<b>SMOKE PRESS CHAN</b>	Smoke Pressure Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP	PRESCHAN
<b>SMOKE EVAC CHAN</b>	Smoke Evacuation Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP	EVACCHAN
<b>NETWORK SETTINGS</b>	Building Network Configs Menu				
<b>BAS PROTOCOL</b>	BAS Protocol Select	0=NONE, 1=CCN, 2=BACNET		0=NONE	BMS_CFG
<b>NETWORK TIMEOUT</b>	Network Input Timeout	0 to 600	min	30	NETINTO
<b>CCN</b>	CCN Network Config Menu				
<b>BUS NUMBER</b>	CCN Bus Number	0 to 239		0	CCNBUS
<b>CCN ELEMENT #</b>	CCN Element Number	1 to 239		1	CCNADD
<b>CCN BAUDRATE</b>	CCN Baud Rate	0=9600, 1=19200, 2=38400		0=9600	BAUDENUM
<b>BROADCAST ACK?</b>	CCN Broadcast Ack'er	Yes/No		No	CCNBCACK
<b>BROADCAST SCHEDL?</b>	Global Schedule Broadcast	Yes/No		No	CCN_GSBC
<b>BROADCAST TIME?</b>	CCN Time Broadcast	Yes/No		No	CCNBC
<b>BROADCAST OAT?</b>	Broadcast OAT On Network	Yes/No		No	OATBC
<b>BROADCAST OARH?</b>	Broadcast OARH On Network	Yes/No		No	OARHBC
<b>BROADCAST OAQ?</b>	Broadcast OAQ On Network	Yes/No		No	OAQBC
<b>BROADCAST IAQ?</b>	Broadcast IAQ On Network	Yes/No		No	IAQBC
<b>ALLOW G. OVERRIDE</b>	Allow Global Overrides	Yes/No		Yes	GLBLOVER
<b>LOCATION</b>	Device Location	text			DEV_LOC
<b>REFERENCE NUMBER</b>	Reference Number	text			REF_NUM
<b>BACNET</b>	BACnet Network Config Menu				
<b>MAC ADDRESS</b>	BACnet Device MAC Address	1 to 127		01	BAC_MAC
<b>BACNET BAUDRATE</b>	BACnet BMS Baud Rate	0=9600, 1=19200, 2=38400, 3=57600, 4=76800, 5=115200		4=76800	BAC_BAUD
<b>AUTO ID SCHEME</b>	ALC Auto ID Scheme	Yes/No		Yes	AUID
<b>BACNET AUTO ID</b>	BACnet ID Auto ID	Yes/No		Yes	BAC_AUID
<b>BACNET ID</b>	BACnet ID Number	0 to 4194302		1610101	BAC_ID
<b>LINKAGE SETTINGS</b>	Linkage Settings Menu				
<b>DEVICE IAQ</b>	BACnet Device for IAQ	0 to 4194303		1610100	DEVIAQ
<b>OBJECT ID IAQ</b>	Object Instance for IAQ	0 to 9999		1009	OBJIAQ
<b>COV IAQ</b>	Change of Value for IAQ	0 to 60		0	COVIAQ
<b>DEVICE OAQ</b>	BACnet Device for OAQ	0 to 4194303		1610100	DEVOAQ
<b>OBJECT ID OAQ</b>	Object Instance for OAQ	0 to 9999		1012	OBJOAQ
<b>COV OAQ</b>	Change of Value for OAQ	0 to 60		0	COVOAQ

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
DEVICE OARH	BACnet Device for OARH	0 to 4194303		1610100	DEVOARH
OBJECT ID OARH	Object Instance for OARH	0 to 9999		1022	OBJOARH
COV OARH	Change of Value for OARH	0 to 60		0	COVOARH
DEVICE OAT	BACnet Device for OAT	0 to 4194303		1610100	DEVOAT
OBJECT ID OAT	Object Instance for OAT	0 to 9999		1003	OBJOAT
COV OAT	Change of Value for OAT	0 to 60		0	COVOAT
DEVICE RARH	BACnet Device for RARH	0 to 4194303		1610100	DEVRARH
OBJECT ID RARH	Object Instance for RARH	0 to 9999		30	OBJRARH
COV RARH	Change of Value for RARH	0 to 60		0	COVRARH
DEVICE RAT	BACnet Device for RAT	0 to 4194303		1610100	DEVSTAT
OBJECT ID RAT	Object Instance for RAT	0 to 9999		1010	OBJRAT
COV RAT	Change of Value for RAT	0 to 60		0	COVRAT
DEVICE SPT	BACnet Device for SPT	0 to 4194303		1610100	DEVSPT
OBJECT ID SPT	Object Instance for SPT	0 to 9999		2007	OBJSPT
COV SPT	Change of Value for SPT	0 to 60		0	COVSPT
LOCAL_SHEDL_EDIT	Allow Local Schedule Edit	Yes/No		No	LCL_EDIT
SYSTEM TOUCH	System Touch Menu				
DEVICE INSTANCE	System Touch Device Inst	0 to 4194303		160099	DEVST
POLLING RATE	System Touch Poll Rate	0 to 60		0	POLLST
SPACE TEMP AI	System Touch AI for SPT	0 to 9999		1	AISTSPT
SPACE RH AI	System Touch AI for SPRH	0 to 9999		4	AISTSPRH
ZS SENSOR CFG	ZS Sensor Config				
ZS1 ADDRESS	Zone Sensor 1 Address	0 to 255		255	ZSADDR1
ZS2 ADDRESS	Zone Sensor 2 Address	0 to 255		255	ZSADDR2
ZS3 ADDRESS	Zone Sensor 3 Address	0 to 255		255	ZSADDR3
ZS4 ADDRESS	Zone Sensor 4 Address	0 to 255		255	ZSADDR4
ZS5 ADDRESS	Zone Sensor 5 Address	0 to 255		255	ZSADDR5
ZSM SENSOR CFG	ZS Motion Sensor CFG	0=NONE, 1=REMLLOC, 2=LOCOCC, 3=TEMP_ONLY		1=REMLLOC	ZSM_CFG
ZS TIME OUT	ZSM Time Out	5 to 60	min	5	ZSM_TMR
ZS POLL RATE	Zone Sensor Poll Rate	1 to 100	sec	5	ZSPOLLRT
ZS UNIT	Zone Sensor Unit	0=degrees F		0=degrees F	ZSUNIT
ZS FRC UNOC ENBL	ZS Force Unocc Enable	Yes/No		No	ZSFUNEN
ZS FRC UNOC DELAY	ZS Force Unocc Wt Delay	Yes/No		No	ZSFUNWT
ZS TLO CONT ENBL	ZS TLO Cont Enable	Yes/No		No	ZSTLOEN
TLO SET DURING OC	ZS TLO Set During Occupancy	Yes/No		No	ZSTLSOC
ZS UI MODE	Zone Sensor UI Mode	1=Dual Offsets		1=Dual Offsets	ZSUIM
NETWORK CHKLIST	Network Setup Checklist	0=Undone, 1=Perform, 2=Done		0=Undone	CHK_NET
DISPLAY SETTINGS	User Display Configs Menu				
METRIC DISPLAY	Metric Display	Yes/No		No	DISPUNIT
LANGUAGE	Display Language Select	0=English, 1=Spanish		0=English	LANGUAGE
CONTRAST ADJUST	LCD Contrast Adjustment	1 to 10		5	LCD_CONT
PASSWORD ENABLE?	User Password Protection	Enable/Disable		Enable	PASS_EBL
VIEW USER PASSWORD	View User Password Menu				
CHANGE USER PASSWORD	Change User Password Menu				
QUICK SETUP CONFIG	Quick Setup Config Menu				
DATE	Current Date	MM/DD/YYYY			DATE
TIME	Clock Hour and Minute	xx:xx			TIME
STARTUP DELAY	Unit Startup Delay	10 to 600	sec	30	STARTDLY
UNIT CONTROL TYPE	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN		0=TSTAT	CTRLTYPE
THERMOSTAT TYPE	Thermostat Hardware Type	0=CONV 2C2H, 1=DIGI 2C2H, 2=CONV 3C2H, 3=DIGI 3C2H		0=CONV 2C2H	STATTYPE
DIRTY FILTER TIME	Change Filter Timer	0 to 9999	hrs	0	FILTIFE

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table B — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
HEATING STAGE QTY	Number of Heating Stages	0 to 2		2: all except below 0: 50 Series without FIOP heaters 1: 48 Series Low Nox Gas Heat, 48JC 05-06 Med, 50JC 04-06 Low Heat, 50JC 04-05 Med Heat, 50JC 04 High Heat 230v and 460v, 50JC 05 High Heat 230v, 50JC 06 Med Heat 460v and 575v	NUMHSTGS
VENT METHOD	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP 1: Economizer FIOP	VENTTYPE
FREE COOL MAX OAT	Free Cooling Max OAT	0 to 90	°F	65	MAXFREET
FIRE SW CHANNEL	Fire Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 5: FIOP	FIRECHAN
COOL DESIGN SPEED	Cooling Design Point Speed	0 to 10000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	IDFDGSPD
IDF VENT SPD	IDF Vent Speed = RPM	0 to 3000	RPM	737: Size 04 Standard Static Fan 854: Size 04 Medium Static Fan 971: Size 04 High Static Fan 741: Size 05 Standard Static Fan 847: Size 05 Medium Static Fan 1038: Size 05 High Static Fan 839: Size 06 Standard Static Fan 932: Size 06 Medium Static Fan 1106: Size 06 High Static Fan	RPM_VENT

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

### Table B — Settings Main Menu Layout (cont)

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT
IDF HEAT SPD	IDF Heat Speed = RPM	0 to 3000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	RPM_HEAT
QUICK SET CHKLIST	Quick Setup Checklist	0=Undone, 1=Perform, 2=Done		0=Undone	CHK_QUIK

NOTE(S):

- a. In certain applications DIAG. COMP OFF should be disabled for size 04-06 units to prevent nuisance A312 alerts.
- b. CMPMAXSP defaults to 5000 rpm for 5 ton (06 size) units.
- c. ODFMAXSP defaults to 1200°F for 5 ton (06 size) units.
- d. ODFHTOVR defaults to 100°F for 5 ton (06 size) units.

### Table C — Alerts/Faults Main Menu Layout

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	WRITE STATUS	POINT
ALERTS/FAULTS	Alerts/Faults Menu			
ACTIVE FAULTS	Active Faults Menu			
ACTIVE ALERTS	Active Alerts Menu			
HISTORY	History of Faults and Alerts Menu			
RESET FAULT/ALERT	Reset All Current Alarms	Yes/No	Command	ALRESET

### Table D — Service Main Menu Layout

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
SERVICE	Service Menu				
UNIT TESTS	Unit Tests Menu				
TEST MODE	Service Test Mode Enable	On/Off		Command	TSTENBL
SERVICE TEST	Service Test Menu				
INDEPENDENTS	Independent Test Menu				
ECON POS TEST	Economizer Position Test	0 to 100	%	Command	S_DAMPER
BUMP COMP SPEED	Compressor Speed Bump Test	0 to 6000	RPM	Command	S_CMPSPD
RH DIS VALVE TEST	Reheat Discharge Valve Relay Test	On/Off		Command	S_RDV_A
RH LIQ VALVE TEST	Reheat Liquid Valve Relay Test	On/Off		Command	S_RLV_A
CL LIQ VALVE TEST	Cooling Liquid Valve Test	On/Off		Command	S_CLV_A
CCH RELAY 1 TEST	Crankcase Heater 1 Test	On/Off		Command	S_CCHR1
ALARM RELAY TEST	Alarm Output Relay Test	On/Off		Command	S_ALARM
PE1 RELAY TEST	Power Exhaust 1 Test	On/Off		Command	S_PE_1
PE2 RELAY TEST	Power Exhaust 2 Test	On/Off		Command	S_PE_2
2POS/ERV RLY TEST	2-Position/ERV Relay Test	On/Off		Command	S_ERV2P
DAMPER CALIBRATION	Damper Calibration Menu				
CALIBRATE DAMPER	Econ Damper Calibration	0 to 100		Command	S_ECOCAL
FAN TESTS	Indoor and Outdoor Fan Tests Menu				
IDF SPEED TEST	Indoor Fan Speed Test	0 to 100	%	Command	S_IDFSPD
CONVERTED IDF RPM	Converted IDF Speed	0 to 5000	RPM		IFRPMTST
IDF MANUAL TRANS	IDF Manual Transition	Yes/No		Command	S_IDFTRN
ODF SPEED TEST	System ODF Speed Test	0 to 2000	RPM	Command	S_ODFSPD
ODF MANUAL TRANS	ODF Manual Transition	Yes/No		Command	S_ODFTRN
COOL TESTS	Cooling Test Menu				
COOL TEST CMP SPD	Cool Test Cmp Speed	0 to 6000	RPM	Command	S_CLSPD
IDF SPEED TEST	Indoor Fan Speed Test	0 to 100	%	Command	S_IDFSPD
ODF SPEED TEST	System ODF Speed Test	0 to 2000	RPM	Command	S_ODFSPD

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table D — Service Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
<b>HUMIDIMIZER TEST</b>	Humidimizer Level Test	0=Off, 1=Subcool, 2=Reheat		Command	S_HMZLEV
<b>HEAT TESTS</b>	Heating Test Menu				
<b>HEAT 1 TEST</b>	Heating Stage 1 Test	On/Off		Command	S_HEAT1
<b>HEAT 2 TEST</b>	Heating Stage 2 Test	On/Off		Command	S_HEAT2
<b>IDF SPEED TEST</b>	Indoor Fan Speed Test	0 to 100	%	Command	S_IDFSPD
<b>AUTOMATIC TEST</b>	Automatic Test Menu				
<b>AUTO INDP TEST</b>	Auto Independent Test	Yes/No		Command	AUTOINDP
<b>AUTO COOL TEST</b>	Run Auto Cooling Test	Yes/No		Command	AUTOCOOL
<b>AUTO HEAT TEST</b>	Run Auto Heating Test	Yes/No		Command	AUTOHEAT
<b>AUTO SYSTEM TEST</b>	Run Auto System Test	Yes/No		Command	AUTOSYS
<b>UNIT INFORMATION</b>	Unit Information Menu				
<b>MODEL #</b>	Equipment Model number	xxxxxxxxxxxxxxxx			EQ_MOD
<b>SERIAL #</b>	Equipment Serial number	xxxxxxxxxx			EQ_SER
<b>VERSIONS</b>	Versions Menu				
<b>JC MAIN APP</b>	Application SW Version	CESR131691-04-xx			FW_CESR
<b>BOOTLOADER</b>	Bootloader SW Version	CESR131659-xx-xx			BL_CESR
<b>USER MEASURED DATA</b>	User Measured Data Menu				
<b>SUPPLY VOLTAGE L1</b>	Supply Voltage Leg 1	0 to 700	V	Command	L1VOLTS
<b>SUPPLY VOLTAGE L2</b>	Supply Voltage Leg 2	0 to 700	V	Command	L2VOLTS
<b>SUPPLY VOLTAGE L3</b>	Supply Voltage Leg 3	0 to 700	V	Command	L3VOLTS
<b>COMP@4500 AMPS L1</b>	Comp @4500 Amps Leg 1	0 to 100	Amp	Command	CMPAMPL1
<b>COMP@4500 AMPS L2</b>	Comp @4500 Amps Leg 2	0 to 100	Amps	Command	CMPAMPL2
<b>COMP@4500 AMPS L3</b>	Comp @4500 Amps Leg 3	0 to 100	Amps	Command	CMPAMPL3
<b>E.HEAT AMPS L1</b>	Elec. Heat Amps Leg 1	0 to 100	A	Command	EHTL1_A
<b>E.HEAT AMPS L2</b>	Elec. Heat Amps Leg 2	0 to 100	A	Command	EHTL2_A
<b>E.HEAT AMPS L3</b>	Elec. Heat Amps Leg 3	0 to 100	A	Command	EHTL3_A
<b>GAS SUPPLY TYPE</b>	Gas Supply Type	0=NATURAL, 1=LP		Command	GASTYPE
<b>GAS INLET PRESS</b>	Gas Inlet Pressure	0 to 20	Hg	Command	GASPRESS
<b>STAGE 1 GAS PRESS</b>	Stage 1 Gas Pressure	0 to 20	Hg	Command	HT1PRESS
<b>STAGE 2 GAS PRESS</b>	Stage 2 Gas Pressure	0 to 20	Hg	Command	HT2PRESS
<b>CONTINUE?</b>	Start Diag Report	Yes/No		Command	GO_DIAG
<b>RUN HOURS &amp; CYCLES</b>	Run Hours & Cycles Menu				
<b>RUN HOURS DATA MENU</b>	Run hours menu				
<b>2POS/ERV RUN HOUR</b>	2-Position/ERV Run Hours	xxxxxx.x	hrs		HR_ERV2P
<b>COMP A1 RUN HOURS</b>	Compressor A1 Run Hours	xxxxxx.x	hrs		HR_A1
<b>ALM RELAY HOURS</b>	Alarm Relay Run Hours	xxxxxx.x	hrs		HR_ALM
<b>CCH RELAY HOURS</b>	CCH1 Relay Run Hours	xxxxxx.x	hrs		HR_CCHR1
<b>ECON RUN HOURS</b>	Econ Damper Run Hours	xxxxxx.x	hrs		HR_DAMP
<b>FULL LOAD HOURS</b>	Unit Full Load Run Hours	xxxxxx.x	hrs		HR_FLOAD
<b>FREE COOL HOURS</b>	Free Cooling Run Hours	xxxxxx.x	hrs		HR_FREEC
<b>HEAT 1 RUN HOURS</b>	Heat Stage 1 Run Hours	xxxxxx.x	hrs		HR_HTR_1
<b>HEAT 2 RUN HOURS</b>	Heat Stage 2 Run Hours	xxxxxx.x	hrs		HR_HTR_2
<b>IDF RUN HOURS</b>	Indoor Fan Run Hours	xxxxxx.x	hrs		HR_IDF
<b>MAX IDF RUN HOURS</b>	Max Fan Speed Run Hours	xxxxxx.x	hrs		HR_MAXF
<b>ODF RUN HOURS</b>	ODF Run Hours	xxxxxx.x	hrs		HR_ODF
<b>BLOAD RUN HOURS</b>	BLOAD Run Hours	xxxxxx.x	hrs		HR_BLOAD
<b>MLOAD RUN HOURS</b>	MLOAD Run Hours	xxxxxx.x	hrs		HR_MLOAD
<b>PE1 RELAY HOURS</b>	Power Exhaust1 Run Hours	xxxxxx.x	hrs		HR_PE_1
<b>PE2 RELAY HOURS</b>	Power Exhaust2 Run Hours	xxxxxx.x	hrs		HR_PE_2
<b>RDV_A RUN HOURS</b>	RDV_A Run Hours	xxxxxx.x	hrs		HR_RDV_A
<b>RLV_A RUN HOURS</b>	RLV_A Run Hours	xxxxxx.x	hrs		HR_RLV_A
<b>CLV_A RUN HOURS</b>	CLV_A Run Hours	xxxxxx.x	hrs		HR_CLV_A
<b>SUBCOOLING HOURS</b>	Reheat level 1 Run Hrs	xxxxxx.x	hrs		HR_RQHL1
<b>HOT GAS RH HOURS</b>	Reheat level 2 Run Hrs	xxxxxx.x	hrs		HR_RQHL2
<b>TEST MODE HOURS</b>	Service Test Run Hours	xxxxxx.x	hrs		HR_STEST
<b>VENT IDF HOURS</b>	Vent IDF Run Hours	xxxxxx.x	hrs		HR_VENTF

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table D — Service Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
<b>START COUNT DATA MENU</b>	Start Counts menu				
<b>2POS/ERV STARTS</b>	2-Position/ERV Starts	xxxxxx			ST_ERV2P
<b>COMP A1 STARTS</b>	Compressor A1 Starts	xxxxxx			ST_A1
<b>ALM RELAY STARTS</b>	Alarm Relay Starts	xxxxxx			ST_ALM
<b>ALM RESET COUNTS</b>	Alarm Reset Counts	xxxxxx			ST_ALRST
<b>CCH RELAY STARTS</b>	CCH1 Relay Starts	xxxxxx			ST_CCHR1
<b>DAMPER STARTS</b>	Economizer Damper Starts	xxxxxx			ST_DAMP
<b>FULL LOAD STARTS</b>	Unit Full Load Starts	xxxxxx			ST_FLOAD
<b>FREE COOL STARTS</b>	Free Cooling Starts	xxxxxx			ST_FREEC
<b>HEAT 1 STARTS</b>	Heat Stage 1 Starts	xxxxxx			ST_HTR_1
<b>HEAT 2 STARTS</b>	Heat Stage 2 Starts	xxxxxx			ST_HTR_2
<b>IDF STARTS</b>	Indoor Fan Starts	xxxxxx			ST_IDF
<b>MAX IDF SPD START</b>	Max IDF Speed Starts	xxxxxx			ST_MAXF
<b>ODF STARTS</b>	ODF Starts Count	xxxxxx			ST_ODF
<b>BLOAD STARTS</b>	BLOAD Starts	xxxxxx			ST_BLOAD
<b>MLOAD STARTS</b>	MLOAD Starts	xxxxxx			ST_MLOAD
<b>PE1 RELAY STARTS</b>	Power Exhaust 1 Starts	xxxxxx			ST_PE_1
<b>PE2 RELAY STARTS</b>	Power Exhaust 2 Starts	xxxxxx			ST_PE_2
<b>POR COUNT</b>	Power Cycle Counts	xxxxxx			ST_POR
<b>RDV A STARTS</b>	RDV_A Starts	xxxxxx			ST_RDV_A
<b>RLV_A STARTS</b>	RLV_A Starts	xxxxxx			ST_RLV_A
<b>CLV_A STARTS</b>	CLV_A Starts	xxxxxx			ST_CLV_A
<b>SUBCOOL STARTS</b>	Reheat level 1 Starts	xxxxxx			ST_RQHL1
<b>HOT GAS RH STARTS</b>	Reheat level 2 Starts	xxxxxx			ST_RQHL2
<b>TEST MODE STARTS</b>	Service Test Starts	xxxxxx			ST_STEST
<b>VENT FAN STARTS</b>	Ventilation Fan Starts	xxxxxx			ST_VENTF
<b>RESET COUNTS MENU</b>	Reset Counts menu				
<b>2POS/ERV RESETS</b>	2-Position/ERV Reset Count	xxxxxx			RS_ERV2P
<b>COMP A1 RESET QTY</b>	Comp A1 Resets Count	xxxxxx			RS_A1
<b>ALM RLY RESET QTY</b>	Alarm Relay Resets Count	xxxxxx			RS_ALM
<b>ALM RESET RESETS</b>	Alarm Reset Resets Count	xxxxxx			RS_ALRST
<b>CCH RELAY RESETS</b>	CCH1 Relay Resets Count	xxxxxx			RS_CCHR1
<b>DAMPER RESET QTY</b>	Econ Damper Resets Count	xxxxxx			RS_DAMP
<b>FULL LOAD RESETS</b>	Full Load Resets Count	xxxxxx			RS_FLOAD
<b>FREE COOL RESETS</b>	Free Cooling Reset Count	xxxxxx			RS_FREEC
<b>HEAT 1 RESET QTY</b>	Heat Stage 1 Reset Count	xxxxxx			RS_HTR_1
<b>HEAT 2 RESET QTY</b>	Heat Stage 2 Reset Count	xxxxxx			RS_HTR_2
<b>IDF RESET QTY</b>	Indoor Fan Reset Count	xxxxxx			RS_IDF
<b>MAX IDF RESET QTY</b>	Max IDF Speed Resets Count	xxxxxx			RS_MAXF
<b>ODF RESET QTY</b>	ODF Resets Counts	xxxxxx			RS_ODF
<b>PE1 RESET QTY</b>	P.Exhaust 1 Resets Count	xxxxxx			RS_PE_1
<b>PE2 RESET QTY</b>	P.Exhaust 2 Resets Count	xxxxxx			RS_PE_2
<b>POR RESET QTY</b>	Power Cycle Resets Count	xxxxxx			RS_POR
<b>RDV_A RESET QTY</b>	RDV_A Reset Count	xxxxxx			RS_RDV_A
<b>RLV_A RESET QTY</b>	RLV_A Reset Count	xxxxxx			RS_RLV_A
<b>CLV_A RESET QTY</b>	CLV_A Reset Count	xxxxxx			RS_CLV_A
<b>SUBCOOL RESET QTY</b>	Reheat Level 1 Reset Count	xxxxxx			RS_RQHL1
<b>HGRH RESET QTY</b>	Reheat Level 2 Reset Count	xxxxxx			RS_RQHL2
<b>TEST MODE RESETS</b>	Service Test Reset Count	xxxxxx			RS_STEST
<b>VENT IDF RESETS</b>	Vent IDF Resets Count	xxxxxx			RS_VENTF
<b>POWER RESET HISTORY</b>	Power On Reset History Menu				
<b>POWRES00</b>	Power Reset Event 00	mm/dd/yy, hh:mm:ss			POWRES00
<b>POWRES01</b>	Power Reset Event 01	mm/dd/yy, hh:mm:ss			POWRES01
<b>POWRES02</b>	Power Reset Event 02	mm/dd/yy, hh:mm:ss			POWRES02
<b>POWRES03</b>	Power Reset Event 03	mm/dd/yy, hh:mm:ss			POWRES03
<b>POWRES04</b>	Power Reset Event 04	mm/dd/yy, hh:mm:ss			POWRES04
<b>POWRES05</b>	Power Reset Event 05	mm/dd/yy, hh:mm:ss			POWRES05
<b>POWRES06</b>	Power Reset Event 06	mm/dd/yy, hh:mm:ss			POWRES06
<b>POWRES07</b>	Power Reset Event 07	mm/dd/yy, hh:mm:ss			POWRES07
<b>POWRES08</b>	Power Reset Event 08	mm/dd/yy, hh:mm:ss			POWRES08
<b>POWRES09</b>	Power Reset Event 09	mm/dd/yy, hh:mm:ss			POWRES09



## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table D — Service Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
<b>ALARM RESET HISTORY</b>	Alarm Reset History Menu				
<b>ALMRES00</b>	Alarm Reset Event 00	mm/dd/yy, hh:mm:ss			ALMRES00
<b>ALMRES01</b>	Alarm Reset Event 01	mm/dd/yy, hh:mm:ss			ALMRES01
<b>ALMRES02</b>	Alarm Reset Event 02	mm/dd/yy, hh:mm:ss			ALMRES02
<b>ALMRES03</b>	Alarm Reset Event 03	mm/dd/yy, hh:mm:ss			ALMRES03
<b>ALMRES04</b>	Alarm Reset Event 04	mm/dd/yy, hh:mm:ss			ALMRES04
<b>ALMRES05</b>	Alarm Reset Event 05	mm/dd/yy, hh:mm:ss			ALMRES05
<b>ALMRES06</b>	Alarm Reset Event 06	mm/dd/yy, hh:mm:ss			ALMRES06
<b>ALMRES07</b>	Alarm Reset Event 07	mm/dd/yy, hh:mm:ss			ALMRES07
<b>ALMRES08</b>	Alarm Reset Event 08	mm/dd/yy, hh:mm:ss			ALMRES08
<b>ALMRES09</b>	Alarm Reset Event 09	mm/dd/yy, hh:mm:ss			ALMRES09
<b>ALMRES10</b>	Alarm Reset Event 10	mm/dd/yy, hh:mm:ss			ALMRES10
<b>ALMRES11</b>	Alarm Reset Event 11	mm/dd/yy, hh:mm:ss			ALMRES11
<b>ALMRES12</b>	Alarm Reset Event 12	mm/dd/yy, hh:mm:ss			ALMRES12
<b>ALMRES13</b>	Alarm Reset Event 13	mm/dd/yy, hh:mm:ss			ALMRES13
<b>ALMRES14</b>	Alarm Reset Event 14	mm/dd/yy, hh:mm:ss			ALMRES14
<b>ALMRES15</b>	Alarm Reset Event 15	mm/dd/yy, hh:mm:ss			ALMRES15
<b>ALMRES16</b>	Alarm Reset Event 16	mm/dd/yy, hh:mm:ss			ALMRES16
<b>ALMRES17</b>	Alarm Reset Event 17	mm/dd/yy, hh:mm:ss			ALMRES17
<b>ALMRES18</b>	Alarm Reset Event 18	mm/dd/yy, hh:mm:ss			ALMRES18
<b>ALMRES19</b>	Alarm Reset Event 19	mm/dd/yy, hh:mm:ss			ALMRES19
<b>HARDWARE</b>	Hardware Information Menu				
<b>HARDWARE INPUTS</b>	Hardware inputs menu				
<b>OAT SENSOR VALUE</b>	Outdoor Air Temp Sensor	xxx.x	°F		OAT_LOC
<b>RAT SENSOR VALUE</b>	Return Air Temp Sensor	xxx.x	°F		RAT_LOC
<b>SPT SENSOR VALUE</b>	Space Temperature Sensor	xxx.x	°F		SPT_LOC
<b>SPTO SENSOR VALUE</b>	Local Space Temp Offset	xxxx	°F delta		SPTO_LOC
<b>SPRH SENSOR VALUE</b>	SPRH Sensor Value	0 to 100	%		SPRH_LOC
<b>OARH SENSOR VALUE</b>	OARH Sensor Value	0 to 100	%		OARH_LOC
<b>RARH SENSOR VALUE</b>	RARH Sensor Value	0 to 100	%		RARH_LOC
<b>IAQ SENSOR VALUE</b>	IAQ Sensor value	xxxx	PPM		IAQ_LOC
<b>OAQ SENSOR VALUE</b>	OAQ Sensor Value	xxxx	PPM		OAQ_LOC
<b>OACFM SENSOR VALUE</b>	OACFM Sensor value	xxx.x	CFM		OACFM_LOC
<b>ASSIGNED INPUTS/OUTPUTS</b>	Assigned Input/Output Channels				
<b>AI06 FUNCTION</b>	Assigned AI06 Function	0=None, 1=IAQ, 2=OARH, 3=RARH, 4=OAQ, 5=SPRH, 6=OACFM			MBBAI06F
<b>AI07 FUNCTION</b>	Assigned AI07 Function	See AI06 Function			MBBAI07F
<b>AI08 FUNCTION</b>	Assigned AI08 Function	See AI06 Function			MBBAI08F
<b>DI02 FUNCTION</b>	Assigned DI02 Function	0=None, 1=COFS, 2=REMOCC, 3=REMOFF, 4=FILTER, 5=ENTHALPY, 6=GEN STAT, 7=HUMSTAT, 8=IAQOVRD, 9=SMK EVAC, 10=SMK PRESS, 11=SMK PURGE, 12=FIREDOWN, 13=FANSTATUS, 14=PHASEMON			MBBDI02F
<b>DI03 FUNCTION</b>	Assigned DI03 Function	See DI02 Function			MBBDI03F
<b>DI05 FUNCTION</b>	Assigned DI05 Function	See DI02 Function			MBBDI05F
<b>MBB Y3 FUNCTION</b>	Assigned MBB Y3 Function	See DI02 Function			MBBDI09F
<b>DI12 FUNCTION</b>	Assigned DI12 Function	See DI02 Function			MBBDI12F
<b>DI13 FUNCTION</b>	Assigned DI13 Function	See DI02 Function			MBBDI13F
<b>DI14 FUNCTION</b>	Assigned DI14 Function	See DI02 Function			MBBDI14F

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table D — Service Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
RELAY 06 FUNCTION	Assigned Relay 06 Function	0=None, 1=ALM Relay, 2=PE1, 3=PE2			MBBRY06F
RELAY 11 FUNCTION	Assigned Relay 11 Function	0=None, 1=ALM Relay, 2=PE1, 3=PE2			MBBRY11F
MBB PART #	MBB Part Number	CEPL131117-xx-R			BD_CEPL
MBB PP #	MBB Program Part Number	CEPP130644-xx-xx-xx-R			BD_CEPP
MBB SERIAL #	Base Board serial number	xxxxMxxxxx			BD_SER
CALIBRATION	Calibration Menu				
OAT TRIM OFFSET	OAT Sensor Trim Offset	-10 to 10	°F	Configurable	OAT_TRIM
RAT TRIM OFFSET	RAT Sensor Trim Offset	-30 to 30	°F	Configurable	RAT_TRIM
FST TRIM OFFSET	FST Sensor Trim Offset	-10 to 10	°F	Configurable	FST_TRIM
SPT TRIM OFFSET	SPT Sensor Trim Offset	-30 to 30	°F	Configurable	SPT_TRIM
SLIDER SEN. TRIM	SPTO Sensor Offset Trim	-1 to 1	°F	Configurable	SPTOTRIM
SPRH TRIM OFFSET	SPRH Sensor Trim Offset	-15 to 15	%	Configurable	SPRHTRIM
IAQ TRIM OFFSET	IAQ Sensor Trim Offset	-200 to 200	PPM	Configurable	IAQ_TRIM
OAQ TRIM OFFSET	OAQ Sensor Trim Offset	-200 to 200	PPM	Configurable	OAQ_TRIM
OARH TRIM OFFSET	OARH Sensor Trim Offset	-15 to 15	%	Configurable	OARHTRIM
RARH TRIM OFFSET	RARH Sensor Trim Offset	-15 to 15	%	Configurable	RARHTRIM
CIR.A SSP TRIM	Circuit A SSP Sensor Trim	-50 to 50	PSI	Configurable	SSPATRIM
CIR.A SDP TRIM	Circuit A SDP Sensor Trim	-50 to 50	PSI	Configurable	SDPATRIM
ECO FEEDBACK TRIM	Econ Feedback Trim Offset	-15 to 15	%	Configurable	EC1DTRIM
OACFM TRIM OFFSET	OACFM Sensor Trim Offset	-200 to 200	CFM	Configurable	OCFMTRIM
ECON DAMPER CAL	Econ Damper Calibration				
DMPR LO CAL ERROR	Damper Low Calib. Error	0 to 20			ECOMINCA
DMPR HI CAL ERROR	Damper High Calib. Error	0 to 20			ECOMAXCA
COMMISSION REPORTS	Commission Report Menu				
SYSTEM STARTUP CHECKLIST	System Startup Checklist Menu				
QUICK SET CHKLIST	Quick Setup Checklist	0=Undone, 1=Perform, 2=Done		Configurable	CHK_QUIK
NETWORK CHKLIST	Network Setup Checklist	0=Undone, 1=Perform, 2=Done		Configurable	CHK_NET
SYSTEM AUTOTEST	Checklist Auto Test	0=Undone, 1=Perform, 2=Done		Configurable	CHK_ATST
ADVANCED SERVICE	Advanced Service Restricted Access Menu				
RESTORE DEFAULTS?	KEEPCONFIG SCREEN POP-UP	Yes/No		Command	RESFDFLT
EDIT MODEL NUMBER	Edit Equipment Model Number				
EDIT SER NUMBER	Edit Equipment Serial Number Menu				
CLEAR COMPONENT DATA	Reset Component Data Menu				
2POS/ERV DATA	Reset 2-Position/ERV Data	Yes/No		Command	CR_ERV2P
COMP A1 DATA	Reset Compressor A1 Data	Yes/No		Command	CR_A1
ALARM RELAY DATA	Reset Alarm Relay Data	Yes/No		Command	CR_ALM
ALARM RESET DATA	Reset Alarm Resets Data	Yes/No		Command	CR_ALRST
CCH RELAY DATA	Reset CCH1 Relay Data	Yes/No		Command	CR_CCHR1
ECON DAMPER DATA	Reset Econ Damper Data	Yes/No		Command	CR_DAMP
FULL LOAD DATA	Reset Full Load Data	Yes/No		Command	CR_FLOAD
FREE COOL DATA	Reset Free Cooling Data	Yes/No		Command	CR_FREEC
HEAT 1 DATA	Reset Heat Stage 1 Data	Yes/No		Command	CR_HTR_1
HEAT 2 DATA	Reset Heat Stage 2 Data	Yes/No		Command	CR_HTR_2
IDF RUN DATA	Reset Indoor Fan Data	Yes/No		Command	CR_IDF
RST ODF RUN DATA	Reset ODF Run Data	Yes/No		Command	CR_ODF
BLOAD DATA	Reset BLOAD run Data	Yes/No		Command	CR_BLOAD
MLOAD DATA	Reset MLOAD run Data	Yes/No		Command	CR_MLOAD
IDF MAX SPD DATA	Reset Max Fan Speed Data	Yes/No		Command	CR_MAXF
PE1 RELAY DATA	Reset Power Exhaust 1 Data	Yes/No		Command	CR_PE_1
PE2 RELAY DATA	Reset Power Exhaust 2 Data	Yes/No		Command	CR_PE_2
POWER RESET DATA	Reset Power Resets Data	Yes/No		Command	CR_POR

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

### Table D — Service Main Menu Layout (cont)

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
TEST MODE DATA	Reset Service Test Data	Yes/No		Command	CR_STEST
VENT IDF DATA	Reset Vent IDF Data	Yes/No		Command	CR_VENTF
RESTRICTED ACCESS	Restricted Access Only				
IDF CURVE LO PWM	IDF Curve Low End PWM	0 to 100	%	Configurable	IFMLOPWM
IDF CURVE HI PWM	IDF Curve High End PWM	0 to 100	%	Configurable	IFMHIPWM
MIN SPEED TIME	IDF Start Speed Time	xxx	sec	Configurable	IDFSSTIM
MIN START SPEED	IDF Min Start RPM	xxxx	RPM	Configurable	IDFSTSPD

### Table E — Inputs Main Menu Layout

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
INPUTS	Inputs Menu				
TEMPERATURES	Temperatures Menu				
SUPPLY AIR TEMP	Supply Air Temperature	xxx..x	°F		SAT
OUTDOOR AIR TEMP	Outdoor Air Temperature	xxx.x	°F	Forcible	OAT
RETURN AIR TEMP	Return Air Temperature	xxx.x	°F	Forcible	RAT
SPACE TEMPERATURE	Space Temperature	xxx.x	°F	Forcible	SPACE_T
SLIDER OFFSET VAL	Space Temperature Offset	xx.x	°F delta	Forcible	SPTO
CIR.A SUC TEMP	Circuit A Sat.Suction Temperature	xxx.x	°F		SST_A
CIR.A DIS. TEMP	Circuit A Sat.Discharge Temperature	xxx.x	°F		SDT_A
FAN SUPPLY TEMP	Fan Supply Air Temperature	xxx.x	°F		FST
PRESSURES	Pressures Menu				
CIR.A SUC. PRESS	Circuit A Suction Pressure	xxx.x	PSI		SSP_A
CIR.A DIS. PRESS	Circuit A Discharge Pressure	xxx.x	PSI		SDP_A
CIR.A PRESS RATIO	Circuit A Pressure Ratio	xx.xx			CIRA_PR
BAROMETRIC PRESS	Barometric Pressure	xx.xx	Hg	Forcible	BARP
THERMOSTAT	Thermostat Inputs menu				
TSTAT G INPUT	Thermostat G Input	On/Off		Forcible	G
TSTAT Y1 INPUT	Thermostat Y1 Input	On/Off		Forcible	Y1
TSTAT Y2 INPUT	Thermostat Y2 Input	On/Off		Forcible	Y2
TSTAT W1 INPUT	Thermostat W1 Input	On/Off		Forcible	W1
TSTAT W2 INPUT	Thermostat W2 Input	On/Off		Forcible	W2
SWITCH INPUTS	Switch Inputs Menu				
IGC FAN REQUEST	IGC Fan On Request (IFO)	On/Off			IGC_IFO
HUMIDISTAT	Humidistat Input	On/Off		Forcible	HUMDSTAT
IDF LIMIT SWITCH	IDF Manual Limit Switch	Open/Close			IDF_LSM
FIRE SHUTDOWN	Fire Shutdown Switch	Alarm/Normal		Forcible	FIREDOWN
COFS	COFS Switch State	High/Low		Forcible	COFS
PHASE MONITOR SW	Phase Monitor Switch	Alarm/Normal		Forcible	PMR_STAT
FILTER STATUS SW	Filter Status Switch	Dirty/Clean		Forcible	FILTSTAT
REMOTE OCC SWITCH	Remote Occupancy Switch	On/Off		Forcible	REMOCC
REMOTE SHUTDOWN	Remote Shutdown Switch	On/Off		Forcible	REMSHUT
FAN STATUS SWITCH	Fan Status Switch	On/Off		Forcible	FAN_STAT
GENERAL STATUS SW	General Status Switch	Alarm/Normal		Forcible	GENSTAT
IAQ OVRD SWITCH	IAQ Override Switch	On/Off		Forcible	IAQ_OVRS
ENTHALPY SWITCH	Enthalpy Switch	High/Low		Forcible	ENTH_SW
SMOKE PURGE INPUT	Smoke Purge Switch	On/Off			PURGE
SMOKE PRESSURE	Smoke Pressure Switch	On/Off			PRESSURE
SMOKE EVAC INPUT	Smoke Evacuation Switch	On/Off			EVAC
ANALOG INPUTS	ANALOG Inputs Menu				
ECON ACT POSITION	Damper Actual Position	0 to 100	%		DAMPPOS
SPRH LEVEL	Space Relative Humidity	0 to 100	%	Forcible	SPRH
OARH LEVEL	OA Relative Humidity	0 to 100	%	Forcible	OARH
RARH LEVEL	RA Relative Humidity	0 to 100	%	Forcible	RARH
IAQ LEVEL	Indoor Air Quality Level	xxxx	PPM	Forcible	IAQ
OAQ LEVEL	OA Quality Level	xxxx	PPM	Forcible	OAQ
OUTDOOR AIR CFM	Outdoor Air in CFM	0 to 8000	CFM	Forcible	OACFM
GENERAL INPUTS	General Inputs Menu				
FILTER TIME LEFT	Filter hour remaining	xxxx	hrs		FILTLEFT
RESET FILTER TIME	Reset Filter Timer	Yes/No		Command	RESETFLT
OUTDOOR ENTHALPY	Outdoor Air Enthalpy	-9.6 to 334.2	BTU/LB	Forcible	OA_ENTH

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

**Table E — Inputs Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
RETURN ENTHALPY	Return Air Enthalpy	-9.6 to 334.2	BTU/LB	Forcible	RA_ENTH
DIFF AIR QUALITY	Differential Air Quality	-5000 to 5000	PPM		AQ_DIFF
NETWORK	Network Menu				
BMS OCC REQUEST	BMS Occupancy Request	0=UNOCC, 1=OCCUPIED, 2=DISABLED		Forcible	BMS_OCC
LINKAGE OCC REQ	Linkage Occupied Request	0=Unocc, 1=Occupied, 2=Disabled		Forcible	LNK_OCC
OAT NETWORK VALUE	Network OAT Value	xxx.x	°F	Forcible	OAT_NET
RAT NETWORK VALUE	Network Return Air Temperature	xxx.x	°F	Forcible	RAT_NET
SPT NETWORK VAL.	Network Space Temperature Value	xxx.x	°F	Forcible	SPT_NET
SPRH NETWORK VAL	Network SPRH Value	0 to 100	%	Forcible	SPRH_NET
OARH NETWORK VAL.	Network OARH Value	0 to 100	%	Forcible	OARH_NET
RARH NETWORK VAL.	Network RARH Value	0 to 100	%	Forcible	RARH_NET
IAQ NETWORK VALUE	Network IAQ Value	xxxx	PPM	Forcible	IAQ_NET
OAQ NETWORK VALUE	Network OAQ Value	xxxx	PPM	Forcible	OAQ_NET
OACFM NETWORK VAL	Network OACFM Value	xxx.x	CFM	Forcible	OCFM_NET
ZS SENSOR INFO	ZS Sensor Information	xxxx	PPM		ZSZCO2
ZS SPACE TEMP	Zone Sensor Temp Out	0	°F		ZSZT
ZS SPACE RH	Zone Sensor Humidity Out	0	%		ZSSPRH
ZS CO2	Zone Sensor CO2 Level				
ZS SPOFFSET	ZS Setpoint Offset Output	0	°F delta		ZSSPTO
ZS OVR TIME LEFT	ZS Override time remain	0	min		ZSOTR
ZS MOTION SENSOR	ZS Motion Sensor	0			ZSZM
ZS TEMPERATURE	ZS Space Temperature				
ZS1 TEMPERATURE	Zone Sensor 1 Temperature	0	°F		ZS1ZT
ZS2 TEMPERATURE	ZS2 Temperature	0	°F		ZS2ZT
ZS3 TEMPERATURE	ZS3 Temperature	0	°F		ZS3ZT
ZS4 TEMPERATURE	ZS4 Temperature	0	°F		ZS4ZT
ZS5 TEMPERATURE	ZS5 Temperature	0	°F		ZS5ZT
ZS HUMIDITY	ZS Space Humidity				
ZS1 HUMIDITY	ZS1 Humidity	0	%		ZS1ZHUM
ZS2 HUMIDITY	ZS2 Humidity	0	%		ZS2ZHUM
ZS3 HUMIDITY	ZS3 Humidity	0	%		ZS3ZHUM
ZS4 HUMIDITY	ZS4 Humidity	0	%		ZS4ZHUM
ZS5 HUMIDITY	ZS5 Humidity	0	%		ZS5ZHUM
ZS CO2	ZS CO2		PPM		
ZS1 CO2	Zone Sensor1 CO2 Level	xxxx	PPM		ZS1ZCO2
ZS2 CO2	Zone Sensor2 CO2 Level	xxxx	PPM		ZS2ZCO2
ZS3 CO2	Zone Sensor3 CO2 Level	xxxx	PPM		ZS3ZCO2
ZS4 CO2	Zone Sensor4 CO2 Level	xxxx	PPM		ZS4ZCO2
ZS5 CO2	Zone Sensor5 CO2 Level	xxxx	PPM		ZS5ZCO2
ZS CSP OFFSET	ZS Cool Setpoint Offset				
ZS1 CSP OFFSET	ZS1 Cool Setpoint Offset	0	°F delta		ZS1CSOFF
ZS2 CSP OFFSET	ZS2 Cool Setpoint Offset	0	°F delta		ZS2CSOFF
ZS3 CSP OFFSET	ZS3 Cool Setpoint Offset	0	°F delta		ZS3CSOFF
ZS4 CSP OFFSET	ZS4 Cool Setpoint Offset	0	°F delta		ZS4CSOFF
ZS5 CSP OFFSET	ZS5 Cool Setpoint Offset	0	°F delta		ZS5CSOFF
ZS HSP OFFSET	ZS Heat Setpoint Offset				
ZS1 HSP OFFSET	ZS1 Heat Setpoint Offset	0	°F delta		ZS1HSOFF
ZS2 HSP OFFSET	ZS2 Heat Setpoint Offset	0	°F delta		ZS2HSOFF
ZS3 HSP OFFSET	ZS3 Heat Setpoint Offset	0	°F delta		ZS3HSOFF
ZS4 HSP OFFSET	ZS4 Heat Setpoint Offset	0	°F delta		ZS4HSOFF
ZS5 HSP OFFSET	ZS5 Heat Setpoint Offset	0	°F delta		ZS5HSOFF
ZS OCC TIME OVER	ZS Occ Timed Override				
ZS1 OCC TIME OVER	ZS1 Override Time Remain	0	min		ZS1OTR
ZS2 OCC TIME OVER	ZS2 Override Time Remain	0	min		ZS2OTR
ZS3 OCC TIME OVER	ZS3 Override Time Remain	0	min		ZS3OTR
ZS4 OCC TIME OVER	ZS4 Override Time Remain	0	min		ZS4OTR
ZS5 OCC TIME OVER	ZS5 Override Time Remain	0	min		ZS5OTR
ZS MOTION SENSOR	ZS Motion Sensor				

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

### Table E — Inputs Main Menu Layout (cont)

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
ZS MOTION SENSOR1	ZS Motion Sensor 1	0			ZS1ZM
ZS MOTION SENSOR2	ZS Motion Sensor 2	0			ZS2ZM
ZS MOTION SENSOR3	ZS Motion Sensor 3	0			ZS3ZM
ZS MOTION SENSOR4	ZS Motion Sensor 4	0			ZS4ZM
ZS MOTION SENSOR5	ZS Motion Sensor 5	0			ZS5ZM

### Table F — Outputs Main Menu Layout

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
<b>OUTPUTS</b>	Outputs Menu				
<b>GENERAL OUTPUTS</b>	General Outputs Menu				
COMMANDED IDF RPM	IDF Commanded RPM	0 to 5000	RPM		FSPD_RPM
ECON CMD POSITION	Econ Commanded Position	0 to 100	%	Forcible	DAMPCMD
CCH RELAY	CCH Relay 1 State	On/Off			CCHR1
PE1 RELAY	Power Exhaust 1 Relay	On/Off		Forcible	PE1
PE2 RELAY	Power Exhaust 2 Relay	On/Off		Forcible	PE2
ALARM RELAY	Alarm Output Relay State	On/Off		Forcible	ALMOUT
2POS/ERV RELAY	2-Position Damper/ERV relay	On/Off		Forcible	ERV_2POS
<b>COOLING OUTPUTS</b>	Cooling Outputs Menu				
CMP REQUESTED RPM	Compressor Request Speed	0 to 10000	RPM		CMPRQSPD
COMMANDED ODF RPM	Commanded ODF Speed	0 to 5000	RPM		ODFSPEED
RH DISCH VALVE	Reheat Discharge Valve Circuit A	On/Off			RDV_A
RH LIQUID VALVE	Reheat Liquid Valve Circuit A	On/Off			RLV_A
COOL LIQUID VALVE	Cooling Liquid Valve Circuit A	On/Off			CLV_A
<b>HEATING OUTPUTS</b>	Heating Outputs Menu				
HEAT 1 RELAY	Heat Stage 1 Relay	On/Off			HEAT_1
HEAT 2 RELAY	Heat Stage 2 Relay	On/Off			HEAT_2

### Table G — USB Main Menu Layout

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
<b>USB</b>	USB Menu				
<b>DATA ACQUISITION</b>	Data Acquisition Menu				
TREND STATUS	USB Trend Status	0=IDLE, 1=TRENDING, 2=NO POINTS, 3=USB FULL			TRNDSTAT
TREND DURATION	USB Trend Duration	0=FULL, 1=ROLLING, 2=LASTWEEK, 3=1 MINUTE, 4=5 MINUTES, 5=15 MINUTES, 6=30 MINUTES, 7=1 HOUR, 8=3 HOURS, 9=8 HOURS, 10=12 HOURS, 11=1 DAY, 12=1.5 DAYS, 13=2 DAYS, 14=3 DAYS, 15=5 DAYS, 16=1 WEEK, 17=2 WEEKS, 18=4 WEEKS		Command	TRNDDUR
TREND RATE	USB Trend Rate	1 to 300	sec	Command	TRNDRATE
TREND POINTS FROM	USB Trend Points From	0=FILE, 1=LIST		Command	TRNDPNTS
TREND FROM USB FILE?	Trend From USB File Menu				
TREND FROM PRELIST?	Trend From Prelist Menu				
EQUIP PERFORMANCE	Trend Equipment Performance	On/Off		Command	TRNDEQPR
GEN. INPUT/OUTPUT	Trend Gen Inputs/Outputs	On/Off		Command	TRNDIO
COOL PERFORMANCE	Trend Cool Performance	On/Off		Command	TRNDCLPR
HEAT PERFORMANCE	Trend Heat Performance	On/Off		Command	TRNDHTPR
COOL DIAGNOSTIC	Trend Cooling Diagnostic	On/Off		Command	TRNDCLDG

## APPENDIX A — SYSTEMVU CONTROLLER DISPLAY (cont)

Table G — USB Main Menu Layout (cont)

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
IDF DIAGNOSTIC	Trend IDF Diagnostic	On/Off		Command	TRNDIDF
VENT DIAGNOSTIC	Trend Ventilation	On/Off		Command	TRNDVENT
TREND GO?	Start USB Trending	Yes/No		Command	TREND_EN
SAVE CONFIGS TO FILE	Save Config to File				
SAVE CONFIGS	Make Config Backup File	Start/Stop		Command	DDBCKUP
SAVE CONFIG STATUS	Backup File is ready	0=IDLE, 1=SUCCESS, 2=FAILURE			BACKUP_R
SAVE CONFIGS FROM FILE	Save Config from file				
FIND CONFIG FILE	USB Find Restore File	Yes/No		Command	BACKFILE
<i>DATA ACQUISITION (cont)</i>	Data Acquisition Menu				
FILE TRANSFER	File Transfer Menu				
BACKUP SERVICE FILES	Backup Service Files				
UPGRADE SOFTWARE	Upgrade Software Menu				
FIND APPLICATION FILE	USB Search for App File	Yes/No		Command	APPFILE

## APPENDIX B — SYSTEMVU CONTROLLER TEXT POINT REFERENCE

SystemVu Display Name = MODE

SystemVu Text point = MODETEXT

SystemVu Numeric point = SYS\_MODE

MODETEXT	SYS_MODE
OFF	1
COOL	2
HEAT	3
VENT	4
TEST	5

SystemVu Display Name = SUB-MODE

SystemVu Text point = SUBMTEXT

SystemVu Numeric point = SUB\_MODE

SUBMTEXT	SUB_MODE
NO COOLING	3
ECON FREE COOLING	4
UNOCC. FREE COOL	5
MECH. COOLING	6
ECON/MECH COOLING	7
DEHUM/MECH COOLING	8
DEHUMIDIFYING	9
DEHUM PREVENTED	10
COOLING PREVENTED	11
SHUTTING COOL OFF	12
NO HEATING	13
HEATING	14
HEATING PREVENTED	15
SHUTTING HEAT OFF	16
SA TEMPERING	17
DEFROST	18
NO VENT	19
MODE TIMEGUARD	20, 27
SUPPLY FAN ON	21
MANUAL TEST	24
AUTO TEST	25
SHUTTING TEST OFF	26
IDLE - NO DEMAND	28
UNIT DISABLED	29
URGENT SHUTDOWN	30
SAFETY CONTROL	31
STARTING UP	32
PURGING SMOKE	33
PRESSURIZING	34
EVACUATING SMOKE	35

SystemVu Display Name = VENT MODE

SystemVu Text point = VENTTEXT

SystemVu Numeric point = VENTSTAT

VENTTEXT	VENTSTAT
SUPPLY FAN OFF	0
CIRCULATION	1
PRE-OCC PURGE	2
IAQ OVERRIDE	3
MINIMUM POSITION	4
UNDER VENTILATION	5
OVER VENTILATION	6
DCV POSITION	7
FREECOOL POSITION	8
TESTING	9

SystemVu Display Name = DEMAND

SystemVu Text point = SYSDMDT

SystemVu Numeric point = SYS\_DMD

SYSDMDT	SYS_DMD
NO DEMAND	0
DEHUM	4, 12
FAN ONLY	8
LOW COOL	17, 25
MED COOL	18, 26
HIGH COOL	19, 27
LOW COOL DEHUM	21, 29
MED COOL DEHUM	22, 30
HIGH COOL DEHUM	23, 31
LOW HEAT	33, 37, 41, 45
HIGH HEAT	35, 39, 43, 47
SERVICE TEST	49
SHUTDOWN	65
SAFETY FAULT	66
EMERGENCY	67
UFC LOW COOL	81
UFC MED COOL	82
UFC HIGH COOL	83
LOW UFC DEHUM	85
MED UFC DEHUM	86
HIGH UFC DEHUM	87
SMOKE PURGE	97
SMOKE PRESSURE	98
SMOKE EVAC	99
SATEMPERING	129, 137

## APPENDIX C — NAVIGATOR™ DISPLAY

**Table H — Mode Run Status**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
<b>RUN STATUS</b>	Run Status Menu				
<b>VIEW</b>	View Menu				
<b>MODE</b>	Operating Mode				MODETEXT
<b>SUBM</b>	Operating Sub-Mode				SUBMTEXT
<b>S.DMD</b>	System Demand				SYS_DMDT
<b>LINK</b>	Linkage Active	Yes/No		Forcible	LNK_ACT
<b>OCC</b>	Currently Occupied	Yes/No		Forcible	OCCUPIED
<b>OC.ST</b>	Occupied Standby	Yes/No			OCCSTDBY
<b>SAT</b>	Supply Air Temperature	xxx..x	°F		SAT
<b>COOL</b>	Cooling Status Menu				
<b>RDHL</b>	Requested Dehumidification Level	0=None, 1=Subcool, 2=Reheat			REQDHLEV
<b>MC.ON</b>	Mechanical Cool Active?	Yes/No			MECHCOOL
<b>ACT.C</b>	Actual Cool Stage Active	x			ACTCSTGS
<b>TG.A1</b>	Compressor A1 Time Guard	xxx	sec		TIMGD_A1
<b>TG.AL</b>	Comp A1 Loader Time Guard	xxx	sec		TIMG_ALD
<b>A1.LO</b>	Compressor A1 Locked Out	Yes/No			CA1_LOCK
<b>A1.AV</b>	Compressor A1 Available	Yes/No			CA1_AVAL
<b>FC.ON</b>	Free Cooling Active	Yes/No			FREECOOL
<b>REQ.D</b>	Requested Damper Pos	0 to 100	%		REQDAMP
<b>HEAT</b>	Heating Status Menu				
<b>REQ.H</b>	Requested Heating Stages	0 to 2			REQHSTGS
<b>ACT.H</b>	Actual Heat Stage Active	x			ACTHSTGS
<b>MAX.H</b>	Max Allowed Heat Stages	0 to 2		Forcible	MAXHSTGS
<b>TG.H1</b>	Heat Stage 1 Time Guard	xxx	sec		TIMGD_H1
<b>TG.H2</b>	Heat Stage 2 Time Guard	xxx	sec		TIMGD_H2
<b>VENT</b>	Ventilation Status Menu				
<b>VENT</b>	Ventilation Status	See Appendix B			VENTTEXT
<b>EC.MP</b>	Min Position in Effect	0 to 100	%	Forcible	MIN_POS
<b>OCC</b>	Currently Occupied	Yes/No		Forcible	OCCUPIED
<b>OC.ST</b>	Occupied Standby	Yes/No			OCCSTDBY
<b>A.IO</b>	Assigned Inputs/Outputs				
<b>AI06</b>	Assigned AI06 Function	0=None, 1=IAQ, 2=OARH, 3=RARH, 4=OAQ, 5=SPRH, 6=OACFM			MBBAI06F
<b>AI07</b>	Assigned AI07 Function	0=None, 1=IAQ, 2=OARH, 3=RARH, 4=OAQ, 5=SPRH, 6=OACFM			MBBAI07F
<b>AI08</b>	Assigned AI08 Function	0=None, 1=IAQ, 2=OARH, 3=RARH, 4=OAQ, 5=SPRH, 6=OACFM			MBBAI08F
<b>DI02</b>	Assigned DI02 Function	0=None, 1=COFS, 2=REMOCC, 3=REMOFF, 4=FILTER, 5=ENTHALPY, 6=GEN STAT, 7=HUMSTAT, 8=IAQOVRD, 9=SMK EVAC, 10=SMK PRESS, 11=SMK PURGE, 12=FIREDOWN, 13=FANSTATUS, 14=PHASEMON			MBBDI02F



## APPENDIX C — NAVIGATOR™ DISPLAY (cont)

### Table H — Mode Run Status (cont)

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
D103	Assigned DI03 Function	See DI02 for Values			MBBDI03F
DI05	Assigned DI05 Function	See DI02 for Values			MBBDI05F
DI.Y3	Assigned MBB Y3 Function	See DI02 for Values			MBBDI09F
DI12	Assigned DI12 Function	See DI02 for Values			MBBDI12F
DI13	Assigned DI13 Function	See DI02 for Values			MBBDI13F
DI14	Assigned DI14 Function	See DI02 for Values			MBBDI14F
RY06	Assigned Relay 06 Function	0=None, 1=ALM Relay, 2=PE1, 3=PE2			MBBRY06F
RY11	Assigned Relay 11 Function	0=None, 1=ALM Relay, 2=PE1, 3=PE2			MBBRY11F
VERS	Versions Menu				
MODL	Equipment Model Number	xxxxxxxxxxxxxxxxxx			EQ_MOD
SERL	Equipment Serial Number	xxxxxxxxxx			EQ_SER
SW	Application SW Version	text			FW_CESR
BOOT	Bootloader SW Version	text			BL_CESR

### Table I — Mode - Service Test

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	WRITE STATUS	POINT
SERVICE TEST	Service Test Menu				
TEST	Service Test Mode Enable	On/Off			
INDP	Independent Test Menu				
DAMP	Economizer Position Test	0 to 100	%		S_DAMPER
BMP1	Compressor Speed Bump Test	0 to 6000		Command	S_CMPSPD
RDV.A	Rht Discharge Valve Relay Test	On/Off			S_RDV_A
RL.VA	Reheat Liquid Valve Relay Test	On/Off			S_RLV_A
CL.VA	Cooling Liquid Valve Test	On/Off			S_CLV_A
CCH1	Crankcase Heater 1 Test	On/Off			S_CCHR1
ALRM	Alarm Output Relay Test	On/Off			S_ALARM
PE1	Power Exhaust 1 Test	On/Off			S_PE_1
PE2	Power Exhaust 2 Test	On/Off			S_PE_2
2P.EV	2-Position/ERV Relay Test	On/Off			S_ERV2P
E.CAL	Econ Damper Calibration	On/Off		Command	S_ECOCAL
FAN	Fan Tests				
IDFS	Indoor Fan Speed Test	0 to 100	%		S_IDFSPD
IF.SP	Converted IDF Speed	0 to 5000	RPM		IFRPMTST
IF.TR	IDF Manual Transition	Yes/No			S_IDFTRN
C.SPD	Cool Test Cmp Speed	0 to 6000		Command	S_CLSPD
ODFS	System ODF Speed Test	0 to 2000		Command	S_ODFSPD
COOL	Cooling Test Menu				
IDFS	Indoor Fan Speed Test	0 to 100	%		S_IDFSPD
ODFS	System ODF Speed Test	0 to 2000		Command	S_ODFSPD
OF.TR	ODF Manual Transition	Yes/No		Command	S_ODFTRN
HUM.T	Humidimizer Level Test	0=Off, 1=Subcool, 2=Reheat			S_HMZLEV
HEAT	Heating Test Menu				
HT.1	Heating Stage 1 Test	On/Off			S_HEAT1
HT.2	Heating Stage 2 Test	On/Off			S_HEAT2
IDFS	Indoor Fan Speed Test	0 to 100	%		S_IDFSPD

## APPENDIX C — NAVIGATOR™ DISPLAY (cont)

**Table J — Mode – Temperatures**

ITEM	EXPANSION	VALUES	UNITS	WRITE STATUS	POINT
<b>TEMPERATURES</b>	Temperature Menu				
<b>SAT</b>	Supply Air Temperature	xxx..x	°F		SAT
<b>OAT</b>	Outdoor Air Temperature	xxx.x	°F	Forcible	OAT
<b>RAT</b>	Return Air Temperature	xxx.x	°F	Forcible	RAT
<b>SPT</b>	Space Temperature	xxx.x	°F	Forcible	SPACE_T
<b>SPTO</b>	Space Temperature Offset	xx.x	°F delta	Forcible	SPTO
<b>SST.A</b>	Circuit A Sat.Suction Temp	xxx.x	°F		SST_A
<b>SDT.A</b>	Circuit A Sat.Discharge Temp	xxx.x	°F		SDT_A
<b>FST</b>	Fan Supply Air Temp	xxx.x	°F		FST

**Table K — Mode – Pressures**

ITEM	EXPANSION	VALUES	UNITS	WRITE STATUS	POINT
<b>PRESSURES</b>	Pressures Menu				
<b>SSP.A</b>	Circuit A Suction Pressure	xxx.x	PSI		SSP_A
<b>SDP.A</b>	Circuit A Discharge Pressure	xxx.x	PSI		SDP_A
<b>PR.A</b>	Circuit A Pressure Ratio	xx.xx			CIRA_PR
<b>BARP</b>	Barometric Pressure	xx.xx		Forcible	BARP

**Table L — Mode – Setpoints**

ITEM	EXPANSION	VALUES	UNITS	DEFAULT	POINT
<b>SETPOINTS</b>	Setpoint Menu				
<b>OCSP</b>	Occupied Cool Setpoint	55 to 80	°F	78	OCSP
<b>OHSP</b>	Occupied Heat Setpoint	55 to 80	°F	68	OHSP
<b>UCSP</b>	Unoccupied Cool Setpoint	65 to 95	°F	85	UCSP
<b>UHSP</b>	Unoccupied Heat Setpoint	40 to 80	°F	60	UHSP
<b>GAP</b>	Heat-Cool Setpoint Gap	2 to 10	°F	5	HCSP_GAP
<b>STO.R</b>	SPT Offset Range (±)	0 to 5	°F	5	SPTO_RNG
<b>RH.OS</b>	Occupied SPRH Setpoint	0 to 100	%	50	SPRH_OSP
<b>RH.US</b>	Unoccupied SPRH Setpoint	0 to 100	%	80	SPRH_USP
<b>RH.DB</b>	Space RH Deadband	2 to 20	%	8	SPRH_DB

**Table M — Mode – Inputs**

ITEM	EXPANSION	VALUES	UNITS	WRITE STATUS	POINT
<b>INPUTS</b>	Inputs Menu				
<b>STAT</b>	Thermostat Inputs menu				
<b>G</b>	Thermostat G Input	On/Off		Forcible	G
<b>Y1</b>	Thermostat Y1 Input	On/Off		Forcible	Y1
<b>Y2</b>	Thermostat Y2 Input	On/Off		Forcible	Y2
<b>W1</b>	Thermostat W1 Input	On/Off		Forcible	W1
<b>W2</b>	Thermostat W2 Input	On/Off		Forcible	W2
<b>SW</b>	Switch Inputs Menu				
<b>IFO</b>	IGC Fan On Request (IFO)	On/Off			IGC_IFO
<b>HUMD</b>	Humidistat Input	On/Off		Forcible	HUMDSTAT
<b>F.LSM</b>	IDF Manual Limit Switch	Open/Close			IDF_LSM
<b>FDWN</b>	Fire Shutdown Switch	Alarm/Normal		Forcible	FIREDOWN
<b>COFS</b>	COFS Switch State	High/Low		Forcible	COFS
<b>PMR</b>	Phase Monitor Switch	Alarm/Normal			PMR_STAT
<b>FIL.S</b>	Filter Status Switch	Dirty/Clean		Forcible	FILTSTAT
<b>RM.OC</b>	Remote Occupancy Switch	On/Off		Forcible	REMOCC
<b>R.OFF</b>	Remote Shutdown Switch	On/Off		Forcible	REMSHUT
<b>FAN.S</b>	Fan Status Switch	On/Off			FAN_STAT
<b>GEN.S</b>	General Status Switch	Alarm/Normal		Forcible	GENSTAT
<b>IAQ.O</b>	IAQ Override Switch	On/Off		Forcible	IAQ_OVRS
<b>ENTH</b>	Enthalpy Switch	High/Low		Forcible	ENTH_SW
<b>PURG</b>	Smoke Purge Switch	On/Off			PURGE
<b>PRES</b>	Smoke Pressure Switch	On/Off			PRESSURE
<b>EVAC</b>	Smoke Evacuation Switch	On/Off			EVAC

## APPENDIX C — NAVIGATOR™ DISPLAY (cont)

**Table M — Mode – Inputs (cont)**

ITEM	EXPANSION	VALUES	UNITS	WRITE STATUS	POINT
<b>AIS</b>	Analog Inputs Menu				
<b>EC.AP</b>	Damper Actual Position	0 to 100	%		DAMPPOS
<b>SPRH</b>	Space Relative Humidity	0 to 100	%	Forcible	SPRH
<b>OARH</b>	Outdoor Air Relative Humidity	0 to 100	%	Forcible	OARH
<b>RARH</b>	Return Air Relative Humidity	0 to 100	%	Forcible	RARH
<b>IAQ</b>	Indoor Air Quality Level	xxxx	PPM	Forcible	IAQ
<b>OAQ</b>	Outdoor Air Quality Level	xxxx	PPM	Forcible	OAQ
<b>OCFM</b>	Outdoor Air in CFM	0 to 8000	CFM	Forcible	OACFM
<b>GEN</b>	General Inputs Menu				
<b>FT.RM</b>	Filter hour remaining	xxxx	hrs		FILTLEFT
<b>R.FLT</b>	Reset Filter Timer	Yes/No			RESETFLT
<b>OAE</b>	Outdoor Air Enthalpy	-9.6 to 334.2		Forcible	OA_ENTH
<b>RAE</b>	Return Air Enthalpy	-9.6 to 334.2		Forcible	RA_ENTH
<b>DF.AQ</b>	Differential Air Quality	-5000 to 5000	PPM		AQ_DIFF

**Table N — Mode – Outputs**

ITEM	EXPANSION	VALUES	UNITS	WRITE STATUS	POINT
<b>OUTPUTS</b>	Outputs Menu				
<b>GEN</b>	General Outputs Menu				
<b>C.SPD</b>	IDF Commanded RPM	0 to 5000	RPM		FSPD_RPM
<b>EC.CP</b>	Econ Commanded Position	0 to 100	%	Forcible	DAMPCMD
<b>CCH</b>	CCH Relay 1 State	On/Off			CCHR1
<b>PE.1</b>	Power Exhaust 1 Relay	On/Off		Forcible	PE1
<b>PE.2</b>	Power Exhaust 2 Relay	On/Off		Forcible	PE2
<b>ALRM</b>	Alarm Output Relay State	On/Off		Forcible	ALMOUT
<b>EV2P</b>	2-Position Damper/ERV Relay	On/Off			ERV_2POS
<b>COOL</b>	Cooling Outputs Menu				
<b>CL.RP</b>	Cooling Response Setting	0=FASTER, 1=FAST, 2=MEDIUM, 3=SLOW, 4=SLOWER		2=Medium	
<b>LA.T</b>	Low Ambient Temperature	0 to 80		64	LA_TEMP
<b>RDV.A</b>	Reheat Discharge Valve Circuit A	On/Off			RDV_A
<b>RLV.A</b>	Reheat Liquid Valve Circuit A	On/Off			RLV_A
<b>CLV.A</b>	Cooling Liquid Valve Circuit A	On/Off			CLV_A
<b>HEAT</b>	Heating Outputs Menu				
<b>HT.1</b>	Heat Stage 1 Relay	On/Off			HEAT_1
<b>HT.2</b>	Heat Stage 2 Relay	On/Off			HEAT_2

**Table O — Mode – Configurations**

ITEM	EXPANSION	VALUES	UNITS	DEFAULT	POINT
<b>CONFIGURATION</b>	Config				
<b>GEN</b>	General				
<b>S.DLY</b>	Unit Startup Delay	10 to 600	sec	30	STARTDLY
<b>U.CTL</b>	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN		0 = TSTAT	CTRLTYPE
<b>T.CTL</b>	Thermostat Hardware Type	0=CONV 2C2H, 1=DIGI 2C2H, 2=CONV 3C2H, 3=DIGI 3C2H		0 = CONV 2C2H	STATTYPE
<b>VNT.C</b>	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP 1: Economizer FIOP	VENTTYPE
<b>FT.TM</b>	Change Filter Timer	0 to 9999	hrs	0	FILT LIFE

## APPENDIX C — NAVIGATOR™ DISPLAY (cont)

### Table O — Mode – Configurations (cont)

ITEM	EXPANSION	VALUES	UNITS	DEFAULT	POINT
<b>T.TO</b>	Test Inactivity Time Out	0=Disabled, 1=30 minutes, 2=1 hour, 3=2 hours, 4=4 hours, 5=8 hours, 6=12 hours		4	TEST_ITO
<b>CA.LO</b>	Circuit A Lockout Temp	-20 to 75	°F	40: no FIOP 0: Humidi-MiZer FIOP or Low Ambient FIOP	OATLCMPA
<b>CL.RP</b>	Cooling Response Setting	0=FASTER, 1=FAST, 2=MEDIUM, 3=SLOW, 4=SLOWER		2=Medium	COOLRESP
<b>LA.T</b>	Low Ambient Temperature	0 to 80		64	LA_TEMP
<b>L.SDT</b>	Low Ambient SDT Setpoint	60 to 160		90	LA_SDT
<b>OFOD</b>	OFD Fan-Off Delay	0 to 60		30	ODF_FOD
<b>N.HTR</b>	Number of Heating Stages	0 to 2		2: all except below 0: 50 Series without FIOP heaters 1: 48 Series Low heat, Low NOx Gas Heat, 48JC 05-06 Med Heat, 50JC 04-06 Low Heat, 50JC 04-05 Med Heat, 50JC 04 High Heat 230v and 460v, 50JC 05 High Heat 230v 50JC 06 Med Heat 460v and 575v	NUMHSTGS
<b>HT.LO</b>	Heating Lockout Temp	40 to 125	°F	75	OATLHEAT
<b>I.FAN</b>	Indoor Fan				
<b>S.CLD</b>	Cooling Design Point Speed	0 to 3000		1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	IDFDGSPD
<b>S.VNT</b>	IDF Vent Speed = RPM	0 to 3000		737: Size 04 Standard Static Fan 854: Size 04 Medium Static Fan 971: Size 04 High Static Fan 741: Size 05 Standard Static Fan 847: Size 05 Medium Static Fan 1038: Size 05 High Static Fan 839: Size 06 Standard Static Fan 932: Size 06 Medium Static Fan 1106: Size 05 High Static Fan	RPM_VENT
<b>S.HT</b>	IDF Heat Speed = RPM	0 to 3000		1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	RPM_HEAT
<b>S.FCL</b>	IDF Free Cool Speed = RPM	0 to 3000		1106: Size 04 Standard Static Fan 1281: Size 04 Medium Static Fan 1457: Size 04 High Static Fan 1112: Size 05 Standard Static Fan 1269: Size 05 Medium Static Fan 1556: Size 05 High Static Fan 1258: Size 06 Standard Static Fan 1398: Size 06 Medium Static Fan 1659: Size 06 High Static Fan	RPM_FCL
<b>S.MAX</b>	IDF Maximum Fan Speed	0 to 100		100	SPEEDMAX
<b>ECON</b>	Economizer				
<b>VNT.C</b>	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP 1: Economizer FIOP	VENTTYPE
<b>FC.MX</b>	Free Cooling Max OAT	0 to 90	°F	65	MAXFREET
<b>EC.MX</b>	Econ Max Damper Position	0 to 100	%	100	DAMPMAX
<b>MIN.P</b>	Minimum Position Configs				
<b>MP.MX</b>	Econ Min at Max Fan Speed	0 to 100	%	30	MINP_MAX
<b>MP.S1</b>	Min Pos - User Speed 1	0 to 100	%	0	MP_USPD1

## APPENDIX C — NAVIGATOR™ DISPLAY (cont)

### Table O — Mode – Configurations (cont)

ITEM	EXPANSION	VALUES	UNITS	DEFAULT	POINT
<b>MP.D1</b>	Min Pos - User Pos 1	0 to 100	%	0	MP_UPOS1
<b>MP.S2</b>	Min Pos - User Speed 2	0 to 100	%	0	MP_USPD2
<b>MP.D2</b>	Min Pos - User Pos 2	0 to 100	%	0	MP_UPOS2
<b>MP.S3</b>	Min Pos - User Speed 3	0 to 100	%	0	MP_USPD3
<b>MP.D3</b>	Min Pos - User Pos 3	0 to 100	%	0	MP_UPOS3
<b>NET</b>	Network Settings				
<b>BAS</b>	BAS Protocol Select	0=NONE, 1=CCN, 2=BACNET		0 = NONE	BMS_CFG
<b>NW.TO</b>	Network Input Timeout	0 to 600	min	30	NETINTO
<b>CCN</b>	CCN				
<b>CCN.B</b>	CCN Bus number	0 to 239		0	CCNBUS
<b>CCN.A</b>	CCN Element Number	1 to 239		1	CCNADD
<b>BAUD</b>	CCN Baud Rate	0=9600, 1=19200, 2=38400		2 = 38400	BAUDENUM
<b>BNET</b>	BACnet				
<b>MAC</b>	BACnet Device MAC Address	1 to 127		1	BAC_MAC
<b>BAUD</b>	BACnet BMS Baud Rate	0=9600, 1=19200, 2=38400, 3=57600, 4=76800, 5=115200		4 = 76800	BAC_BAUD
<b>AUID</b>	ALC Auto ID Scheme	Yes/No		Yes	AUID
<b>B.AID</b>	BACnet ID Auto ID	Yes/No		Yes	BAC_AUID
<b>ID</b>	BACnet ID Number	0 to 4194302		1610101	BAC_ID
<b>DISP</b>	Display Settings				
<b>METR</b>	Metric Display	Yes/No		No	DISPUNIT
<b>LANG</b>	Display Language Select	0=English, 1=Spanish		0 = English	LANGUAGE
<b>PROT</b>	User Password Protection	Enable/Disable		Enable	PASS_EBL
<b>PSWD</b>	User Password	0 to 9999		1111	PASSWORD

### Table P — Mode – Time Clock

ITEM	EXPANSION	RANGE	UNITS	DEFAULT	POINT
<b>TIME CLOCK</b>					
<b>TIME</b>	Clock Hour and Minute	xx:xx	hh.mm		
<b>MNTH</b>	Month of Year	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER			MOY
<b>DOM</b>	Day of month	1 to 31			DOM
<b>YEAR</b>	Year	2000 to 9999			YOC_DISP
<b>DAY</b>	Day of week	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY			dow
<b>DST.A</b>	DST Currently Active	Yes/No			DST_ACTV
<b>DST</b>	Daylight Savings Config				
<b>DST</b>	DST Allowed?	Enable/Disable		Enable	DST_CFG

## APPENDIX C — NAVIGATOR™ DISPLAY (cont)

**Table P — Mode – Time Clock (cont)**

ITEM	EXPANSION	RANGE	UNITS	DEFAULT	POINT
<b>STR.M</b>	DST Start Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		3	STARTM
<b>STR.W</b>	DST Start Week	1 to 5		2	STARTW
<b>STR.D</b>	DST Start Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		7	STARTD
<b>M.ADD</b>	DST Minutes to Add	0 to 90	min	60	MINADD
<b>STP.M</b>	DST Stop Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		11	STOPM
<b>STP.W</b>	DST Stop Week	1 to 5		1	STOPW
<b>STP.D</b>	DST Stop Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		7	STOPD
<b>M.SUB</b>	DST Minutes to Subtract	0 to 90	min	60	MINSUB
<b>TOD</b>	Time In Day to Start DST	0 to 600	min	120	DST_TOD
<b>SCHD</b>	Schedules Adjust Menu				
<b>SCH.N</b>	CCN Schedule Number	0 = Always Occupied, 1-64 = Local Schedule, 65-99 = Global Schedule	n/a	0	SCHEDNUM
<b>OV.TL</b>	Timed Override Duration	0 to 4	hours	4	OTL_CFG
<b>MON</b>	Mon Schedule Adjust Menu				
<b>OC.x</b>	Monday Occupied x	00:00 to 24:00 or None	HH:MM	None	MO_OC1 - MO_OC8
<b>UOC.x</b>	Monday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	MO_UNOC1 - MO_UNOC8
<b>TUE</b>	Tue Schedule Adjust Menu				
<b>OC.x</b>	Tuesday Occupied x	00:00 to 24:00 or None	HH:MM	None	TU_OC1 - TU_OC8
<b>UOC.x</b>	Tuesday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	TU_UNOC1 - TU_UNOC8
<b>WED</b>	Wed Schedule Adjust Menu				
<b>OC.x</b>	Wednesday Occupied x	00:00 to 24:00 or None	HH:MM	None	WE_OC1 - WE_OC8
<b>UOC.x</b>	Wednesday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	WE_UNOC1 - WE_UNOC8
<b>THU</b>	Thu Schedule Adjust Menu				
<b>OC.x</b>	Thursday Occupied x	00:00 to 24:00 or None	HH:MM	None	TH_OC1 - TH_OC8
<b>UOC.x</b>	Thursday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	TH_UNOC1 - TH_UNOC8
<b>FRI</b>	Fri Schedule Adjust Menu				
<b>OC.x</b>	Friday Occupied x	00:00 to 24:00 or None	HH:MM	None	FR_OC1 - FR_OC8
<b>UOC.x</b>	Friday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	FR_UNOC1 - FR_UNOC8
<b>SAT</b>	Sat Schedule Adjust Menu				
<b>OC.x</b>	Saturday Occupied x	00:00 to 24:00 or None	HH:MM	None	SA_OC1 - SA_OC8
<b>UOC.x</b>	Saturday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	SA_UNOC1 - SA_UNOC8
<b>SUN</b>	Sun Schedule Adjust Menu				
<b>OC.x</b>	Sunday Occupied x	00:00 to 24:00 or None	HH:MM	None	SU_OC1 - SU_OC8
<b>UOC.x</b>	Sunday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	SU_UNOC1 - SU_UNOC8

## APPENDIX C — NAVIGATOR™ DISPLAY (cont)

**Table P — Mode – Time Clock (cont)**

ITEM	EXPANSION	RANGE	UNITS	DEFAULT	POINT
<b>HOL</b>	Hol Schedule Adjust Menu				
<b>OC.x</b>	Holiday Occupied x	00:00 to 24:00 or None	HH:MM	None	HD_OC1 - HD_OC8
<b>UOC.x</b>	Holiday Unoccupied x	00:00 to 24:00 or None	HH:MM	None	HD_UNOC1 - HD_UNOC8
<b>(repeat up to x=8 Periods)</b>					
<b>HLDY</b>	Holiday Adjustment Menu				
<b>HOL.G</b>	Accept Global Holidays?	Yes/No		No	HOLIDAYT
<b>HL.TY</b>	Today is a Holiday	Yes/No			HOLTODAY
<b>HL.TW</b>	Tomorrow is a Holiday	Yes/No			HOL_TMRW
<b>HO.xx</b>	Holiday Adjustment Menu				
<b>LEN</b>	Holiday Duration (days)	0 to 99		0	HD01LEN - HD30LEN
<b>DAY</b>	Holiday Start Day	0 to 31		0	HD01STDY - HD30STDY
<b>MON</b>	Holiday Start Month	0 to 12 = January to December		0	HD01STMN - HD30STMN
<b>(repeat up to xx=30 Holidays)</b>					

**Table Q — Mode – Operating Modes**

ITEM	EXPANSION	RANGE	UNITS	WRITE STATUS	POINT
<b>OPERATING MODES</b>	Operating Modes Menu				
<b>MODE</b>	Operating Mode	See Appendix B			MODETEXT
<b>SUBM</b>	Operating Sub-Mode	See Appendix B			SUBMTEXT
<b>S.DMD</b>	System Demand	See Appendix B			SYS_DMDT
<b>LINK</b>	Linkage Active	Yes/No		Forcible	LNK_ACT
<b>CLTG</b>	Cool Mode Select Time Guard	xxx	sec		COOLMSTG
<b>HTTG</b>	Heat Mode Select Time Guard	xxx	sec		HEATMSTG

**Table R — Mode – Alarms**

ITEM	EXPANSION	RANGE	DEFAULT	POINT
<b>ALARMS</b>				
<b>CURR</b>	Currently Active Alarm Menu			
<b>alarm#</b>	text string			ALARM01C - ALARM25C
<b>(repeat up to 25 times)</b>				
<b>HIST</b>	History Menu			
<b>alarm#</b>	alarm# - mm/dd/yy-hh.mm- text string			ALHIS001 - ALHIS050
<b>(repeat up to 50 times)</b>				
<b>R.CUR</b>	Reset All Current Alarms	Yes/No	Yes	ALRESET
<b>R.HIS</b>	Alarm Reset History Menu			
<b>ARxx</b>	mm/dd/yy, hh:mm:ss			ALMRES00 - ALMRES19
<b>(repeat up to 20 times)</b>				

## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES

**Table S — Status Display Tables**

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
UINPUT	Supply Air Temperature	xxx..x	°F	SAT	
	Outdoor Air Temperature	xxx.x	°F	OAT	Forcible
	Return Air Temperature	xxx.x	°F	RAT	Forcible
	Space Temperature	xxx.x	°F	SPACE_T	Forcible
	Space Temperature Offset	xx.x	°F delta	SPTO	Forcible
	Fan Supply Air Temp	xxx.x	°F	FST	
	Circuit A Sat.Suction Temp	xxx.x	°F	SST_A	
	Circuit A Sat.Discharge Temp	xxx.x	°F	SDT_A	
	Circuit A Suction Pressure	xxx.x	PSI	SSP_A	
	Circuit A Discharge Pressure	xxx.x	PSI	SDP_A	
	Thermostat G Input	On/Off		G	Forcible
	Thermostat Y1 Input	On/Off		Y1	Forcible
	Thermostat Y2 Input	On/Off		Y2	Forcible
	Thermostat W1 Input	On/Off		W1	Forcible
	Thermostat W2 Input	On/Off		W2	Forcible
	Humidistat Input	On/Off		HUMDSTAT	Forcible
	IDF Manual Limit Switch	Open/Close		IDF_LSM	
	IGC Fan On Request (IFO)	On/Off		IGC_IFO	
	Circuit A High Pressure Switch	Open/Close		CIRA_HPS	
	Fire Shutdown Switch	Alarm/Normal		FIREDOWN	Forcible
	COFS Switch State	High/Low		COFS	Forcible
	Filter Status Switch	Dirty/Clean		FILTSTAT	Forcible
	Phase Monitor Switch	Alarm/Normal		PMR_STAT	
	Fan Status Switch	On/Off		FAN_STAT	
	Remote Occupancy Switch	On/Off		REMOCC	Forcible
	Remote Shutdown Switch	On/Off		REMSHUT	Forcible
	General Status Switch	Alarm/Normal		GENSTAT	Forcible
	IAQ Override Switch	On/Off		IAQ_OVRS	Forcible
	Enthalpy Switch	High/Low		ENTH_SW	Forcible
	Smoke Purge Switch	On/Off		PURGE	Forcible
	Smoke Pressure Switch	On/Off		PRESSURE	Forcible
	Smoke Evacuation Switch	On/Off		EVAC	Forcible
	Damper Actual Position	0 to 100	%	DAMPPOS	
	Space Relative Humidity	0 to 100	%	SPRH	Forcible
	Outdoor Air Relative Humidity	0 to 100	%	OARH	Forcible
	Return Air Relative Humidity	0 to 100	%	RARH	Forcible
	Indoor Air Quality Level	xxxx	PPM	IAQ	Forcible
	Outdoor Air Quality Level	xxxx	PPM	OAQ	Forcible
	Outdoor Air in CFM	0 to 8000	CFM	OACFM	Forcible
UOUTPUT	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
	CCH Relay 1 State	On/Off		CCHR1	
	Power Exhaust 1 Relay	On/Off		PE1	Forcible
	Power Exhaust 2 Relay	On/Off		PE2	Forcible
	Alarm Output Relay State	On/Off		ALMOUT	Forcible
	2-Position Damper/ERV Relay	On/Off		ERV_2POS	
	Compressor Request Speed	0 to 10000	RPM	CMPRQSPD	
	Commanded ODF Speed	0 to 5000	RPM	ODFSPEED	
	Heat Stage 1 Relay	On/Off		HEAT_1	
	Heat Stage 2 Relay	On/Off		HEAT_2	
	Reheat Discharge Valve Circuit A	On/Off		RDV_A	
	Reheat Liquid Valve Circuit A	On/Off		RLV_A	
	Cooling Liquid Valve Circuit A	On/Off		CLV_A	
GENDISP					
	Circuit A Pressure Ratio	xx.xx		CIRA_PR	
	Barometric Pressure	xx.xx	"Hg	BARP	Forcible
	Filter Hours Remaining	xxxx	hrs	FILTLEFT	



# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table S — Status Display Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
MODEDISP					
	System Mode	See Appendix B		SYSMODE	
	Running Mode Operation	See Appendix B		SUB_MODE	
	Ventilation Status	See Appendix B		VENTSTAT	
	System Demand	0 to 99		SYS_DMD	
	Currently Occupied	Yes/No		OCCUPIED	Forcible
	Occupied Standby	Yes/No		OCCSTDBY	
	Linkage Active	Yes/No		LNK_ACT	
	Unocc Free Cool Active	Yes/No		UFC_ACT	
	Temp Compensate Start On	Yes/No		TCS_ACT	
	Cool Setpoint in Effect	xx.x	°F	CSP_EFF	
	Heat Setpoint in Effect	xx.x	°F	HSP_EFF	
	Effective Demand Temp	xxx.x	°F	TEMP_EFF	
	Cool Demand Limiting	Yes/No		CDMLMOFF	
	Cool Demand Limit Offset	0	°F	COOLDLMO	
	Heat Demand Limiting	0		HDMLMOFF	
	Heat Demand Limit Offset	0	°F	HEATDLMO	
	Cool demand Limit Level	0 to 3		CDMDLLEV	
	Heat demand Limit Level	0 to 3		HDMDLLEV	
COOLDISP					
	OK to Use Free Cooling?	Yes/No		OKFREECL	
	Free Cooling Active	Yes/No		FREECOOL	
	Free Cooling SAT Setpoint	xx.x	°F	FC_SATSP	
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	OK To Use Compressors?	Yes/No		OKMECHCL	
	Mechanical Cool Active?	Yes/No		MECHCOOL	
	Actual Cool Stage Active	x		ACTCSTGS	
	Space Cooling Demand	xx.x	°F delta	COOL_DMD	
	Compressor Request Speed	0 to 10000	RPM	CMPRQSPD	
	Compressor A1 Time Guard	xxx	sec	TIMGD_A1	
	OK to use Humidimizer	Yes/No		OKTOHUMZ	
	Requested Dehum Level	0=None 1=Subcool, 2=Reheat		REQDHLEV	
	OK To Use Fan Dehum	Yes/No		OKTOFBD	
	Circuit A Sat. Discharge Temp	xxx.x	°F	SDT_A	
	Circuit A Sat. Suction Temp	xxx.x	°F	SST_A	
	Circuit A Discharge Pressure	xxx.x	PSI	SDP_A	
	Circuit A Suction Pressure	xxx.x	PSI	SSP_A	
	Circuit A Pressure Ratio	xx.xx		CIRA_PR	
	Supply Air Temperature	xxx..x	°F	SAT	
	Outdoor Air Temperature	xxx.x	°F	OAT	Forcible
	Commanded ODF Speed	0 to 5000	RPM	ODFSPEED	
	ODF Control to SDT	Yes/No		VSODF_EN	
	Oil Recovery Process	On/Off		CMP_ORAF	
	Min Comp Speed Locked Out	On/Off		LAMN_LCK	
	Hi Temp Min Speed Lockout	Yes/No		HAMN_LCK	
	Max Allowed Cool Speed	1500 to 6000	RPM	MAXREQSD	
	Outdoor Fan Override	0 to 1		ODF_OVR	
	ODF Hi Envelope Active	On/Off		LAHISDMS	
	ODF Lo Envelope Active	On/Off		LALOSDMD	
	Comp Hi Envelope Active	On/Off		CMPHIENV	
	Comp Lo Envelope Active	On/Off		CMPLOENV	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table S — Status Display Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
HEATDISP					
	OK to Run Heat	Yes/No		OKTOHEAT	
	OK to Supply Air Tempering	Yes/No		OKTOTEMP	
	IGC Fan On Request (IFO)	On/Off		IGC_IFO	
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	Max Allowed Heat Stages	0 to 2		MAXHSTGS	Forcible
	Requested Heating Stages	0 to 2		REQHSTGS	
	Actual Heat Stage Active	x		ACTHSTGS	
	Heat Stage 1 Relay	On/Off		HEAT_1	
	Heat Stage 2 Relay	On/Off		HEAT_2	
	Heat Stage 1 Time Guard	xxx	sec	TIMGD_H1	
	Heat Stage 2 Time Guard	xxx	sec	TIMGD_H2	
VENTDISP					
	Ventilation Status	See Appendix B		VENTSTAT	
	Ventilation Status	See Appendix B		VENTTEXT	
	Min Position in Effect	0 to 100	%	MIN_POS	Forcible
	In Preoccupancy Purge?	Yes/No		PREOCCON	
	Differential Air Quality	-5000 to 5000	PPM	AQ_DIFF	
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
	Damper Actual Position	0 to 100	%	DAMPPOS	
	Free Cooling Active	Yes/No		FREECOOL	
	Currently Occupied	Yes/No		OCCUPIED	Forcible
	Occupied Standby	Yes/No		OCCSTDBY	
	Minutes Until Next Occupied	-1 to 10080	min	MINTILOC	
	OK to Preoccupancy Purge	Yes/No		OKPREOCC	
	Power Exhaust 1 Relay	On/Off		PE1	Forcible
	Power Exhaust 2 Relay	On/Off		PE2	Forcible
	2-Position Damper/ERV Relay	On/Off		ERV_2POS	
ALRMDISP					
	Active Alarm 1 Code	xxx		ALMCODE1	
	Active Alarm 2 Code	xxx		ALMCODE2	
	Active Alarm 3 Code	xxx		ALMCODE3	
	Active Alarm 4 Code	xxx		ALMCODE4	
	Active Alarm 5 Code	xxx		ALMCODE5	
	Reset All Current Alarms	Yes/No		ALRESET	Writable
STRTHOUR					
	Compressor A1 Run Hours	xxxxxx.x	hrs	HR_A1	
	Alarm Relay Run Hours	xxxxxx.x	hrs	HR_ALM	
	CCH1 Relay Run Hours	xxxxxx.x	hrs	HR_CCHR1	
	Econ Damper Run Hours	xxxxxx.x	hrs	HR_DAMP	
	2-Position/ERV Run Hours	xxxxxx.x	hrs	HR_ERV2P	
	Unit Full Load Run Hours	xxxxxx.x	hrs	HR_FLOAD	
	Free Cooling Run Hours	xxxxxx.x	hrs	HR_FREEC	
	Heat Stage 1 Run Hours	xxxxxx.x	hrs	HR_HTR_1	
	Heat Stage 2 Run Hours	xxxxxx.x	hrs	HR_HTR_2	
	Indoor Fan Run Hours	xxxxxx.x	hrs	HR_IDF	
	Max Fan Speed Run Hours	xxxxxx.x	hrs	HR_MAXF	
	BLOAD Run Hours	xxxxxx.x	hrs	HR_BLOAD	
	MLOAD Run Hours	xxxxxx.x	hrs	HR_MLOAD	
	ODF Relay Run Hours	xxxxxx.x	hrs	HR_OFR	
	RDV_A Run Hours	xxxxxx.x	hrs	HR_RDV_A	
	RLV_A Run Hours	xxxxxx.x	hrs	HR_RLV_A	
	CLV_A Run Hours	xxxxxx.x	hrs	HR_CLV_A	
	Reheat level 1 Run Hrs	xxxxxx.x	hrs	HR_RQHL1	
	Reheat level 2 Run Hrs	xxxxxx.x	hrs	HR_RQHL2	
	Power Exhaust1 Run Hours	xxxxxx.x	hrs	HR_PE_1	
	Power Exhaust2 Run Hours	xxxxxx.x	hrs	HR_PE_2	
	Service Test Run Hours	xxxxxx.x	hrs	HR_STEST	
	Vent IDF Run Hours	xxxxxx.x	hrs	HR_VENTF	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table S — Status Display Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
STRTCNTS					
	Compressor A1 Starts	xxxxxx		ST_A1	
	Alarm Relay Starts	xxxxxx		ST_ALM	
	Alarm Reset Counts	xxxxxx		ST_ALRST	
	CCH1 Relay Starts	xxxxxx		ST_CCHR1	
	Economizer Damper Starts	xxxxxx		ST_DAMP	
	2-Position/ERV Starts	xxxxxx		ST_ERV2P	
	Unit Full Load Starts	xxxxxx		ST_FLOAD	
	Free Cooling Starts	xxxxxx		ST_FREEC	
	Heat Stage 1 Starts	xxxxxx		ST_HTR_1	
	Heat Stage 2 Starts	xxxxxx		ST_HTR_2	
	Indoor Fan Starts	xxxxxx		ST_IDF	
	Max IDF Speed Starts	xxxxxx		ST_MAXF	
	BLOAD Starts	xxxxxx		ST_BLOAD	
	MLOAD Starts	xxxxxx		ST_MLOAD	
	ODF Relay Starts	xxxxxx		ST_OFR	
	Power Exhaust 1 Starts	xxxxxx		ST_PE_1	
	Power Exhaust 2 Starts	xxxxxx		ST_PE_2	
	Power Cycle Counts	xxxxxx		ST_POR	
	RDV_A Starts	xxxxxx		ST_RDV_A	
	RLV_A Starts	xxxxxx		ST_RLV_A	
	CLV_A Starts	xxxxxx		ST_CLV_A	
	Reheat Level 1 Starts	xxxxxx		ST_RQHL1	
	Reheat Level 2 Starts	xxxxxx		ST_RQHL2	
	Service Test Starts	xxxxxx		ST_STEST	
	Ventilation Fan Starts	xxxxxx		ST_VENTF	
STRTRSTS					
	Comp A1 Resets Count	xxxxxx		RS_A1	
	Alarm Relay Resets Count	xxxxxx		RS_ALM	
	Alarm Reset Resets Count	xxxxxx		RS_ALRST	
	CCH1 Relay Resets Count	xxxxxx		RS_CCHR1	
	Econ Damper Resets Count	xxxxxx		RS_DAMP	
	2-Position/ERV Reset Count	xxxxxx		RS_ERV2P	
	Full Load Resets Count	xxxxxx		RS_FLOAD	
	Free Cooling Reset Count	xxxxxx		RS_FREEC	
	Heat Stage 1 Reset Count	xxxxxx		RS_HTR_1	
	Heat Stage 2 Reset Count	xxxxxx		RS_HTR_2	
	Indoor Fan Reset Count	xxxxxx		RS_IDF	
	Max IDF Speed Resets Count	xxxxxx		RS_MAXF	
	BLOAD Reset Count	xxxxxx		RS_BLOAD	
	MLOAD Reset Count	xxxxxx		RS_MLOAD	
	ODF Relay Resets Counts	xxxxxx		RS_OFR	
	P.Exhaust 1 Resets Count	xxxxxx		RS_PE_1	
	P.Exhaust 2 Resets Count	xxxxxx		RS_PE_2	
	Power Cycle Resets Count	xxxxxx		RS_POR	
	RDV_A Reset Count	xxxxxx		RS_RDV_A	
	RLV_A Reset Count	xxxxxx		RS_RLV_A	
	CLV_A Reset Count	xxxxxx		RS_CLV_A	
	Reheat Level 1 Reset Count	xxxxxx		RS_RQHL1	
	Reheat Level 2 Reset Count	xxxxxx		RS_RQHL2	
	Service Test Reset Count	xxxxxx		RS_STEST	
	Vent IDF Resets Count	xxxxxx		RS_VENTF	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table S — Status Display Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
MODES					
	Operating Mode	See Appendix B		MODETEXT	
	System Mode	See Appendix B		SYSMODE	
	Operating Sub-Mode	See Appendix B		SUBMTEXT	
	Running Mode Operation	See Appendix B		SUB_MODE	
	Ventilation Status	See Appendix B		VENTTEXT	
	Ventilation Status	See Appendix B		VENTSTAT	
	System Demand	See Appendix B		SYS_DMDT	
	System Demand	0 to 99		SYS_DMD	
	Currently Occupied	Yes/No		OCCUPIED	Forcible
	Occupied Standby	Yes/No		OCCSTDBY	
	Linkage Active	Yes/No		LNK_ACT	
	Unocc Free Cool Active	Yes/No		UFC_ACT	
	Temp Compensate Start On	Yes/No		TCS_ACT	
	Current Mode Ended	Yes/No		MODEDONE	
	Cool Mode Select Time Guard	xxx	sec	COOLMSTG	
	Heat Mode Select Time Guard	xxx	sec	HEATMSTG	
	Cool Setpoint in Effect	xx.x	°F	CSP_EFF	
	Heat Setpoint in Effect	xx.x	°F	HSP_EFF	
	Effective Demand Temp	xxx.x	°F	TEMP_EFF	
	Space Cooling Demand	xx.x	°F delta	COOL_DMD	
	Cooling Demand Trend	xx.x		CLDTREND	
	Heating Space Demand	xx.x	°F delta	HEAT_DMD	
	Heat Space Demand Trend	xx.x		HTDTREND	
TESTMODE					
	IDF Manual Transition	Yes/No		S_IDFTRN	Writable
	Indoor Fan Speed Test	0 to 100	%	S_IDFSPD	Writable
	Converted IDF Speed	0 to 5000	RPM	IFRPMTST	
	ODF Manual Transition	Yes/No		S_ODFTRN	Writable
	System ODF Speed Test	0 to 2000	RPM	S_ODFSPD	Writable
	Cool Test Cmp Speed	0 to 10000	RPM	S_CLSPD	Writable
	CMP Test Speed	0 to 6000	RPM	S_CMPSPD	Writable
	Economizer Position Test	0 to 100	%	S_DAMPER	Writable
	Reheat Discharge Valve Relay Test	On/Off		S_RDV_A	Writable
	Reheat Liquid Valve Relay Test	On/Off		S_RLV_A	Writable
	Cooling Liquid Valve Test	On/Off		S_CLV_A	Writable
	Crankcase Heater 1 Test	On/Off		S_CCHR1	Writable
	Alarm Output Relay Test	On/Off		S_ALARM	Writable
	Power Exhaust 1 Test	On/Off		S_PE_1	Writable
	Power Exhaust 2 Test	On/Off		S_PE_2	Writable
	2-Position/ERV Relay Test	On/Off		S_ERV2P	Writable
	Humidimizer Level Test	0=Off, 1=Subcool, 2=Reheat		S_HMZLEV	Writable
	Heating Stage 1 Test	On/Off		S_HEAT1	Writable
	Heating Stage 2 Test	On/Off		S_HEAT2	Writable
	Auto Independent Test	Yes/No		AUTOINDP	Writable
	Run Auto Cooling Test	Yes/No		AUTOCOOL	Writable
	Run Auto Heating Test	Yes/No		AUTOHEAT	Writable
	Run Auto System Test	Yes/No		AUTOSYS	Writable

## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

**Table T — Maintenance Tables**

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
IDF_DIAG					
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	Commanded IDF Speed	0 to 100	%	FANSPEED	
	Requested IDF Speed	0 to 100	%	RQFANSPEED	
	IDF Vent Speed = RPM	0 to 3000	RPM	RPM_VENT	
	IDF Heat Speed = RPM	0 to 3000	RPM	RPM_HEAT	
	IDF Free Cool Speed = RPM	0 to 3000	RPM	RPM_FCL	
	IDF Maximum Fan Speed	0 to 100	%	SPEEDMAX	
	Fan Status Switch	On/Off		FAN_STAT	
	IDF Manual Limit Switch	Open/Close		IDF_LSM	
	IDF Speed Override Flag	On/Off		FAN_OVRD	
	IDF Operation Errors?	Yes/No		IDFBAD	
	IDF CRV Offset	xxxx	RPM	IDFOFFST	
USB_DIAG	Cool Design Speed	xxxx	RPM	IDFDGSPD	
	USB Trend Status	0=IDLE, 1=TRENDING, 2=NO POINTS, 3=USB FULL		TRNDSTAT	
	USB Trend Duration	0=FULL, 1=ROLLING, 2=LASTWEEK, 3=1 MINUTE, 4=5 MINUTES, 5=15 MINUTES, 6=30 MINUTES, 7=1 HOUR, 8=3 HOURS, 9=8 HOURS, 10=12 HOURS, 11=1 DAY, 12=1.5 DAYS, 13=2 DAYS, 14=3 DAYS, 15=5 DAYS, 16=1 WEEK, 17=2 WEEKS, 18=4 WEEKS		TRNDDUR	Writable
	USB Trend Rate	1 to 300	sec	TRNDRATE	Writable
	USB Trend Points From	0=FILE, 1=LIST		TRNDPNTS	Writable
	Trend File Search	text		TRNDFILE	
	Trend Equipment Performance	On/Off		TRNDEQPR	Writable
	Trend Cool Performance	On/Off		TRNDCLPR	Writable
	Trend Heat Performance	On/Off		TRNDHTPR	Writable
	Trend Cooling Diagnostic	On/Off		TRNDCLDG	Writable
	Trend IDF Diagnostic	On/Off		TRNDIDF	Writable
	Trend Ventilation	On/Off		TRNDVENT	Writable
	Trend Gen Inputs/Outputs	On/Off		TRNDIO	Writable
	Start USB Trending	Yes/No		TREND_EN	Writable
	Make Config Backup File	Start/Stop		DDBCKUP	Writable
	Backup File is Ready	0=IDLE, 1=SUCCESS, 2=FAILURE		BACKUP_R	
	USB Find Restore File	Yes/No		BACKFILE	Writable
	Start Config Restore	Start/Stop		DDRSTRE	Writable
COOLDIAG	File Error	Yes/No		FILE_ERR	
	System Demand	See Appendix B		SYS_DMDT	
	Operating Sub-Mode	See Appendix B		SUBMTEXT	
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	OK to Use Free Cooling?	Yes/No		OKFREECL	
	Econ Damper Operational	Yes/No		DAMPGOOD	
	Dry Bulb Lockout	Yes/No		DBLOCK	Forcible
	Enthalpy Lockout	Yes/No		ENTHLOCK	Forcible

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table T — Maintenance Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
COOLDIAG (cont)					
	Free Cooling Active	Yes/No		FREECOOL	
	Unocc Free Cool Active	Yes/No		UFC_ACT	
	Free Cooling SAT Setpoint	xx.x	°F	FC_SATSP	
	Requested Damper Position	0 to 100	%	REQDAMP	
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
	OK to use compressors?	Yes/No		OKMECHCL	
	Compressor A1 strikes	x		A1STRIKE	
	Circuit A Locked Out	Yes/No		CIRALOCK	
	Mechanical Cool Active?	Yes/No		MECHCOOL	
	Min Comp Speed Locked Out	On/Off		LAMN_LCK	
	Hi Temp Min Speed Lockout	Yes/No		HAMN_LCK	
	Supply Air Temp Trend	xxx.x		SATTREND	
	Compressor A1 Time Guard	xxx	sec	TIMGD_A1	
	Compressor A1 Locked Out	Yes/No		CA1_LOCK	
	Recent Comp A1 Strike	Yes/No		A1STKACT	
	Compressor Requested Speed	xxxx	RPM	CMPRQSPD	
	Actual Cool Stage Active	x		ACTCSTGS	
	Commanded ODF Speed	xxxx	RPM	ODFSPEED	
	ODF Control to SDT	Yes/No		VSODF_EN	
	OK to use Fan Dehum	Yes/No		OKTOFBD	
	FBDH SST Lockout	Yes/No		FBDSSSTLO	
	FBDH SAT Lockout	Yes/No		FBDSATLO	
	Fan Based Dehum Type	0=NONE, 1=Comfort, 2=Max		FBD_TYPE	
	FBDH Comfort SAT Setpoint	35 to 80	°F	FBDH_SAT	
	FBDH Max Mode SST Setpoint	20 to 60	°F	FBDSSSTSP	
	FBDH Low Setpoint	-20 to 0	°F delta	FBDLO_SP	
	Circuit A Discharge Pressure	xxx.x	PSI	SDP_A	
	Circuit A Suction Pressure	xxx.x	PSI	SSP_A	
	Circuit A Pressure Ratio	xx.xx		CIRA_PR	
	Circuit A Sat. Discharge Temp	xxx.x	°F	SDT_A	
	Circuit A Sat. Suction Temp	xxx.x	°F	SST_A	
	Max Allowed Cool Speed	1500 to 6000	RPM	MAXREQSD	Writable
	Requested ODF Speed	0 to 5000 (0 to 1100)	RPM	RQODFSPD	
	Active Envelope Hi Limit	xxx		CMPESDTH	
	Active Envelope Lo Limit	xxx		CMPESDTL	
	Oil Recovery Process	Yes/No		CMP_ORAF	
	OK to Dehumidify	Yes/No		OKTODHUM	
	OK to Use Humidimizer	Yes/No		OKTOHUMZ	
	Request Dehum Level	0=None, 1=Subcool, 2=Reheat		REQDHLEV	
	Outdoor Fan Override	0 to 1		ODF_OVR	
	ODF Hi Envelope Active	On/Off		LAHISDMD	
	ODF Lo Envelope Active	On/Off		LALOSDMD	
	Comp Hi Envelope Active	On/Off		CMPHIENV	
	Comp Lo Envelope Active	On/Off		CMPLOENV	
OKFCDIAG					
	Outdoor Air Temperature	xxx.x	°F	OAT	Forcible
	Outdoor Air Relative Humidity	0 to 100	%	OARH	Forcible
	Outdoor Air Enthalpy	-9.6 to 334.2	BTU_LB	OA_ENTH	Forcible
	Return Air Temperature	xxx.x	°F	RAT	Forcible
	Return Air Relative Humidity	0 to 100	%	RARH	Forcible
	Return Air Enthalpy	-9.6 to 334.2	BTU_LB	RA_ENTH	Forcible
	Barometric Pressure	xx.xx	"Hg	BARP	Forcible

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table T — Maintenance Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
<b>OKFCDIAG (cont)</b>					
	Diff. Dry Bulb Control	Enable/Disable		DIFFBULB	
	Free Cooling Min Temp	-30 to 70	°F	MINFREET	
	Free Cooling Max OAT	0 to 90	°F	MAXFREET	
	Diff. Dry Bulb Deadband	0 to 20	°F	OATRATDB	
	Dry Bulb Lockout	Yes/No		DBLOCK	Forcible
	Diff. Enthalpy Control	Enable/Disable		DIFFENTH	
	Max Enthalpy OA Limit	1 to 99	BTU_LB	FREEMAXE	
	Enthalpy Cross Deadband	0 to 20	BTU_LB	OAERAEDB	
	Enthalpy Switch	High/Low		ENTH_SW	Forcible
	Enthalpy Lockout	Yes/No		ENTHLOCK	Forcible
	Currently Occupied	Yes/No		OCCUPIED	Forcible
	Unocc Free Cool Low Temp	-30 to 70	°F	OATLUFC	
	Unocc Free Cool Lockout	Yes/No		UNOCLOCK	
	Econ Damper Operational	Yes/No		DAMPGOOD	
	OK to Use Free Cooling?	Yes/No		OKFREECL	
	OK to Unocc Free Cool?	Yes/No		OKTOUFC	
<b>HEATDIAG</b>					
	System Demand	See Appendix B		SYS_DMDT	
	Operating Sub-Mode	See Appendix B		SUBMTEXT	
	IGC Fan On Request (IFO)	On/Off		IGC_IFO	
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	OK to Run Heat	Yes/No		OKTOHEAT	
	All Heat Stages Lockout	Yes/No		ALLHTLOC	Forcible
	Max Allowed Heat Stages	0 to 2		MAXHSTGS	Forcible
	Supply Air Temperature Trend	xxx.x		SATTREND	
	Supply Air Temperature	xxx.x	°F	SAT	
	Requested Heating Stages	0 to 2		REQHSTGS	
	Heat Stage 1 Time Guard	xxx	sec	TIMGD_H1	
	Heat Stage 2 Time Guard	xxx	sec	TIMGD_H2	
	Heat Stage 1 Available	Yes/No		HT1_AVAL	
	Heat Stage 2 Available	Yes/No		HT2_AVAL	
	Heat Stage 1 Relay	On/Off		HEAT_1	
	Heat Stage 2 Relay	On/Off		HEAT_2	
	Actual Heat Stage Active	x		ACTHSTGS	
	Outdoor Air Temperature	xxx.x	°F	OAT	Forcible
	Return Air Temperature	xxx.x	°F	RAT	Forcible
	Fan Supply Air Temperature	xxx.x	°F	FST	
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
<b>PE_DIAG</b>					
	0 = None				
	1 = MBB RLY11				
	2 = MBB RLY06				
	PE1 Relay Channel	0 to 2		PE1_CHAN	
	PE2 Relay Channel	0 to 2		PE2_CHAN	
	PE Turn Off Dead band	0 to 100	%	PE_OFFDB	
	Power Exhaust 1 Relay	On/Off		PE1	Forcible
	Power Exhaust 2 Relay	On/Off		PE2	Forcible
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	IDF Maximum Fan Speed	0 to 100	%	SPEEDMAX	
	P.Exhaust 1 Curve Offset	0 to 100	%	PE1_OFFS	
	P.Exhaust 2 Curve Offset	0 to 100	%	PE2_OFFS	

## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

**Table T — Maintenance Tables (cont)**

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
<b>PE_DIAG (cont)</b>					
	Power Exhaust 1 - Speed 1	0 to 100	%	PE1_SPD1	
	Power Exhaust 1 - Speed 2	0 to 100	%	PE1_SPD2	
	Power Exhaust 1 - Speed 3	0 to 100	%	PE1_SPD3	
	PE Stage 1 At Max Speed	0 to 100	%	PE1_PMAX	
	Power Exhaust 1 - Pos 1	0 to 100	%	PE1_POS1	
	Power Exhaust 1 - Pos 2	0 to 100	%	PE1_POS2	
	Power Exhaust 1 - Pos 3	0 to 100	%	PE1_POS3	
	Power Exhaust 2 - Speed 1	0 to 100	%	PE2_SPD1	
	Power Exhaust 2 - Speed 2	0 to 100	%	PE2_SPD2	
	Power Exhaust 2 - Speed 3	0 to 100	%	PE2_SPD3	
	PE Stage 2 At Max Speed	0 to 100	%	PE2_PMAX	
	Power Exhaust 2 - Pos 1	0 to 100	%	PE2_POS1	
	Power Exhaust 2 - Pos 2	0 to 100	%	PE2_POS2	
	Power Exhaust 2 - Pos 3	0 to 100	%	PE2_POS3	
<b>VENTDIAG</b>					
	Operating Sub-Mode	See Appendix B		SUBMTEXT	
	Ventilation Status	See Appendix B		VENTTEXT	
	Ventilation Status	See Appendix B		VENTSTAT	
	Currently Occupied	Yes/No		OCCUPIED	Forcible
	Occupied Standby	Yes/No		OCCSTDBY	
	Minutes Until Next Occupied	-1 to 10080	min	MINTILOC	
	Fan On When Occupied	Yes/No		FANON_OC	
	IDF Commanded RPM	0 to 3000	RPM	FSPD_RPM	
	Free Cooling Active	Yes/No		FREECOOL	
	Min Position in Effect	0 to 100	%	MIN_POS	Forcible
	Requested Damper Position	0 to 100	%	REQDAMP	
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
	Damper Actual Position	0 to 100	%	DAMPPOS	
	Analog Input IAQ Control	0=NO IAQ, 1=DCV, 2=IAQ OVRD, 3=CTRL MINP		IAQANCFG	
	Indoor Air Quality Level	xxxx	PPM	IAQ	Forcible
	OA Quality Level	xxxx	PPM	OAQ	Forcible
	Differential Air Quality	-5000 to 5000	PPM	AQ_DIFF	
	AQ Differential High	0 to 5000		DAQ_HIGH	
	AQ Differential Low	0 to 5000		DAQ_LOW	
	AQ Diff High IAQOVERRIDE	0 to 5000	PPM	AQD_HIGH	
	AQ Diff Low-IAQ OVERRIDE	0 to 5000	PPM	AQD_LOW	
	IAQ Override Enable	Yes/No		IAQOVREN	
	IAQ Preoccupancy Purge	Yes/No		IAQPURGE	
	Preoccupancy Purge Lockout OAT	0 to 70	°F	IAQP_LA	
	OK to Preoccupancy Purge	Yes/No		OKPREOCC	
	Preoccupancy Purge Duration	5 to 120	min	IAQPTIME	
	In Pre-Occupancy Purge?	Yes/No		PREOCCON	
	Is IAQ Override Active?	Yes/No		IAQ_OVRD	
	IAQ Override Switch	On/Off		IAQ_OVRS	Forcible
	2-Position Damper/ERV Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		EV2PCHAN	
	Supply Air Temperature	xxx..x	°F	SAT	
	Return Air Temperature	xxx.x	°F	RAT	Forcible
	Outdoor Air Temperature	xxx.x	°F	OAT	Forcible
	Damper SAT Deadband	0 to 20	°F	T24SATDB	
	T24 Min Diff in RAT-OAT	5 to 20	°F	T24RATDF	



# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table T — Maintenance Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
VENTDIAG (cont)					
	T24 Heat/Cool End Delay	0 to 60	min	T24CHDLY	
	SAT heat mode sensing	Enable/Disable		SAT_HEAT	
	Actual Heat Stage Active	x		ACTHSTGS	
	Actual Cool Stage Active	x		ACTCSTGS	
	OK to Use Free Cooling?	Yes/No		OKFREECL	
	T24 Test Minimum Pos	0 to 100	%	T24TSTMN	
	Econ Commanded Position	0 to 100	%	DAMPCMD	Forcible
	T24 Test Maximum Pos	0 to 100	%	T24TSTMX	
	T24Econ Min Move for SAT	10 to 20	%	T24ECSTS	
VENTCURV	Damper Actual Position	0 to 100	%	DAMPPOS	
	Econ Min at Max Fan Speed	0 to 100	%	MINP_MAX	
	IDF Maximum Fan Speed	0 to 100	%	SPEEDMAX	
	Min Pos - User Pos 1	0 to 100	%	MP_UPOS1	
	Min Pos - User Pos 2	0 to 100	%	MP_UPOS2	
	Min Pos - User Pos 3	0 to 100	%	MP_UPOS3	
	Min Pos - User Speed 1	0 to 100	%	MP_USPD1	
	Min Pos - User Speed 2	0 to 100	%	MP_USPD2	
	Min Pos - User Speed 3	0 to 100	%	MP_USPD3	
	User Min Pos Point 1 Valid	Yes/No		MP_UPT1	
	User Min Pos Point 2 Valid	Yes/No		MP_UPT2	
	User Min Pos Point 3 Valid	Yes/No		MP_UPT3	
	Min Pos - Default Pos 1	0 to 100	%	MP_DPOS1	
	Min Pos - Default Pos 2	0 to 100	%	MP_DPOS2	
	Min Pos - Default Pos 3	0 to 100	%	MP_DPOS3	
	Min Pos - Default Speed 1	0 to 100	%	MP_DSPD1	
	Min Pos - Default Speed 2	0 to 100	%	MP_DSPD2	
	Min Pos - Default Speed 3	0 to 100	%	MP_DSPD3	
	Min Pos Curve - Pos 1	0 to 100	%	MP_POS1	
	Min Pos Curve - Pos 2	0 to 100	%	MP_POS2	
	Min Pos Curve - Pos 3	0 to 100	%	MP_POS3	
	Min Pos Curve - Speed 1	0 to 100	%	MP_SPD1	
	Min Pos Curve - Speed 2	0 to 100	%	MP_SPD2	
	Min Pos Curve - Speed 3	0 to 100	%	MP_SPD3	
	IAQ DCV Curve Offset	0 to 100	%	IAQ_OFFS	
	IAQ Position at Max Fan	0 to 100	%	IAQMINP	
	IAQ DCV Curve - Pos 1	0 to 100	%	AQ_POS1	
	IAQ DCV Curve - Pos 2	0 to 100	%	AQ_POS2	
	IAQ DCV Curve - Pos 3	0 to 100	%	AQ_POS3	
	IAQ DCV Curve - Speed 1	0 to 100	%	AQ_SPD1	
	IAQ DCV Curve - Speed 2	0 to 100	%	AQ_SPD2	
	IAQ DCV Curve - Speed 3	0 to 100	%	AQ_SPD3	
	IAQ Purge Curve Offset	0 to 100	%	AQP_OFFS	
	IAQ Purge Pos at Max IDF	0 to 100	%	IAQPMAX	
	IAQ Purge Curve - Pos 1	0 to 100	%	AQP_POS1	
	IAQ Purge Curve - Pos 2	0 to 100	%	AQP_POS2	
	IAQ Purge Curve - Pos 3	0 to 100	%	AQP_POS3	
	IAQ Purge Curve - Speed 1	0 to 100	%	AQP_SPD1	
	IAQ Purge Curve - Speed 2	0 to 100	%	AQP_SPD2	
	IAQ Purge Curve - Speed 3	0 to 100	%	AQP_SPD3	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table T — Maintenance Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
LINKDATA	Linkage CCN element #	xxx		LNK_SUPE	Forcible
	Linkage CCN Bus number	xxx		LNK_SUPB	Forcible
	Block No: in Master Zone	1 to 8		LNK_MZBK	Forcible
	Average Occ Heat Stp.	xxx.x	°F	LNK_OHSP	Forcible
	Average Occ Cool Stp.	xxx.x	°F	LNK_OCSP	Forcible
	Average Unocc. Heat Stp.	xxx.x	°F	LNK_UHSP	Forcible
	Average Unocc. Cool Stp.	xxx.x	°F	LNK_UCSP	Forcible
	Average Zone Temperature	xxx.x	°F	LNK_AZT	Forcible
	Average Occ Zone Temp	xxx.x	°F	LNK_AOZT	Forcible
	Linkage Occupied Request	0 to 2		LNK_OCC	Forcible
	0 = Unoccupied				
	1 = Occupied				
	2 = Disabled				
	Linkage Next Occ Day			LNEXTOCD	
	Linkage Next Occ Time			LNEXTOCT	
	Linkage Last Unocc Day			LNEXTUOD	
	Linkage Next Unocc Time			LNEXTUCT	
	Linkage Last Unocc Day			LLASTUOD	
	Linkage Last Unocc Time			LLASTUCT	
	Linkage Active	Yes/No		LNK_ACT	
	Linkage Equipment Mode	1 to 8		LNK_MODE	Forcible
	Linkage Start Bias time	xxx	min	LNK_SBT	Forcible
	Value of Prime Variable	xxx.x		PRIME_V	
OCC_DIAG					
	Currently Occupied	Yes/No		OCCUPIED	Forcible
	Occupied Standby	Yes/No		OCCSTDBY	
	Active Occupancy Control	0 to 7		OCC_CTRL	
	0 = 24/7 OCC				
	1 = Schedule				
	2 = BAS CTRL				
	3 = REMOC CTL				
	4 = Time Override				
	5 = Linkage				
	6 = Forced				
	7 = Motion				
	Linkage Occupied Request	0 to 2		LNK_OCC	Forcible
	Timed Override Hours	0 to 240	min	OVR_EXT	Forcible
	Remote Occupancy Switch	On/Off		REMOCC	Forcible
	BMS Occupancy Request	0 to 2		BMS_OCC	Forcible
	0 = Unoccupied				
	1 = Occupied				
	2 = Disabled				
	Local Scheduled Occupancy Request	0 to 1		LOC_OCC	Forcible
	0 = Unoccupied				
	1 = Occupied				
	Active Schedule Period	0 to 8		PER_NO	
	Mins Until Next Occupied	-1 to 10080	min	MINTILOC	
	BACnet Cal Object Status			CALOBJST	
	Today is a Holiday	Yes/No		HOLTODAY	
	Tomorrow is a Holiday	Yes/No		HOL_TMRW	
	Next Occupied Day	DDD		NXTOCDAY	
	Next Occupied Time	hh:mm	min	NXTOCTIM	
	Next Unoccupied Day	DDD		NXTUNDAY	
	Next Unoccupied Time	hh:mm	min	NXTUNTIM	
	Previous Unoccupied Day	DDD		PRVUNDAY	
	Previous Unoccupied Time	hh:mm	min	PRVUNTIM	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table T — Maintenance Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
OCC_DIAG (cont)					
	Accept Global Holidays?	Yes/No		HOLIDAYT	
	Global Schedule Broadcast	Yes/No		CCN_GSBC	
	CCN Schedule Number	0 to 99		SCHEDNUM	
	0 = Always Occupied				
	1-64 = Local Schedule				
	65-99 = Global Schedule				
	Remote Occupancy Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		RMOCCHAN	
	Remote Occupancy Switch	On/Off		REMOCC	Forcible
	Timed Override Duration	0 to 4	hrs	OTL_CFG	
	BAS Protocol Select	0=NONE, 1=CCN, 2=BACNET		BMS_CFG	
HW_IO					
	0 = None				
	1 = IAQ				
	2 = OARH				
	3 = RARH				
	4 = OAQ				
	5 = SPRH				
	6 = OACFM				
	Assigned AI06 Function	0 to 6		MBBAI06F	
	Assigned AI07 Function	0 to 6		MBBAI07F	
	Assigned AI08 Function	0 to 6		MBBAI08F	
	0 = None				
	1 = COFS				
	2 = REMOCC				
	3 = REMOFF				
	4 = FILTER				
	5 = ENTHALPY				
	6 = GEN STAT				
	7 = HUMSTAT				
	8 = IAQOVRD				
	9 = SMK EVAC				
	10 = SMK PRESS				
	11 = SMK PURGE				
	12 = FIREDOWN				
	13 = FANSTATUS				
	14 = PHASEMON				
	Assigned DI02 Function	0 to 14		MBBDI02F	
	Assigned MBB Y3 Function	0 to 14		MBBDI09F	
	Assigned DI12 Function	0 to 14		MBBDI12F	
	Assigned DI13 Function	0 to 14		MBBDI13F	
	Assigned DI14 Function	0 to 14		MBBDI14F	
	0 = None				
	1 = Alarm Relay				
	2 = PE1				
	3 = PE2				
	Assigned Relay 06 Function	0 to 3		MBBRY06F	
	Assigned Relay 11 Function	0 to 3		MBBRY11F	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table T — Maintenance Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
<b>HW_IO (cont)</b>					
	Outdoor Air Temp Sensor	xxx.x	°F	OAT_LOC	
	Return Air Temp Sensor	xxx.x	°F	RAT_LOC	
	Space Temperature Sensor	xxx.x	°F	SPT_LOC	
	SPRH Sensor Value	0 to 100	%	SPRH_LOC	
	Local Space Temp Offset	xxxx	°F delta	SPTO_LOC	
	OARH Sensor Value	0 to 100	%	OARH_LOC	
	RARH Sensor Value	0 to 100	%	RARH_LOC	
	IAQ Sensor Value	xxxx	PPM	IAQ_LOC	
	OAQ Sensor Value	xxxx	PPM	OAQ_LOC	
	OACFM Sensor Value	xxx.x	CFM	OCFM_LOC	
	Equipment Model Number	xxxxxxxxxxxxxxxxxxx		EQ_MOD	
	Equipment Serial Number	xxxxxxxxxxx		EQ_SER	
	Application SW Version	CESR131691-04-xx		FW_CESR	
	Bootloader SW Version	CESR131659-xx-xx		BL_CESR	
	MBB Part Number	CEPL131117-xx-R		BD_CEPL	
	MBB Program Part Number	CEPP130644-xx-xx-xx-R		BD_CEPP	
	Base Board serial number	xxxxMxxxxx		BD_SER	
<b>ZSENSORS</b>					
	Zone Sensor Temp Out	0	°F	ZSZT	
	Zone Sensor 1 Temp	0	°F	ZS1ZT	
	ZS2 Temperature	0	°F	ZS2ZT	
	ZS3 Temperature	0	°F	ZS3ZT	
	ZS4 Temperature	0	°F	ZS4ZT	
	ZS5 Temperature	0	°F	ZS5ZT	
	Zone Sensor Humidity Out	0	%	ZSSPRH	
	ZS1 Humidity	0	%	ZS1ZHUM	
	ZS2 Humidity	0	%	ZS2ZHUM	
	ZS3 Humidity	0	%	ZS3ZHUM	
	ZS4 Humidity	0	%	ZS4ZHUM	
	ZS5 Humidity	0	%	ZS5ZHUM	
	Zone Sensor CO2 Level	xxxx	PPM	ZS CO2	
	Zone Sensor 1 CO2 Level	xxxx	PPM	ZS1 CO2	
	Zone Sensor 2 CO2 Level	xxxx	PPM	ZS2 CO2	
	Zone Sensor 3 CO2 Level	xxxx	PPM	ZS3 CO2	
	Zone Sensor 4 CO2 Level	xxxx	PPM	ZS4 CO2	
	Zone Sensor 5 CO2 Level	xxxx	PPM	ZS5 CO2	
	ZS Motion Sensor	0		ZSZM	
	ZS Motion Sensor 1	0		ZS1ZM	
	ZS Motion Sensor 2	0		ZS2ZM	
	ZS Motion Sensor 3	0		ZS3ZM	
	ZS Motion Sensor 4	0		ZS4ZM	
	ZS Motion Sensor 5	0		ZS5ZM	
	ZS Override time remain	0	min	ZSOTR	
	ZS1 Override time remain	0	min	ZS1OTR	
	ZS2 Override time remain	0	min	ZS2OTR	
	ZS3 Override time remain	0	min	ZS3OTR	
	ZS4 Override time remain	0	min	ZS4OTR	
	ZS5 Override time remain	0	min	ZS5OTR	
	ZS Setpoint Offset Output	0	°F delta	ZSSPTO	
	ZS1 Cool Setpoint Offset	0	°F delta	ZS1CSOFF	
	ZS2 Cool Setpoint Offset	0	°F delta	ZS2CSOFF	
	ZS3 Cool Setpoint Offset	0	°F delta	ZS3CSOFF	
	ZS4 Cool Setpoint Offset	0	°F delta	ZS4CSOFF	
	ZS5 Cool Setpoint Offset	0	°F delta	ZS5CSOFF	
	ZS1 Heat Setpoint Offset	0	°F delta	ZS1HSOFF	
	ZS2 Heat Setpoint Offset	0	°F delta	ZS2HSOFF	
	ZS3 Heat Setpoint Offset	0	°F delta	ZS3HSOFF	
	ZS4 Heat Setpoint Offset	0	°F delta	ZS4HSOFF	
	ZS5 Heat Setpoint Offset	0	°F delta	ZS5HSOFF	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table T — Maintenance Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	WRITE STATUS
USER_INS					
	Supply Voltage Leg 1	xxx	volts	L1VOLTS	Writable
	Supply Voltage Leg 2	xxx	volts	L2VOLTS	Writable
	Supply Voltage Leg 3	xxx	volts	L3VOLTS	Writable
	Comp @4500 Amps Leg 1	0 to 100	Amps	CMPAMPL1	Writable
	Comp @4500 Amps Leg 2	0 to 100	Amps	CMPAMPL2	Writable
	Comp @4500 Amps Leg 3	0 to 100	Amps	CMPAMPL3	Writable
	Elec. Heat Amps Leg 1	0 to 100	Amps	EHTL1_A	Writable
	Elec. Heat Amps Leg 2	0 to 100	Amps	EHTL2_A	Writable
	Elec. Heat Amps Leg 3	0 to 100	Amps	EHTL3_A	Writable
	Gas Supply Type	0 to 1		GASTYPE	Writable
	0 = Natural				
	1 = LP				
	Gas Inlet Pressure	0 to 20	"Hg	GASPRESS	Writable
POWRESET	Stage 1 Gas Pressure	0 to 20	"Hg	HT1PRESS	Writable
	Stage 2 Gas Pressure	0 to 20	"Hg	HT2PRESS	Writable
	Power Reset Event 00	mm/dd/yy, hh:mm:ss		POWRES00	
	Power Reset Event 01	mm/dd/yy, hh:mm:ss		POWRES01	
	Power Reset Event 02	mm/dd/yy, hh:mm:ss		POWRES02	
	Power Reset Event 03	mm/dd/yy, hh:mm:ss		POWRES03	
	Power Reset Event 04	mm/dd/yy, hh:mm:ss		POWRES04	
	Power Reset Event 05	mm/dd/yy, hh:mm:ss		POWRES05	
	Power Reset Event 06	mm/dd/yy, hh:mm:ss		POWRES06	
ALRESET1	Power Reset Event 07	mm/dd/yy, hh:mm:ss		POWRES07	
	Power Reset Event 08	mm/dd/yy, hh:mm:ss		POWRES08	
	Power Reset Event 09	mm/dd/yy, hh:mm:ss		POWRES09	
	Alarm Reset Event 00	mm/dd/yy, hh:mm:ss		ALMRES00	
	Alarm Reset Event 01	mm/dd/yy, hh:mm:ss		ALMRES01	
	Alarm Reset Event 02	mm/dd/yy, hh:mm:ss		ALMRES02	
	Alarm Reset Event 03	mm/dd/yy, hh:mm:ss		ALMRES03	
	Alarm Reset Event 04	mm/dd/yy, hh:mm:ss		ALMRES04	
	Alarm Reset Event 05	mm/dd/yy, hh:mm:ss		ALMRES05	
ALRESET2	Alarm Reset Event 06	mm/dd/yy, hh:mm:ss		ALMRES06	
	Alarm Reset Event 07	mm/dd/yy, hh:mm:ss		ALMRES07	
	Alarm Reset Event 08	mm/dd/yy, hh:mm:ss		ALMRES08	
	Alarm Reset Event 09	mm/dd/yy, hh:mm:ss		ALMRES09	
	Alarm Reset Event 10	mm/dd/yy, hh:mm:ss		ALMRES10	
	Alarm Reset Event 11	mm/dd/yy, hh:mm:ss		ALMRES11	
	Alarm Reset Event 12	mm/dd/yy, hh:mm:ss		ALMRES12	
	Alarm Reset Event 13	mm/dd/yy, hh:mm:ss		ALMRES13	
	Alarm Reset Event 14	mm/dd/yy, hh:mm:ss		ALMRES14	
TOUCH	Alarm Reset Event 15	mm/dd/yy, hh:mm:ss		ALMRES15	
	Alarm Reset Event 16	mm/dd/yy, hh:mm:ss		ALMRES16	
	Alarm Reset Event 17	mm/dd/yy, hh:mm:ss		ALMRES17	
	Alarm Reset Event 18	mm/dd/yy, hh:mm:ss		ALMRES18	
	Alarm Reset Event 19	mm/dd/yy, hh:mm:ss		ALMRES19	
	Equipment System Touch Active			ETST_ACT	
	Equipment Touch SPT		°F	ETSPT	
	Equipment Touch RH		%	ETSPRH	
	System Touch Temp Value		°F	STST_NET	
	System Touch SPRH Value		%	STRH_NET	
	ET ST Aggregated SPT		°F	ETSTSPT	
	ET ST Aggregated SPRH		%	ETSTSPRH	

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table U — Service Config Tables

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
UNIT_CFG					
	Unit Startup Delay	10 to 600	sec	STARTDLY	30
	Unit Control Type	0 to 2		CTRLTYPE	0 = TSTAT
	0 = Thermostat				
	1 = Space Sensor				
	2 = RAT Control				
	Thermostat Hardware Type	0 to 3		STATTYPE	0 = CONV 2C2H
	0 = 2 Stage Conventional				
	1 = 2 Stage Digital				
	2 = 3 Stage Conventional				
	3 = 3 Stage Digital				
	Ventilation Method	0 to 4		VENTTYPE	0: No FIOP 1: Economizer FIOP
	0 = None				
	1 = Economizer				
	2 = 2-Position Damper				
	3 = ERV				
	4 = Economizing ERV				
	2-Position Damper/ERV Channel	0 to 2		EV2PCHAN	0: No FIOP 2: FIOP
	0 = None				
	1 = MBB RLY11				
	2 = MBB RLY06				
	TSTAT Adaptive Staging	Yes/No		ADPTSTAT	Yes
	Change Filter Timer	0 to 9999	hrs	FILT LIFE	0
	Test Inactivity Time Out	0 to 6		TEST_ITO	4
	0 = Disabled				
	1 = 30 Minutes				
	2 = 1 Hour				
	3 = 2 Hours				
	4 = 4 Hours				
	5 = 8 Hours				
	6 = 12 Hours				
	CCH Max Temperature	40 to 90	°F	CCHMAXT	65
	Std Barometric Pressure	13 to 35	"Hg	STD_BARP	29.92
	Linkage Stage inc. time	60 to 600	sec	LSTAGINC	180
	Unit's Maximum SAT	130 to 210	°F	UMAX_SAT	200
	Unit's Minimum SAT	30 to 70	°F	UMIN_SAT	32
	Auto Clr SAT Limit Fault	Yes/No		SATLACLR	No
	SAT Freeze Protection	Enable/Disable		SATFZPRO	Enable
	Adaptive Temp Comp Start	Enable/Disable		TCS_CFG	Disable
	User TCS Start Bias Time	0 to 180	min	TCSUBIAS	0
	Smoke Evac with Damper	Yes/No		EVACDAMP	Yes
DMD_CFG					
	Low Cool Demand On	-1 to 2	°F	DMDLCON	0.5
	Medium Cool Demand On	0.5 to 20	°F	DMDMCON	1
	High Cool Demand On	0.5 to 20	°F	DMDHCON	1.5
	Low Cool Demand Off	-1 to 2	°F	DMDLCOFF	-0.5
	Cool Demand Level Up	-2 to 2	°F	CDMD_LUP	-0.2
	Low Heat Demand On	-1 to 2	°F	DMDLHON	0.5
	High Heat Demand On	0.5 to 20	°F	DMDHHON	2
	Low Heat Demand Off	-1 to 2	°F	DMDLHOFF	-0.5
	Heat Demand Level Up	-2 to 2	°F	HDMD_LUP	-0.2
	Space Demand Time Guard 1	60 to 600	sec	TDMD_TG1	120
	Space Demand Time Guard 2	0 to 600	sec	TDMD_TG2	240
	Cool DMD Offset level 1	0 to 99	°F	CLDOLEV1	1
	Cool DMD Offset level 2	0 to 99	°F	CLDOLEV2	3
	Cool DMD Offset level 3	0 to 99	°F	CLDOLEV3	5
	Heat DMD Offset level 1	0 to 99	°F	HTDOLEV1	1
	Heat DMD Offset level 2	0 to 99	°F	HTDOLEV2	3
	Heat DMD Offset level 3	0 to 99	°F	HTDOLEV3	5

## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

**Table U — Service Config Tables (cont)**

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
IN_D_CFG					
	0 = None				
	1 = MBB DI12				
	2 = MBB DI13				
	3 = MBB DI14				
	4 = MBB DI02				
	5 = MBB DI03				
	6 = MBB DI05				
	7 = MBB Y3				
	COFS Assigned Channel	0 to 7		COFSCHAN	0: No FIOP 4: FIOP
	Remote Occupancy Channel	0 to 7		RMOCCHAN	0 = NONE
	Remote Shutdown Channel	0 to 7		ROFFCHAN	0 = NONE
	Filter Status Switch Channel	0 to 7		FILTCHAN	0: No FIOP 1: FIOP
	Enthalpy Switch Channel	0 to 7		ENTHCHAN	0 = NONE
	General Status Channel	0 to 7		GEN_CHAN	0 = NONE
	Humidistat Status Channel	0 to 7		HUMDCHAN	0: No Humidi-MiZer FIOP 7: Humidi-MiZer FIOP
	IAQ Override Switch Channel	0 to 7		IAQOCHAN	0 = NONE
	Fan Status Channel	0 to 7		FNSTCHAN	0 = NONE
	Phase Monitor Channel	0 to 7		PMR_CHAN	0: no FIOP 3: FIOP
	Smoke Evacuation Switch Channel	0 to 7		EVACCHAN	0=NONE
	Smoke Pressure Switch Channel	0 to 7		PRESCHAN	0=NONE
	Smoke Purge Switch Channel	0 to 7		PURGCHAN	0=NONE
	Fire Switch Channel	0 to 7		FIRECHAN	0: No FIOP 5: FIOP
	0 = Normally Open				
	1 = Normally Closed				
	COFS Switch Type	0 to 1		COFS_CFG	1 = NORM CLSD
	Remote Occupancy Switch Type	0 to 1		RMOC_CFG	0 = NORM OPEN
	Remote Shutdown Switch Type	0 to 1		ROFF_CFG	0 = NORM OPEN
	Filter Status Switch Type	0 to 1		FILT_CFG	0 = NORM OPEN
	Enthalpy Switch Type	0 to 1		ENTH_CFG	0 = NORM OPEN
	General Status Switch Type	0 to 1		GENS_CFG	0 = NORM OPEN
	Humidistat Switch Type	0 to 1		HUMD_CFG	0 = NORM OPEN
	IAQ Override Switch Type	0 to 1		IAQOSCFG	0 = NORM OPEN
	Fan Status Switch Type	0 to 1		FANSTCFG	0 = NORM OPEN
	Phase Monitor Switch Type	0 to 1		PMR_CFG	1 = NORM CLSD
	Smoke Evacuation Switch Type	0 to 1		EVAC_CFG	0 = NORM OPEN
	Smoke Pressure Switch Type	0 to 1		PRES_CFG	0 = NORM OPEN
	Smoke Purge Switch Type	0 to 1		PURG_CFG	0 = NORM OPEN
	Fire Shutdown Switch Type	0 to 1		FIRE_CFG	0 = NORM OPEN
	General Status shutdown?	Yes/No		GENFATAL	Yes
	0 = Normal				
	1 = Emergency				
	Remote Shutdown ALM Type	0 to 1		ROFFTYPE	0 = NORMAL

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table U — Service Config Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
IN_A_CFG					
	0 = None				
	1 = MBB AI06				
	2 = MBB AI07				
	3 = MBB AI08				
	IAQ Assigned Channel	0 to 3		IAQ_CHAN	0: No FIOP 2: FIOP
	OAQ Assigned Channel	0 to 3		OAQ_CHAN	0 = NONE
	OARH Assigned Channel	0 to 3		OARHCHAN	0: no FIOP 3: FIOP
	RARH Assigned Channel	0 to 3		RARHCHAN	0 = NONE
	SPRH Assigned Channel	0 to 3		SPRHCHAN	0 = NONE
	OACFM Assigned Channel	0 to 3		OACFMCHAN	0 = NONE
	SPRH Sensor Value @ 4mA	0 to 100	%	SPRH_4MA	0
	SPRH Sensor Value @ 20mA	0 to 100	%	SPRH20MA	100
	IAQ Sensor Value @ 4mA	0 to 5000	PPM	IAQ_4MA	0
	IAQ Sensor Value @ 20mA	0 to 5000	PPM	IAQ_20MA	2000
	OAQ Sensor Value @ 4mA	0 to 5000	PPM	OAQ_4MA	0
	OAQ Sensor Value @ 20mA	0 to 5000	PPM	OAQ_20MA	2000
	OARH Sensor Value @ 4mA	0 to 100	%	OARH_4MA	0
	OARH Sensor Value @ 20mA	0 to 100	%	OARH20MA	100
	RARH Sensor Value @ 4mA	0 to 100	%	RARH_4MA	0
	RARH Sensor Value @ 20mA	0 to 100	%	RARH20MA	100
	OACFM Value @ 4MA	0 to 2000	CFM	OACFM_4MA	0
	OACFM Value @ 20mA	2000 to 5000	CFM	OACFM20MA	2000
IDF_CFG					
	Fan On When Occupied	Yes/No		FANON_OC	Yes
	Shut Down on IDF Failure	Yes/No		FATALFAN	Yes
	IDF Maximum Fan Speed	0 to 100	%	SPEEDMAX	100
	IDF Vent Speed = RPM	0 to 3000	RPM	RPM_VENT	737: Size 04 Standard Static Fan 854: Size 04 Medium Static Fan 971: Size 04 High Static Fan 741: Size 05 Standard Static Fan 847: Size 05 Medium Static Fan 1038: Size 05 High Static Fan 839: Size 06 Standard Static Fan 932: Size 06 Medium Static Fan 1106: Size 06 High Static Fan
	IDF Heat Speed = RPM	0 to 3000	RPM	RPM_HEAT	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan
	IDF Free Cool Speed = RPM	0 to 3000	RPM	RPM_FCL	1106: Size 04 Standard Static Fan 1281: Size 04 Medium Static Fan 1457: Size 04 High Static Fan 1112: Size 05 Standard Static Fan 1269: Size 05 Medium Static Fan 1556: Size 05 High Static Fan 1258: Size 06 Standard Static Fan 1398: Size 06 Medium Static Fan 1659: Size 06 High Static Fan
	FBDH Min Fan Speed	0 to 3000	RPM	FDRPMMIN	810: Size 04 840: Size 05 1054: Size 06
	FBDH Max Fan Speed	0 to 3000	RPM	FDRPMMAX	1890: Size 04 Standard Static Fan 2190: Size 04 Medium Static Fan 2490: Size 04 High Static Fan 1900: Size 05 Standard Static Fan 2170: Size 05 Medium Static Fan 2660: Size 05 High Static Fan 2150: Size 06 Standard Static Fan 2390: Size 06 Medium Static Fan 2836: Size 06 High Static Fan



# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table U — Service Config Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
IDF_CFG (cont)					
	IDF Curve High End RPM	0 to 3000	RPM	IFMHIRPM	1890: Size 04 Standard Static Fan 2190: Size 04 Medium Static Fan 2490: Size 04 High Static Fan 1900: Size 05 Standard Static Fan 2170: Size 05 Medium Static Fan 2660: Size 05 High Static Fan 2150: Size 06 Standard Static Fan 2390: Size 06 Medium Static Fan 2836: Size 06 High Static Fan
	IDF Curve Low End RPM	0 to 3000	RPM	IFMLORPM	189: Size 04 Standard Static Fan 219: Size 04 Medium Static Fan 249: Size 04 High Static Fan 190: Size 05 Standard Static Fan 217: Size 05 Medium Static Fan 266: Size 05 High Static Fan 215: Size 06 Standard Static Fan 239: Size 06 Medium Static Fan 284: Size 06 High Static Fan
	IDF Min Start RPM	xxxx	RPM	IDFSTSPD	300
	IDF Start Speed Time	xxx	sec	IDFSSTIM	30
	IDF Curve High End PWM	0 to 100	%	IFMHIPWM	97
	IDF Curve Low End PWM	0 to 100	%	IFMLOPWM	10
	Cmp-IDF Curve Point Y1	0 to 3000	RPM	IDFCRVY1	810: Size 04 840: Size 05 1054: Size 06
	Cmp-IDF Curve Point Y2	0 to 3000	RPM	IDFCRVY2	980: Size 04 1120: Size 05 1450: Size 06
	Cmp-IDF Curve Point Y3	0 to 3000	RPM	IDFCRVY3	1160: Size 04 1390: Size 05 1798: Size 06
	Cooling Design Point Speed	0 to 3000	RPM	IDFDGSPD	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan
	Comp Boost IDF Speed Rate	0 to 1	RPM	IDFBSTRT	0.1
COOL_CFG					
	Cooling Response Setting	0=FASTER, 1=FAST, 2=MEDIUM, 3=SLOW, 4=SLOWER		COOLRESP	2=MEDIUM
	Compressor Min On Time	180 to 600	sec	C_MINON	300
	Compressor Min Off Time	120 to 600	sec	C_MINOFF	180
	Runtime to Reset Strikes	120 to 999	sec	MIN_ON_S	300
	Cool Stage Increase Time	120 to 999	sec	CSTAGINC	450
	Cooling SAT Trend Level	-1 to 1		SAT_TLC	-0.2
	Cool Min SAT Upper Level	35.0 to 65.0	°F	SATMIN_H	50
	Cool Min SAT Lower Level	35.0 to 65.0	°F	SATMIN_L	43
	Cooling Fan-Off Delay	0 to 600	sec	COOL_FOD	75
	Circuit A Lockout Temp	-20 to 75	°F	OATLCMPA	0
	Min Speed Lockout Temp	0 to 50	°F	LACMPTMP	25
	Low Ambient Min Comp Speed	900 to 4000	RPM	LACPMNSP	3400
	Low Ambient Temperature	0 to 80	°F	LA_TEMP	64
	Low Ambient SDT Setpoint	60 to 160		LA_SDT	90
	Humidimizer SDT Setpoint	70 to 150		HUM_SDT	90
	Humidimizer Equipped	Yes/No		HUMZ_EN	No: No Humidi-MiZer FIOp Yes: Humidi-MiZer FIOp
	Humidimizer Lockout Temp	-20 to 75	°F	OATLHUMZ	40
	Low Refrigerant Charge Level	0 to 150	PSI	LOCHARGE	50
	Low Charge Disable Temp	-40 to 50	°F	LOCH_LOT	10
	Circuit A High Pressure Limit	400 to 700	PSI	HIPLIM_A	670
	Suction OK Temperature	10 to 50	°F	SSTOK	18
	Low Suction Level 1 Temp	10 to 50	°F	SSTLEV1	20
	Low Suction Level 2 Temp	5 to 50	°F	SSTLEV2	15

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table U — Service Config Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
COOL_CFG (cont)					
	Low Suction Level 3 Temp	0 to 50	°F	SSTLEV3	10
	Delay On Low SST Check	0 to 300	sec	SSTCKDLY	0: no FIOP 40: Humidi-MiZer FIOP
	Comp Level 2 Diagnostic Delay	1 to 99	sec	CDDTLEV2	45
	Low Discharge Diagnostic	Enable/Disable		DISLDPAL	Enable
	Diagnostic Comp Unexpected Off <sup>a</sup>	Enable/Disable		CD_UEOFF	Disable
	Circuit Stuck On Diagnostic	Enable/Disable		DCKTOFF	Disable
	Min Discharge Change	0 to 99	PSI	MDP_DISA	8
	Min Suction Change	0 to 99	PSI	MDP_SUCA	10
	Circuit A P.Ratio Off Change	-1 to 1		OFFPR_A	-0.3
	Fan Based Dehum Type	0=NONE, 1=Comfort, 2=Max		FBD_TYPE	0 = NONE
	FBDH Low Setpoint	-20 to 0	°F delta	FBDLO_SP	-2.5
	FBDH Max Mode SST Setpoint	20 to 60	°F	FBDSTSP	38
	FBDH Min SST Threshold	10 to 60	°F	FBDH_SST	32
	FBDH Comfort SAT Setpoint	35 to 80	°F	FBDH_SAT	46
	FBD Comfort SAT Delta	0 to 30	°F	FBDSATDT	11
HEATCFG					
	Type of Heat Installed	0 to 1		HEATTYPE	0: 50 Series 1: 48 Series
	0 = Electric				
	1 = Gas				
	Number of Heating Stages	0 to 2		NUMHSTGS	2: all except below 0: 50 Series without FIOP heaters 1: 48 Series Low Heat, Low NOx Gas Heat, 48JC 05-06 Med Heat, 50JC 04-06 Low Heat, 50JC 04-05 Med Heat, 50JC 04 High Heat 230v and 460v, 50JC 05 High Heat 230v, 50JC 06 Med Heat 460v and 575v
	Heat Minimum On Time	60 to 600	sec	H_MINON	120
	Heat Minimum Off Time	60 to 600	sec	H_MINOFF	120
	Heat Stage Increase Time	120 to 999	sec	HSTAGINC	450
	Heating SAT Trend Level	-1 to 1		SAT_TLH	0.2
	Heat Max SAT Lower Level	85 to 200	°F	SATMAX_L	140
	Heat Max SAT Upper Level	85 to 200	°F	SATMAX_H	170
	Heating Fan-Off Delay	10 to 600	sec	HEAT_FOD	30: 50 Series 45: 48 Series
	Heating Lockout Temp	40 to 125	°F	OATLHEAT	75
	SAT heat mode sensing	Enable/Disable		SAT_HEAT	Enable
	No IGC IFO input Timeout	0 to 60	min	NO_IGCTM	5
	Pre-Heat HX without IDF?	Enable/Disable		PREHT_HX	Disable
	Supply Air Temper Enable	Yes/No		SATEMPEN	No
	SA Tempering Setpoint	35 to 80	°F	SATEMPSP	55
	Max OAT for SA Tempering	40 to 80	°F	OATSTEMP	65
ECON_CFG					
	Ventilation Method	0 to 4		VENTTYPE	0: No FIOP 1: Economizer FIOP
	0 = None				
	1 = Economizer				
	2 = 2-Position Damper				
	3 = ERV				
	4 = Economizing ERV				
	Econ Max Damper Position	0 to 100	%	DAMPMAX	100
	Economizer Travel Time	5 to 300	sec	ECONOTRV	150
	IDF Maximum Fan Speed	0 to 100	%	SPEEDMAX	100
	Econ Min at Max Fan Speed	0 to 100	%	MINP_MAX	30
	Min Pos - User Speed 1	0 to 100	%	MP_USPD1	0
	Min Pos - User Pos 1	0 to 100	%	MP_UPOS1	0
	Min Pos - User Speed 2	0 to 100	%	MP_USPD2	0

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table U — Service Config Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
ECON_CFG (cont)	Min Pos - User Pos 2	0 to 100	%	MP_UPOS2	0
	Min Pos - User Speed 3	0 to 100	%	MP_USPD3	0
	Min Pos - User Pos 3	0 to 100	%	MP_UPOS3	0
	Low Free Cool SAT Setpoint	40 to 80	°F	LCSASP	65
	High Free Cool SAT Setpoint	40 to 80	°F	HCSASP	55
	Free Cooling Max OAT	0 to 90	°F	MAXFREET	65
	Free Cooling Min Temp	-30 to 70	°F	MINFREET	0
	Diff. Dry Bulb Control	Enable/Disable		DIFFBULB	Disable
	Diff. Dry Bulb Deadband	0 to 20	°F	OATRATDB	3
	Max Enthalpy OA limit	1 to 99	BTU_LB	FREEMAXE	28
	Diff. Enthalpy Control	Enable/Disable		DIFFENTH	Disable
	Enthalpy Cross Deadband	0 to 20	BTU_LB	OAERAEDB	2
	ECONO PID - KP	0.00 to 99.90		ECONO_P	2.5
	ECONO PID - KI	0.00 to 99.90		ECONO_I	0.12
	ECONO PID - KD	0.00 to 99.90		ECONO_D	1
	ECONO PID - RATE	10 to 180	sec	ECONO_DT	15
	When to Unocc Free Cool?	0 to 2		UFC_CFG	1 = PreOcc
	0 = Disabled				
	1 = Preoccupancy				
	2 = Unoccupied				
	UFC Preocc Time	1 to 999	min	UFCTIME	120
	Unocc Free Cool Low Temperature	-30 to 70	°F	OATLUFC	50
	PE Stage 1 At Max Speed	0 to 100	%	PE1_PMAX	40
	PE 1 Relay Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		PE1_CHAN	0: No FIOP 2: FIOP
	PE Turn Off Deadband	0 to 100	%	PE_OFFDB	5
	PE2 Relay Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		PE2_CHAN	0 = NONE
	PE Stage 2 at Max Speed	0 to 100	%	PE2_PMAX	75
	T24 Heat/Cool End Delay	0 to 60	min	T24CHDLY	25
	T24Econ Min Move for SAT	10 to 20	%	T24ECSTS	10
	Damper SAT Deadband	0 to 20	°F	T24SATDB	12
	T24 Min Diff in RAT-OAT	5 to 20	°F	T24RATDF	15
	T24 Test Minimum Pos	0 to 100	%	T24TSTMN	15
	T24 Test Maximum Pos	0 to 100	%	T24TSTMX	85
IAQ_CFG	Analog Input IAQ Control	0 to 3		IAQANCFG	0: No FIOP 1: CO2 FIOP
	0 = No IAQ				
	1 = DCV				
	2 = IAQ Override				
	3 = MINPOS Control				
	IAQ Position at Max Fan	0 to 100	%	IAQMINP	10
	AQ Differential Low	0 to 5000		DAQ_LOW	100
	AQ Differential High	0 to 5000		DAQ_HIGH	700
	IAQ Preoccupancy Purge	Yes/No		IAQPURGE	Yes
	IAQ Purge Pos at Max IDF	0 to 100	%	IAQPMAX	40
	Preoccupancy Purge Lockout OAT	0 to 70	°F	IAQP_LA	50
	Preoccupancy Purge Duration	5 to 120	min	IAQPTIME	15
	IAQ Sensor Value at 4mA	0 to 5000	PPM	IAQ_4MA	0
	IAQ Sensor Value at 20mA	0 to 5000	PPM	IAQ_20MA	2000
	OAQ Sensor Value at 4mA	0 to 5000	PPM	OAQ_4MA	0
	OAQ Sensor Value at 20mA	0 to 5000	PPM	OAQ_20MA	2000
	IAQ Override Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		IAQOCHAN	0 = NONE

## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

### Table U — Service Config Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
<b>IAQ_CFG (cont)</b>					
	IAQ Override Switch Type	0=NORM OPEN, 1=NORM CLSD		IAQOSCFG	0 = NORM OPEN
	Switch Input IAQ Fan Control	0=Never, 1=Occupied, 2=Always		IAQSWFAN	0=Never
	Analog Input IAQ Fan ctl	0=Never, 1=Occupied, 2=Always		IAQANFAN	0=Never
	IAQ Override Position	0 to 100	%	IAQOVPOS	100
	AQ Diff High IAQOVERRIDE	0 to 5000	PPM	AQD_HIGH	700
	AQ Diff Low-IAQ OVERRIDE	0 to 5000	PPM	AQD_LOW	100
<b>COMP_CFG</b>	Compressor Maximum Speed	900 to 6000	RPM	CMPMAXSP <sup>b</sup>	6000
	Compressor Start Speed	900 to 5000	RPM	CMPSTSPD	2000
	Hi Temp Cmp Min Speed Temp	80 to 150	°F	HACMPTMP	110
	Hi Temp Comp Min Speed	900 to 4000	RPM	HACPMNSP	2700
	Offset From Hi Envelope	0 to 100	°F	CMPSDTHI	4
	Offset From Lo Envelope	0 to 100	°F	CMPSDTLO	4
	Alert on Envelope Hi/Lo	Enable/Disable		ENVALDIS	Enable
	Oil Recovery Trip Speed	0 to 10000	RPM	CMP_ORAS	1800
	Oil Recovery Run Speed	0 to 10000	RPM	CMP_ORRS	3600
	Oil Recovery Duration	0 to 3600	sec	CMP_ORRT	300
	Comp Ramp Up Rate per Second	58 to 1000	RPM	CMPRAMPU	62
	Comp Ramp Down Rate per Second	58 to 1000	RPM	CMPRAMPD	152
	Cmp-Fan Curve Point X1	0 to 10000	RPM	CMPCR VX1	2000: Size 04 1600: Size 05 1900: Size 06
	Cmp-Fan Curve Point X2	0 to 10000	RPM	CMPCR VX2	2800: Size 04 2567: Size 05 2633: Size 06
	Cmp-Fan Curve Point X3	0 to 10000	RPM	CMPCR VX3	4400: Size 04 4500: Size 05 4100: Size 06
	Cmp-IDF Curve Point Y1	0 to 10000	RPM	IDFCRVY1	810: Size 04 840: Size 05 1054: Size 06
	Cmp-IDF Curve Point Y2	0 to 10000	RPM	IDFCRVY2	980: Size 04 1120: Size 05 1450: Size 06
	Cmp-IDF Curve Point Y3	0 to 10000	RPM	IDFCRVY3	1160: Size 04 1390: Size 05 1798: Size 06
	Cmp-ODF Curve Point Y1	0 to 10000	RPM	ODFCRVY1	700: Size 04 500: Size 05 800: Size 06
	Compressor Maximum Speed				
	Cmp-Odf Curve Point Y2	0 to 10000	RPM	ODFCRVY2	800: Size 04 825: Size 05 950: Size 06
	Cmp-ODF Curve Point Y3	0 to 10000	RPM	ODFCRVY3	1100
<b>ODF_CFG</b>	ODF Minimum Speed	0 to 1200	RPM	ODFMINS P	160
	ODF Maximum Speed	0 to 1200	RPM	ODFMAXSP <sup>c</sup>	1100
	ODF Fan-Off Delay	0 to 60	sec	ODF_FOD	30
	ODF Override Temperature	80 to 140	°F	ODFHTOVR <sup>d</sup>	110
	High Envelope ODF Offset	0 to 100	°F	ODFS DTHI	8
	Low Envelope ODF Offset	0 to 100	°F	ODFS DTLO	6
	ODF Ramp Up Rate per sec	0 to 1000	RPM	ODFRAMPU	600
	ODF Ramp Down Rate per sec	0 to 1000	RPM	ODFRAMPD	600

## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

### Table U — Service Config Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
ALM_CFG	ALM Relay Assigned Channel	0 to 2		ALM_CHAN	1 = MBB RLY11
	0 = None				
	1 = MBB RLY11				
	2 = MBB RLY06				
	Thermostat Alerts	Yes/No		TSTAT_AL	Yes
	Hardware Failures Alerts	Yes/No		HW_AL	Yes
	SAT/RAT Sensor Alerts	Yes/No		SATRATAL	Yes
	OAT Thermistor Alerts	Yes/No		OATRL_AL	Yes
	ALM Relay Assigned Channel	0 to 2		ALM_CHAN	1 = MBB RLY11
	0 = None				
	1 = MBB RLY11				
	2 = MBB RLY06				
	Thermostat Alerts	Yes/No		TSTAT_AL	Yes
	Hardware Failures Alerts	Yes/No		HW_AL	Yes
	SAT/RAT Sensor Alerts	Yes/No		SATRATAL	Yes
	OAT Thermistor Alerts	Yes/No		OATRL_AL	Yes
	Space Sensors Alerts	Yes/No		SPACE_AL	Yes
	Transducer Sensor Alerts	Yes/No		TRANS_AL	Yes
	RH sensor failure Alert	Yes/No		RHS_AL	Yes
	Air Quality CO2 Alerts	Yes/No		CO2S_AL	Yes
	OACFM Alarm Relay	Yes/No		OACFM_AL	No
	Economizer Alerts	Yes/No		ECON_AL	Yes
	Dirty Filter Alerts	Yes/No		FILT_AL	Yes
	General Status Alerts	Yes/No		GENS_AL	Yes
	Refrigerant Circuit Alerts	Yes/No		CKT_AL	Yes
	Compressor Alerts	Yes/No		COMP_AL	Yes
	Heating Failure Alerts	Yes/No		HEAT_AL	Yes
	Indoor Fan Alerts	Yes/No		FAN_AL	Yes
	Relay On Active Faults	Yes/No		FAULT_AL	Yes
ZSENSCFG					
	Zone Sensor 1 Address	0 to 255		ZSADDR1	255
	Zone Sensor 2 Address	0 to 255		ZSADDR2	255
	Zone Sensor 3 Address	0 to 255		ZSADDR3	255
	Zone Sensor 4 Address	0 to 255		ZSADDR4	255
	Zone Sensor 5 Address	0 to 255		ZSADDR5	255
	ZS Force Unocc Enable	Yes/No		ZSFUNEN	No
	ZS Force Unocc wt Delay	Yes/No		ZSFUNWT	No
	Zone Sensor Poll Rate	1 to 100	sec	ZSPOLLRT	5
	ZS TLO Cont Enable	Yes/No		ZSTLOEN	No
	ZS TLO Set During Occ	Yes/No		ZSTLSOC	No
	Zone Sensor UI Mode	1 = Dual Offsets		ZSUIM	1 = Dual Offsets
	Zone Sensor Unit	0 = degrees F		ZSUNIT	0 = degrees F
	ZS Motion Sensor Config	0=NONE, 1=REMLOC, 2=LOCOCC, 3=TEMP_ONLY		ZSM_CFG	1=REMLOC
	ZS Time Out	5 to 60	min	ZSM_TMR	5
TOUCHCFG					
	System Touch Device Inst	0 to 4194303		DEVST	160099
	System Touch Poll Rate	0 to 60		POLLST	0
	System Touch AI for SPT	0 to 9999		AISTSPT	1
	System Touch AI for SPRH	0 to 9999		AISTSPRH	4

## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

### Table U — Service Config Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
TRIM					
	OAT Sensor Trim Offset	-10 to 10	°F	OAT_TRIM	0
	RAT Sensor Trim Offset	-30 to 30	°F	RAT_TRIM	0
	FST Sensor Trim Offset	-10 to 10	°F	FST_TRIM	0
	SPT Sensor Trim Offset	-30 to 30	°F	SPT_TRIM	0
	SPTO Sensor Offset Trim	-1 to 1	°F	SPTOTRIM	0
	SPRH Sensor Trim Offset	-15 to 15	%	SPRHTRIM	0
	IAQ Sensor Trim Offset	-200 to 200	PPM	IAQ_TRIM	0
	OAQ Sensor Trim Offset	-200 to 200	PPM	OAQ_TRIM	0
	OARH Sensor Trim Offset	-15 to 15	%	OARHTRIM	0
	RARH Sensor Trim Offset	-15 to 15	%	RARHTRIM	0
	Circuit A SSP Sensor Trim	-50 to 50	PSI	SSPATRIM	0
	Circuit A SDP Sensor Trim	-50 to 50	PSI	SDPATRIM	0
	Econ Feedback Trim Offset	-15 to 15	%	EC1DTRIM	0
	OACFM Sensor Trim Offset	-200 to 200	CFM	OACFMTRIM	0
	Damper Low Calib. Error	0 to 20	%	ECOMINCA	
	Damper High Calib. Error	0 to 20	%	ECONAXCA	
DISPLAY					
	Metric Display	Yes/No		DISPUNIT	No
	Display Language Select	0=English, 1=Spanish		LANGUAGE	0 = English
	LCD Contrast Adjustment	1 to 10		LCD_CONT	5
	User Password Protection	Enable/Disable		PASS_EBL	Enable
	User Password	0 to 9999		PASSWORD	1111

NOTE(S):

- a. In certain applications DIAG. COMP OFF should be disabled for size 04-06 units to prevent nuisance A312 alerts.
- b. CMPMAXSP defaults to 5000 rpm for 5 ton (06 size) units.
- c. ODFMAXSP defaults to 1200°F for 5 ton (06 size) units
- d. ODFHTOVR defaults to 100°F for 5 ton (06 size) units.

### Table V — Configuration Tables

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
SCHEDOVR					
	CCN Schedule Number	0 = Always Occupied, 1-64 = Local Schedule, 65-99 = Global Schedule		SCHEDNUM	0
	Accept Global Holidays?	Yes/No		HOLIDAYT	No
	Global Schedule Broadcast	Yes/No		CCN_GSBC	No
	Timed Override Duration	0 to 4	hours	OTL_CFG	4
	Timed Override Remaining	0 to 240	min	OVR_EXT	Forcible
	Remote Occupancy Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		RMOCCCHAN	0=None
	Allow Global Overrides	Yes/No		GLBLOVER	Yes
	Allow SPT Override Cancel	Yes/No		CLROVCFG	No
BAS_CFG					
	BAS Protocol Select	0=NONE, 1=CCN, 2=BACNET		BMS_CFG	2=BACNET
	Network Input Timeout	0 to 600	min	NETINTO	30
	CCN Bus Number	0 to 239		CCNBUS	0
	CCN Element Number	1 to 239		CCNADD	1
	CCN Baud Rate	0=9600, 1=19200, 2=38400		BAUDENUM	2
	BACnet ID Number	0 to 4194302		BAC_ID	1610101
	BACnet Device MAC Address	1 to 127		BAC_MAC	1

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table V — Configuration Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
<b>BAS_CFG (cont)</b>					
	BACnet BMS Baud Rate	0=9600, 1=19200, 2=38400, 3=57600, 4=76800, 5=115200		BAC_BAUD	4=76800
	BACnet ID Auto ID	Yes/No		BAC_AUID	Yes
	ALC Auto ID Scheme	Yes/No		AUID	Yes
<b>BACNET</b>					
	BACnet ID Number	0 to 4194302		BAC_ID	1610101
	BACnet Device MAC Address	1 to 127		BAC_MAC	1
	BACnet BMS Baud Rate	0=9600, 1=19200, 2=38400, 3=57600, 4=76800, 5=115200		BAC_BAUD	4=76800
	BACnet ID Auto ID	Yes/No		BAC_AUID	Yes
	ALC Auto ID Scheme	Yes/No		AUID	Yes
	BACnet Device for IAQ	0 to 4194303		DEVIAQ	1610100
	Object Instance for IAQ	0 to 9999		OBJIAQ	1009
	Change of Value for IAQ	0 to 60		COVIAQ	0
	BACnet Device for OAQ	0 to 4194303		DEVOAQ	1610100
	Object Instance for OAQ	0 to 9999		OBJOAO	285
	Change of Value for OAQ	0 to 60		COVOAQ	0
	BACnet Device for OARH	0 to 4194303		DEVOARH	1610100
	Object Instance for OARH	0 to 9999		OBJOARH	1022
	Change of Value for OARH	0 to 60		COVOARH	0
	BACnet Device for OAT	0 to 4194303		DEVOAT	1610100
	Object Instance for OAT	0 to 9999		OBJOAT	1003
	Change of Value for OAT	0 to 60		COVOAT	0
	BACnet Device for RARH	0 to 4194303		DEVRARH	1610100
	Object Instance for RARH	0 to 9999		OBJRARH	30
	Change of Value for RARH	0 to 60		COVRARH	0
	BACnet Device for RAT	0 to 4194303		DEVSTAT	1610100
	Object Instance for RAT	0 to 9999		OBJRAT	1010
	Change of Value for RAT	0 to 60		COVRAT	0
	BACnet Device for SPT	0 to 4194303		DEVSPAT	1610100
	Object Instance for SPT	0 to 9999		OBJSPT	2007
	Change of Value for SPT	0 to 60		COVSPT	0
	Allow Local Sched Edit	Yes/No		LCL_EDIT	
<b>BRODEFS</b>					
	CCN Broadcast Ack'er	Yes/No		CCNBCACK	No
	Global Schedule Broadcast	Yes/No		CCN_GSBC	No
	CCN Time Broadcast	Yes/No		CCNBC	No
	Broadcast OAT on Network	Yes/No		OATBC	No
	Broadcast OARH on Network	Yes/No		OARHBC	No
	Broadcast OAO on Network	Yes/No		OAOBC	No
	Broadcast IAQ on Network	Yes/No		IAQBC	No
	DST Allowed?	Enable/Disable		DST_CFG	Enable
	DST Start Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		STARTM	3
	DST Start Week	1 to 5		STARTW	2

# APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table V — Configuration Tables (cont)

TABLE	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
<b>BRODEFS (cont)</b>					
	DST Start Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		STARTD	7
	DST Minutes to Add	0 to 90	min	MINADD	60
	DST Stop Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		STOPM	11
	DST Stop Week	1 to 5		STOPW	1
	DST Stop Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		STOPD	7
	DST Minutes to Subtract	0 to 90	min	MINSUB	60
	Time in Day to Start DST	0 to 600	min	DST_TOD	120
<b>ALARMDEF</b>					
	Alarm Routing Control	00000000 to 11111111		ALRM_CNT	11000000
	Equipment Priority	0 to 7		EQP_TYPE	5
	Comm Failure Retry Time	1 to 240	min	RETRY_TM	10
	Re-Alarm Time	1 to 255	min	RE-ALARM	180
	Alarm System Name	up to 8 alphanum		ALRM_NAM	48_50JC_
<b>HOLIDAY</b>					
<b>HOLDYxxS</b>					
<b>MON</b>	Holiday Start Month	1 to 12 = January to December		HD01STMN - HD30STMN	0
<b>DAY</b>	Holiday Start Day	1 to 31		HD01STDY - HD30STDY	0
<b>LEN</b>	Holiday Duration (days)	1 to 99		HD01LEN - HD30LEN	0
<b>(repeat up to xx=30 Holidays)</b>					
<b>OCCDEFCS</b>					
<b>OCCPC01S</b>					
	Timed Override Remaining	0 to 240	min	OVR_EXT	Forcible
	Period x DOW (MTWTFSSH)	00000000 to 11111111		DOWx	00000000
	Occupied From	hh:mm		OCCTODx	00:00
	Occupied To	hh:mm		UNOCTODx	00:00
<b>(repeat up to x=8 periods)</b>					



## APPENDIX D — SYSTEMVU™ CONTROLLER CCN TABLES (cont)

Table W — Setpoint Table

TABLE NAME	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
SET_PNT					
	Occupied Cool Setpoint	55 to 80	°F	OCCSP	78
	Occupied Heat Setpoint	55 to 80	°F	OHSP	68
	Unoccupied Cool Setpoint	65 to 95	°F	UCSP	85
	Unoccupied Heat Setpoint	40 to 80	°F	UHSP	60
	Heat-Cool Setpoint Gap	2 to 10	^F	HCSP_GAP	5
	SPT Offset Range (±)	0 to 5	°F	SPTO_RNG	5
	Occupied SPRH Setpoint	0 to 100	%	SPRH_OSP	55
	Unoccupied SPRH Setpoint	0 to 100	%	SPRH_USP	55
	Space RH Deadband	2 to 20	%	SPRH_D8	8

Table X — Control ID Table

TABLE NAME	DISPLAY NAME	VALUES	UNITS	POINT NAME	DEFAULT
CTRLID					
	Device Name:	48_50JC_			
	Description:	text string			
	Location:	text string			
	Software Part Number:	CESR131691-XX-XX			
	Model Number:	2 to 10			
	Serial Number:	0 to 5			
	Reference Number:	0 to 5			

## APPENDIX E — BACNET<sup>1</sup> POINTS LIST

**Table Y — Analog Value (AV) Points**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
2-Position Damper/ERV Channel	R/W		erv2chan	AV:8049	0 to 2	EV2PCHAN
2-Position/ERV Reset Count	READ ONLY		rs_erv2p	AV:8046	0 to 65535	RS_ERV2P
2-Position/ERV Run Hours	READ ONLY	hrs	hr_erv2p	AV:8055	0 to 999999	HR_ERV2P
2-Position/ERV Starts	READ ONLY		st_erv2p	AV:8047	0 to 999999	ST_ERV2P
Actual Cool Stage Active	READ ONLY		actcstgs	AV:194	0 to 2	ACTCSTGS
Actual Heat Stage Active	READ ONLY		acthstgs	AV:46	0 to 2	ACTHSTGS
Alarm display info	READ ONLY		alarm_info	AV:14	0 to 2	ALARM
Alarm Relay Resets Count	READ ONLY		rs_alm	AV:99	0 to 65535	RS_ALM
Alarm Relay Run Hours	READ ONLY	hrs	hour_alarm	AV:49	0 to 999999	HR_ALM
Alarm Relay Starts	READ ONLY		st_alm	AV:136	0 to 999999	ST_ALM
Alarm Reset Counts	READ ONLY		st_alrst	AV:137	0 to 999999	ST_ALRST
Alarm Reset Resets Count	READ ONLY		rs_alrst	AV:100	0 to 65535	RS_ALRST
AQ Diff Low-IAQ Override	R/W	PPM	aqd_low	AV:443	0 to 5000	AQD_LOW
AQ Differential High	R/W		daq_high	AV:212	0 to 5000	DAQ_HIGH
AQ Differential Low	R/W		daq_low	AV:213	0 to 5000	DAQ_LOW
AQ Diff. High-IAQ Override	R/W	PPM	aqd_high	AV:442	0 to 5000	AQD_HIGH
Auto Clr SAT Limit Fault	R/W		satlaclr	AV:618	0 to 1	SATLACLR
Average Occ Cool Stp.	R/W	°F	lnk_ocsp	AV:264	55 to 80	LNK_OCSP
Average Occ Heat Stp.	R/W	°F	lnk_ohsp	AV:266	55 to 80	LNK_OHSP
Average Occ Zone Temp	R/W	°F	lnk_aozt	AV:255	-40 to 245	LNK_AOZT
Average Unocc Cool Stp.	R/W	°F	lnk_ucsp	AV:274	65 to 90	LNK_UCSP
Average Unocc Heat Stp.	R/W	°F	lnk_uhsp	AV:275	40 to 80	LNK_UHSP
Average Zone Temperature	R/W	°F	lnk_azt	AV:256	-40 to 245	LNK_AZT
BACKUP Preparation Time	READ ONLY		bkpreptm	AV:336	0 to 65535	BKPREPTM
BACnet Device for IAQ	R/W		deviaq	AV:8001	0 to 4194303	DEVIAQ
BACnet Device for OAQ	R/W		devoaq	AV:8002	0 to 4194303	DEVOAQ
BACnet Device for OARH	R/W		devoarh	AV:8004	0 to 4194303	DEVOARH
BACnet Device for OAT	R/W		devoat	AV:8003	0 to 4194303	DEVOAT
BACnet Device for RARH	R/W		devrarh	AV:8005	0 to 4194303	DEVRARH
BACnet Device for RAT	R/W		devrat	AV:8006	0 to 4194303	DEVSTAT
BACnet Device for SPRH	R/W		devsprh	AV:8028	0 to 4194303	DEVSPRH
BACnet Device for SPT	R/W		devspt	AV:8007	0 to 4194303	DEVSPPT
BACnet Device MAC Address	R/W		bac_mac	AV:189	0 to 127	BAC_MAC
BACnet ID Number	R/W		bac_id	AV:188	0 to 4194302	BAC_ID
Barometric Pressure	R/W	IN_HG_OF_KPAG	barp	AV:161	10 to 35	BARP
BLOAD Resets Count	READ ONLY		rs_bload	AV:605	0 to 65535	RS_BLOAD
BLOAD Run Hours	READ ONLY	hrs	hour_bload	AV:603	0 to 999999	HR_BLOAD
BLOAD Starts	READ ONLY		st_bload	AV:604	0 to 999999	ST_BLOAD
Block No: in Master Zone	R/W		lnk_mzbk	AV:262	0 to 255	LNK_MZBK
CCH Max Temperature	R/W	°F	cch_max_t	AV:2	40 to 90	CCHMAXT
CCH1 Relay Resets Count	READ ONLY		rs_cchr1	AV:294	0 to 65535	RS_CCHR1
CCH1 Relay Run Hours	READ ONLY	hrs	hour_cchr1	AV:242	0 to 999999	HR_CCHR1
CCH1 Relay Starts	READ ONLY		st_cchr1	AV:301	0 to 999999	ST_CCHR1
Change Filter Timer	R/W	hrs	filter_service_hrs	AV:2019	0 to 9999	FILT LIFE
Change of Value for IAQ	R/W		coviaq	AV:8015	0 to 60	COVIAQ
Change of Value for OAQ	R/W		covoaq	AV:8016	0 to 60	COVOAQ
Change of Value for OARH	R/W		covoarh	AV:8018	0 to 60	COVOARH
Change of Value for OAT	R/W		covoat	AV:8017	0 to 60	COVOAT
Change of Value for RARH	R/W		covrarh	AV:8019	0 to 60	COVRARH
Change of Value for RAT	R/W		covrat	AV:8020	0 to 60	COVRAT
Change of Value for SPRH	R/W		covsprh	AV:8030	0 to 60	COVSPRH
Change of Value for SPT	R/W		covspt	AV:8021	0 to 60	COVSPT
Circuit A Discharge Pressure	R/W	PSI	sdp_a	AV:124	14.5 to 667.0	SDP_A
Circuit A Sat. Discharge Temp	READ ONLY	°F	sdt_a	AV:295	-100 to 500	SDT_A
Circuit A Sat. Suction Temp	READ ONLY	°F	sst_a	AV:339	-100 to 500	SST_A
Circuit A Suction Pressure	READ ONLY	PSI	ssp_a	AV:131	-6.7 to 420.0	SSP_A
Circuit A Pressure Ratio	READ ONLY		cira_pr	AV:204	14.5 to 667.0	CIRA_PR

1. Third-party trademarks and logos are the property of their respective owners.

## APPENDIX E — BACNET POINTS LIST (cont)

### Table Y — Analog Value (AV) Points (cont)

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
CLV_A Resets Count	READ ONLY		rs_clv_a	AV:455	0 to 65535	RS_CLV_A
CLV_A Run Hours	READ ONLY	hrs	hr_clv_a	AV:457	0 to 999999	HR_CLV_A
CLV_A Starts	READ ONLY		st_clv_a	AV:459	0 to 999999	ST_CLV_A
CMP DEMAND LIMIT	R/W	RPM	cmpdmdlm	AV:9019	0 to 10000	CMPDMDLM
CMP HDP ACT TIME	R/W	sec	cmphdpat	AV:9022	0 to 1000	CMPHDPAT
CMP HDP CLEAR TIME	R/W	sec	cmphdpct	AV:9023	0 to 1000	CMPHDPCT
CMP HDT ACT TIME	R/W	sec	cmphdtat	AV:9024	0 to 1000	CMPHDTAT
CMP HDT CLEAR TIME	R/W	sec	cmphdtct	AV:9025	0 to 1000	CMPHDTCT
CMP LDP ACT TIME	R/W	sec	cmpldpat	AV:9026	0 to 1000	CMPLDPAT
CMP LDP CLEAR TIME	R/W	sec	cmpldpct	AV:9027	0 to 1000	CMPLDPCT
CMP Loader Time Guard	READ ONLY	sec	timg_ald	AV:164	0 to 100	TIMG_ALD
CMP LOW PR ACT TIME	R/W	sec	cmplprat	AV:9028	0 to 1000	CMPPLPRAT
CMP LOW PR CLEAR TIME	R/W	sec	cmplprct	AV:9029	0 to 1000	CMPPLPRCT
CMP OIL REC ACT TIME	R/W	sec	cmp_orat	AV:9034	0 to 7200	CMP_ORAT
CMP OIL REC DEB TIME	R/W	sec	cmp_ordt	AV:9037	0 to 100	CMP_ORDT
Commanded IDF Speed	READ ONLY	%	vfd_output	AV:2027	0 to 100	FANSPEED
Commanded ODF Speed	READ ONLY	RPM	odfspeed	AV:7063	0 to 1200	ODFSPEED
Comp A1 Resets Count	READ ONLY		rs_a1	AV:97	0 to 65535	RS_A1
Comp Boost IDF Speed Rate	R/W	RPM	idfbstrt	AV:9067	0 to 1	IDFBSTRT
Comp Envelope Hi Limit	R/W	'F	cm pesdth	AV:9020	-100 to 200	CMPESDTH
Comp Envelope Lo Limit	R/W	'F	cm pesdtl	AV:9021	-100 to 200	CMPESDTL
Compressor A1 Run Hours	READ ONLY	hrs	hour_a1	AV:47	0 to 999999	HR_A1
Compressor A1 Run Hours	READ ONLY	hrs	hr_rlv_a	AV:458	0 to 999999	HR_RLV_A
Compressor A1 Starts	READ ONLY		st_a1	AV:134	0 to 999999	ST_A1
Compressor A1 strikes	READ ONLY		a1strike	AV:192	0 to 3	A1STRIKE
Compressor A1 Time Guard	READ ONLY	sec	timgd_a1	AV:162	0 to 600	TIMGD_A1
Compressor Maximum Speed	R/W	RPM	cmpmaxsp	AV:9068	900 to 6000	CMPMAXSP
Compressor Min Off Time	R/W	sec	c_minoff	AV:202	120 to 600	C_MINOFF
Compressor Min On Time	R/W	sec	c_minon	AV:203	180 to 600	C_MINON
Compressor Request Speed	READ ONLY	RPM	cmprqspd	AV:9031	0 to 6000	CMPRQSPD
Compressor Start Speed	R/W	RPM	cmpstspd	AV:9069	900 to 5000	CMPSTSPD
Cool DMD Offset level 1	R/W	°F	cdlm_level1	AV:400	0 to 40	CLDOLEV1
Cool DMD Offset level 2	R/W	°F	cdlm_level2	AV:401	0 to 40	CLDOLEV2
Cool DMD Offset level 3	R/W	°F	cdlm_level3	AV:402	0 to 40	CLDOLEV3
Cool Mode Select Time Guard	READ ONLY	sec	cl_sel_timeguard	AV:40	0 to 65535	COOLMSTG
Cool Requested ODF Speed	READ ONLY	RPM	rqodfspd	AV:8074	0 to 5000	RQODFSPD
Cool Setpoint in Effect	READ ONLY	°F	csp_eff	AV:208	55 to 95	CSP_EFF
Cool Test Cmp Speed	R/W	RPM	s_clspd	AV:9073	0 to 6000	S_CLSPD
Cooling Demand Trend	READ ONLY		cldtrend	AV:205	-99 to 99	CLDTREND
Cooling Design Point Speed	R/W	RPM	idfdgspd	AV:9035	0 to 10000	IDFDGSPD
Cooling Fan-Off Delay	R/W	sec	cool_fod	AV:207	0 to 100	COOL_FOD
Damper Actual Position	R/W	%	oa_dmpr_pos	AV:2022	0 to 100	DAMPPOS
Damper SAT Deadband	R/W	°F	t24satdb	AV:308	0 to 20	T24SATDB
Delay On Low SST Check	R/W	sec	sstckdly	AV:300	0 to 300	SSTCKDLY
Diff. Dry Bulb Deadband	R/W	°F	oa_ra_diff_temp	AV:78	-1 to 99	OATRATDB
Differential Air Quality	READ ONLY	PPM	aq_diff	AV:195	-5000 to 5000	AQ_DIFF
Econ Damper Resets Count	READ ONLY		rs_damp	AV:102	0 to 65535	RS_DAMP
Econ Damper Run Hours	READ ONLY	hrs	hour_damp	AV:51	0 to 999999	HR_DAMP
Econ Max Damper Position	R/W	%	dampmax	AV:185	0 to 100	DAMPMAX
Econ Min at Max Fan Speed	R/W	%	minp_max	AV:318	0 to 100	MINP_MAX
Econ Actual Position	READ ONLY	%	dampact	AV:211	0 to 100	DAMPACT
Econ Commanded Position	R/W	%	dmpr_cmd	AV:4	0 to 100	DAMPCMD
Economizer Damper Starts	READ ONLY		st_damp	AV:139	0 to 999999	ST_DAMP
Economizer Position Test	R/W	%	s_damper	AV:118	0 to 100	S_DAMPER
Economizer Travel Time	R/W	sec	eeconotr	AV:226	5 to 300	ECONOTRV
Effective Deadband	R/W		effdb	AV:6007	0 to 55	EFFDB
Effective Demand Temp	READ ONLY	°F	temp_eff	AV:163	-40 to 245	TEMP_EFF
Effective Zone Setpoint	R/W	°F	effsp	AV:6006	55 to 90	EFFSP
Enthalpy Cross Deadband	R/W	BTU_LB	oa_ra_diff_enth	AV:77	0 to 20	OAERAEDB
Equipment Touch RH	R/W	%	EquipmentTouchRH	AV:1904	0 to 100	ETSPRH
Equipment Touch SPT	R/W	°F	EquipmentTouchSPT	AV:1902	-40 to 240	ETSPT
Fan Supply Air Temp	READ ONLY	°F	idf_sa_temp	AV:10	-40 to 245	FST

## APPENDIX E – BACNET POINTS LIST (cont)

**Table Y – Analog Value (AV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
FBDH Low Setpoint	R/W	°F delta	fbdlasp	AV:438	-20 to 0	FBDLO_SP
FBDH Max Fan Speed	R/W	RPM	fdrpmmmax	AV:8057	0 to 5000	FDRPMMAX
FBDH Min Fan Speed	R/W	RPM	fdrpmmmin	AV:8056	0 to 5000	FDRPMMIN
FBDH SAT Min value	R/W	°F	fbdh_sat	AV:436	35 to 80	FBDH_SAT
FBDH SAT Setpoint	READ ONLY	°F	fbdsatsp	AV:441	0 to 240	FBDSATSP
FBDH SST Min value	R/W	°F	fbdh_sst	AV:437	10 to 60	FBDH_SST
Filter hour remaining	READ ONLY	hrs	filter_rntm	AV:2015	0 to 9999	FILTLEFT
Free Cooling Max OAT	R/W	°F	max_free_cl_temp	AV:67	0 to 90	MAXFREET
Free Cooling Min Temp	R/W	°F	min_free_cl_temp	AV:71	-30 to 70	MINFREET
Free Cooling Reset Count	READ ONLY		rs_freec	AV:104	0 to 65535	RS_FREEC
Free Cooling Run Hours	READ ONLY	hrs	hour_free_cl	AV:53	0 to 999999	HR_FREEC
Free Cooling Starts	READ ONLY		st_freec	AV:141	0 to 999999	ST_FREEC
Full Load Resets Count	READ ONLY		rs_fload	AV:103	0 to 65535	RS_FLOAD
Heat Demand Level Up	R/W	°F	hadmd_lup	AV:239	-2 to 2	HDMD_LUP
Heat DMD Offset Level 1	R/W	°F	hdlm_level1	AV:403	0 to 40	HTDOLEV1
Heat DMD Offset Level 2	R/W	°F	hdlm_level2	AV:404	0 to 40	HTDOLEV2
Heat DMD Offset Level 3	R/W	°F	hdlm_level3	AV:405	0 to 40	HTDOLEV3
Heat Minimum Off Time	R/W	sec	h_minoff	AV:235	60 to 600	H_MINOFF
Heat Minimum On Time	R/W	sec	h_minon	AV:236	60 to 600	H_MINON
Heat Mode Select Time Guard	READ ONLY	sec	ht_sel_timeguard	AV:45	0 to 65535	HEATMSTG
Heat Setpoint in Effect	READ ONLY	°F	hsp_eff	AV:243	40 to 80	HSP_EFF
Heat Space Demand Trend	READ ONLY		htdtrend	AV:244	-99 to 99	HTDTREND
Heat Stage 1 Reset Count	READ ONLY		rs_htr_1	AV:106	0 to 65535	RS_HTR_1
Heat Stage 1 Run Hours	READ ONLY	hrs	hour_ht_1	AV:54	0 to 999999	HR_HTR_1
Heat Stage 1 Starts	READ ONLY		st_htr_1	AV:142	0 to 999999	ST_HTR_1
Heat Stage 1 Time Guard	READ ONLY	sec	timgd_h1	AV:173	0 to 600	TIMGD_H1
Heat Stage 2 Reset Count	READ ONLY		rs_htr_2	AV:107	0 to 65535	RS_HTR_2
Heat Stage 2 Run Hours	READ ONLY	hrs	hour_ht_2	AV:55	0 to 999999	HR_HTR_2
Heat Stage 2 Starts	READ ONLY		st_htr_2	AV:143	0 to 999999	ST_HTR_2
Heat Stage 2 Time Guard	READ ONLY	sec	timgd_h2	AV:50	0 to 600	TIMGD_H2
Heat-Cool Setpoint Gap	R/W	°F	hcsp_gap	AV:238	2 to 10	HCSP_GAP
Heating Fan-Off Delay	R/W	sec	heat_fod	AV:241	10 to 600	HEAT_FOD
Heating Lockout Temp	R/W	°F	oatheat	AV:8033	40 to 125	OATLHEAT
Heating Space Demand	READ ONLY	°F delta	heat_dmd	AV:240	-100 to 100	HEAT_DMD
Hi Temp Cmp Min Speed Temp	R/W	°F	hacmptmp	AV:9064	80 to 150	HACMPTMP
Hi Temp Comp Min Speed	R/W	RPM	hacpmnsp	AV:9065	900 to 4000	HACPMNSP
High Cool Demand On	R/W	°F	dmdhcon	AV:215	0.5 to 20	DMDHCON
High Envelope ODF Offset	R/W	°F	odfsdthi	AV:7061	0 to 100	ODFSDTHI
High Free Cool SAT Setpoint	R/W	°F	high_cool_sasp	AV:237	40 to 80	HCSASP
High Heat Demand On	R/W	°F	dmdhhon	AV:217	0.5 to 20	DMDHHON
HumidiMizer Level Test	R/W		s_hmzlev	AV:414	0 to 2	S_HMZLEV
Humidimzer SDT Setpoint	R/W		humsdt	AV:9016	70 to 150	HUM_SDT
IAQ DCV Curve - Pos 1	READ ONLY	%	aq_pos1	AV:196	0 to 100	AQ_POS1
IAQ DCV Curve - Pos 2	READ ONLY	%	aq_pos2	AV:197	0 to 100	AQ_POS2
IAQ DCV Curve - Pos 3	READ ONLY	%	aq_pos3	AV:198	0 to 100	AQ_POS3
IAQ DCV Curve - Speed 1	READ ONLY	%	aq_spd1	AV:199	0 to 100	AQ_SPD1
IAQ DCV Curve - Speed 2	READ ONLY	%	aq_spd2	AV:200	0 to 100	AQ_SPD2
IAQ DCV Curve - Speed 3	READ ONLY	%	aq_spd3	AV:201	0 to 100	AQ_SPD3
IAQ DCV Curve Offset	READ ONLY	%	iaq_offs	AV:245	0 to 100	IAQ_OFFS
IAQ Position at Max Fan	R/W	%	iaqminp	AV:246	0 to 100	IAQMINP
IAQ Purge Curve - Pos 1	READ ONLY	%	aqp_pos1	AV:358	0 to 100	AQP_POS1
IAQ Purge Curve - Pos 2	READ ONLY	%	aqp_pos2	AV:359	0 to 100	AQP_POS2
IAQ Purge Curve - Pos 3	READ ONLY	%	aqp_pos3	AV:360	0 to 100	AQP_POS3
IAQ Purge Curve - Speed1	READ ONLY	%	aqp_spd1	AV:361	0 to 100	AQP_SPD1
IAQ Purge Curve - Speed2	READ ONLY	%	aqp_spd2	AV:362	0 to 100	AQP_SPD2
IAQ Purge Curve - Speed3	READ ONLY	%	aqp_spd3	AV:363	0 to 100	AQP_SPD3
IAQ Purge Curve Offset	READ ONLY	%	aqp_offs	AV:364	0 to 100	AQP_OFFS
IAQ Sensor Value @ 20mA	R/W	PPM	iaq_20ma	AV:12	0 to 5000	IAQ_20MA
IAQ Sensor Value @ 4mA	R/W	PPM	iaq_4ma	AV:13	0 to 5000	IAQ_4MA
IDF Commanded RPM	READ ONLY	RPM	fspd_rpm	AV:8048	0 to 5000	FSPD_RPM
IDF CRV OFFSET	R/W	RPM	idfofst	AV:9036	-3000 to 3000	IDFOFFST
IDF Free Cool Speed = RPM	R/W	RPM	rpm_fcl	AV:8050	0 to 5000	RPM_FCL

## APPENDIX E – BACNET POINTS LIST (cont)

**Table Y – Analog Value (AV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
IDF Heat Speed = RPM	R/W	RPM	rpm_heat	AV:8052	0 to 5000	RPM_HEAT
IDF High Cool Speed = RPM	R/W	RPM	rpm_hcl	AV:8051	0 to 5000	RPM_HCL
IDF Low Cool Speed = RPM	R/W	RPM	rpm_lcl	AV:8053	0 to 5000	RPM_LCL
IDF Maximum Fan Speed	R/W	%	speed_max	AV:36	80 to 100	SPEEDMAX
IDF Vent Speed = RPM	R/W	RPM	rpm_vent	AV:8054	0 to 5000	RPM_VENT
Indoor Air Quality Level	R/W	PPM	iaq	AV:1009	0 to 5000	IAQ
Indoor Fan Reset Count	READ ONLY		rs_idf	AV:108	0 to 65535	RS_IDF
Indoor Fan Run Hours	READ ONLY	hrs	hour_idf	AV:56	0 to 999999	HR_IDF
Indoor Fan Speed Test	R/W	%	s_idfspd	AV:119	0 to 100	S_IDFSPD
Indoor Fan Starts	READ ONLY		st_idf	AV:144	0 to 999999	ST_IDF
Linkage CCN Bus Number	R/W		lnk_supb	AV:272	0 to 239	LNK_SUPB
Linkage CCN Element Number	R/W		lnk_supe	AV:273	0 to 239	LNK_SUPE
Linkage Cooling Required	READ ONLY	°F	lnk_creq	AV:257	0 to 30	LNK_CREQ
Linkage Damper Position	READ ONLY	%	lnk_dpos	AV:258	0 to 100	LNK_DPOS
Linkage Equipment Mode	READ ONLY		lnk_mode	AV:261	0 to 8	LNK_MODE
Linkage Heating Required	READ ONLY	°F	lnk_hreq	AV:259	0 to 30	LNK_HREQ
Linkage Maximum Airflow	READ ONLY		lnk_mair	AV:260	0 to 5000	LNK_MAIR
Linkage Optimal Start	READ ONLY	min	lnk_opst	AV:267	0 to 180	LNK_OPST
Linkage Space Air Qual.	READ ONLY	PPM	lnk_siaq	AV:270	0 to 2000	LNK_SIAQ
Linkage Space RH	READ ONLY	%	lnk_sprh	AV:271	0 to 100	LNK_SPRH
Linkage Start Bias time	R/W	min	lnk_sbt	AV:269	0 to 180	LNK_SBT
Linkage Static Pressure	READ ONLY	IN_H2O	link_ahu_static	AV:312	-5 to 5	LNK_DSP
Linkage Supply Air Temp	READ ONLY	°F	lnk_sat	AV:268	-40 to 240	LNK_SAT
Lo Temp Cmp Min Speed Temp	R/W	°F	lacmptmp	AV:9014	0 to 50	LACMPTMP
Lo Temp Comp Min Speed	R/W	RPM	lacpmnsp	AV:9018	900 to 4000	LACPMNSP
Local Std Time Offset	R/W	min	utc_ofst	AV:191	-780 to 780	UTC_OFST
Low Ambient SDT Setpoint	R/W		lasdt	AV:9017	60 to 160	LA_SDT
Low Charge Disable Temp	R/W	°F	loch_lot	AV:276	-40 to 50	LOCH_LOT
Low Cool Demand Off	R/W	°F	dmdlcoff	AV:218	-1 to 2	DMDLCOFF
Low Cool Demand On	R/W	°F	dmdlcon	AV:219	-1 to 2	DMDLCON
Low Envelope ODF Offset	R/W	°F	odfsdtlo	AV:7062	0 to 100	ODFSDTLO
Low Heat Demand Off	R/W	°F	dmdlhoff	AV:220	-1 to 2	DMDLHOFF
Low Heat Demand On	R/W	°F	dmdlhon	AV:221	-1 to 2	DMDLHON
Low Refrigerant Charge Level	R/W	PSI	locharge	AV:277	0 to 150	LOCHARGE
Low Free Cool SAT Setpoint	R/W	°F	low_cool_sasp	AV:254	40 to 80	LCSASP
Max Allowed Cool Speed	R/W	RPM	maxreqsd	AV:9063	1500 to 6000	MAXREQSD
Max Allowed Cool Stages	R/W		max_cstgs	AV:278	0 to 2	MAXCSTGS
Max Allowed Heat Stages	R/W		max_hstgs	AV:279	0 to 2	MAXHSTGS
Max Enthalpy OA limit	R/W	BTU_LB	max_enth	AV:44	1.0 to 99.0	FREEMAXE
Max Fan Speed Run Hours	READ ONLY	hrs	hour_max_fan	AV:57	0 to 999999	HR_MAXF
Max IDF Speed Resets Count	READ ONLY		rs_maxf	AV:109	0 to 65535	RS_MAXF
Max IDF Speed Starts	READ ONLY		st_maxf	AV:145	0 to 999999	ST_MAXF
Medium Cool Demand On	R/W	°F	dmdmcon	AV:223	0.5 to 20	DMDMCON
Min Pos - Default Pos 1	READ ONLY	%	mp_dpos1	AV:319	0 to 100	MP_DPOS1
Min Pos - Default Pos 2	READ ONLY	%	mp_dpos2	AV:290	0 to 100	MP_DPOS2
Min Pos - Default Pos 3	READ ONLY	%	mp_dpos3	AV:320	0 to 100	MP_DPOS3
Min Pos - Default Speed 1	READ ONLY	%	mp_dspd1	AV:321	0 to 100	MP_DSPD1
Min Pos - Default Speed 2	READ ONLY	%	mp_dspd2	AV:322	0 to 100	MP_DSPD2
Min Pos - Default Speed 3	READ ONLY	%	ms_dspd3	AV:323	0 to 100	MP_DSPD3
Min Pos - User Pos 1	R/W	%	mp_upos1	AV:329	0 to 100	MP_UPOS1
Min Pos - User Pos 2	R/W	%	mp_upos2	AV:330	0 to 100	MP_UPOS2
Min Pos - User Pos 3	R/W	%	mp_upos3	AV:331	0 to 100	MP_UPOS3
Min Pos - User Speed 1	R/W	%	mp_uspd1	AV:222	0 to 100	MP_USPD1
Min Pos - User Speed 2	R/W	%	mp_uspd2	AV:5	0 to 100	MP_USPD2
Min Pos - User Speed 3	R/W	%	mp_uspd3	AV:138	0 to 100	MP_USPD3
Min Pos Curve - Pos 1	READ ONLY	%	mp_pos1	AV:324	0 to 100	MP_POS1
Min Pos Curve - Pos 2	READ ONLY	%	mp_pos2	AV:325	0 to 100	MP_POS2
Min Pos Curve - Pos 3	READ ONLY	%	mp_pos3	AV:326	0 to 100	MP_POS3
Min Pos Curve - Speed 1	READ ONLY	%	mp_spd1	AV:327	0 to 100	MP_SPD1
Min Pos Curve - Speed 2	READ ONLY	%	mp_spd2	AV:15	0 to 100	MP_SPD2
Min Pos Curve - Speed 3	READ ONLY	%	mp_spd3	AV:328	0 to 100	MP_SPD3
Min Position in Effect	R/W	%	min_pos	AV:412	0 to 100	MIN_POS

## APPENDIX E – BACNET POINTS LIST (cont)

**Table Y – Analog Value (AV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Mins Until Next Occupied	READ ONLY	min	mintiloc	AV:175	-1 to 10080	MINTILOC
MLOAD Resets Count	READ ONLY		rs_mload	AV:600	0 to 65535	RS_MLOAD
MLOAD Run Hours	READ ONLY	hrs	hour_mload	AV:601	0 to 999999	HR_MLOAD
MLOAD Starts	READ ONLY		st_mload	AV:602	0 to 999999	ST_MLOAD
Network IAQ Value	R/W	PPM	iaq_net	AV:7001	0 to 5000	IAQ_NET
Network Input Timeout	R/W	min	netinto	AV:9089	1 to 600	NETINTO
Network OACFM Value	R/W	CFM	ocfm_net	AV:371	0 to 5000	OCFM_NET
Network OAQ Value	R/W	PPM	oaq_net	AV:7002	0 to 5000	OAQ_NET
Network OARH Value	R/W	%	oarh_net	AV:7003	0 to 100	OARH_NET
Network OAT Value	R/W	°F	oat_net	AV:7007	-40 to 245	OAT_NET
Network RARH Value	R/W	%	rarh_net	AV:7004	0 to 100	RARH_NET
Network Return Air Temp	R/W	°F	rat_net	AV:7005	-40 to 245	RAT_NET
Network Space Temp Value	R/W	°F	spt_net	AV:7006	-40 to 245	SPT_NET
Network SPRH Value	R/W	%	sprh_net	AV:376	0 to 100	SPRH_NET
Next Occupied Time	READ ONLY	min	nxtoctim	AV:176	-1 to 10080	NXTOCTIM
Next Unoccupied Time	READ ONLY	min	nxtuntim	AV:177	-1 to 10079	NXTUNTIM
No IGC IFO input Timeout	R/W	min	no_igctm	AV:281	0 to 60	NO_IGCTM
Number of Active Alerts	READ ONLY		num_active_alerts	AV:334	0 to 100	NUMALRTS
Number of Active Faults	READ ONLY		num_active_faults	AV:335	0 to 100	NUMFLTS
Number Of Heating Stages	R/W		numhstgs	AV:284	0 to 2	NUMHSTGS
OA Quality Level	R/W	PPM	oaq	AV:1012	0 to 5000	OAQ
OA Relative Humidity	R/W	%	oarh	AV:1022	0 to 100	OARH
OACFM @ 4MA	R/W	CFM	ocfm_4ma	AV:369	0 to 5000	OCFM_4MA
OACFM Value @ 20mA	R/W	CFM	ocfm20ma	AV:417	0 to 5000	OCFM20MA
OARH Sensor Value @ 20mA	R/W	%	oarh_20ma	AV:22	0 to 100	OARH20MA
OARH Sensor Value @ 4mA	R/W	%	oarh_4ma	AV:21	0 to 100	OARH_4MA
OAT Limit for Supplied Air Temp	R/W	°F	oatstemp	AV:424	-40 to 125	OATSTEMP
Object instance for IAQ	R/W		objiaq	AV:8008	0 to 9999	OBJIAQ
Object instance for OAQ	R/W		objoaq	AV:8009	0 to 9999	OBJOAQ
Object instance for OARH	R/W		objoarh	AV:8011	0 to 9999	OBJOARH
Object instance for OAT	R/W		objoat	AV:8010	0 to 9999	OBJOAT
Object instance for RARH	R/W		objrarh	AV:8012	0 to 9999	OBJRARH
Object instance for RAT	R/W		objrat	AV:8013	0 to 9999	OBJRAT
Object instance for SPRH	R/W		objsprh	AV:8029	0 to 9999	OBJSPRH
Object instance for SPT	R/W		objspt	AV:8014	0 to 9999	OBJSPT
Occ Cooling Required	READ ONLY	°F	lnk_ocrq	AV:263	0 to 30	LNK_OCRQ
Occ Heating Required	READ ONLY	°F	lnk_ohrq	AV:265	0 to 30	LNK_OHRQ
Occupied Cool Setpoint	R/W	°F	ocsp	AV:288	55 to 99	OCSP
Occupied Heat Setpoint	R/W	°F	ohsp	AV:289	40 to 99	OHSP
Occupied Setpoint Gap	R/W		odb	AV:6003	0 to 100	ODB
Occupied SPRH Setpoint	R/W	%	sprh_osp	AV:367	0 to 100	SPRH_OSP
Occupied Zone Setpoint	R/W	°F	osp	AV:6002	40 to 80	OSP
ODF Commanded RPM	R/W	RPM	odf_rpm	AV:8072	0 to 5000	ODF_RPM
ODF Fan-Off Delay	R/W	sec	odf_fod	AV:606	0 to 60	ODF_FOD
ODF High Cool Speed	R/W	RPM	odf_hi_speed	AV:82	0 to 1200	ODFHCSPD
ODF Maximum Speed	R/W	RPM	odf_max_speed	AV:86	0 to 1200	ODFMAXSP
ODF Minimum Speed	R/W	RPM	odf_min_speed	AV:85	160 to 1200	ODFMINSP
ODF Override Speed	R/W	RPM	odflabsp	AV:7065	0 to 1200	ODFLABSP
ODF Override Temperature	R/W	°F	odfhtovr	AV:9066	80 to 140	ODFHTOVR
ODF Relay Resets Counts	READ ONLY		rs_ofr	AV:8044	0 to 65535	RS_OFR
ODF Relay Run Hours	READ ONLY	hrs	hour_ofr	AV:8043	0 to 999999	HR_OFR
ODF Relay Starts	READ ONLY		st_ofr	AV:8045	0 to 999999	ST_OFR
ODF Resets Count	READ ONLY		rs_odf	AV:7068	0 to 65535	RS_ODF
ODF Run Hours	READ ONLY	hrs	hour_odf	AV:7066	0 to 999999	HR_ODF
ODF SDT Control Point	R/W		lasdtsp	AV:7054	-100 to 200	LASDT_SP
ODF Starts Count	READ ONLY		st_odf	AV:7067	0 to 999999	ST_ODF
Offset From Hi Envelope	R/W	°F	cmpsdthi	AV:9032	0 to 100	CMPSDTHI
Offset From Lo Envelope	R/W	°F	cmpsdthlo	AV:9033	0 to 100	CMPSDTHLO
Oil Recovery Duration	R/W	sec	cmp_orrt	AV:9072	0 to 3600	CMP_ORRT
Oil Recovery Run Speed	R/W	RPM	cmp_orrs	AV:9071	900 to 6000	CMP_ORRS
Oil Recovery Trip Speed	R/W	RPM	cmp_oras	AV:9070	900 to 6000	CMP_ORAS
Outdoor Air Enthalpy	R/W	BTU_LB	oa_enth	AV:76	-9.6 to 334.2	OA_ENTH

## APPENDIX E — BACNET POINTS LIST (cont)

**Table Y — Analog Value (AV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Outdoor Air in CFM	R/W	CFM	oacfm	AV:416	0 to 5000	OACFM
Outdoor Air Temp Sensor	READ ONLY	°F	oat_loc	AV:286	-40 to 245	OAT_LOC
Outdoor Air Temperature	R/W	°F	oa_temp	AV:1003	-40 to 245	OAT
P.Exhaust 1 Curve Offset	READ ONLY	%	pe1_offs	AV:317	0 to 100	PE1_OFFS
P.Exhaust 1 Resets Count	READ ONLY		rs_pe_1	AV:113	0 to 65535	RS_PE_1
P.Exhaust 2 Curve Offset	READ ONLY	%	pe2_offs	AV:229	0 to 100	PE2_OFFS
P.Exhaust 2 Resets Count	READ ONLY		rs_pe_2	AV:114	0 to 65535	RS_PE_2
PE Stage 1 At Max Speed	R/W	%	pe1_pmax	AV:343	0 to 100	PE1_PMAX
PE Stage 2 At Max Speed	R/W	%	pe2_pmax	AV:344	0 to 100	PE2_PMAX
PE Turn Off Dead band	R/W	%	pe_offdb	AV:316	0 to 100	PE_OFFDB
Space Temp Value	R/W	°F	space_temp	AV:2007	-40 to 245	SPT
Power Cycle Counts	READ ONLY		st_por	AV:150	0 to 999999	ST_POR
Power Cycle Resets Count	READ ONLY		rs_por	AV:115	0 to 65535	RS_POR
Power Exhaust 1 - Pos 1	READ ONLY	%	pe1_pos1	AV:345	0 to 100	PE1_POS1
Power Exhaust 1 - Pos 2	READ ONLY	%	pe1_pos2	AV:346	0 to 100	PE1_POS2
Power Exhaust 1 - Pos 3	READ ONLY	%	pe1_pos3	AV:347	0 to 100	PE1_POS3
Power Exhaust 1 - Speed 1	READ ONLY	%	pe1_spd1	AV:348	0 to 100	PE1_SPD1
Power Exhaust 1 - Speed 2	READ ONLY	%	pe1_spd2	AV:349	0 to 100	PE1_SPD2
Power Exhaust 1 - Speed 3	READ ONLY	%	pe1_spd3	AV:350	0 to 100	PE1_SPD3
Power Exhaust 1 Starts	READ ONLY		st_pe_1	AV:148	0 to 999999	ST_PE_1
Power Exhaust 2 - Pos 1	READ ONLY	%	pe2_pos1	AV:351	0 to 100	PE2_POS1
Power Exhaust 2 - Pos 2	READ ONLY	%	pe2_pos2	AV:352	0 to 100	PE2_POS2
Power Exhaust 2 - Pos 3	READ ONLY	%	pe2_pos3	AV:353	0 to 100	PE2_POS3
Power Exhaust 2 - Speed 1	READ ONLY	%	pe2_spd1	AV:354	0 to 100	PE2_SPD1
Power Exhaust 2 - Speed 2	READ ONLY	%	pe2_spd2	AV:355	0 to 100	PE2_SPD2
Power Exhaust 2 - Speed 3	READ ONLY	%	pe2_spd3	AV:356	0 to 100	PE2_SPD3
Power Exhaust 2 Starts	READ ONLY		st_pe_2	AV:149	0 to 999999	ST_PE_2
Power Exhaust1 Run Hours	READ ONLY	hrs	hour_pe_1	AV:61	0 to 999999	HR_PE_1
Power Exhaust2 Run Hours	READ ONLY	hrs	hour_pe_2	AV:62	0 to 999999	HR_PE_2
Preocc Purge Duration	R/W	min	iaqptime	AV:252	5 to 120	IAQPTIME
Preocc Purge Lockout OAT	R/W	°F	iaqp_la	AV:248	0 to 70	IAQP_LA
Previous Unoccupied Time	READ ONLY	min	prvuntim	AV:182	-1 to 10079	PRVUNTIM
RA Relative Humidity	R/W	%	rarh	AV:30	0 to 100	RARH
RARH Sensor Value @ 20mA	R/W	%	rarh_20ma	AV:32	0 to 100	RARH20MA
RARH Sensor Value @ 4mA	R/W	%	rarh_4ma	AV:31	0 to 100	RARH_4MA
RAT Setpoint Time	R/W	min	ratsptm	AV:8070	0 to 30	RATSPTM
RDV_A Resets Count	READ ONLY		rs_rdv_a	AV:389	0 to 65535	RS_RDV_A
RDV_A Run Hours	READ ONLY	hrs	hour_rdv_a	AV:381	0 to 999999	HR_RDV_A
RDV_A Starts	READ ONLY		st_rdv_a	AV:385	0 to 999999	ST_RDV_A
Reheat Level 1 Reset Count	READ ONLY		rs_rqhl1	AV:390	0 to 65535	RS_RQHL1
Reheat Level 2 Reset Count	READ ONLY		rs_rqhl2	AV:391	0 to 65535	RS_RQHL2
Reheat Level 1 Run Hours	READ ONLY	hrs	hour_rqhl1	AV:382	0 to 999999	HR_RQHL1
Reheat Level 1 Starts	READ ONLY		st_rqhl1	AV:386	0 to 999999	ST_RQHL1
Reheat Level 2 Run Hrs	READ ONLY	hrs	hour_rqhl2	AV:383	0 to 999999	HR_RQHL2
Reheat Level 2 Starts	READ ONLY		st_rqhl2	AV:387	0 to 999999	ST_RQHL2
Req Compr Dehum Stages	R/W		reqdstgs	AV:413	0 to 10	REQDSTGS
Requested Heating Stages	READ ONLY		reqhstgs	AV:293	0 to 2	REQHSTGS
Requested IDF Speed	READ ONLY	%	req_fan_spd	AV:35	0 to 100	RQFANSPD
Reset Device	R/W		resetdev	AV:184	0 to 1	RESETDEV
Restore Completion Time	READ ONLY		rstcomtm	AV:337	0 to 65535	RSTCOMTM
Return Air Enthalpy	R/W	BTU_LB	ra_enth	AV:95	-9.6 to 334.2	RA_ENTH
Return Air Temp Sensor	READ ONLY	°F	rat_loc	AV:291	-40 to 245	RAT_LOC
Return Air Temperature	R/W	°F	ra_temp	AV:1010	-40 to 245	RAT
RLV_A Resets Count	READ ONLY		rs_rlv_a	AV:456	0 to 65535	RS_RLV_A
RLV_A Starts	READ ONLY		st_rlv_a	AV:460	0 to 999999	ST_RLV_A
SAT Freeze Protection	R/W		satfzpro	AV:619	0 to 1	SATFZPRO
SA Tempering Setpoint	R/W	°F	sup_air_temp_setpt	AV:411	-20 to 60	SATEMPSP
Service Test Reset Count	READ ONLY		rs_stest	AV:116	0 to 65535	RS_STEST
Service Test Run Hours	READ ONLY	hrs	hour_serv_tst	AV:63	0 to 999999	HR_STEST
Service Test Starts	READ ONLY		st_stest	AV:151	0 to 999999	ST_STEST
Setpoint Adjustment	R/W	°F delta	setadj	AV:6021	0 to 1	SETADJ
Single Zone Setpoint	R/W	°F	zonespt	AV:6001	55 to 80	ZONESPT

## APPENDIX E – BACNET POINTS LIST (cont)

**Table Y – Analog Value (AV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Space Cooling Demand	READ ONLY	°F delta	cool_dmd	AV:206	-100 to 100	COOL_DMD
Space Demand Time Guard1	R/W	sec	tdmd_tg1	AV:311	60 to 600	TDMD_TG1
Space Demand Time Guard2	R/W	sec	tdmd_tg2	AV:186	0 to 600	TDMD_TG2
Space Demand Time Guard3	R/W	min	tdmd_tg3	AV:187	5 to 120	TDMD_TG3
Space RH	R/W	%	space_rh	AV:1011	0 to 100	SPRH
Space RH Deadband	R/W	%	sprh_db	AV:368	0 to 100	SPRH_DB
Space Temperature	R/W	°F	space_t	AV:296	-40 to 245	SPACE_T
Space Temperature Offset	R/W	°F delta	stpt_adj	AV:1006	-5.0 to 5.0	SPTO
Space Temperature Sensor	READ ONLY	°F	spt_loc	AV:297	-40 to 245	SPT_LOC
SPRH Sensor Value @ 20mA	R/W	%	sprh_20ma	AV:373	0 to 100	SPRH20MA
SPRH Sensor Value @ 4mA	R/W	%	sprh_4ma	AV:375	0 to 100	SPRH_4MA
SPT Offset Range (±)	R/W	°F	spto_rng	AV:298	-0.0 to 5.0	SPTO_RNG
Std Barometric Pressure	R/W	IN_HG_OF_KPAG	std_bar_p	AV:303	10 to 35	STD_BARP
Supply Air Temp Trend	READ ONLY		sattrend	AV:342	-285 to 285	SATTREND
Supply Air Temperature	READ ONLY	°F	sa_temp	AV:1008	-40 to 245	SAT
System Demand	READ ONLY		sys_demand	AV:37	0 to 255	SYS_DMD
System ODF Speed Test	R/W	RPM	s_odfspd	AV:123	160 to 1100	S_ODFSPD
System Touch AI for SPRH	R/W		aistsprh	AV:8027	0 to 9999	AISTSPRH
System Touch AI for SPT	R/W		aistspt	AV:8026	0 to 9999	AISTSPT
System Touch Device Inst	R/W		devst	AV:8024	0 to 4194303	DEVST
System Touch Poll Rate	R/W		pollst	AV:8025	10 to 60	POLLST
System Touch RH Value	R/W	%	strh_net	AV:8022	0 to 100	STRH_NET
System Touch Temp Value	R/W	°F	stst_net	AV:8023	-40 to 245	STST_NET
T24 Heat/Cool End Delay	R/W	min	t24chdly	AV:305	0 to 60	T24CHDLY
T24 Min Diff in RAT-OAT	R/W	°F	t24ratdf	AV:307	5 to 20	T24RATDF
T24 Test Maximum Pos	R/W	%	t24tstmx	AV:310	0 to 100	T24TSTMX
T24 Test Minimum Pos	R/W	%	t24tstmn	AV:309	0 to 100	T24TSTMN
T24Econ Min Move for SAT	R/W	%	t24ecsts	AV:306	0 to 100	T24ECSTS
Time When SAT Below SATL	R/W	min	satremtm	AV:8071	0 to 30	SATREMTM
Timed Override Duration	R/W	hrs	otl_cfg	AV:179	0 to 4	OTL_CFG
Timed Override Hours	R/W	min	ovr_ext	AV:180	0 to 600	OVR_EXT
UFC Preocc Time	R/W	min	ufctime	AV:105	120 to 999	UFCTIME
Unit Full Load Run Hours	READ ONLY	hrs	hour_full_ld	AV:52	0 to 999999	HR_FLOAD
Unit Full Load Starts	READ ONLY		st_fload	AV:140	0 to 999999	ST_FLOAD
Unit's Minimum SAT	R/W	°F	umin_sat	AV:617	-40 to 245	UMIN_SAT
Unit Startup Delay	R/W	sec	startdly	AV:153	10 to 600	STARTDLY
Unocc Free Cool Low Temp	R/W	°F	oatlufc	AV:287	-30 to 70	OATLUFC
Unoccupied Cool Setpoint	R/W	°F	ucsp	AV:8	55.0 to 99.0	UCSP
Unoccupied Heat Setpoint	R/W	°F	uhsp	AV:178	40 to 99	UHSP
Unoccupied Setpoint Gap	R/W		udb	AV:6004	2 to 10	UDB
Unoccupied SPRH Setpoint	R/W	%	sprh_usp	AV:461	0 to 100	SPRH_USP
Unoccupied Zone Setpoint	R/W	°F	usp	AV:6005	40 to 95	USP
User Min Pos Pnt 1 Valid	READ ONLY		mp_upt1	AV:332	0 to 1	MP_UPT1
User Min Pos Pnt 2 Valid	READ ONLY		mp_upt2	AV:333	0 to 1	MP_UPT2
User Min Pos Pnt 3 Valid	READ ONLY		mp_upt3	AV:214	0 to 1	MP_UPT3
User Password	R/W		password	AV:181	0 to 9999	PASSWORD
Value of Prime variable	READ ONLY		prime_v	AV:39	-40 to 245	PRIME_V
Vent IDF Resets Count	READ ONLY		rs_ventf	AV:117	0 to 65535	RS_VENTF
Vent IDF Run Hours	READ ONLY	hrs	hour_vent_fan	AV:64	0 to 999999	HR_VENTF
Ventilation Fan Starts	READ ONLY		st_ventf	AV:152	0 to 999999	ST_VENTF
ZS Humidity Out	R/W	%	zs_humidity	AV:9091	0 to 100	ZSSPRH
Zone Sensor 1 Address	R/W		zsaddr1	AV:8034	0X00 to 0XFF	ZSADDR1
Zone Sensor 2 Address	R/W		zsaddr2	AV:8035	0X00 to 0XFF	ZSADDR2
Zone Sensor 3 Address	R/W		zsaddr3	AV:8036	0X00 to 0XFF	ZSADDR3
Zone Sensor 4 Address	R/W		zsaddr4	AV:8037	0X00 to 0XFF	ZSADDR4
Zone Sensor 5 Address	R/W		zsaddr5	AV:8038	0X00 to 0XFF	ZSADDR5
Zone Sensor CO2 Level	READ ONLY	PPM	ZSZCO2	AV:1906	0 to 5000	ZSZCO2
ZS Zone Temp	R/W	°F	ZSZoneTemp	AV:1905	-40 to 245	ZSZT
ZS Time Out	R/W	min	zsm_tmr	AV:9093	5 to 60	OCCSTDBY



## APPENDIX E — BACNET POINTS LIST (cont)

**Table Z — Binary Value (BV) Points**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
2-Position Damper/ERV Relay	R/W		erv_2pos	BV:6002	0 to 1	ERV_2POS
2-Position/ERV Relay Test	R/W		s_erv2p	BV:457	0 to 1	S_ERV2P
A051 Cmp Off Expected ON	R/W		a_caoff	BV:181	0 to 1	
Act Mech Disconnect Alert	R/W		a_dnmemd	BV:218	0 to 1	
Air Quality CO2 Alerts	R/W		co2s_al	BV:307	0 to 1	CO2S_AL
Alarm Output Relay State	R/W		equip_alarm	BV:7048	0 to 1	ALMOUT
Alarm Output Relay Test	R/W		s_alarm	BV:70	0 to 1	S_ALARM
Alarm Reporting Enable	R/W		ALARMEN	BV:27	0 to 1	ALARMEN
ALC Auto Id Scheme	R/W		auid	BV:106	0 to 1	AUID
Alert on Envelope Hi/Lo	R/W		envaldis	BV:615	0 to 1	ENVALDIS
All Heat Stages Lockout	R/W		allhtloc	BV:122	0 to 1	ALLHTLOC
Auto Independent Test	R/W		autoindp	BV:163	0 to 1	AUTOINDP
BACnet ID Auto ID	R/W		bac_auid	BV:107	0 to 1	BAC_AUID
BACnet Cal Object Status	READ ONLY		calobjst	BV:110	0 to 1	CALOBJST
Bad DD Point - Out of Range	R/W		f_bad_dd	BV:243	0 to 1	
CA1 DDF Fault	R/W		f_ca1ddf	BV:178	0 to 1	
CA1 FTP Alert	R/W		a_ca1ftp	BV:182	0 to 1	
CA1 Rev Rotation Alert	R/W		a_ca1rr	BV:179	0 to 1	
CCH Relay 1 State	READ ONLY		cch_relay	BV:3	0 to 1	CCHR1
Circuit A DDF Fault	R/W		f_caddf	BV:168	0 to 1	
Circuit A HDP alert	R/W		a_cahdp	BV:172	0 to 1	
Circuit A HDT Alert	R/W		a_cahdt	BV:154	0 to 1	
Circuit A HPS alert	R/W		a_cahps	BV:171	0 to 1	
Circuit A LDP Alert	R/W		a_caldp	BV:236	0 to 1	
Circuit A LSP Alert	R/W		a_calsp	BV:170	0 to 1	
Circuit A Press Ratio Alert	R/W		a_capr	BV:169	0 to 1	
Circuit A SSP out Rng Alert	R/W		a_badspa	BV:189	0 to 1	
Circuit A High Env Alert	R/W		a_cahiev	BV:9012	0 to 1	
Circuit A Low Env Alert	R/W		a_caloev	BV:9013	0 to 1	
Circuit A SDP Open Alert	R/W		a_opndpa	BV:191	0 to 1	
Circuit A SDP range alert	R/W		a_baddpa	BV:183	0 to 1	
Circuit A SDP Short Alert	R/W		a_shtdpa	BV:202	0 to 1	
Circuit A SSP Open Alert	R/W		a_opnsdp	BV:200	0 to 1	
Circuit A CMP A1 Loader	READ ONLY		cmpalena	BV:9	0 to 1	COMP_ALD
Circuit A Compressor 1	READ ONLY		cmpa1ena	BV:5	0 to 1	COMP_A1
Circuit A Locked Out	READ ONLY		ciralock	BV:128	0 to 1	CIRALOCK
Circuit A SSP Shrt Alert	R/W		a_shtspa	BV:211	0 to 1	
Clear Alarm History	R/W		alarm_hist_clear	BV:32	0 to 1	ALHISCLR
COFS Switch State	R/W		condensate_switch	BV:7028	0 to 1	COFS
Comp Hi Envelope Active	READ ONLY		cmphienv	BV:613	0 to 1	CMPHIENV
Comp Lo Envelope Active	READ ONLY		cmploenv	BV:614	0 to 1	CMPLOENV
Compressor A1 Available	READ ONLY		ca1_aval	BV:123	0 to 1	CA1_AVAL
Compressor A1 Locked Out	READ ONLY		ca1_lock	BV:124	0 to 1	CA1_LOCK
Compressor Alerts	R/W		comp_alarm	BV:312	0 to 1	COMP_AL
Compressor Bump A1 Test	R/W		s_bmpa1	BV:71	0 to 1	S_BMPA1
Compressor Stuck on Fault	R/W		f_cstuck	BV:241	0 to 1	
Condensate Overflow fault	R/W		f_cofs	BV:273	0 to 1	
Cool Demand Limiting	R/W		cooldmdLimit	BV:435	0 to 1	CDMLMOFF
Cooling Liquid Valve Test	R/W		s_clv_a	BV:456	0 to 1	S_CLV_A
Cooling Liquid Valve Circuit A	R/W		clv_a	BV:7052	0 to 1	CLV_A
Crankcase Heater 1 Test	R/W		s_cchr1	BV:73	0 to 1	S_CCHR1
Currently Occupied	R/W		occ_status	BV:2008	0 to 1	OCCUPIED
Damper Feedback - Out of Range	R/W		a_badec1	BV:184	0 to 1	
Damper Feedback Short Alert	R/W		a_shtec1	BV:203	0 to 1	
Damper Not Mod Alert	R/W		a_dnm	BV:215	0 to 1	
Damper Stuck Closed Alert	R/W		a_dnm_sc	BV:216	0 to 1	
Damper Stuck Open Alert	R/W		a_dnm_so	BV:217	0 to 1	
Diff. Dry Bulb Control	R/W		dif_db_ena	BV:41	0 to 1	DIFFBULB
Diff. Enthalpy Control	R/W		dif_enth_ena	BV:42	0 to 1	DIFFENTH
Dirty Filter Alert	R/W		a_dfilt	BV:214	0 to 1	

## APPENDIX E – BACNET POINTS LIST (cont)

**Table Z – Binary Value (BV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Dirty Filter Alerts	R/W		filter_alarm	BV:7017	0 to 1	FILT_AL
Dmpr Feedback Open Cir Alert	R/W		a_opnec1	BV:192	0 to 1	
Dry Bulb Lockout	R/W		db_lock_out	BV:40	0 to 1	DBLOCK
DST Allowed?	R/W		dst_cfg	BV:93	0 to 1	DST_CFG
DST Currently Active	READ ONLY		dst_actv	BV:92	0 to 1	DST_ACTV
Econ Damper Calibration	R/W		s_ecocal	BV:9008	0 to 1	S_ECOCAL
Econ Damper Operational	READ ONLY		damp_good	BV:39	0 to 1	DAMPGOOD
Econ Actual Position	R/W		dmpr_err	BV:21	0 to 1	DAMP_ERR
Economizer Alerts	R/W		econ_alarm	BV:43	0 to 1	ECON_AL
Economizer Cooling	R/W		a_t24ewc	BV:226	0 to 1	
Economizer Installed?	R/W		econo_cfg	BV:131	0 to 1	ECONO
Economizer Not Cooling	R/W		a_t24enc	BV:224	0 to 1	
Enthalpy Lockout	R/W		enth_lock_out	BV:44	0 to 1	ENTHLOCK
Excess Outside Air Alert	R/W		a_t24eoa	BV:225	0 to 1	
Fan Off When Cmded On	R/W		f_idfoff	BV:230	0 to 1	
Fan On When Cmded Off	R/W		f_idfon	BV:231	0 to 1	
Fan On When Occupied	R/W		occupied_fan	BV:46	0 to 1	FANON_OC
FBDH SAT Locked Out	READ ONLY		fbdsatlo	BV:439	0 to 1	FBDSATLO
FBDH SST Locked Out	READ ONLY		fbdsstlo	BV:440	0 to 1	FBDSTLO
Filter Status Switch	R/W		flt_status	BV:1016	0 to 1	FILTSTAT
Fire Shutdown Fault	R/W		f_fire	BV:242	0 to 1	
Fire Shutdown Switch	R/W		firedown	BV:112	0 to 1	FIREDOWN
FST Open Circuit Alert	R/W		a_opnfst	BV:193	0 to 1	
FST Out of Range Alert	R/W		a_badfst	BV:185	0 to 1	
FST Sensor Error	R/W		fst_error	BV:49	0 to 1	FST_ERR
FST Short Circuit Alert	R/W		a_shtfst	BV:204	0 to 1	
General Status alert	R/W		a_gensw	BV:244	0 to 1	
General Status Alerts	R/W		gens_al	BV:309	0 to 1	GENS_AL
General Status fault	R/W		f_gensw	BV:265	0 to 1	
General Status Switch	R/W		gen_status	BV:50	0 to 1	GENSTAT
Hardware Failures Alerts	R/W		hw_al	BV:305	0 to 1	HW_AL
Heat Stage 1 Available	READ ONLY		ht1_aval	BV:16	0 to 1	HT1_AVAL
Heat Stage 1 Relay	READ ONLY		hs1	BV:10	0 to 1	HEAT_1
Heat Stage 2 Available	READ ONLY		ht2_aval	BV:17	0 to 1	HT2_AVAL
Heat Stage 2 Relay	READ ONLY		hs2	BV:11	0 to 1	HEAT_2
Heat Demand Limiting	R/W		heatdmdLimit	BV:370	0 to 1	HDMLMOFF
Heating Failure Alerts	R/W		heat_al	BV:306	0 to 1	HEAT_AL
Heating Stage 1 Test	R/W		s_heat1	BV:76	0 to 1	S_HEAT1
Heating Stage 2 Test	R/W		s_heat2	BV:77	0 to 1	S_HEAT2
Hi Temp Min Speed Lockout	READ ONLY		hamn_lck	BV:609	0 to 1	HAMN_LCK
Humidimizer Status	R/W		humz_en	BV:7010	0 to 1	HUMZ_EN
IAQ Open Circuit Alert	R/W		a_opniaq	BV:194	0 to 1	
IAQ Override Enable	R/W		iaq_override_en	BV:445	0 to 1	IAQOVREN
IAQ Override Switch State	R/W		iaqoverride_switch	BV:7030	0 to 1	IAQ_OVRS
IAQ Preoccupancy Purge	R/W		iaqpurge	BV:20	0 to 1	IAQPURGE
IAQ Sensor Error	R/W		iaq_err	BV:51	0 to 1	IAQ_ERR
IAQ Short Circuit Alert	R/W		a_shtiaq	BV:205	0 to 1	
IDF Manual Limit Fault	R/W		f_idflsm	BV:278	0 to 1	
IDF Manual Transition	R/W		s_idftrn	BV:78	0 to 1	S_IDFTRN
IDF Operation Errors?	READ ONLY		idf_bad	BV:52	0 to 1	IDFBAD
IDF Speed Override Flag	READ ONLY		sfan_hand_alarm	BV:7009	0 to 1	FAN_OVRD
IDF Speed Reduction On	READ ONLY		fanred10	BV:7	0 to 1	FANRED10
IGC Fan On Request (IFO)	READ ONLY		igc_ifo	BV:13	0 to 1	IGC_IFO
Ignition Failure Alert	R/W		a_noign	BV:222	0 to 1	
In Preoccupancy Purge?	READ ONLY		preoccon	BV:38	0 to 1	PREOCCON
Indoor Fan Alerts	R/W		idf_alarm	BV:45	0 to 1	FAN_AL
Is IAQ Override Active?	READ ONLY		iaq_ovrd	BV:164	0 to 1	IAQ_OVRD
Linkage Active	READ ONLY		link_active	BV:58	0 to 1	LNK_ACT
Lo Temp Min Speed Lockout	READ ONLY		lamn_lck	BV:610	0 to 1	LAMN_LCK
Local Scheduled Occ Request	R/W		loc_occ	BV:95	0 to 1	LOC_OCC
Low Ambient Enable	R/W		loamben	BV:7053	0 to 1	LOAMB_EN

## APPENDIX E — BACNET POINTS LIST (cont)

**Table Z — Binary Value (BV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Low Discharge Diagnostic	R/W		disldpal	BV:469	0 to 1	DISLDPAL
Make Config Backup File	R/W		ddbckup	BV:129	0 to 1	DDBCKUP
MBB 24VDC Alert	R/W		a_mbb24d	BV:247	0 to 1	
MBB 5VDC Alert	R/W		a_mbb5dc	BV:248	0 to 1	
MBB EEPROM failure fault	R/W		f_mbbEEP	BV:267	0 to 1	
MBB Fuse 2 Fault	R/W		f_mbbf2	BV:268	0 to 1	
MBB Fuse 3 Fault	R/W		f_mbbf3	BV:269	0 to 1	
MBB Low Voltage Fault	R/W		f_mbblov	BV:270	0 to 1	
MBB Ref Volt Fail Fault	R/W		f_mbbref	BV:271	0 to 1	
MBB RNET Voltage Alert	R/W		a_mbb12d	BV:246	0 to 1	
MBB Zero Crossing Alert	R/W		a_mbb0x	BV:245	0 to 1	
Mechanical Cool Active?	READ ONLY		mechcool	BV:301	0 to 1	MECHCOOL
OACFM Alarm Relay	R/W		oacfm_rel_alarm	BV:371	0 to 1	OACFM_AL
OACFM Open Circuit Alert	R/W		a_opnoac	BV:276	0 to 1	
OACFM Short Circuit Alert	R/W		a_shtoac	BV:277	0 to 1	
OAQ Open Circuit Alert	R/W		a_opnoaq	BV:195	0 to 1	
OAQ Short Circuit Alert	R/W		a_shtoaq	BV:206	0 to 1	
OARH Open Circuit Alert	R/W		a_opnorh	BV:197	0 to 1	
OARH Sensor Error	R/W		oarh_err	BV:60	0 to 1	OARH_ERR
OARH Short Circuit Alert	R/W		a_shtorh	BV:208	0 to 1	
OAT Open Circuit Alert	R/W		a_opnoat	BV:196	0 to 1	
OAT Out of Range Alert	R/W		a_badoat	BV:186	0 to 1	
OAT Sensor Error	R/W		oat_error	BV:314	0 to 1	OAT_ERR
OAT Short Circuit Alert	R/W		a_shtoat	BV:207	0 to 1	
OAT Thermistor Alerts	R/W		oat_rel_alarm	BV:61	0 to 1	OATRL_AL
Occupied Standby	R/W		occstdby	BV:9094	0 to 1	OCCSTDBY
ODF Control to SDT	READ ONLY		vsodfen	BV:9015	0 to 1	VSODF_EN
ODF Hi Envelope Active	READ ONLY		lahisdmd	BV:611	0 to 1	LAHISDMD
ODF Lo Envelope Active	READ ONLY		lalosdmd	BV:612	0 to 1	LALOSDMD
ODF Manual Transition	R/W		s_odftrn	BV:81	0 to 1	S_ODFTRN
ODF Override Enable	R/W		odflaben	BV:7064	0 to 1	ODFLABEN
ODF Speed Relay Test	R/W		s_ofrspd	BV:6001	0 to 1	S_OFRSPD
Oil Recovery Process	READ ONLY		cmp_oraf	BV:9038	0 to 1	CMP_ORAF
OK to Fan Based Dehum	READ ONLY		oktofdb	BV:420	0 to 1	OKTOFBD
OK to Dehumidify?	READ ONLY		oktodhum	BV:422	0 to 1	OKTODHUM
OK to Preoccupancy Purge	READ ONLY		okpreocc	BV:35	0 to 1	OKPREOCC
OK to Run Heat	READ ONLY		oktoheat	BV:36	0 to 1	OKTOHEAT
OK to Supply Air Tempering	READ ONLY		oktotemp	BV:415	0 to 1	OKTOTEMP
OK to Unocc Free Cool?	READ ONLY		oktoufc	BV:37	0 to 1	OKTOUFC
OK to Use Compressors?	READ ONLY		okmechcl	BV:302	0 to 1	OKMECHCL
OK to Use Free Cooling?	READ ONLY		ok_free_cl	BV:65	0 to 1	OKFREECL
OK to Use Humidimizer	READ ONLY		oktohumz	BV:421	0 to 1	OKTOHUMZ
Outdoor Fan Override	READ ONLY		odf_ovr	BV:616	0 to 1	ODF_OVR
Outdoor Fan Speed Relay	R/W		ofr	BV:6000	0 to 1	OFR
Percent Enable/Disable	R/W		perc_bac	BV:303	0 to 1	PERC_BAC
Phase Monitor Fault	R/W		f_phmon	BV:279	0 to 1	
Power Exhaust 1 Relay	R/W		pe1	BV:15	0 to 1	PE1
Power Exhaust 1 Test	R/W		s_pe_1	BV:82	0 to 1	S_PE_1
Power Exhaust 2 Relay	R/W		pe2	BV:66	0 to 1	PE2
Power Exhaust 2 Test	R/W		s_pe_2	BV:83	0 to 1	S_PE_2
RARH Open Circuit Alert	R/W		a_opnrh	BV:199	0 to 1	
RARH Sensor Error	R/W		rarh_err	BV:67	0 to 1	RARH_ERR
RARH Short Circuit Alert	R/W		a_shtrrh	BV:210	0 to 1	
RAT Open Circuit Alert	R/W		a_opnrat	BV:198	0 to 1	
RAT out of Range Alert	R/W		a_badrat	BV:187	0 to 1	
RAT out of Range Alert	R/W		a_badsat	BV:188	0 to 1	
RAT Sensor Error	R/W		rat_err	BV:68	0 to 1	RAT_ERR
RAT Short Circuit Alert	R/W		a_shtrat	BV:209	0 to 1	
Refrig Circuit Alerts	R/W		circuit_alarm	BV:313	0 to 1	CKT_AL
Reheat Discharge Valve Cir.A	R/W		rdv_a	BV:7012	0 to 1	RDV_A
Reheat Liq Valve Relay Test	R/W		s_rlv_a	BV:455	0 to 1	S_RLV_A

## APPENDIX E — BACNET POINTS LIST (cont)

**Table Z — Binary Value (BV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Reheat Liquid Valve Circuit A	R/W		rlv_a	BV:7051	0 to 1	RLV_A
Remote Occupancy Switch	R/W		remocc	BV:29	0 to 1	REMOCC
Remote shutdown fault	R/W		f_remoft	BV:272	0 to 1	
Remote Shutdown Switch	R/W		rem_shut	BV:9001	0 to 1	REMSHUT
Reset All Current Alarms	R/W		alarm_reset	BV:33	0 to 1	ALRESET
Reset Filter Timer	R/W		reset_filter_timer	BV:109	0 to 1	RESETFLT
RH Sensor Failure Alert	R/W		rhs_al	BV:308	0 to 1	RHS_AL
Reheat Discharge Valve Relay Test	R/W		s_rdv_a	BV:282	0 to 1	S_RDV_A
Rollout without Heating	R/W		f_ronoht	BV:235	0 to 1	
Run Auto Cooling Test	R/W		autocool	BV:160	0 to 1	AUTOCOOL
Run Auto Heating Test	R/W		autoheat	BV:161	0 to 1	AUTOHEAT
Run Auto System Test	R/W		autosys	BV:162	0 to 1	AUTOSYS
Run Away Heat Fault	R/W		f_hstuck	BV:266	0 to 1	
SAT/RAT Sensor Alerts	R/W		sa_ra_alarm	BV:311	0 to 1	SATRATAL
SDPA Sensor Error	R/W		sdpa_err	BV:63	0 to 1	SDPA_ERR
Shut Down on IDF Failure	R/W		sfan_fail_alarm	BV:7008	0 to 1	FATALFAN
Smoke Evac with Damper	R/W		evacdamp	BV:9011	0 to 1	EVACDAMP
Smoke Evacuation Switch	R/W		evac	BV:9009	0 to 1	EVAC
Smoke Pressure Switch	R/W		pressure	BV:9010	0 to 1	PRESSURE
Smoke Purge Switch	R/W		purge	BV:80	0 to 1	PURGE
Space Sensors Alerts	R/W		space_alarm	BV:103	0 to 1	SPACE_AL
SPRH Open Circuit Alert	R/W		a_opnsrh	BV:274	0 to 1	
SPRH Short Circuit Alert	R/W		a_shtsrh	BV:275	0 to 1	
SPRH Sensor Error	R/W		sprh_err	BV:9090	0 to 1	SPTH_ERR
SPT Open Circuit Alert	R/W		a_opnspt	BV:201	0 to 1	
SPT Sensor Error	R/W		space_err	BV:7001	0 to 1	SPT_ERR
SPT Short Circuit Alert	R/W		a_shtspt	BV:212	0 to 1	
SPTO Sensor Error	R/W		stpt_err	BV:7002	0 to 1	SPTO_ERR
SPT Out of Range Alert	R/W		a_badspt	BV:190	0 to 1	
SSPA Sensor Error	R/W		sspa_err	BV:89	0 to 1	SSPA_ERR
Start Config Restore	READ ONLY		ddrstre	BV:130	0 to 1	DDRSTRE
Supply Air Temper Enable	R/W		sup_air_temp_en	BV:410	0 to 1	SATEMPEN
Temp Compensate Start On	READ ONLY		tcs_Act	BV:133	0 to 1	TCS_ACT
Thermostat Alerts	R/W		tstat_al	BV:104	0 to 1	TSTAT_AL
Thermostat G Input	R/W		g_input	BV:1021	0 to 1	G
Thermostat W1 Input	R/W		w1_input	BV:1017	0 to 1	W1
Thermostat W2 Input	R/W		w2_input	BV:1018	0 to 1	W2
Thermostat Y1 Input	R/W		y1_input	BV:1019	0 to 1	Y1
Thermostat Y2 Input	R/W		y2_input	BV:1020	0 to 1	Y2
Time Range Alert	R/W		a_notime	BV:237	0 to 1	
Today is a Holiday	READ ONLY		holtoday	BV:98	0 to 1	HOLTODAY
Tomorrow is a Holiday	READ ONLY		hol_tmrw	BV:96	0 to 1	HOL_TMRW
Transducer Sensor Alerts	R/W		trans_al	BV:310	0 to 1	TRANS_AL
TSTAT Adaptive Staging	R/W		adptstat	BV:115	0 to 1	ADPTSTAT
TSTAT Cool alert	R/W		a_impcl	BV:220	0 to 1	
TSTAT Heat alert	R/W		a_impht	BV:221	0 to 1	
TSTAT Heat Cool alert	R/W		a_simhc	BV:223	0 to 1	
Unocc Free Cool Active	READ ONLY		ufc_act	BV:135	0 to 1	UFC_ACT
USB Find Restore File	R/W		backfile	BV:111	0 to 1	BACKFILE
User Password Protection	R/W		pass_ebl	BV:100	0 to 1	PASS_EBL
ZS Motion Sensor	R/W		zs_motion	BV:9088	0 to 1	ZSZM

## APPENDIX E – BACNET POINTS LIST (cont)

**Table AA – Multi-State Values (MSV) Points**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Active Occupancy Control	READ ONLY		occ_ctrl	MSV:14	0 to 7	OCC_CTRL
ALM Relay Assigned Channel	R/W		alm_chan	MSV:9050	0 to 2	ALM_CHAN
Analog Input IAQ Control	R/W		iaqancfg	MSV:25	0 to 3	IAQANCFG
Backup and Restore	READ ONLY		bac_rest	MSV:44	0 to 1	
BACnet BMS baud rate	READ ONLY		bac_baud	MSV:18	0 to 5	BAC_BAUD
BAS Protocol Select	R/W		bms_cfg	MSV:11	0 to 2	BMS_CFG
BMS Occupancy Request	R/W		bms_occ	MSV:12	0 to 2	BMS_OCC
COFS Assigned Channel	R/W		cofschan	MSV:9039	0 to 7	COFSCHAN
COFS Switch Type	R/W		cofs_cfg	MSV:9051	0 to 1	COFS_CFG
Comp. Framework	R/W		sysvtype	MSV:2003	0 to 2	SYSVTYPE
Cool Demand Limit Level	R/W		cdlm_level	MSV:56	0 to 3	CDMDLLEV
Custom Cooling Response	R/W		cool_resp	MSV:9062	0 to 4	COOLRESP
Enthalpy Switch Channel	R/W		enthchan	MSV:9043	0 to 7	ENTHCHAN
Enthalpy Switch Type	R/W		enth_cfg	MSV:9055	0 to 1	ENTH_CFG
Fan Based Dehum Type	R/W		fbd_type	MSV:58	0 to 2	FBD_TYPE
Fan Status Channel	R/W		fnstchan	MSV:9045	0 to 7	FNSTCHAN
Fan Status Switch Type	R/W		fanstcfg	MSV:451	0 to 2	FANSTCFG
Filter Status Switch Channel	R/W		filter_channel	MSV:41	0 to 7	FILTCHAN
Filter Status Switch Type	R/W		filt_cfg	MSV:42	0 to 2	FILT_CFG
Fire Shutdown Switch Type	R/W		fire_cfg	MSV:9052	0 to 1	FIRE_CFG
Fire Switch Channel	R/W		firechan	MSV:9040	0 to 7	FIRECHAN
Firmware Release State	READ ONLY		fw_state	MSV:19	0 to 2	FW_STATE
General Status Channel	R/W		gen_chan	MSV:9046	0 to 7	GEN_CHAN
General Status Switch Type	R/W		gens_cfg	MSV:9057	0 to 2	GENS_CFG
Heat Demand Limit Level	R/W		hdlm_level	MSV:57	0 to 3	HDMDLLEV
Humidistat Status Channel	R/W		humdchan	MSV:9041	0 to 7	HUMDCHAN
Humidistat Switch Type	R/W		humd_cfg	MSV:9053	0 to 1	HUMD_CFG
IAQ Assigned Channel	R/W		iaq_channel	MSV:607	0 to 3	IAQ_CHAN
IAQ Override Switch channel	R/W		iaqo_sw_chan	MSV:444	0 to 7	IAQOCHAN
IAQ Override Switch Type	R/W		iaqoscfg	MSV:9058	0 to 2	IAQOSCFG
Keep Configuration	R/W		keepconf	MSV:47	0 to 2	KEEPCONF
Linkage Occupied Request	R/W		lnk_occ	MSV:13	0 to 2	LNK_OCC
OACFM Assigned Channel	R/W		ocfmchan	MSV:370	0 to 3	OACFMCHAN
OAQ Assigned Channel	R/W		oaq_channel	MSV:426	0 to 3	OAQ_CHAN
OARH Assigned Channel	R/W		oarh_channel	MSV:608	0 to 3	OARHCHAN
Operation Status Color	READ ONLY		color	MSV:9	0 to 15	COLOR
PE1 Assigned Relay	R/W		pe1_channel	MSV:365	0 to 2	PE1_CHAN
PE2 Assigned Relay	R/W		pe2_channel	MSV:366	0 to 2	PE2_CHAN
Phase Monitor Channel	R/W		pmr_chan	MSV:9042	0 to 7	PMR_CHAN
Phase Monitor Switch Type	R/W		pmr_cfg	MSV:9054	0 to 2	PMR_CFG
RARH Assigned Channel	R/W		rarrh_channel	MSV:33	0 to 3	RARHCHAN
Remote Occupancy Channel	R/W		rmocchan	MSV:46	0 to 7	RMOCCCHAN
Remote Occupancy Sw Type	R/W		rmoc_cfg	MSV:45	0 to 1	RMOCC_CFG
Remote Shutdown Channel	R/W		roffchan	MSV:9049	0 to 5	ROFFCHAN
Remote Shutdown Sw Type	R/W		roff_cfg	MSV:9061	0 to 255	ROFF_CFG
Running Mode Operation	READ ONLY		sub_mode	MSV:43	0 to 255	SUB_MODE
Smoke Evacuation Sw Chan	R/W		evacchan	MSV:9044	0 to 7	EVACCHAN
Smoke Evacuation Sw Type	R/W		evac_cfg	MSV:9056	0 to 1	EVAC_CFG
Smoke Pressure Sw Channel	R/W		preschan	MSV:9047	0 to 7	PRESCHAN
Smoke Pressure Sw Type	R/W		pres_cfg	MSV:9059	0 to 1	PRES_CFG
Smoke Purge Sw Channel	R/W		purgchan	MSV:9048	0 to 7	PURGCHAN
Smoke Purge Switch Type	R/W		purg_cfg	MSV:9060	0 to 1	PURG_CFG
SPRH Assigned Channel	R/W		sprhchan	MSV:372	0 to 3	SPRHCHAN
System Demand	READ ONLY		sys_demand_enum	MSV:101	0 to 9	SYS_DMDE
System Mode	READ ONLY		sys_mode	MSV:2002	0 to 9	SYSMODE
Test Inactivity Time Out	R/W		test_ito	MSV:156	0 to 2	TEST_ITO
Thermostat Hardware Type	R/W		tstat_type	MSV:5	0 to 3	STATTYPE
Type of Heat Installed	R/W		ht_type	MSV:16	0 to 2	HEATTYPE

## APPENDIX E — BACNET POINTS LIST (cont)

**Table AA — Multi-State Values (MSV) Points (cont)**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Unit Control Type	R/W		control_type	MSV:2	0 to 2	CTRLTYPE
Ventilation Method	R/W		venttype	MSV:453	0 to 4	VENTTYPE
Ventilation Status	READ ONLY		ventstat	MSV:6	0 to 9	VENTSTAT
When to Unocc Free Cool?	R/W		ufc_cfg	MSV:24	0 to 2	UFC_CFG
ZS Motion Sensor Config	R/W		zsm_cfg	MSV:9077	0 to 3	ZSM_CFG

**Table AB — String Value (SV) Points**

POINT DESCRIPTION	POINT ACCESS	UNITS	BACnet OBJECT NAME	BACnet ID	VALUE RANGE	CCN POINT EQUIVALENT
Application SW Version	READ ONLY		fw_cesr	String:0	a to z, A to Z, 0 to 9 and -	FW_CESR
BACnet Firmware Version	R/W		bac_fwv	String:0	a to z, A to Z, 0 to 9 and -	BAC_FWV
Base Board Serial Number	READ ONLY		bd_ser	String:0	a to z, A to Z, 0 to 9 and -	BD_SER
Bootloader SW Version	READ ONLY		bl_cesr	String:0	a to z, A to Z, 0 to 9 and -	BL_CESR
Device Description	READ ONLY		dev_desc	String:0	a to z, A to Z, 0 to 9 and -	DEV_DESC
Device Location	READ ONLY		dev_loc	String:0	a to z, A to Z, 0 to 9 and -	DEV_LOC
Equipment Model Number	READ ONLY		eq_mod	String:0	a to z, A to Z, 0 to 9 and -	EQ_MOD
Equipment Serial Number	READ ONLY		eq_ser	String:0	a to z, A to Z, 0 to 9 and -	EQ_SER
MBB Part Number	READ ONLY		bd_cepl	String:0	a to z, A to Z, 0 to 9 and -	BD_CEPL
MBB Program Part Number	READ ONLY		bd_cepp	String:0	a to z, A to Z, 0 to 9 and -	BD_CEPP
Program Location Property	R/W		progloc	String:0	a to z, A to Z, 0 to 9 and -	PROGLOC
Program Object Name	R/W		progname	String:0	a to z, A to Z, 0 to 9 and -	PROGNAME
Reference Number	READ ONLY		ref_num	String:0	a to z, A to Z, 0 to 9 and -	REF_NUM
Ventilation Status	READ ONLY		venttext	String:0	a to z, A to Z, 0 to 9 and -	VENTTEXT

## CONTROL SET POINT AND CONFIGURATION LOG

MODEL NO: \_\_\_\_\_  
 SERIAL NO: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 TECHNICIAN: \_\_\_\_\_

SOFTWARE VERSION: \_\_\_\_\_  
 MBB: CESR131691- \_\_\_\_\_

### INDICATE UNIT SETTINGS BELOW

CONTROL TYPE: Thermostat/T-55 Space Temp./T-56 Space Temp./T-59 Space Temp.

SETPOINT:           Cooling           Occupied: \_\_\_\_\_           Unoccupied: \_\_\_\_\_

                          Heating           Occupied: \_\_\_\_\_           Unoccupied: \_\_\_\_\_

**Table AC — Settings Main Menu Layout**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>SETTINGS</b>	Settings Menu					
<b>SPACE SET POINTS</b>	Space Setpoints Adjustment Menu					
<b>OCC COOL SETPOINT</b>	Occupied Cool Setpoint	55 to 80	°F	78	OCSP	
<b>OCC HEAT SETPOINT</b>	Occupied Heat Setpoint	55 to 80	°F	68	OHSP	
<b>UNOCC COOL SETPNT</b>	Unoccupied Cool Setpoint	65 to 95	°F	85	UCSP	
<b>UNOCC HEAT SETPNT</b>	Unoccupied Heat Setpoint	40 to 80	°F	60	UHSP	
<b>HEAT-COOL SP GAP</b>	Heat-Cool Setpoint Gap	2 to 10	°F	5	HCSP_GAP	
<b>SPT SLIDER RANGE</b>	SPT Offset Range (±)	0 to 5	°F	5	SPTO_RNG	
<b>OCC SPRH SETPOINT</b>	Occupied SPRH Setpoint	0 to 100	%	50	SPRH_OSP	
<b>UNOCC SPRH SET PT</b>	Unoccupied SPRH Setpoint	0 to 100	%	80	SPRH_USP	
<b>SPRH RH DEADBAND</b>	Space RH Deadband	2 to 20	%	8	SPRH_DB	
<b>SA TEMPERING SP</b>	SA Tempering Setpoint	30 to 80	°F	55	SATEMPSP	
<b>TEMP DEMAND CONFIG</b>	Temperature Demand Config Menu					
<b>LOW COOL DMD ON</b>	Low Cool Demand On	-1 to 2	°F	0.5	DMDLCON	
<b>HIGH COOL DMD ON</b>	High Cool Demand On	0.5 to 20	°F	1.5	DMDHCON	
<b>LOW COOL DMD OFF</b>	Low Cool Demand Off	-1 to 2	°F	-0.5	DMDLCOFF	
<b>COOL DMD LEVEL UP</b>	Cool Demand Level Up	-2 to 2	°F	-0.2	CDMD_LUP	
<b>LOW HEAT DMD ON</b>	Low Heat Demand On	-1 to 2	°F	0.5	DMDLHON	
<b>HIGH HEAT DMD ON</b>	High Heat Demand On	0.5 to 20	°F	2	DMDHHON	
<b>LOW HEAT DMD OFF</b>	Low Heat Demand Off	-1 to 2	°F	-0.5	DMDLHOFF	
<b>HEAT DMD LEVEL UP</b>	Heat Demand Level Up	-2 to 2	°F	-0.2	HDMD_LUP	
<b>DEMAND TIMEGUARD1</b>	Space Demand Time Guard1	60 to 600	sec	120	TDMD_TG1	
<b>DEMAND TIMEGUARD2</b>	Space Demand Time Guard2	0 to 600	sec	240	TDMD_TG2	
<b>DEMAND TIMEGUARD3</b>	Space Demand Time Guard3	5 to 120	min	10	TDMD_TG3	
<b>DMD LIMIT CONFIG</b>	Demand Limit Config					
<b>COOL DMD LIM LEV1</b>	Cool DMD Offset level 1	0 to 99	°F	1	CLDOLEV1	
<b>COOL DMD LIM LEV2</b>	Cool DMD Offset level 2	0 to 99	°F	3	CLDOLEV2	
<b>COOL DMD LIM LEV3</b>	Cool DMD Offset level 3	0 to 99	°F	5	CLDOLEV3	
<b>HEAT DMD LIM LEV1</b>	Heat DMD Offset level 1	0 to 99	°F	1	HTDOLEV1	
<b>HEAT DMD LIM LEV2</b>	Heat DMD Offset level 2	0 to 99	°F	3	HTDOLEV2	
<b>HEAT DMD LIM LEV3</b>	Heat DMD Offset level 3	0 to 99	°F	5	HTDOLEV3	
<b>CLOCK</b>	Clock Adjustment Menu					
<b>DATE</b>	Current Date	MM/DD/YYYY			DATE	
<b>TIME</b>	Clock Hour and Minute	xx:xx	hh.mm		TIME	
<b>DAYLIGHT SAVINGS</b>	Daylight Savings Config Menu					
<b>DAYLIGHT SAVINGS?</b>	DST Allowed?	Enable/Disable		Enable	DST_CFG	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>CLOCK (cont)</b>	Clock Adjustment Menu					
<b>DST START MONTH</b>	DST Start Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		3	STARTM	
<b>DST START WEEK</b>	DST Start Week	1 to 5		2	STARTW	
<b>DST START DAY</b>	DST Start Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		7	STARTD	
<b>DST MINS TO ADD</b>	DST Minutes to Add	0 to 90	min	60	MINADD	
<b>DST STOP MONTH</b>	DST Stop Month	1=JANUARY, 2=FEBRUARY, 3=MARCH, 4=APRIL, 5=MAY, 6=JUNE, 7=JULY, 8=AUGUST, 9=SEPTEMBER, 10=OCTOBER, 11=NOVEMBER, 12=DECEMBER		11	STOPM	
<b>DST STOP WEEK</b>	DST Stop Week	1 to 5		1	STOPW	
<b>DST STOP DAY</b>	DST Stop Day	1=MONDAY, 2=TUESDAY, 3=WEDNESDAY, 4=THURSDAY, 5=FRIDAY, 6=SATURDAY, 7=SUNDAY		7	STOPD	
<b>DST MINS TO SUB</b>	DST Minutes to Subtract	0 to 90	min	60	MINSUB	
<b>START TIME IN DAY</b>	Time in Day to Start DST	0 to 600	min	120	DST_TOD	
<b>SCHEDULES</b>	Schedules Adjustment Menu					
<b>SCHEDULE NUMBER</b>	CCN Schedule Number	0 = Always Occupied, 1-64 = Local Schedule, 65-99 = Global Schedule		0 = Always Occupied	SCHEDNUM	
<b>OCCUPANCY SCHEDULE</b>	Occupancy Schedule Data					
<b>HOLIDAY ADJUSTMENT MENU</b>	Holiday Adjustment Menu					
<b>ALLOW G. HOLIDAY?</b>	Accept Global Holidays?	Yes/No		No	HOLIDAYT	
<b>TIMED OVR LENGTH</b>	Timed Override Duration	0 to 4	hrs	4	OTL_CFG	
<b>CAN CANCEL T.OVR</b>	Allow SPT Override Cancel	Yes/No		No	CLROVCFG	
<b>UNIT CONFIGURATIONS</b>	Unit Configs Menu					
<b>GENERAL</b>	General Unit Configs Menu					
<b>STARTUP DELAY</b>	Unit Startup Delay	10 to 600	sec	30	STARTDLY	
<b>UNIT CONTROL TYPE</b>	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN		0=TSTAT	CTRLTYPE	
<b>THERMOSTAT TYPE</b>	Thermostat Hardware Type	0=CONV 2C2H, 1=DIGI 2C2H, 2=CONV 3C2H, 3=DIGI 3C2H		0=CONV 2C2H	STATTYPE	



## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>SCHEDULES (cont)</b>	Schedules Adjustment Menu					
<b>VENT METHOD</b>	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP 1: Economizer FIOP	VENTTYPE	
<b>2POS/ERV CHANNEL</b>	2-Position Damper/ERV Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06,		0	EV2PCHAN	
<b>ADAPTIVE TSTAT</b>	TSTAT Adaptive Staging	Yes/No		Yes	ADPTSTAT	
<b>DIRTY FILTER TIME</b>	Change Filter Timer	0 to 9999	hrs	0	FILT LIFE	
<b>TEST MODE TIMEOUT</b>	Test inactivity time out	0=Disabled, 1=30 minutes, 2=1 hour, 3=2 hours, 4=4 hours, 5=8 hours, 6=12 hours		4	TEST_ITO	
<b>CCH MAX TEMP</b>	CCH Max Temperature	40 to 90	°F	65	CCHMAXT	
<b>STD BARO PRESSURE</b>	Std Barometric Pressure	13 to 35	Hg	29.92	STD_BARP	
<b>LINK STAGEUP TIME</b>	Linkage Stage inc. time	60 to 600	sec	180	LSTAGINC	
<b>UNIT'S MAX SAT</b>	Unit's Maximum SAT	130 to 210	°F	200	UMAX_SAT	
<b>UNIT'S MIN SAT</b>	Unit's Minimum SAT	30 to 70	°F	32	UMIN_SAT	
<b>AUTO SAT FAULTS?</b>	Auto Clr SAT Limit Fault	Yes/No		No	SATLACLR	
<b>SA FREEZE PROTECT</b>	SAT Freeze Protection	Enable/Disable		Enable	SATFZPRO	
<b>ADAPTIVE TCS?</b>	Adaptive Temp Comp Start	Enable/Disable		Disable	TCS_CFG	
<b>USER TCS BIAS TIME</b>	User TCS Start Bias Time	0 to 180	min	0	TCSUBIAS	
<b>EVAC WITH DAMPER</b>	Smoke Evac with Damper	Yes/No		Yes	EVACDAMP	
<b>SWITCH INPUTS CONFIGS</b>	DI Config Menu					
<b>FIRE SW CHANNEL</b>	Fire Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 5: FIOP	FIRECHAN	
<b>FIRE SHUTDOWN SW</b>	Fire Shutdown Switch	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	FIRE_CFG	
<b>HUMSTAT CHANNEL</b>	Humidistat Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No Humidi-MiZer FIOP 7: Humidi-MiZer FIOP	HUMDCHAN	
<b>HUMSTAT SW TYPE</b>	Humidistat Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	HUMD_CFG	
<b>FILTER SW CHANNEL</b>	Filter Status Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 1: FIOP	FILTCHAN	
<b>FILTER SW TYPE</b>	Filter Status Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	FILT_CFG	
<b>REMOTE OCC CHAN</b>	Remote Occupancy Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=None	RMOCCHAN	
<b>REMOTE OCC TYPE</b>	Remote Occupancy Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	RMOC_CFG	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>SWITCH INPUTS CONFIGS (cont)</b>	DI Config Menu					
<b>REM.SHUTDOWN CHAN</b>	Remote Shutdown Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=None	ROFFCHAN	
<b>REM.SHUTDOWN SW T</b>	Remote Shutdown Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	ROFF_CFG	
<b>REM.SHUTDOWN TYPE</b>	Remote Shutdown ALM Type	0=Normal, 1=Emergency		0=Normal	ROFFTYPE	
<b>COFS CHANNEL</b>	COFS Assigned Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 4: FIOP	COFSCHAN	
<b>COFS TYPE</b>	COFS Switch Type	0=NORM OPEN, 1=NORM CLSD		1=NORM CLSD	COFS_CFG	
<b>GEN STATUS CHAN</b>	General Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=None	GEN_CHAN	
<b>GEN STAT SW TYPE</b>	General Status Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	GENS_CFG	
<b>SHUTDOWN GEN STAT</b>	General Status Shutdown?	Yes/No		Yes	GENFATAL	
<b>ENTHALPY SW CHAN</b>	Enthalpy Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	ENTHCHAN	
<b>ENTHALPY SW TYPE</b>	Enthalpy Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	ENTH_CFG	
<b>FAN STAT CHANNEL</b>	Fan Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	FNSTCHAN	
<b>FAN STAT SW CFG</b>	Fan Status Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	FANSTICFG	
<b>IAQ OVERRIDE SW CH</b>	IAQ Override Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	IAQOCHAN	
<b>IAQ OVRRD SW TYPE</b>	IAQ Override Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	IAQOSCFG	
<b>PHASE MON CHANNEL</b>	Phase Monitor Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 3: FIOP	PMR_CHAN	
<b>PHASE MON SW TYPE</b>	Phase Monitor Switch Type	0=NORM OPEN, 1=NORM CLSD		1=NORM CLSD	PMR_CFG	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>SWITCH INPUTS CONFIGS (cont)</b>	DI Config Menu					
<b>SMOKE PURGE CHAN</b>	Smoke Purge Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	PURGCHAN	
<b>SMOKE PURGE TYPE</b>	Smoke Purge Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	PURG_CFG	
<b>SMOKE PRESS CHAN</b>	Smoke Pressure Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	PRESCHAN	
<b>SMOKE PRESS TYPE</b>	Smoke Pressure Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	PRES_CFG	
<b>SMOKE EVAC CHAN</b>	Smoke Evacuation Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	EVACCHAN	
<b>SMOKE EVAC TYPE</b>	Smoke Evacuation Switch Type	0=NORM OPEN, 1=NORM CLSD		0=NORM OPEN	EVAC_CFG	
<b>ANALOG INPUT CONFIGS</b>	Analog Inputs Config Menu					
<b>SPRH SENS CHANNEL</b>	SPRH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	SPRHCHAN	
<b>SPRH RH @ 4MA</b>	SPRH Sensor Value @ 4mA	0 to 100	%	0	SPRH_4MA	
<b>SPRH RH @ 20MA</b>	SPRH Sensor Value @ 20mA	0 to 100	%	100	SPRH20MA	
<b>IAQ SENSOR CHAN</b>	IAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: No FIOP 2: FIOP	IAQ_CHAN	
<b>IAQ PPM @ 4MA</b>	IAQ Sensor Value @ 4mA	0 to 5000	PPM	0	IAQ_4MA	
<b>IAQ PPM @ 20MA</b>	IAQ Sensor Value @ 20mA	0 to 5000	PPM	2000	IAQ_20MA	
<b>OAQ SENSOR CHAN</b>	OAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	OAQ_CHAN	
<b>OAQ PPM @ 4MA</b>	OAQ Sensor Value @ 4mA	0 to 5000	PPM	0	OAQ_4MA	
<b>OAQ PPM @ 20MA</b>	OAQ Sensor Value @ 20mA	0 to 5000	PPM	2000	OAQ_20MA	
<b>OARH SENSOR CHAN</b>	OARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: No FIOP 3: FIOP	OARHCHAN	
<b>OARH RH @ 4MA</b>	OARH Sensor Value @ 4mA	0 to 100	%	0	OARH_4MA	
<b>OARH RH @ 20MA</b>	OARH Sensor Value @ 20mA	0 to 100	%	100	OARH20MA	
<b>RARH SENS CHANNEL</b>	RARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	RARHCHAN	
<b>RARH RH @ 4MA</b>	RARH Sensor Value @ 4mA	0 to 100	%	0	RARH_4MA	
<b>RARH RH @ 20MA</b>	RARH Sensor Value @ 20mA	0 to 100	%	100	RARH20MA	
<b>OACFM SENSOR CHAN</b>	OACFM Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	OACFMCHAN	
<b>OACFM @ 4MA</b>	OACFM Value @ 4MA	0 to 2000	CFM	0	OACFM_4MA	
<b>OACFM @ 20MA</b>	OACFM Value @ 20mA	2000 to 5000	CFM	2000	OACFM20MA	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>COOLING</b>	Cooling Configs Menu					
<b>COOLING RESPONSE</b>	Custom Cooling Response	0=FASTER, 1=FAST, 2=MEDIUM, 3=SLOW, 4=SLOWER		2=MEDIUM	COOLRESP	
<b>COMP MIN ON TIME</b>	Compressor Min On Time	180 to 600	sec	300	C_MINON	
<b>COMP MIN OFF TIME</b>	Compressor Min Off Time	120 to 600	sec	180	C_MINOFF	
<b>STRIKE CLEAR TIME</b>	Runtime to Reset Strikes	120 to 999	sec	300	MIN_ON_S	
<b>UPPER MIN SAT</b>	Cool Min SAT Upper Level	35.0 to 65.0	°F	50	SATMIN_H	
<b>LOWER MIN SAT</b>	Cool Min SAT Lower Level	35.0 to 65.0	°F	43	SATMIN_L	
<b>COOL FANOFF DELAY</b>	Cooling Fan-Off Delay	0 to 600	sec	75	COOL_FOD	
<b>DEHUMIDIFICATION</b>	Dehumidification					
<b>REHEAT EQUIPPED</b>	Humidimizer Equipped	Yes/No		No: No Humidi-MiZer FIOF Yes: Humidi-MiZer FIOF	HUMZ_EN	
<b>REHEAT OAT LIMIT</b>	Humidimizer Lockout Temp	-20 to 75	°F	40	OATLHUMZ	
<b>REHEAT SDT TARGET</b>	Humidimizer SDT Setpoint	75 to 150		90	HUM_SDT	
<b>FAN BASED DEHUM</b>	Fan Based Dehum CFG Menu					
<b>FBD CONTROL TYPE</b>	Fan Based Dehum Type	0=NONE, 1=Comfort, 2=Max		0=NONE	FBD_TYPE	
<b>FBD COOL DELTA</b>	FBDH Low Setpoint	-20 to 0	°F delta	-2.5	FBDLO_SP	
<b>FBD MAX SST SP</b>	FBDH Max Mode SST SP	20 to 60	°F	38	FBDSSSTSP	
<b>FBD SST MIN VALUE</b>	FBDH Min SST Threshold	10 to 60	°F	32	FBDH_SST	
<b>FBD CMFT SAT SP</b>	FBDH Comfort SAT Setpoint	35 to 80	°F	46	FBDH_SAT	
<b>FBD CMFT SAT DT</b>	FBD Comfort SAT Delta	0 to 30	°F	11	FBDSDTDT	
<b>FBD MIN FAN SPD</b>	FBDH Min Fan Speed	0 to 5000	RPM	810: Size 04 840: Size 05 1054: Size 06	FDRPMMIN	
<b>FBD MAX FAN SPD</b>	FBDH Max Fan Speed	0 to 5000	RPM	1890: Size 04 Standard Static Fan 2190: Size 04 Medium Static Fan 2490: Size 04 High Static Fan 1900: Size 05 Standard Static Fan 2170: Size 05 Medium Static Fan 2660: Size 05 High Static Fan 2150: Size 06 Standard Static Fan 2390: Size 06 Medium Static Fan 2836: Size 06 High Static Fan	FDRPMMAX	
<b>LOW AMBIENT</b>	Low Ambient Configs Menu					
<b>CIR.A LOCKOUT OAT</b>	Circuit A Lockout Temp	-20 to 75	°F	0	OATLCMPA	
<b>LO TEMP SPD TEMP</b>	Lo Temp Cmp Min Speed Temp	0 to 50	°F	25	LACMPTMP	
<b>LOW AMBIENT TEMP</b>	Low Ambient Temperature	0 to 80	°F	64	LA_TEMP	
<b>MIN COOL LOCK SPD</b>	Lo Temp Comp Min Temp	900 to 4000	RPM	3400	LACPMNSP	
<b>LO AMB SDT TARGET</b>	Low Ambient SDT Setpoint	60 to 160		90	LA_SDT	
<b>CHARGE DIAGNOSTICS</b>	Refrigerant Charge Diagnostic Config Menu					
<b>LOW CHARGE LEVEL</b>	Low Refrigerant Charge Level	0 to 150	PSI	50	LOCHARGE	
<b>NO LOW CHARGE OAT</b>	Low Charge Disable Temp	-40 to 50	°F	10	LOCH_LOT	
<b>CIR.A SDP LIMIT</b>	Circuit A High Pressure Limit	400 to 700	PSI	640	HIPLIM_A	
<b>LOW DISCHRG DIAG</b>	Low Discharge Diagnostic	0 to 1		0	DISLDPAL	
<b>LOW SUCTION DIAG.</b>	Low Suction Diagnostic Config Menu					
<b>LOW SUC OK TEMP</b>	Suction OK Temperature	10 to 50	°F	18	SSTOK	
<b>LOW SUC LEVEL 1</b>	Low Suction Level 1 Temp	10 to 50	°F	20	SSTLEV1	
<b>LOW SUC LEVEL 2</b>	Low Suction Level 2 Temp	5 to 50	°F	15	SSTLEV2	
<b>LOW SUC LEVEL 3</b>	Low Suction Level 3 Temp	0 to 50	°F	10	SSTLEV3	
<b>LO SUC DIAG DELAY</b>	Delay On Low SST Check	0 to 300	sec	0	SSTCKDLY	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>COMPRESSOR TRANSITION</b>	Compressor Transition Diagnostic Config Menu					
<b>COMP L2 DIAG DLY</b>	Comp Level 2 Diag Delay	1 to 300	sec	45	CDDTLEV2	
<b>DIAG. COMP OFF<sup>a</sup></b>	Diag Comp Unexpected Off	Enable/Disable		Disable	CD_UEOFF	
<b>CIR STUCK ON DIAG</b>	Circuit Stuck On Diag.	Enable/Disable		Disable	DCKTOFF	
<b>CIR.A MIN DIS.P</b>	Min Discharge Change	0 to 99	PSI	8	MDP_DISA	
<b>CIR.A MIN SUC.P</b>	Min Suction Change	0 to 99	PSI	10	MDP_SUCA	
<b>OFF P.RATIO</b>	Circuit A P.Ratio Off Change	-1 to 1		-0.3	OFFPR_A	
<b>COMPRESSOR CONFIGURATION</b>	Compressor Config Menu					
<b>COMP MAX SPEED</b>	Compressor Maximum Speed	900 to 6000	RPM	6000	CMPMAXSP <sup>b</sup>	
<b>COMP START SPEED</b>	Compressor Start Speed	900 to 5000	RPM	2000	CMPSTSPD	
<b>HI TEMP SPD TEMP</b>	Hi Temp Cmp Min Speed Temp	80 to 150	°F	110	HACMPTMP	
<b>HI TEMP CMP SPEED</b>	Hi Temp Comp Min Speed	900 to 4000	RPM	2700	HACPMNSP	
<b>OFFSET ON HI ENV.</b>	Offset From Hi Envelope	0 to 100	°F	4	CMPSDTHI	
<b>OFFSET ON LO ENV.</b>	Offset From Lo Envelope	0 to 100	°F	4	CMPSDTLO	
<b>ALERT ON ENVELOPE</b>	Alert on Envelope Hi/Lo	Enable/Disable		Enable	ENVALDIS	
<b>OIL RECOVERY TRIP</b>	Oil Recovery Trip Speed	0 to 10000	RPM	1800	CMP_ORAS	
<b>OIL RECOVERY SPD</b>	Oil Recovery Run Speed	0 to 10000	RPM	3600	CMP_ORRS	
<b>OIL RECOVERY TIME</b>	Oil Recovery Duration	0 to 3600	sec	300	CMP_ORRT	
<b>RAMP UP PER SEC</b>	Comp Ramp Up Rate per Second	58 to 1000	RPM	62	CMPRAMPU	
<b>RAMP DOWN PER SEC</b>	Comp Ramp Down Rate per Second	58 to 1000	RPM	152	CMPRAMPD	
<b>HEATING</b>	Heating Config Menu					
<b>UNIT TYPE OF HEAT</b>	Type of Heat Installed	0=ELECTRIC, 1=GAS			HEATTYPE	
<b>HEATING STAGE QTY</b>	Number of Heating Stages	0 to 2		Heating stage QTY default is: 2: all except below 0: 50 Series without FIOP heaters 1: 48 Series Low heat, Low Nox Gas Heat, 48JC 05-06 Med Heat, 50JC 04-06 Low Heat, 50JC 04-05 Med Heat, 50JC 04 High Heat 230v and 460v, 50JC 05 High Heat 230v, 50JC 06 Med Heat 460v and 575v	NUMHSTGS	
<b>HEAT MIN ON</b>	Heat Minimum On Time	60 to 600	sec	120	H_MINON	
<b>HEAT MIN OFF</b>	Heat Minimum Off Time	60 to 600	sec	120	H_MINOFF	
<b>HEAT STAGEUP TIME</b>	Heat Stage Increase Time	120 to 999	sec	450	HSTAGINC	
<b>HEAT SATTREND LEV</b>	Heating SAT Trend Level	-1 to 1		0.2	SAT_TLH	
<b>LOWER MAX SAT</b>	Heat Max SAT Lower Level	85 to 200	°F	140	SATMAX_L	
<b>UPPER MAX SAT</b>	Heat Max SAT Upper Level	85 to 200	°F	170	SATMAX_H	
<b>HEAT FANOFF DELAY</b>	Heating Fan-Off Delay	10 to 600	sec	30 (50 series) 45 (48 series)	HEAT_FOD	
<b>HEAT LOCKOUT OAT</b>	Heating Lockout Temp	40 to 125	°F	75	OATLHEAT	
<b>SAT DURING HEAT?</b>	SAT Heat Mode Sensing	Enable/Disable		Enable	SAT_HEAT	
<b>IGC IFO TIMEOUT</b>	No IGC IFO input Timeout	0 to 60	min	5	NO_IGCTM	
<b>PREHEAT W/O IDF?</b>	Pre-Heat HX without IDF?	Enable/Disable		Disable	PREHT_HX	
<b>PREHEAT FAN DELAY</b>	Pre-Heat Fan On Delay	0 to 120	sec	30	PREHT_TM	
<b>SA TEMPER ENABLED</b>	Supply Air Temper Enable	Yes/No		No	SATEMPEN	
<b>SA TEMPERING SP</b>	SA tempering Setpoint	20 to 60	°F	55	SATEMPSP	
<b>TEMPER MAX OAT</b>	Max OAT for SA tempering	40 to 125	°F	65	OATSTEMP	
<b>INDOOR FAN</b>	Indoor Fan Configs Menu					
<b>OCCUPIED FAN?</b>	Fan On When Occupied	Yes/No		Yes	FANON_OC	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>COOL DESIGN SPEED</b>	Cooling Design Point Speed	0 to 3000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	IDFDGSPD	
<b>IDF VENT SPD</b>	IDF Vent Speed = RPM	0 to 5000	RPM	737: Size 04 Standard Static Fan 854: Size 04 Medium Static Fan 971: Size 04 High Static Fan 741: Size 05 Standard Static Fan 847: Size 05 Medium Static Fan 1038: Size 05 High Static Fan 839: Size 06 Standard Static Fan 932: Size 06 Medium Static Fan 1106: Size 06 High Static Fan	RPM_VENT	
<b>IDF HEAT SPD</b>	IDF Heat Speed = RPM	0 to 5000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	RPM_HEAT	
<b>IDF FREE COOL SPD</b>	IDF Free Cool Speed = RPM	0 to 3000	RPM	1106: Size 04 Standard Static Fan 1281: Size 04 Medium Static Fan 1457: Size 04 High Static Fan 1112: Size 05 Standard Static Fan 1269: Size 05 Medium Static Fan 1556: Size 05 High Static Fan 1258: Size 06 Standard Static Fan 1398: Size 06 Medium Static Fan 1659: Size 06 High Static Fan	RPM_FCL	
<b>IDF MAX SPEED</b>	IDF Maximum Fan Speed	0.8 to 1	%	100	SPEEDMAX	
<b>FAULT ON ERROR</b>	Shut Down on IDF Failure	Yes/No		Yes	FATALFAN	
<b>OUTDOOR FAN</b>	Out Fan Configs Menu					
<b>ODF MIN SPEED</b>	ODF Minimum Speed	0 to 1200	RPM	160	ODFMINSP	
<b>ODF MAX SPEED</b>	ODF Maximum Speed	0 to 1200	RPM	1100	ODFMAXSP <sup>c</sup>	
<b>ODF FAN OFF DELAY</b>	ODF Fan-Off Delay	0 to 60	sec	30	ODF_FOD	
<b>ODF OVR TEMP</b>	ODF Override Temperature	80 to 140	°F	110	ODFHTOVR <sup>d</sup>	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
ODF HI ENV OFFSET	High Envelope ODF Offset	0 to 100	°F	8	ODFSDTHI	
ODF LO ENV OFFSET	Low Envelope ODF Offset	0 to 100	°F	6	ODFSDTLO	
RAMP UP PER SEC	ODF Ramp Up Rate per Second	0 to 1000	RPM	600	ODFRAMPU	
RAMP DOWN PER SEC	ODF Ramp Down Rate per Second	0 to 1000	RPM	600	ODFRAMPD	
ECONOMIZER	Economizer Configs Menu					
VENT METHOD	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP	VENTTYPE	
ECON MAX POS	Econ Max Damper Position	0 to 1	%	1	DAMPMAX	
ECON TRAVEL TIME	Economizer Travel Time	0 to 65535	sec	150	ECONOTRV	
MINIMUM POSITION CONFIGS	Minimum Position Config Menu					
MIN POS @ MAX FAN	Econ Min at Max Fan Speed	0 to 1	%	0	MINP_MAX	
MIN POS SPEED 1	Min Pos - User Speed 1	0 to 1	%	0	MP_USPD1	
MIN POS DAMP 1	Min Pos - User Pos 1	0 to 1	%	0	MP_UPOS1	
MIN POS SPEED 2	Min Pos - User Speed 2	0 to 1	%	0	MP_USPD2	
MIN POS DAMP 2	Min Pos - User Pos 2	0 to 1	%	0	MP_UPOS2	
MIN POS SPEED 3	Min Pos - User Speed 3	0 to 1	%	0	MP_USPD3	
MIN POS DAMP 3	Min Pos - User Pos 3	0 to 1	%	0	MP_UPOS3	
FREE COOL CONFIGS	Free Cooling Specific Configs Menu					
LOW COOL SAT SP	Low Free Cool SAT Setpoint	40 to 80	°F	65	LCSASP	
HIGH COOL SAT SP	High Free Cool SAT Setpoint	40 to 80	°F	55	HCSASP	
FREE COOL MAX OAT	Free Cooling Max OAT	0 to 90	°F	65	MAXFREET	
FREE COOL MIN OAT	Free Cooling Min Temp	-30 to 70	°F	0	MINFREET	
DIFF DRY BULB CTL	Diff. Dry Bulb Control	Enable/Disable		Disable	DIFFBULB	
DIFF DB DEADBAND	Diff. Dry Bulb Deadband	0 to 20	°F	3	OATRATDB	
ENTHALPY HI LIMIT	Max Enthalpy OA limit	-9.5 to 99	BTU/LB	28	FREEMAXE	
DIFF ENTHALPY CTL	Diff. Enthalpy Control	Enable/Disable		Disable	DIFFENTH	
ENTHALPY DEADBAND	Enthalpy Cross Deadband	0 to 20	BTU/LB	2	OAERAEDB	
UNOCCUPIED FREE COOL	Unoccupied Free Cooling Configs Menu					
WHEN TO UNOCC FC	When to Unocc Free Cool?	0=Disabled, 1=PreOcc, 2=Unocc		1=PreOcc	UFC_CFG	
UFC PREOCC TIME	UFC Preocc Time	1 to 9999	min	120	UFCTIME	
UFC LOW TEMP	Unocc Free Cool Low Temp	-100 to 100	°F	50	OATLUFC	
POWER EXHAUST CONFIGS	Power Exhaust Configs Menu					
PE1 RELAY CHANNEL	PE1 Relay Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		0: no FIOP 2: FIOP	PE1_CHAN	
PE1 POS @ MAX SPD	PE Stage 1 at Max Speed	0 to 1	%	0	PE1_PMAX	
PE OFF DEADBAND	PE Turn Off Deadband	0 to 1	%	0	PE_OFFDB	
PE2 RELAY CHANNEL	PE2 Relay Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		0=NONE	PE2_CHAN	
PE2 POS @ MAX SPD	PE Stage 2 at Max Speed	0 to 1	%	0	PE2_PMAX	
ECON ACT MECH DISC DIAG	Econ Actuator Mechanical Disconnect Diagnostic Menu					
MDD-H/C END DLY	T24 Heat/Cool End Delay	0 to 60	min	25	T24CHDLY	
MDD-MIN MOVE	T24Econ Min Move for SAT	0.1 to 0.2	%	0.1	T24ECSTS	
MDD-SAT DB	Damper SAT Deadband	0 to 20	°F	12	T24SATDB	
MDD-MIN RAT-OAT	T24 Min Diff in RAT-OAT	5 to 20	°F	15	T24RATDF	
MDD-MIN TEST POS	T24 Test Minimum Pos	0 to 0.50	%	0.15	T24TSTMN	
MDD-MAX TEST POS	T24 Test Maximum Pos	0.50 to 1	%	0.85	T24TSTMX	
AIR QUALITY	Air Quality Configs Menu					
ANALOG IAQ CTRL	Analog Input IAQ Control	0=NO IAQ, 1=DCV, 2=IAQ OVRD, 3=CTRL MINP		0: no FIOP	IAQANCFG	
IAQ POS @ MAX SPD	IAQ Position at Max Fan	0 to 1	%	0.1	IAQMINP	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
LOW AIR.Q DIFF	AQ Differential Low	0 to 5000		100	DAQ_LOW	
HGH AIR.Q DIFF	AQ Differential High	0 to 5000		700	DAQ_HIGH	
PREOCC PURGE ENBL	IAQ Preoccupancy Purge	Yes/No		Yes	IAQPURGE	
PURGE POS @ MAX	IAQ Purge Pos at Max IDF	0 to 1	%	0.1	IAQPMAX	
PREOCC LOW LIMIT	Preocc Purge Lockout OAT	0 to 70	°F	50	IAQP_LA	
PREOCC PURGE TIME	Preocc Purge Duration	5 to 120	min	15	IAQPTIME	
AQ DIF HI-IAQ OVR	AQ Diff High IAQ Override	0 to 5000	PPM	700	AQD_HIGH	
AQ DIF LO-IAQ OVR	AQ Diff Low-IAQ Override	0 to 5000	PPM	100	AQD_LOW	
IAQ OVRRD ENABLE	IAQ Override Enable	Yes/No		No	IAQOVREN	
AQ OVR SW FAN CTL	Switch Input IAQ Fan Control	0=Never, 1=Occupied, 2=Always		0=NEVER	IAQSWFAN	
AQ OVR AI FAN CTL	Analog Input IAQ Fan Control	0=Never, 1=Occupied, 2=Always		0=NEVER	IAQANFAN	
AQ OVR POSITION	IAQ Override Position	0 to 100	%	100	IAQOVPOS	
ALARM RELAY	Alarm Relay Config Menu					
ALM RELAY CHANNEL	ALM Relay Assigned Channel	0=NONE, 1=MBB RLY11, 2=MBB RLY06		0=NONE	ALM_CHAN	
THERMOSTAT ALERTS	Thermostat Alerts	Yes/No		Yes	TSTAT_AL	
HARDWARE ALERTS	Hardware Failures Alerts	Yes/No		Yes	HW_AL	
SAT/RAT ALERTS	SAT/RAT Sensor Alerts	Yes/No		Yes	SATRATAL	
OAT SENSOR ALERTS	OAT Thermistor Alerts	Yes/No		Yes	OATRL_AL	
SPACE SENS ALERTS	Space Sensors Alerts	Yes/No		Yes	SPACE_AL	
TRANSDUCER ALERTS	Transducer Sensor Alerts	Yes/No		Yes	TRANS_AL	
RH SENSOR ALERTS	RH sensor failure Alert	Yes/No		Yes	RHS_AL	
CO2 SENSOR ALERTS	Air Quality CO2 Alerts	Yes/No		Yes	CO2S_AL	
OACFM SENS ALERTS	OACFM Alarm Relay	Yes/No		No	OACFM_AL	
ECONOMIZER ALERTS	Economizer Alerts	Yes/No		Yes	ECON_AL	
AIR FILTER ALERTS	Dirty Filter Alerts	Yes/No		Yes	FILT_AL	
GEN STATUS ALERTS	General Status Alerts	Yes/No		Yes	GENS_AL	
REFRIG CIR ALERTS	Refrig Circuit Alerts	Yes/No		Yes	CKT_AL	
COMPRESSOR ALERTS	Compressor Alerts	Yes/No		Yes	COMP_AL	
HEATING ALERTS	Heating Failure Alerts	Yes/No		Yes	HEAT_AL	
INDOOR FAN ALERTS	Indoor Fan Alerts	Yes/No		Yes	FAN_AL	
ON ACTIVE FAULTS	Relay On Active Faults	Yes/No		Yes	FAULT_AL	
SERVICE CONFIG MENU	Service Config Menu					
IDF CURVE LO RPM	IDF Curve Low RPM	0 to 5000	RPM	189: Size 04 Standard Static Fan 219: Size 04 Medium Static Fan 249: Size 04 High Static Fan 190: Size 05 Standard Static Fan 217: Size 05 Medium Static Fan 266: Size 05 High Static Fan 215: Size 06 Standard Static Fan 239: Size 06 Medium Static Fan 284: Size 06 High Static Fan	IFMLORPM	



## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
IDF CURVE HI RPM	IDF Curve High RPM	0 to 5000	RPM	1890: Size 04 Standard Static Fan 2190: Size 04 Medium Static Fan 2490: Size 04 High Static Fan 1900: Size 05 Standard Static Fan 2170: Size 05 Medium Static Fan 2660: Size 05 High Static Fan 2150: Size 06 Standard Static Fan 2390: Size 06 Medium Static Fan 2836: Size 06 High Static Fan	IFMHIRPM	
CCH RELAY1 ENABLE	CCH Relay 1 Enabled	Yes/No		Yes	CCHR1_EN	
CMP-FAN CURVE X1	Cmp-Fan Curve Point X1	0 to 6000	RPM	2000: Size 04 1600: Size 05 1900: Size 06	CMPCRVX1	
CMP-FAN CURVE X2	Cmp-Fan Curve Point X2	0 to 6000	RPM	2800: Size 04 2567: Size 05 2633: Size 06	CMPCRVX2	
CMP-FAN CURVE X3	Cmp-Fan Curve Point X3	0 to 6000	RPM	4400: Size 04 4500: Size 05 4100: Size 06	CMPCRVX3	
CMP-IDF CURVE Y1	Cmp-IDF Curve Point Y1	0 to 3000	RPM	810: Size 04 840: Size 05 1054: Size 06	IDFCRVY1	
CMP-IDF CURVE Y2	Cmp-IDF Curve Point Y2	0 to 3000	RPM	980: Size 04 1120: Size 05 1450: Size 06	IDFCRVY2	
CMP-IDF CURVE Y3	Cmp-IDF Curve Point Y3	0 to 3000	RPM	1160: Size 04 1390: Size 05 1798: Size 06	IDFCRVY3	
CMP-ODF CURVE Y1	Cmp-ODF Curve Point Y1	0 to 1150	RPM	700: Size 04 500: Size 05 800: Size 06	ODFCRVY1	
CMP-ODF CURVE Y2	Cmp-ODF Curve Point Y2	0 to 1150	RPM	800: Size 04 825: Size 05 950: Size 06	ODFCRVY2	
CMP-ODF CURVE Y3	Cmp-ODF Curve Point Y3	0 to 1150	RPM	1100	ODFCRVY3	
BOOST IDF RATE	Comp Boost IDF Speed Rate	0 to 1	RPM	0.1	IDFBSTRT	
ECONO PID - KP	ECONO PID - KP	0.00 to 99.90		2.5	ECONO_P	
ECONO PID - KI	ECONO PID - KI	0.00 to 99.90		0.12	ECONO_I	
ECONO PID - KD	ECONO PID - KD	0.00 to 99.90		1	ECONO_D	
ECONO PID - RATE	ECONO PID - RATE	10 to 180	sec	15	ECONO_DT	
FBD PID - KP	FBD PID - KP	0 to 99.99		0.01	FBDPID_P	
FBD PID - KI	FBD PID KI	0 to 99.999		0	FBDPID_I	
FBD PID - KD	FBD PID KD	0 to 99.999		0	FBDPID_D	
FBD KI RES VAL	FBD KI Reset Value	0.00 to 99.90		0	FBDKIRES	
NEW HARDWARE	Quick Menu for New Hardware					
UNIT CONTROL TYPE	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN		0=TSTAT	CTRLTYPE	
VENT METHOD	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0=no FIOP 1=FIOP	VENTTYPE	
SPRH SENSOR CHAN	SPRH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08,		0=NONE	SPRHCHAN	
IAQ SENSOR CHAN	IAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: no FIOP 2: FIOP	IAQ_CHAN	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
OAQ SENSOR CHAN	OAQ Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	OAQ_CHAN	
OARH SENSOR CHAN	OARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0: no FIOP 3: FIOP	OARHCHAN	
RARH SENS CHANNEL	RARH Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08		0=NONE	RARHCHAN	
OACFM SENS CHANNEL	OACFM Assigned Channel	0=None, 1=MBB AI06, 2=MBB AI07, 3=MBB AI08, 4=SI0B AI10		0=NONE	OCFMCHAN	
FIRE SW CHANNEL	Fire Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=no FIOP 5=FIOP	FIRECHAN	
HUMSTAT CHANNEL	Humidistat Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No Humidi-MiZer FIOP 7: Humidi-MiZer FIOP	HUMDCHAN	
FILTER SW CHANNEL	Filter Status Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 1: FIOP	FILTCHAN	
REMOTE OCC CHAN	Remote Occupancy Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	RMOCCHAN	
REM.SHUTDOWN CHAN	Remote Shutdown Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	ROFFCHAN	
COFS CHANNEL	COFS Assigned Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 4: FIOP	COFSCHAN	
GEN STATUS CHAN	General Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	GEN_CHAN	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
ENTHALPY SW CHAN	Enthalpy Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	ENTHCHAN	
FAN STAT CHANNEL	Fan Status Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	FNSTCHAN	
IAQ OVERRIDE SW CH	IAQ Override Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0=NONE	IAQOCHAN	
PHASE MON CHANNEL	Phase Monitor Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 3: FIOP	PMR_CHAN	
SMOKE PURGE CHAN	Smoke Purge Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP	PURGCHAN	
SMOKE PRESS CHAN	Smoke Pressure Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP	PRESCHAN	
SMOKE EVAC CHAN	Smoke Evacuation Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP	EVACCHAN	
NETWORK SETTINGS	Building Network Configs Menu					
BAS PROTOCOL	BAS Protocol Select	0=NONE, 1=CCN, 2=BACNET		0=NONE	BMS_CFG	
NETWORK TIMEOUT	Network Input Timeout	0 to 600	min	30	NETINTO	
CCN	CCN Network Config Menu					
BUS NUMBER	CCN Bus Number	0 to 239		0	CCNBUS	
CCN ELEMENT #	CCN Element Number	1 to 239		1	CCNADD	
CCN BAUDRATE	CCN Baud Rate	0=9600, 1=19200, 2=38400		0=9600	BAUDENUM	
BROADCAST ACK?	CCN Broadcast Ack'er	Yes/No		No	CCNBCACK	
BROADCAST SCHEDL?	Global Schedule Broadcast	Yes/No		No	CCN_GSBC	
BROADCAST TIME?	CCN Time Broadcast	Yes/No		No	CCNBC	
BROADCAST OAT?	Broadcast OAT On Network	Yes/No		No	OATBC	
BROADCAST OARH?	Broadcast OARH On Network	Yes/No		No	OARHBC	
BROADCAST OAQ?	Broadcast OAQ On Network	Yes/No		No	OAQBC	
BROADCAST IAQ?	Broadcast IAQ On Network	Yes/No		No	IAQBC	

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
ALLOW G. OVERRIDE	Allow Global Overrides	Yes/No		Yes	GLBLOVER	
LOCATION	Device Location	text			DEV_LOC	
REFERENCE NUMBER	Reference Number	text			REF_NUM	
BACNET	BACnet Network Config Menu					
MAC ADDRESS	BACnet Device MAC Address	1 to 127		01	BAC_MAC	
BACNET BAUDRATE	BACnet BMS Baud Rate	0=9600, 1=19200, 2=38400, 3=57600, 4=76800, 5=115200		4=76800	BAC_BAUD	
AUTO ID SCHEME	ALC Auto ID Scheme	Yes/No		Yes	AUID	
BACNET AUTO ID	BACnet ID Auto ID	Yes/No		Yes	BAC_AUID	
BACNET ID	BACnet ID Number	0 to 4194302		1610101	BAC_ID	
LINKAGE SETTINGS	Linkage Settings Menu					
DEVICE IAQ	BACnet Device for IAQ	0 to 4194303		1610100	DEVIQA	
OBJECT ID IAQ	Object Instance for IAQ	0 to 9999		1009	OBJIAQ	
COV IAQ	Change of Value for IAQ	0 to 60		0	COVIAQ	
DEVICE OAQ	BACnet Device for OAQ	0 to 4194303		1610100	DEVOAQ	
OBJECT ID OAQ	Object Instance for OAQ	0 to 9999		1012	OBJOAQ	
COV OAQ	Change of Value for OAQ	0 to 60		0	COVOAQ	
DEVICE OARH	BACnet Device for OARH	0 to 4194303		1610100	DEVOARH	
OBJECT ID OARH	Object Instance for OARH	0 to 9999		1022	OBJOARH	
COV OARH	Change of Value for OARH	0 to 60		0	COVOARH	
DEVICE OAT	BACnet Device for OAT	0 to 4194303		1610100	DEVOAT	
OBJECT ID OAT	Object Instance for OAT	0 to 9999		1003	OBJOAT	
COV OAT	Change of Value for OAT	0 to 60		0	COVOAT	
DEVICE RARH	BACnet Device for RARH	0 to 4194303		1610100	DEVRRARH	
OBJECT ID RARH	Object Instance for RARH	0 to 9999		30	OBJRARH	
COV RARH	Change of Value for RARH	0 to 60		0	COVRARH	
DEVICE RAT	BACnet Device for RAT	0 to 4194303		1610100	DEVRRAT	
OBJECT ID RAT	Object Instance for RAT	0 to 9999		1010	OBJRAT	
COV RAT	Change of Value for RAT	0 to 60		0	COVRAT	
DEVICE SPT	BACnet Device for SPT	0 to 4194303		1610100	DEVSPPT	
OBJECT ID SPT	Object Instance for SPT	0 to 9999		2007	OBJSPT	
COV SPT	Change of Value for SPT	0 to 60		0	COVSPT	
LOCAL_SHEDL_EDIT	Allow Local Sched Edit	Yes/No		No	LCL_EDIT	
SYSTEM TOUCH	System Touch Menu					
DEVICE INSTANCE	System Touch Device Inst	0 to 4194303		160099	DEVST	
POLLING RATE	System Touch Poll Rate	0 to 60		0	POLLST	
SPACE TEMP AI	System Touch AI for SPT	0 to 9999		1	AISTSPT	
SPACE RH AI	System Touch AI for SPRH	0 to 9999		4	AISTSPRH	
ZS SENSOR CFG	ZS Sensor Config					
ZS1 ADDRESS	Zone Sensor 1 Address	0 to 255		255	ZSADDR1	
ZS2 ADDRESS	Zone Sensor 2 Address	0 to 255		255	ZSADDR2	
ZS3 ADDRESS	Zone sensor 3 Address	0 to 255		255	ZSADDR3	
ZS4 ADDRESS	Zone sensor 4 Address	0 to 255		255	ZSADDR4	
ZS5 ADDRESS	Zone sensor 5 Address	0 to 255		255	ZSADDR5	
ZSM SENSOR CFG	ZS Motion Sensor CFG	0=NONE, 1=REMLOC, 2=LOCOCC		1=REMLOC	ZSM_CFG	
ZS TIME OUT	ZSM Time Out	5 to 60	min	5	ZSM_TMR	
ZS POLL RATE	Zone Sensor Poll Rate	1 to 100	sec	5	ZSPOLLRT	
ZS UNIT	Zone Sensor Unit	0=degrees F		0=degrees F	ZSUNIT	
ZS FRC UNOC ENBL	ZS Force Unocc Enable	Yes/No		No	ZSFUNEN	
ZS FRC UNOC DELAY	ZS Force Unocc wt Delay	Yes/No		No	ZSFUNWT	
ZS TLO CONT ENBL	ZS TLO Cont Enable	Yes/No		No	ZSTLOEN	
TLO SET DURING OC	ZS TLO Set During Occ	Yes/No		No	ZSTLSOC	
ZS UI MODE	Zone sensor UI Mode	1=Dual Offsets		1=Dual Offsets	ZSUIM	
NETWORK CHKLST	Network Setup Checklist	0=Undone, 1=Perfom, 2=Done		0=Undone	CHK_NET	
DISPLAY SETTINGS	User Display Configs Menu					

## CONTROL SET POINT AND CONFIGURATION LOG (cont)

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>METRIC DISPLAY</b>	Metric Display	Yes/No		No	DISPUNIT	
<b>LANGUAGE</b>	Display Language Select	0=English, 1=Spanish		0=English	LANGUAGE	
<b>CONTRAST ADJUST</b>	LCD Contrast Adjustment	1 to 10		5	LCD_CONT	
<b>PASSWORD ENABLE?</b>	User Password Protection	Enable/Disable		Enable	PASS_EBL	
<b>VIEW USER PASSWORD</b>	View User Password Menu					
<b>CHANGE USER PASSWORD</b>	Change User Password Menu					
<b>QUICK SETUP CONFIG</b>	Quick Setup Config Menu					
<b>DATE</b>	Current Date	MM/DD/YYYY			DATE	
<b>TIME</b>	Clock Hour and Minute	xx:xx			TIME	
<b>STARTUP DELAY</b>	Unit Startup Delay	10 to 600	sec	30	STARTDLY	
<b>UNIT CONTROL TYPE</b>	Unit Control Type	0=TSTAT, 1=SPACE SEN, 2=RAT SEN		0=TSTAT	CTRLTYPE	
<b>THERMOSTAT TYPE</b>	Thermostat Hardware Type	0=CONV 2C2H, 1=DIGI 2C2H, 2=CONV 3C2H, 3=DIGI 3C2H		0=CONV 2C2H	STATTYPE	
<b>DIRTY FILTER TIME</b>	Change Filter Timer	0 to 9999	hrs	0	FILT LIFE	
<b>HEATING STAGE QTY</b>	Number of Heating Stages	0 to 2		2: all except below 0: 50 Series without FIOP heaters 1: 48 Series Low Nox Gas Heat, 48JC 05-06 MedHeat, 50JC 04-06 Low Heat, 50JC 04-05 Med Heat, 50JC 04 High Heat 230v and 460v, 50JC 05 High Heat 230v, 50JC 06 Med Heat 460v and 575v	NUMHSTGS	
<b>VENT METHOD</b>	Ventilation Method	0=NONE, 1=ECON, 2=2POS DMPR, 3=ERV, 4=ECON ERV		0: No FIOP 1: Economizer FIOP	VENTTYPE	
<b>FREE COOL MAX OAT</b>	Free Cooling Max OAT	0 to 90	°F	65	MAXFREET	
<b>FIRE SW CHANNEL</b>	Fire Switch Channel	0=None, 1=MBB DI12, 2=MBB DI13, 3=MBB DI14, 4=MBB DI02, 5=MBB DI03, 6=MBB DI05, 7=MBB Y3		0: No FIOP 5: FIOP	FIRECHAN	
<b>COOL DESIGN SPEED</b>	Cooling Design Point Speed	0 to 10000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	IDFDGSPD	

**Table AC — Settings Main Menu Layout (cont)**

DISPLAY TEXT	EXPANDED DISPLAY TEXT	VALUES	UNITS	DEFAULT	POINT	ENTRY
<b>IDF VENT SPD</b>	IDF Vent Speed = RPM	0 to 3000	RPM	737: Size 04 Standard Static Fan 854: Size 04 Medium Static Fan 971: Size 04 High Static Fan 741: Size 05 Standard Static Fan 847: Size 05 Medium Static Fan 1038: Size 05 High Static Fan 839: Size 06 Standard Static Fan 932: Size 06 Medium Static Fan 1106: Size 06 High Static Fan	RPM_VENT	
<b>IDF HEAT SPD</b>	IDF Heat Speed = RPM	0 to 3000	RPM	1474: Size 04 Standard Static Fan 1708: Size 04 Medium Static Fan 1942: Size 04 High Static Fan 1482: Size 05 Standard Static Fan 1693: Size 05 Medium Static Fan 2075: Size 05 High Static Fan 1677: Size 06 Standard Static Fan 1864: Size 06 Medium Static Fan 2212: Size 06 High Static Fan	RPM_HEAT	
<b>QUICK SET CHKLST</b>	Quick Setup Checklist	0=Undone, 1=Perform, 2=Done		0=Undone	CHK_QUIK	

NOTE(S):

- In certain applications DIAG. COMP OFF should be disabled for size 04-06 units to prevent nuisance A312 alerts.
- CMPMAXSP defaults to 5000 rpm for 5 ton (06 size) units.
- ODFMAXSP defaults to 1200°F for 5 ton (06 size) units.
- ODFHTOVR defaults to 100°F for 5 ton (06 size) units.

**UNIT START-UP CHECKLIST**  
(Remove and Store in Job File)

**NOTE: To avoid injury to personnel and damage to equipment or property when completing the procedures listed in this start-up checklist, use good judgment, follow safe practices, and adhere to the safety considerations/information as outlined in the preceding sections of this Controls, Start-Up, Operation and Troubleshooting document.**

MODEL NO: \_\_\_\_\_

DATE: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

TECHNICIAN: \_\_\_\_\_

**I. PRE-START-UP:**

Verify that all packaging materials have been removed from unit	(Y/N) _____
Verify installation of outdoor air hood	(Y/N) _____
Verify installation of flue exhaust and inlet hood (48JC only)	(Y/N) _____
Verify that condensate connection is installed per installation instructions	(Y/N) _____
Verify that all electrical connections and terminals are tight	(Y/N) _____
Verify gas pressure to unit gas valve is within specified range (48JC only)	(Y/N) _____
Check gas piping for leaks (48JC only)	(Y/N) _____
Check that indoor-air filters are clean and in place	(Y/N) _____
Check that outdoor air inlet screens are in place	(Y/N) _____
Verify that unit is level	(Y/N) _____
Check outdoor fan propeller for location in housing/orifice and verify setscrew is tight	(Y/N) _____
Verify that scroll compressors are rotating in the correct direction	(Y/N) _____
Verify installation of thermostat/space sensor	(Y/N) _____
Verify configuration values for electronic controls (Refer to Control Set Up Checklist)	(Y/N) _____
Verify that crankcase heaters have been energized for at least 24 hours	(Y/N) _____

**II. START-UP**

**ELECTRICAL**

Supply Voltage	L1-L2 _____	L2-L3 _____	L3-L1 _____
Compressor Amps — Speed 1 - 2500 rpm	L1 _____	L2 _____	L3 _____
— Speed 2 - High - 4500 rpm	L1 _____	L2 _____	L3 _____
Electric Heat Amps (if equipped)	L1 _____	L2 _____	L3 _____
Supply Fan Amps at Max Speed	L1 _____	L2 _____	L3 _____

**TEMPERATURES**

Outdoor-Air Temperature	_____ F DB (Dry Bulb)	_____ F WB (Wet Bulb)
Return-Air Temperature	_____ F DB	_____ F WB
Cooling Supply Air	_____ F DB	_____ F WB
Gas Heat Supply Air (48JC)	_____ F	_____ F
Electric Heat Supply Air (50JC)	_____ F	_____ F

## PRESSURES

Gas Inlet Pressure		_____ in. wg		
Gas Manifold Pressure	Stage No. 1	_____ in. wg	Stage No. 2	_____ in. wg
Refrigerant Suction	Circuit A	_____ psig	Circuit A Superheat	_____ degF
Refrigerant Discharge	Circuit A	_____ psig	Circuit A Subcooling	_____ degF

Verify refrigerant charge using charging charts (Y/N) \_\_\_\_\_

## GENERAL

Economizer minimum vent and changeover settings to job requirements (Y/N) \_\_\_\_\_

## III. HUMIDI-MIZER® SYSTEM START-UP

### STEPS

1. Use Service Test mode to turn on cooling.  
Turn on COOL TEST CMP SPD to 4500 rpm under Cool Test menu (Y/N) \_\_\_\_\_

### OBSERVE AND RECORD

- A. Suction pressure \_\_\_\_\_ PSIG \_\_\_\_\_ PSIG
  - B. Discharge pressure \_\_\_\_\_ PSIG \_\_\_\_\_ PSIG
  - C. Entering air temperature \_\_\_\_\_ °F \_\_\_\_\_ °F
  - D. Liquid temperature  
at outlet or reheat coil \_\_\_\_\_ °F \_\_\_\_\_ °F
  - E. Confirm correct rotation for compressor (Y/N) \_\_\_\_\_
  - F. Check for correct ramp-up of outdoor fan motor as condenser coil warms (Y/N) \_\_\_\_\_
2. Check unit charge per charging chart (Y/N) \_\_\_\_\_
  3. Switch unit to HIGH-LATENT mode (SUBCOOL) by turning Humidi-MiZer test to SUBCOOL under the COOL TEST menu (Y/N) \_\_\_\_\_

### OBSERVE

- A. Reduction in suction pressure (5 to 7 psi expected) (Y/N) \_\_\_\_\_
  - B. Discharge pressure unchanged (Y/N) \_\_\_\_\_
  - C. Liquid temperature drops to 50 to 55°F range (Y/N) \_\_\_\_\_
  - D. CLV solenoid energized (valve closes for no flow) (Y/N) \_\_\_\_\_
4. Switch unit to DEHUMID (REHEAT) by turning Humidi-MiZer test to REHEAT under the COOL TEST menu (Y/N) \_\_\_\_\_

### OBSERVE

- A. Suction pressure increases to normal cooling level (Y/N) \_\_\_\_\_
  - B. Discharge pressure decreases 30 to 50 PSI (Y/N) \_\_\_\_\_
  - C. Liquid temperature returns to normal cooling level (Y/N) \_\_\_\_\_
  - D. CLV solenoid energized, valve closes for no flow (Y/N) \_\_\_\_\_
  - E. RDV solenoid energized, valve opens for flow (Y/N) \_\_\_\_\_
5. Switch unit to OFF by turning Humidi-MiZer test to OFF under the COOL TEST menu  
Compressor and outdoor fan stop, CLV and RDV solenoids de-energized (Y/N) \_\_\_\_\_

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE