

CONTROLS
INSTRUCTION
OPERATION
& MAINTENANCE



valent

AIR MANAGEMENT SYSTEMS



VPR Series
VPRE Series
VPRC/P Series
VPRX Series

IOM-C1-0616
Software Version 4
Part Number 474626

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Safety

The customer must provide proper equipment and fully-trained installers to follow local safety requirements when receiving, installing, or servicing equipment. Consult all local building, electrical, occupational safety, and gas codes.

Lock out all power supplies before servicing the unit to prevent accidental startup. All fan blades should be secured to prevent wind rotation. Remove any restrictive device before restoring power.

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFC and HCFC) as of July 1, 1992. Approved methods of recovery, recycling, or reclaiming refrigerant must be followed. Fines and/or incarceration may be levied for non-compliance.



WARNING:

Improper installation, adjustment, service, maintenance, or alteration can cause property damage, personal injury, or loss of life. Installation, startup and service must be performed by a qualified installer, service agency, or gas supplier.

Control Interfaces

JENEsys Controller

All VPR, VPRE, VPRC/P, and VPRX series units are equipped with a fully-programmed, microprocessor-based controller with the following standard features:

- Liquid crystal display (LCD) interface
- Internal schedule (may be disabled)
- Unit-specific controls sequence
- Component safeties and alarms
- Ethernet RJ-45 network port



JENEsys Controller

Points, scheduling, and system settings can be manipulated through an LCD interface or through a computer running the UMT or Web UI software.

For 110, 210, 310, and 350 model units, the control panel is accessible from the service end of the unit (opposite the outdoor air intake hood). The LCD interface hangs on the outside of the electrical panel door.

Universal Maintenance Tool (UMT)

The UMT is a software package that can be downloaded and installed on any Windows-based PC. All LCD functions are accessible via the UMT. The PC is connected via CAT5 Ethernet cable to the LAN1 port on the unit controller.

Web User Interface (Web UI)

The Web User Interface is an optional, web-based communication utility for remote monitoring and setpoint adjustment. Using a standard web browser, all of the functions available through the controller's LCD are available via the Web UI, but are displayed in a more advanced graphical interface.

Using the LCD

Keypad Buttons

Seven interface buttons are located on the bottom and right of the LCD interface. These buttons are used to navigate through menu items and between fields, or to change the value of a field.

Button	Description
▲ and ▼	Use to scroll through items or to increase or decrease the value of a selected setpoint.
◀ and ▶	Use to scroll horizontally through items or to position the cursor below an editable setpoint digit. These are also used for the PREV and NEXT functions if indicated.
◀◀ and ▶▶	Use to select the MENU or LAST command if indicated. The ▶▶ button is also used to save a setting.
←	Use to select a value or to enter a value into memory.
<u>dashed underline</u>	This indicates a status-only field. The value of this field can be viewed but not changed.
<u>solid underline</u>	The value of this field can be changed.

Menu Commands

The LCD may display on-screen commands, which can be selected by pressing the arrow button below it.

Button	Function
PREV	Select this command to go back to the previous menu.
NEXT	Select this command to go to the next set of menu options.
MENU	Select this command to return to the main menu.
LAST	Select this command to advance to the last menu.
NULL	Select this command to set the value to Null or NA. <u>This action is not recommended unless instructed by the factory.</u>
CANC	Select this command to cancel the current action.
◀	Select this command to move one character or decimal place to the left.
▶	Select this command to move one character or decimal place to the right.

Main Menu

At initial startup or after a power cycle, the controller requires several minutes to start, during which time the screen may be blank. The controller then defaults to the main menu, from which Points, Scheduling, and System Settings are available.



Valent LCD Interface

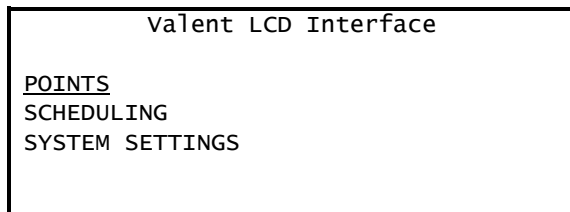
POINTS
SCHEDULING
SYSTEM SETTINGS

The following parameters are accessible. Refer to the **LCD Map** on page 11 for a complete list of all points.

Category	Point/Setting
Points	Unit Status
	Alarms
	Manual Overrides
	Factory Setup
	System Status
	Cooling
	Heating
	Fan Operation
	Space Pressure Controls
	Duct Pressure Control
	Damper Operation
	Exhaust Settings
	Morning Warmup
	CO2 Control
	Airflow Monitoring
	Energy Recovery
	Dehumidification
	Occupancy
	Temperature Setpoints
	Headpressure; Heatpump
Scheduling	BMS Interface
System Settings	Communications
	System Schedule
	Set TCP/IP Settings
	System Date
	System Time
	Time Zone

Changing a Setpoint

1. Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.
2. Press **↵** Enter to select POINTS.

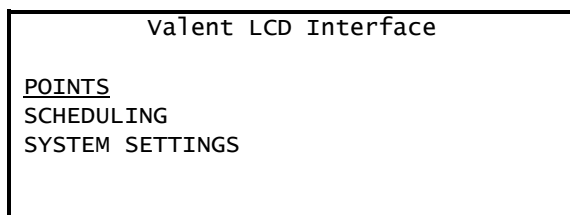


3. Use **▲** and **▼** as well as **PREV** and **NEXT** to navigate to the various setpoints stored in the controller.
4. When the desired setpoint is underlined, press **↵** Enter to change the value.
5. Modifications are made by changing one significant digit at a time. Use **◀** and **▶** to move left and right between digits. Use **▲** and **▼** to change the value of the digit.
6. Press **↵** Enter to save the change.

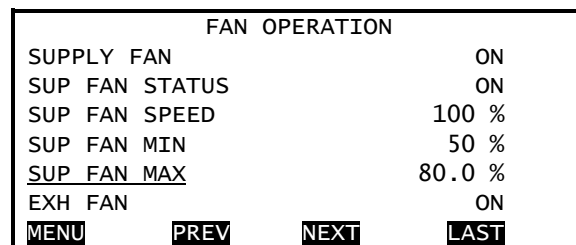
Changing the Fan Speed

Each VPR, VPRE, VPRC/P, and VPRX rooftop unit includes a variable frequency drive (VFD) for the supply fan. The supply fan speed can be changed from the LCD.

1. Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.
2. Press **↵** Enter to select POINTS.



3. Use the **NEXT** button and **▶** right arrow button to navigate to the FAN OPERATION screen.



4. Using the **▼** button, move the underscore to SUP FAN MAX and press **↵** Enter on the keypad.
5. Use **◀** and **▶** to move left and right between digits. Use **▲** and **▼** to change the value of the digit.
6. Press **↵** Enter to save the change.

Verifying Changes

After making changes to any VFD parameters, confirm the VFD/fan speed by enabling the fan to operate. The speed, in Hz, is indicated on the front of the VFD display. If the controller is sending a fan speed of 100%, fan speed analog output should be 10 VDC and the fan speed should be the design limit.

Manually Overriding a Setpoint

Many setpoints can be manually overridden for troubleshooting. Refer to the [LCD Map](#) on page 11 for a list of setpoints that can be manually overridden. Refer to the [Manual Override](#) section on page 52 for definitions of manual override points.

1. Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.

2. Press **↵** Enter to select POINTS.

Valent LCD Interface

POINTS
SCHEDULING
SYSTEM SETTINGS

3. Press **▶** to navigate to the MANUAL OVERRIDES screen.

MANUAL OVERRIDES

OVERWRITE MODE	DISABLED
TIME REMAINING	0 MIN
UNIT ENABLE	OFF
SUPPLY FAN	OFF
SUPPLY OVERRIDE	OFF
SUPPLY SPEED	50 %

MENU **PREV** **NEXT** **LAST**

4. On the MANUAL OVERRIDES screen, OVERWRITE MODE is underlined. Press **↵** Enter.
5. Press **▲** to change the value to Enabled. Press **↵** Enter to accept the change.
6. Use **▲** and **▼** to navigate to the setpoint to override. Press **↵** Enter.
7. Use **▲** and **▼** to change the value of the selection or to change the digit. If applicable, use **◀** and **▶** to move left and right between digits.
8. When the setpoint is modified to the desired value, push **↵** Enter to update the controller. Wait a few seconds for the value to update. The controller does not need to be restarted for the override to take effect.

Manual Override mode is in effect for 4 hours, after which setpoints return to the previous state or Auto. To cancel the manual override mode before it expires, change OVERWRITE MODE to False. The TIME REMAINING point displays how much time remains before the override mode expires automatically.

Changing a Schedule

The default schedule of the controller is 24-hour Occupied.

1. Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.

2. Press **▼** to move the underline cursor to SCHEDULING and press **↵** Enter.

Valent LCD Interface

POINTS
SCHEDULING
SYSTEM SETTINGS

3. When the SCHEDULE menu is shown, press **↵** Enter again. The SCHEDULE DETAILS screen is then displayed with a seven-day, 24-hour grid.

SCHEDULE DETAILS							
TIMES	S	M	T	W	T	F	S
8:00 AM	—						
9:00 AM							
10:00 AM							
11:00 AM							
SETTING:							
MENU							CANC

4. Using the left and right arrows, move the visible cursor to the day a schedule change is desired. Press **↵** Enter to edit an existing event (if cursor is located on an existing event) or create a new one (if cursor is located on an open time slot).

- If an existing event is selected, the SELECT EVENT menu appears. Press **Enter** to edit the event or **▼** to underline the DELETE EVENT menu option. Press **Enter** to delete the event from the current schedule.

SELECT EVENT	
EDIT EVENT 1 - 8:00 AM	
DELETE EVENT 1	
BACK	

- The event menu is identical whether editing an existing event or creating a new event. Use **▲** and **▼** to select the desired field and press **Enter** to change its value. Press **Enter** to complete the change.

MONDAY EVENT	
START TIME: _	8:00 AM
END TIME: _	10:00 AM
VALUE: _	OCCUPIED
MENU	SAVE CANC

- To temporarily disable an event, change the Value field from OCCUPIED to UNOCCUPIED.

MONDAY EVENT	
START TIME: _	8:00 AM
END TIME: _	10:00 AM
VALUE: _	UNOCCUPIED
MENU	SAVE CANC

- Press **SAVE** to save the settings in the controller.

Any request for occupancy from the push button on a space temperature sensor will be effective for two hours.

Changing the IP Address

The local display may be used to change the default network settings of the controller.

WARNING:

Setting the IP address to an incorrect value may cause the controller to lock up and may require replacing the controller. Make sure the IP address, gateway, and subnet mask are set correctly before saving the new settings.

The controller ships with the following default settings:

JENESYS TCP/IP SETTINGS	
IP ADDRESS:	192.168. 1.101
SUBNETMASK:	255.255.255. 0
GATEWAY:	192.168. 1. 1
MENU	SAVE

- Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.
- Press **▼** to move the underline cursor to SYSTEM SETTINGS and press **Enter**.

Valent LCD Interface	
POINTS	
SCHEDULING	
<u>SYSTEM SETTINGS</u>	

- Press **Enter** to select SET TCP/IP SETTINGS.

JENESYS SYSTEM SETTINGS	
<u>SET TCP/IP SETTINGS</u>	
SYS DATE:	AUG 17, 2012
SYS TIME:	15:02
TIMEZONE:	AMERICA/CHICA
	(-5/-6)
MENU	CANC

- Press **↵** Enter to select IP ADDRESS.

JENESYS TCP/IP SETTINGS	
IP ADDRESS:	192.168. 1.200
SUBNETMASK:	255.255.255. 0
GATEWAY:	192.168. 1. 1
<div>MENUSAVE</div>	

- Use **◀** and **▶** to move left and right between digits. Use **▲** and **▼** to change the value of the digit.

The subnet mask and gateway can be changed using a similar method. A corresponding gateway must be entered for the IP address.

- When all changes are complete, select **SAVE**. The display will indicate that a reboot is required. Move the cursor under the desired response (YES/NO) and press **↵** Enter. Allow several minutes for the controller to reboot and return to normal operation.

-REBOOT-	
CONTROLLER MUST	
REBOOT TO SAVE	
THESE SETTINGS	
CONTINUE?	
YES	NO

Reviewing BACnet IP or MSTP Settings

The JENEsys controller's BACnet IP and MSTP settings are available in the POINTS menu of the LCD. To access them:

- Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.
- Press **↵** Enter to select POINTS. The Unit Status menu is the first menu displayed.
- Press the right double arrows below **LAST** to jump to the last tab of the points menu, which is for COMMUNICATIONS.

BACnet is an optional feature which must be licensed. Although data will appear for viewing on the communication menu, settings cannot be changed if the unit has not been licensed.

COMMUNICATIONS	
COMM LICENSE	BACNET IP
****BACNET	*****
OBJECT ID	11
NETNUMBER IP	1
NETNUMBER MSTP	2
MSTP ADDRESS	1
MENU	PREV NEXT LAST

- Make sure that COMM LICENSE is the same as the protocol you have purchased and all other settings are set as desired. Verify that your device can be discovered at your head-end system.

Refer to [Using BACnet Communications](#) on page 25 for further information about BACnet communications.

Reviewing LonWorks Settings

The LonWorks settings for the JENEsys controller are available in the POINTS menu of the LCD display. To access them:

1. Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.
2. Press **↵** Enter to select POINTS. The UNIT STATUS menu is the first menu displayed.
3. Press the right arrows below **LAST** to jump to the last tab of the points menu, which is for COMMUNICATIONS.
4. Use **▼** to scroll down to reach the LonTalk points.

LonTalk is an optional feature which must be licensed. Although data will appear for viewing on the communications menu, settings cannot be changed if the unit has not been licensed.

COMMUNICATIONS	
BAUDRATE	9600
MAX MASTERS	127
MAX INFO FRAMES	20
****LONTALK	****
NID	04 1E 0F E8 03 00
SERVICE PIN	FALSE
MENU	PREV NEXT LAST

Service Pin

The SERVICE PIN is available to help discover the Valent unit on the building's LON network.

1. On the LonWorks menu, navigate to SERVICE PIN.
2. Press **↵** Enter to make the point editable. Toggle **▲** or **▼** to make the value TRUE, then press **↵** Enter. This sends a service pin signal over the LON network. This can be repeated as many times as necessary.

Refer to [Using LonTalk Communications](#) on page 25 for further information about LonTalk communications.

LCD Map

This list contains all points accessible on the LCD, in the menu order and list order in which they appear on the screen. Setpoints in this list with a solid underline can be edited. All others are view-only. On the LCD screen, a solid cursor underline indicates an editable setpoint; a dashed cursor underline indicates a view-only point. These points are also accessible from the UMT or Web UI. Refer to the following sections for more information: [Setpoint List](#) on page 29 and [Setpoint Descriptions](#) on page 40.

UNIT STATUS	ALARMS	MANUAL OVERRIDES	FACTORY SETUP	SYSTEM STATUS	COOLING	HEATING	FAN OPERATION
SUPPLY TEMP	<u>RESET</u>	<u>OVERRIDE MODE</u>	COMM VAL	VERSION	CHW/DIGITAL OUT	ELECTRIC	SUPPLY FAN
DX COIL TEMP	ALARM STATUS	TIME REMAINING	DAMPER CONFIG	SO#	COMP 1	MODULATING	SUP FAN STATUS
SPACE TEMP	SHUTDOWN INPUT	<u>UNIT ENABLE</u>	FAN CONFI	TAG	COMP 2	STAGE 1	SUP FAN SPEED
SPACE RH	SUPPLY FAN	<u>SUPPLY FAN</u>	CO2 CTRL VAL	<u>SYSTEM ENABLE</u>	COMP 3	STAGE 2	<u>SUP FAN MIN</u>
SPACE ENTH	DAMPER SWITCH	<u>SUPPLY OVERRIDE</u>	EX FAN CTRL	SYSTEM STATUS	COMP 4	STAGE 3	<u>SUP FAN MAX</u>
OA TEMP	SUPPLY TEMP SEN	<u>SUPPLY SPEED</u>	REM DAMPER	SYSTEM START	<u>AMB LOCKOUT</u>	<u>AMB LOCKOUT</u>	EXH FAN
OUTDOOR RH	HIGH SUP TEMP	<u>EXHAUST FAN</u>	PRE-HEATER	END SWITCH	DEHUM STATUS	<u>HW CASE HEAT ENABLE</u>	EXH FAN STATUS
OUTDOOR ENTH	LOW SUP TEMP	<u>EXHAUST OVERRIDE</u>	AIR MEAS VAL	STATUS		<u>HW CASE HEAT SPT</u>	EXH FAN SPEED
EXHAUST TEMP	SPACE STATIC	<u>EXHAUST SPEED</u>	HEAT VAL	OCC BY			
MIXED AIR TEMP	DUCT STATIC	<u>HEAT WHEEL</u>	COOL VAL	OP MODE			
	HPC_LPC_A	<u>WHEEL OVERRIDE</u>	ENERGY RECOV	COOLING PID			
	HPC_LPC_B	<u>WHEEL SPEED</u>	UNIT TYPE	HEATING PID			
	REF PRESSURE A	<u>OA DAMPER CTRL</u>	ECONO	ECON PID			
	REF PRESSURE B	<u>OA DMP OVERRIDE</u>	AMD TYPE	ECON STATUS			
	SPACE TEMP	<u>HEAT COOL</u>	WEB UI	REHEAT OUTPUT			
	OA TEMP	<u>COMPRESSOR1</u>	RE MON	REVERSING VLV			
	OA HUMIDITY SEN	<u>COMPRESSOR2</u>	OPTIMAL SS	HP HEAT PID			
	EXHAUST TEMP	<u>COMPRESSOR3</u>	HEAT PUMP				
	MIXED TEMP SEN	<u>COMPRESSOR4</u>	MWU				
	EXHAUST FAN	<u>DIGITAL SCROLL</u>	NIGHT PURGE				
	SPACE HUMIDITY	<u>MOD HEAT</u>	REHEATDEHUM				
	CO2 SENSOR	<u>ELEC HEAT</u>	HW ROTATION				
	HW ROTATION	<u>HEAT 1</u>	SPACE SETPOINT				
	FILTERS	<u>HEAT 2</u>	FUTURE				
	WSHP REF LOW PSI	<u>HEAT 3</u>	FUTURE				
	FREEZE STAT	<u>SPACE SETPT</u>	I/O MAP				
		<u>SUPPLY SETPT</u>					
		<u>HOT GAS REHEAT</u>					
		<u>REHEAT OVERRIDE</u>					
		<u>FLAT PLATE</u>					
		<u>F PLATE OVERRIDE</u>					
		<u>PRE-HEATER</u>					
		<u>COIL SAFETY</u>					
		<u>HEAD PRESSURE</u>					
		<u>FAN VFD/VALVE A</u>					
		<u>FAN VFD/VALVE B</u>					
		<u>REVERSING VALVE</u>					
		<u>REVERSING VALVE</u>					
SPACE PRESSURE CONTROL	DUCT PRESSURE CONTROL	DAMPER OPERATION	EXHAUST SETTINGS	MORNING WARMUP	CO2 CONTROL	AIR FLOW MONITORING	ENERGY RECOVERY
PRESSURE	PRESSURE	OA DAMPER	<u>EX FAN DAMP POS</u>	<u>ENABLE</u>	CO2 LEVEL	SUPPLY	WHEEL STATUS
SETPOINT	SETPOINT	DAMPER CONFIG	<u>EX FAN MAX SPEED</u>	WARM UP STATUS	INSTALLED	EXHAUST	WHEEL OUTPUT
<u>HIGH LIMIT</u>	<u>HIGH LIMIT</u>	<u>OAD MIN POS</u>	<u>EX FAN MIN SPEED</u>		<u>SETPOINT</u>	AMD	ENERGY RECOV
<u>SUPPLY REACTION</u>	<u>SUPPLY REACTION</u>	<u>OAD MAX POS</u>	<u>EX SPEED OFFSET</u>			<u>SETPOINT</u>	PREHEAT
<u>EXHAUST REACTION</u>		<u>ENTHALPY SETPT</u>					DEFROST MODE
		<u>DRY BULB SPT</u>					
		<u>ECONO</u>					
DEHUMIDIFICATION	OCCUPANCY	TEMPERATURE SETPOINTS	HEADPRESSURE; HEATPUMP	BMS INTERFACE	COMMUNICATIONS		
<u>DX COIL SETPT</u>	OCC STATUS	<u>SPACE SETPT</u>	HEAD PRESSURE	OAT	COMM LICENSE		
<u>SPACE RH SPT</u>	OCC BY	<u>SPT SLIDER</u>	HEAD PRESSURE	OA RH%	****BACNET		
<u>OA DEWPOINT SPT</u>	SCHEDULE	<u>SPACE OFFSET</u>	<u>COMP OFFVLVPOS</u>	SPACE TEMP	<u>OBJECT ID</u>		
		<u>SUPPLY CALC</u>	<u>WSHP SUC LOW LIM</u>	SPACE RH	<u>NETNUMBER IP</u>		
		<u>SUPPLY SETPT</u>	VALVE A OUTPUT	CO2	<u>NETNUMBER MSTP</u>		
		<u>SUPPLY MIN COOL</u>	VALVE B OUTPUT	SPACE STATIC	<u>MSTP ADDRESS</u>		
		<u>SUPPLY MIN HEAT</u>	PRESSURE CIRC A	DUCT STATIC	<u>BAUDRATE</u>		
		<u>SUPPLY MAX COOL</u>	PRESSURE CIRC B	SF OVERRIDE	<u>MAX MASTER</u>		
		<u>SUPPLY MAX HEAT</u>	ASHP	SF SPEED	<u>D STATIC SETPOINT</u>		
		<u>UNOCC HEAT</u>		EF OVERRIDE	<u>MAX INFO FRAMES</u>		
		<u>UNOCC COOL</u>		EF SPEED	****LONTALK		
		<u>SUPPLY CONTROL</u>		OAD OVERRIDE	NID		
		<u>LOCAL ADJUST DISABLE</u>		OAD POS	<u>SERVICE PIN</u>		
				OCC ENABLE			

Using the Universal Maintenance Tool (UMT)

Installing the Software

The JENEsys PC3000e requires an updated version of the UMT and cannot be configured using the same UMT as was used with the PC1000.

Download and install the new UMT prior to arriving at the job site. The software must be installed on a Windows-based PC, and runs the best using a Windows XP-based operating system.

PC3000e UMT 3.8.U1 (also known as UMT 3.8.110)

First Ship Date: June 15, 2016 (approximately)

Download: <https://www.dropbox.com/sh/4caowjsfd5x7sd2/AADUpJX86cl0dmLMxa1b1ZVba?dl=0>

Password: Viper-jene

Installation Instructions: described in the following section

PC1000 UMT 3.6.406

Last Ship Date: June 14, 2016 (approximately)

Download: <https://www.dropbox.com/sh/7pbdqy4nrfwxef8/AAC7HB3UIs4fDjLZ0QkbfdDaa?dl=0>

Password: Viper-jene

Installation Instructions: V3 Controls IOM – available for download using link above.

It is likely that both versions of the UMT will be installed on a service technician's laptop. There are no known issues with having two versions of the UMT installed on a single laptop. Contact Valent Service for assistance and use of either UMT version.



CAUTION:

UMT 3.8.U1 (UMT 3.8.110) is compatible with PC3000e controllers only.
UMT 3.6.406 is compatible with PC1000 controllers only.

Connecting to the Controller

Connect the computer to the JENEsys controller using a CAT5 Ethernet cable. The computer should be connected through its LAN connection (Ethernet port). The controller should be connected using the LAN1 port as shown in the following figure.



Configuring the IP Address for the PC

To successfully connect with the Valent unit controller, the IP address of the PC must be in the same range as the controller, but not identical. Every Valent unit is shipped from the factory with the same default IP address:

192.168.1.101 [Valent unit]

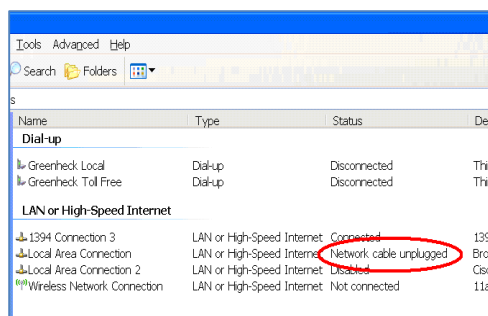
A suggested IP address for the computer communicating with the Valent unit is:

192.168.1.200 [PC]

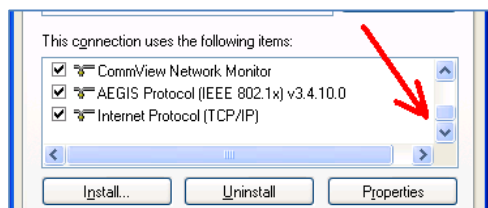
Configuring the IP Address Using Windows XP

To change the static IP address of the PC that is running Windows XP, follow these steps.

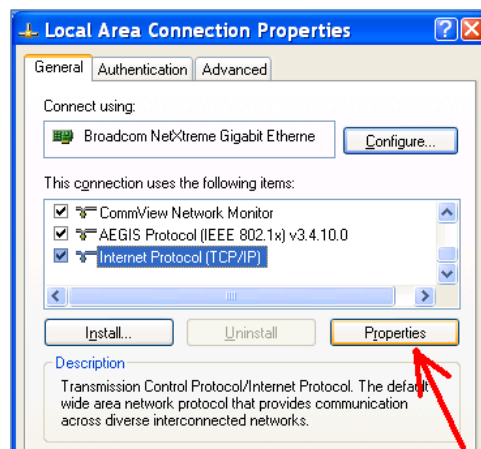
1. Click START or the Windows icon in the lower left corner of the screen.
2. Select Control Panel.
3. Select Network Connections.
4. Identify the target LAN connection with the status of Network cable unplugged.



5. Right-click on the identified Local Area Connection. Select Properties.
6. Use the slider bar to scroll down until the selection Internet Protocol (TCP/IP) is visible.

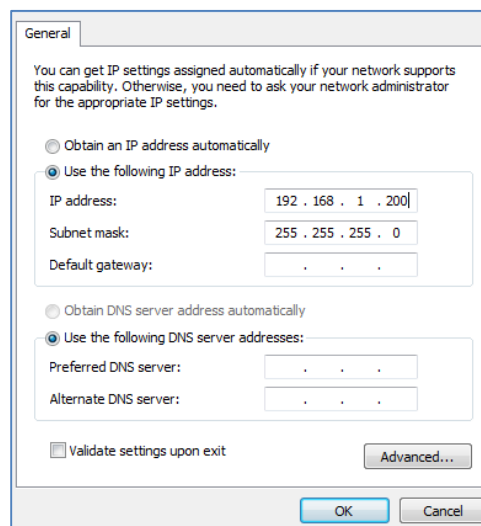


7. Highlight Internet Protocol (TCP/IP) and press the Properties button.



8. To assign a new IP address manually, click on Use the following IP address.
9. Type in the following information and press OK when completed.

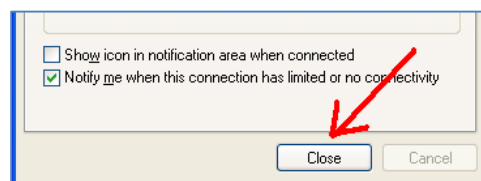
IP address: 192.168.1.200
Subnet mask: 255.255.255.0



If the controller does not connect, return to this screen and, in addition to the previous fields, enter the following:

Default gateway: 192.168.1.1

10. The system returns to the Local Area Connection Properties screen. Click on Close to exit this screen.



The IP address of the Valent unit controller can be changed to be in the same range as the connected PC as well, especially for instances when the PC and Valent unit are connected to the building's network/LAN. In those cases, request a static IP address from the network administrator and use the LCD or UMT to edit the address of the Valent unit.

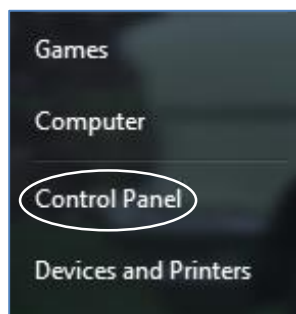
Configuring the IP Address Using Windows 7

To change the static IP address of the PC that is running Windows 7, follow these steps.

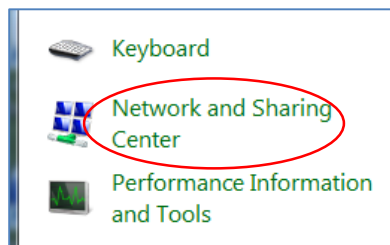
1. Click on the Windows orb icon in the lower left corner of the screen:



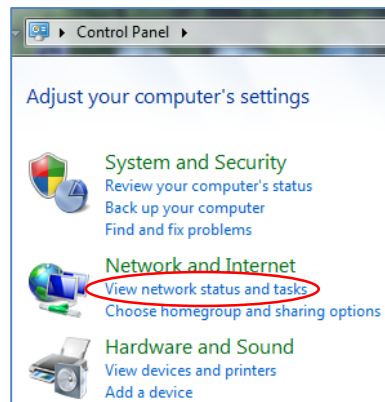
2. Select *Control Panel*.



3. Select *Network and Sharing Center*.



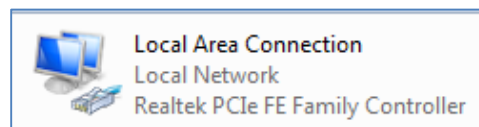
If the Control Panel is displayed by category, select *View Network Status and Tasks* in the Network and Internet category.



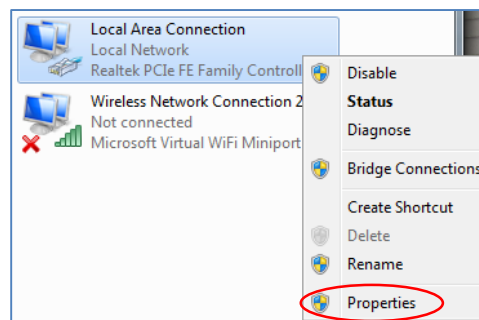
4. On the network screen, choose *Change adapter settings*.



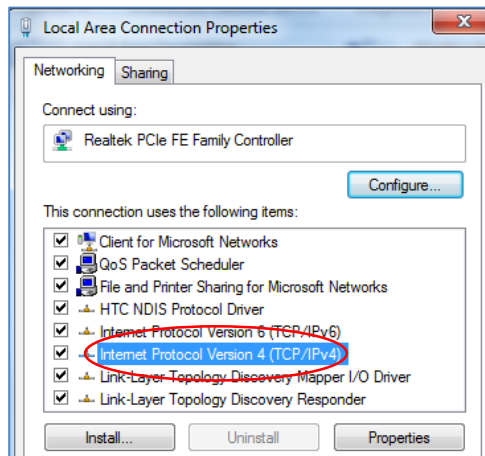
5. Find your Local Area Connection. If you need to determine which connection to select, simply unplug the network cable from the PC. The adapter status should change to *Not Connected*. Reconnect the cable.



6. Right click on the *Local Area Connection*, then select *Properties*.



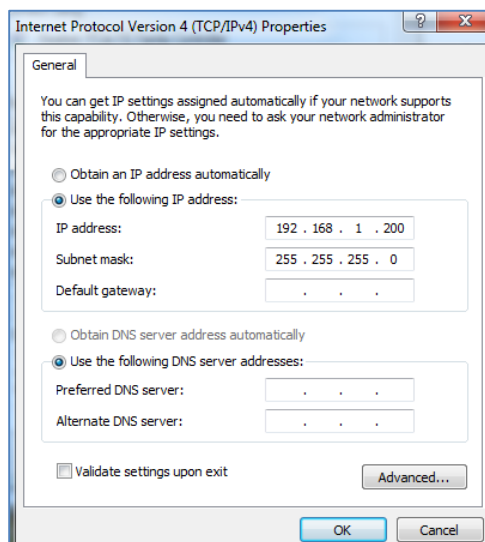
7. Select *TCP/IPv4*, then click on *Properties*.



8. On the TCP/IPv4 screen, click on *Use the following IP address*.

Enter the following in the text boxes:

IP address: 192.168.1.200
Subnet mask: 255.255.255.0



If the controller does not connect, return to this screen and, in addition to the previous fields, enter the following:

Default gateway: 192.168.1.1

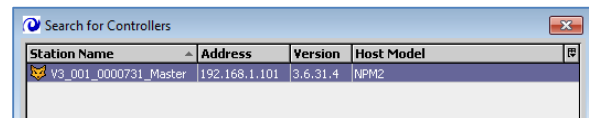
9. Press *OK* to save the settings.

Logging on to the Controller

1. Start the UMT software program by double clicking on the icon on the Windows desktop.



2. During startup, the UMT checks for JENEsys-based controllers on the current network.



3. When the controller is identified, double-click on the controller name to continue. Or click on the controller name, then click *OK* at the bottom of the window.

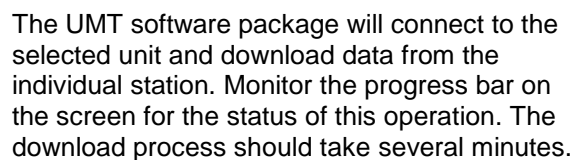
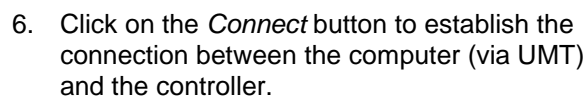
If a controller is not found on the network, verify the IP settings for both the laptop and the controller. *They should be in the same range, but not the same.*

NOTE: On occasion the JENEsys controller will not announce itself. If this happens, press *Cancel* on the Search window. On the Connect screen, manually type in the IP address of the JENEsys controller with all of the settings shown in the table below, then press *Connect*.

Occasionally, if the controller has been running for a long period, the Ethernet port goes to sleep and loses connection. Reboot the controller to reconnect.

4. The Connect screen is displayed. Two options are available for connecting: Platform and Station. Select Platform to copy stations and set the IP address. Select Station for schedule and setpoint adjustments.
5. Enter the following items. Usernames and passwords are case sensitive.

IP Address	192.168.1.101
Platform Port	3011
Platform Username	tridium
Platform Password	niagara
Fox Port	1911
Fox Username	admin
Fox Password	[blank]



When logging into the Platform option, the Station Director tab is the first screen displayed.

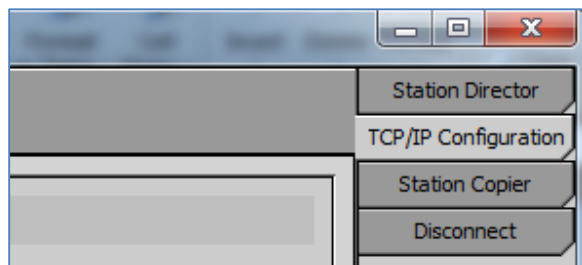
Changing the IP Address

Use the TCP/IP Configuration utility to edit the network address and related parameters for the controller.

Setting the IP Address to an incorrect value may cause the controller to lock up and will require replacing the controller. Make sure the IP address, gateway, and subnet mask are set correctly before saving the new settings.

The controller ships with the following default settings:

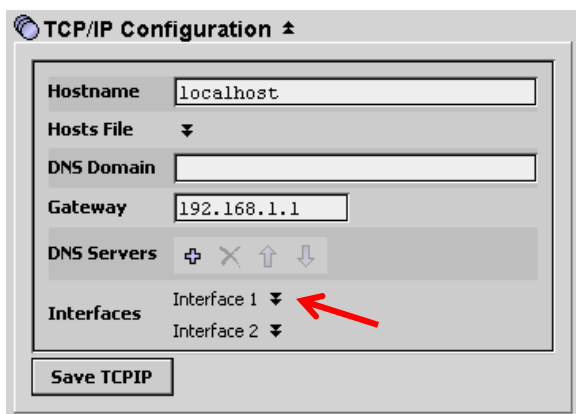
1. Select the *TCP/IP Configuration* tab.



2. Expand *Interface 1* by clicking on the double arrows to the right of the title.

IMPORTANT:

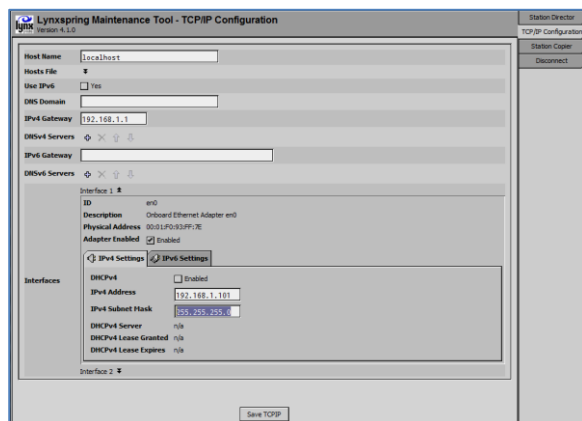
Do not change the parameters for *Interface 2*.



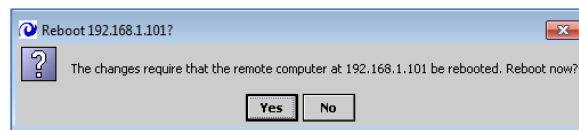
3. Edit the Gateway, IP Address, and Subnet Mask as required, then click on *Save TCP/IP*.

IMPORTANT:

Do not select *Enabled for DHCP*; this can make the controller difficult to access.



4. A pop-up message asks for confirmation to reboot the controller. Select *Yes*.



5. A pop-up message confirms that the controller is rebooting. Select *OK*. Allow several minutes for the controller to reboot.
6. Disconnect from the controller and reconnect if desired.

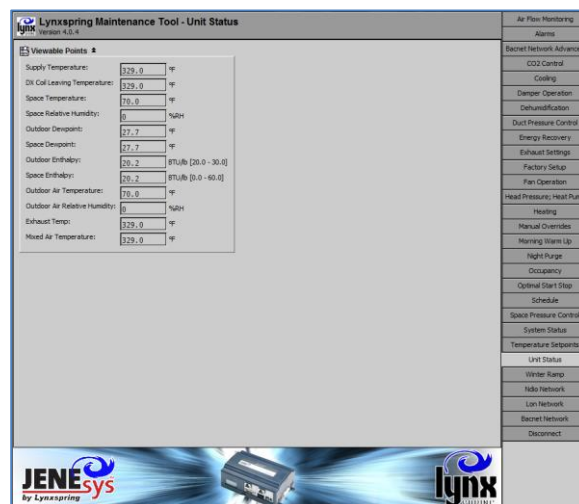
IMPORTANT:

When the IP Address has been changed, the controller can only be accessed by connecting through the new address. If the address is lost or forgotten, the controller may not be accessible. Before rebooting, record the new controller address in a convenient location.

Station

Checking Unit Status

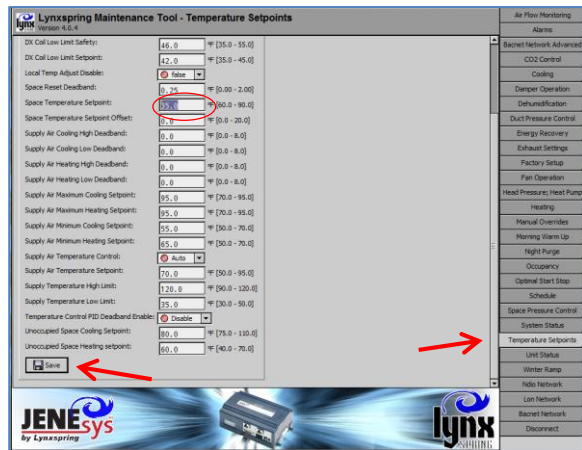
Select the *Unit Status* tab to see a summary of the temperature inputs to the unit controller.



Changing a Setpoint

1. To change a setpoint, select the appropriate tab.

For example, to change the space temperature, select the *Temperature Setpoints* tab.

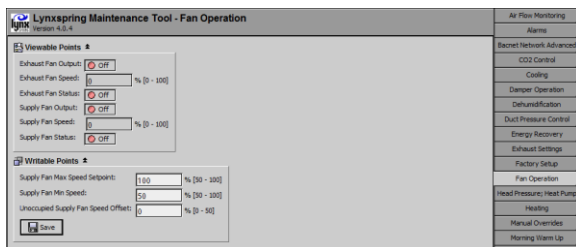


2. Click to move the cursor into the setpoint field.
3. Enter a new setpoint.
4. Click on the Save button at the bottom of the screen.

Changing the Fan Speed

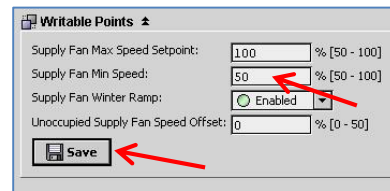
Each VPR, VPRE, VPRC/P, and VPRX rooftop unit includes a variable frequency drive (VFD) for the supply section. The supply fan speed can be changed from the UMT.

1. Select the *Fan Operation* tab.



2. If the *Writable Points* are not visible, click on the double arrows by the heading.
3. Locate the *Supply Fan Max Speed Setpoint*. Click to move the cursor into the setpoint field.

4. Enter a new maximum fan speed.

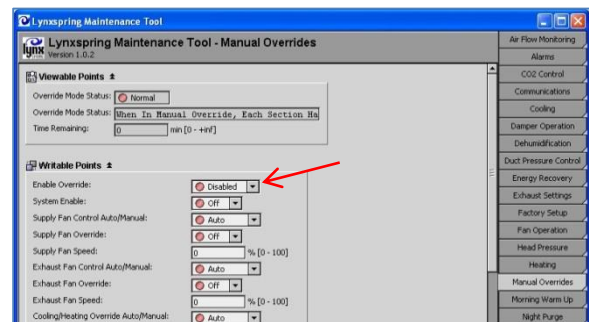


5. Click on the Save button at the bottom of the list.

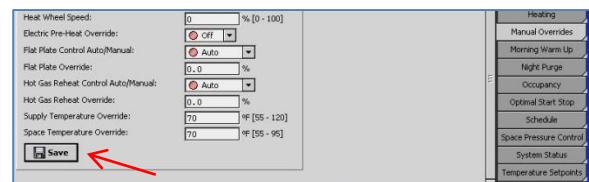
Manually Overriding a Setpoint

Many setpoints can be manually overridden during troubleshooting. Refer to the *Manual Override* section on page 52 for definitions of override points.

1. To override a setpoint, select the *Manual Overrides* tab.
2. Set Enable Override to *Enabled*.



3. Click to move the cursor into the desired setpoint field. Enter a new value or change the state.
4. Click on the Save button at the bottom of the setpoint list.

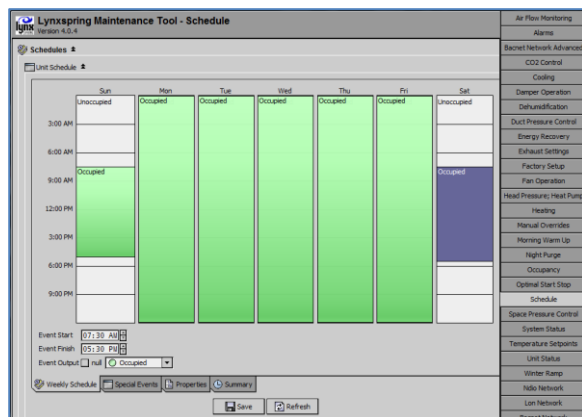


A Manual Override is in effect for 4 hours, after which setpoints return to the previous state or Auto. To stop an override, set the point to *Auto*. To cancel the manual override mode before it expires, set Enable Override to *Disabled*.

Changing a Schedule

1. To edit a schedule, select the *Occupancy* tab.

The occupied hours of operation are displayed for each day of the week. The default schedule in the controller is 24-hour Occupied.

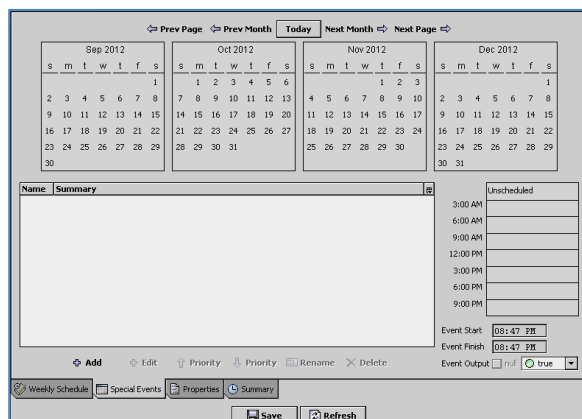


2. To edit the schedule, use the mouse to drag the start/stop times for each day. Simply click on the dividing line in the column and push it up or down to a new time. Event Start and Event Finish times can also be edited directly using the fields near the bottom of the screen.
3. When the changes are complete, press Save at the bottom of the screen.

Scheduling a Special Event

A one-time exception to the regular weekly schedule can be configured as a special event.

1. Click on the *Special Events* tab at the bottom of the Schedule screen.

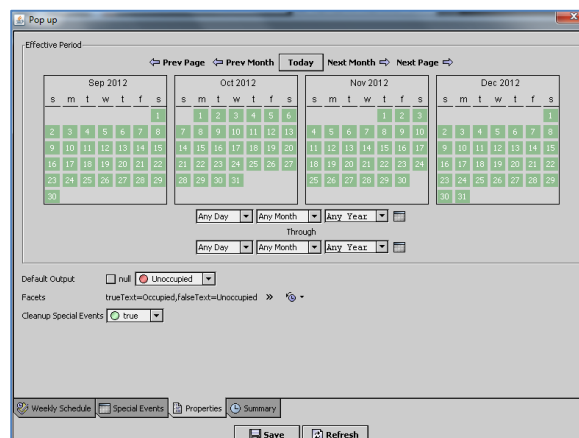


2. On the calendar at the top of the screen, click on the day to schedule a special event.
3. Enter the occupied and unoccupied times on the right side of the display in the same manner a regular schedule would be configured.
4. Click Save at the bottom of the screen.

The new settings will be valid only on the day specified.

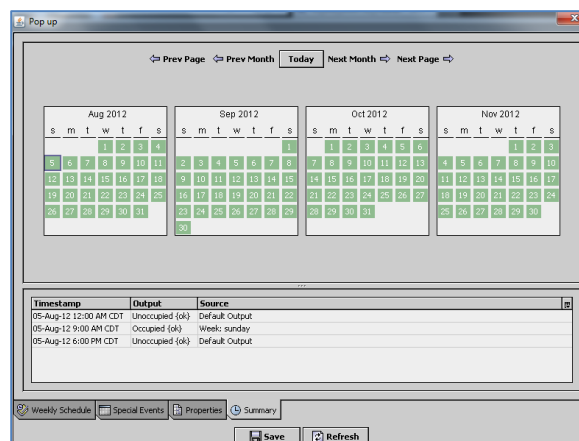
Viewing Schedule Properties

From the Schedule screen, click on the *Properties* tab at the bottom of the screen. Information on the Properties tab should be changed only under direction of the factory.



Viewing the Schedule Summary

From the Schedule screen, click on the *Summary* tab. Click on a date to see a summary of all schedule settings for that day, including the weekly settings and any special events.



UMT Map

This list contains all points accessible on the UMT. Setpoints in this list with a **solid underline** can be edited. All others are view-only.

AIR FLOW MONITORING

AMD Airflow
AMD Damper Area
AMD K Factor
AMD M Factor
AMD Thermal Dispersion Max Velocity
AMD Transducer Range
Damper Setpoint
Exhaust Airflow
Exhaust Inlet Cone K Factor
Supply Airflow
Supply Inlet Cone K Factor
Type

ALARMS

Alarm Reset
Alarm Status
Clogged Air Filter
CO2 Sensor
Duct Static Pressure
Exhaust Fan
Exhaust Temperature Sensor
Freezestat
Heat Wheel Rotation
High Pressure/Low Pressure Cutout Circuit A
High Pressure/Low Pressure Cutout Circuit B
Mixed Air Temperature Sensor
Outdoor Air Damper End Switch
Outdoor Air Temperature Sensor
Outdoor Relative Humidity Sensor
Refrigerant Pressure Transducer A
Refrigerant Pressure Transducer B
Shutdown Input
Space Humidity Sensor
Space Static Pressure
Space Temperature Sensor
Supply Fan
Supply High Temp Alarm Delay
Supply Temp High
Supply Temp Low
Supply Temperature Sensor
WSHP Low Refrigerant Pressure

BACNET NETWORK ADVANCED

Time Synch
UDP Port Number

CO2 CONTROL

CO2 Control
CO2 Deadband
CO2 Level
CO2 Setpoint
Control Enabled
Maximum Damper Control Position

COOLING

10 Volts Opens Chilled Water Valve
AMB Lockout
Chilled Water Valve Off Position
Compressor 1 Ambient Lockout Setpoint
Compressor 1 Output
Compressor 2 Ambient Lockout Setpoint
Compressor 2 Output
Compressor 3 Ambient Lockout Setpoint
Compressor 3 Output

Compressor 4 Ambient Lockout Setpoint
Compressor 4 Output
Cooling Execution Time
Cooling Integral Constant
Cooling Proportional Constant
Digital/Chilled Water Output
Enable Compressor 1 Ambient Lockout
Enable Compressor 2 Ambient Lockout
Enable Compressor 3 Ambient Lockout
Enable Compressor 4 Ambient Lockout
High/Low Pressure Trip Shutdown Circuit
Shutdown Unit During High/Low Pressure Trip

DAMPER OPERATION

Damper Configuration
Damper Output
Damper Remote Control
Economizer Configuration
Economizer Enable Setpoint Enthalpy
Economizer Enable Setpoint Temperature
Outdoor Air Damper Maximum
Outdoor Air Damper Minimum
Unoccupied Outdoor Air Damper Minimum

DEHUMIDIFICATION

Dehumidification Has Priority
DX Coil Setpoint
Occupied Space Humidity Low Deadband
Outdoor Dewpoint Deadband
Outdoor Dewpoint Setpoint
Overcool Offset
Space Dewpoint Dehumidification Cutout
Space Relative Humidity Setpoint
Unoccupied Space Humidity Low Deadband
Unoccupied Space Humidity Setpoint

DUCT PRESSURE CONTROL

Duct Pressure
Duct Pressure High Limit Setpoint
Duct Pressure Setpoint
Supply Fan Reaction Speed

ENERGY RECOVERY

Defrost Mode
Flat Plate Exhaust Defrost
Heat Wheel Exhaust Defrost
Heat Wheel Operating Mode
Heat Wheel Output
Heat Wheel Speed/Damper Position
Heat Wheel Status
HW Jog Duty Cycle
HW Jog Period
HW Speed When Economizing
Preheat Ambient Setpoint
Preheat Output

EXHAUST SETTINGS

Configuration
Exhaust Fan Enable Damper Position
Exhaust Fan Max Speed
Exhaust Fan Min Speed
Exhaust Fan Offset

FACTORY SETUP

Airflow Monitoring Type
AMD Type
CO2 Control
Communications Type
Cooling Package
Damper Configuration
Economizer
Energy Recovery Configuration
Exhaust Fan Control Type
Future
Future
Heat Pump
Heat Wheel Rotation Sensor
Heating Package
I/O Map
Morning Warm Up
Night Purge
Optimal SS
Pre-Heater
Refrigerant Monitoring
Reheat Dehumidification
Remote Damper Control
Saved Controls Number
Space Setpoint
Supply Fan Configuration
Unit Type
Web UI

FAN OPERATION

Exhaust Fan Output
Exhaust Fan Speed
Exhaust Fan Status
Supply Fan Max Speed Setpoint
Supply Fan Min Speed
Supply Fan Output
Supply Fan Speed
Supply Fan Status
Unoccupied Supply Fan Speed Offset

HEAD PRESSURE;HEAT PUMP

1.0 Air Cooled Head Pressure Setpoint
2.0 Air Cooled Head Pressure
Dehumidification Setpoint
2.0 Air Cooled Head Pressure Setpoint
ASHP Allow Defrost Mode
ASHP Defrost Cancel Condensing Setpoint
ASHP Defrost Status
ASHP Electric Heat Defrost
ASHP Electric Heat Defrost Enable :
CALL VALENT FOR PASSWORD
ASHP Low Ambient Compressor Lockout Setpoint
Head PR Output 1
Head PR Output 2
Refrigerant Pressure Circuit A
Refrigerant Pressure Circuit B
Valve A Output
Valve B Output
WSHP Cold Start Duration
WSHP Cold Start Enable Temp
WSHP Compressor Off Water Valve Position
WSHP Condenser Temperature Setpoint
WSHP Suction Temp Low Limit Safety
WSHP Valve Max Closed Position

HEATING

[10 Volts Opens Hot Water Valve](#)
[AMB Lockout](#)
[Electric Heat Output](#)
[Furnace Ramp Limit 1](#)
[Furnace Ramp Limit 2](#)
[Furnace Ramp Release Temp 1](#)
[Furnace Ramp Release Temp 2](#)
[Heating Execution Time](#)
[Heating Integral Constant](#)
[Heating Proportional Constant](#)
[Hot Water Case Heat Outside Temp Enable](#)
[Hot Water Case Heat Setpoint](#)
[Hot Water Valve Off Position](#)
[Modulating Heat Output](#)
[Ramp Release Delay](#)
[Stage 1](#)
[Stage 2](#)
[Stage 3](#)
[Supply Fan Furnace Limit Offset](#)

MANUAL OVERRIDES

[Coil Low Limit Safety](#)
[Cooling Relay 1 Override](#)
[Cooling Relay 2 Override](#)
[Cooling Relay 3 Override](#)
[Cooling Relay 4 Override](#)
[Cooling/Heating Loop Override](#)
[Cooling/Heating Loop Override Auto/Manual](#)
[Cooling/Heating Override Auto/Manual](#)
[Digital Compressor Signal Override](#)
[Electric Heat Signal Override](#)
[Electric Pre-Heat Override](#)
[Enable Override](#)
[Exhaust Fan Control Auto/Manual](#)
[Exhaust Fan Override](#)
[Exhaust Fan Speed](#)
[Fan VFD/Valve A](#)
[Fan VFD/Valve B](#)
[Flat Plat Control Auto/Manual](#)
[Flat Plate Override](#)
[Gas Burner/Hot Water Valve Signal Override](#)
[Head Pressure Auto/Manual](#)
[Heat Wheel Control Auto/Manual](#)
[Heat Wheel Override](#)
[Heat Wheel Speed](#)
[Heating Relay 1 Override](#)
[Heating Relay 2 Override](#)
[Heating Relay 3 Override](#)
[Hot Gas Reheat Control Auto/Manual](#)
[Hot Gas Reheat Override](#)
[Outside Air Damper Auto/Manual](#)
[Outside Air Damper Override](#)
[Override Mode Status](#)
[Override Mode Status](#)
[Reversing Valve Auto/Manual](#)
[Reversing Valve Position](#)
[Space Temperature Override](#)
[Supply Fan Control Auto/Manual](#)
[Supply Fan Override](#)
[Supply Fan Speed](#)
[Supply Temperature Override](#)
[System Enable](#)
[Time Remaining](#)

MORNING WARM UP

[Enable](#)
[Morning Warm Up](#)
[Morning Warmup Status](#)

NIGHT PURGE

[Night Purge](#)
[Night Purge Enable](#)

OCCUPANCY

[Enable Occupancy Auto Mode](#)
[Occupancy Status](#)
[Occupied By](#)
[System Schedule](#)
[Timed Override Duration](#)

OPTIMAL START STOP

[Earliest Start Time](#)
[Earliest Stop Time](#)
[Enable Optimal Start](#)
[Enable Optimal Stop](#)

SCHEDULE

[Properties](#)
[Special Events](#)
[Summary](#)
[Weekly Schedule](#)

SPACE PRESSURE CONTROL

[Exhaust Fan Reaction Speed](#)
[Setpoint](#)
[Space Pressure](#)
[Space Pressure High Limit Setpoint](#)
[Supply Fan Reaction Speed](#)

SYSTEM STATUS

[Cooling PID Output](#)
[Economizer PID Output](#)
[Economizer Status](#)
[End Switch Contact](#)
[Heat Pump Heat PID Output](#)
[Heating PID Output](#)
[Occupancy Controlled By](#)
[Occupancy Status](#)
[Operating Mode](#)
[Reheat Output](#)
[Reversing Valve Output](#)
[System Shutdown Status](#)
[System Start Command](#)
[System Enable](#)

TEMPERATURE SETPOINT

[Bapi Space Sensor Enable](#)
[DX Coil Low Limit Safety](#)
[DX Coil Low Limit Setpoint](#)
[Local Temp Adjust Disable](#)
[Space Reset Deadband](#)
[Space Setpoint Slider](#)
[Space Temperature Setpoint](#)
[Space Temperature Setpoint Offset](#)
[Supply Air Cooling High Deadband](#)
[Supply Air Cooling Low Deadband](#)
[Supply Air Heating High Deadband](#)
[Supply Air Heating Low Deadband](#)
[Supply Air Maximum Cooling Setpoint](#)
[Supply Air Maximum Heating Setpoint](#)
[Supply Air Minimum Cooling Setpoint](#)
[Supply Air Minimum Heating Setpoint](#)
[Supply Air Temperature Control](#)
[Supply Air Temperature Setpoint](#)
[Supply Setpoint Calculated](#)
[Supply Temperature High Limit](#)
[Supply Temperature Low Limit](#)
[Temperature Control PID Deadband Enable](#)
[Unoccupied Space Cooling Setpoint](#)
[Unoccupied Space Heating Setpoint](#)

UNIT STATUS

[DX Coil Leaving Temperature](#)
[Exhaust Temp](#)
[Mixed Air Temperature](#)
[Outdoor Air Relative Humidity](#)
[Outdoor Air Temperature](#)
[Outdoor Dewpoint](#)
[Outdoor Enthalpy](#)
[Space Dewpoint](#)
[Space Enthalpy](#)
[Space Relative Humidity](#)
[Space Temperature](#)
[Supply Temperature](#)

WINTER RAMP

[Cold OAT Setpoint](#)
[Enable Winter Ramp](#)
[Winter Ramp Control Type](#)
[Winter Ramp Type In Control](#)

NDIO NETWORK

[DDC1 34pt Standard Points Table](#)
[DDC2 16pt Options Points Table](#)
[DDC3 16pt SDR Points Table](#)

LON NETWORK

[LonWorks Settings](#)
[Points Table](#)
[SNVT Table](#)

BACNET NETWORK

[Bacnet MSTP Settings](#)
[Bacnet Table](#)

Using the Web User Interface (Web UI)

Connecting to the Network

To use the Web UI, the controller must be connected to the local area network. Using a standard CAT5 Ethernet cable, connect the PC to the JENEsys controller as shown in the following figure.



Web UI connection on the bottom of the JENEsys controller.

Configuring the IP Address for the PC

To successfully connect with the Valent unit controller, the IP address of the PC must be in the same range as the controller, but not identical.

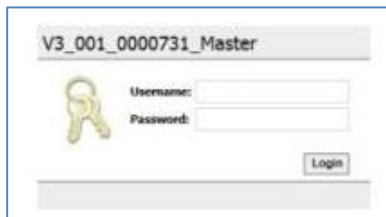
Follow the process in [Configuring the IP Address for the PC](#) on page 13.

Logging On to the Web Interface

1. To access the JENEsys program, type the IP address of the controller into the web browser.



2. The login screen then appears.



Enter the following login information:

Username: admin
Password: [blank]

The username and password are case sensitive. Click the *Login* button

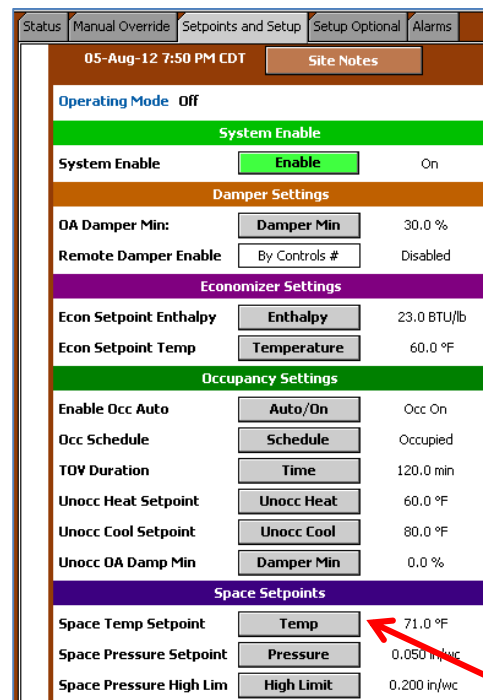
3. The Status screen appears.



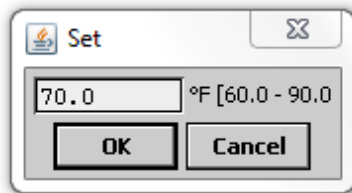
4. Select the desired tab from the top of the screen. The data displayed on each tab is a combination of view-only and editable information. All data that is accessible from the LCD is available via the Web UI.

Changing a Setpoint

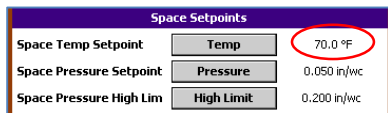
1. Click on the *Setpoints and Setup* tab.
2. Click on the button to the right of the setpoint. For example, to change the space temperature, click on the *Temp* button to the right of Space Temp Setpoint.



3. A small Set window appears. Enter a new value, then click OK.



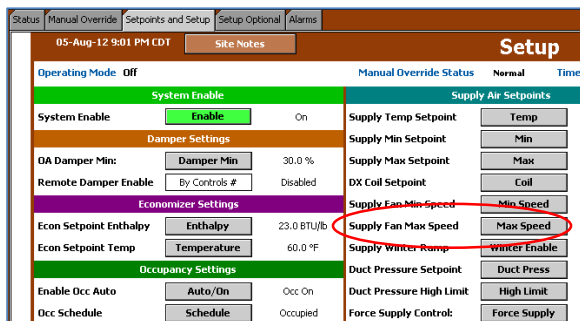
4. The change will take effect in the setpoint list.



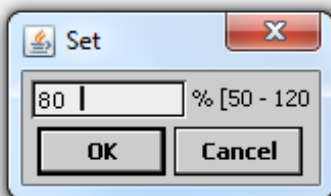
Changing the Fan Speed

To change the fan speed, adjust the Supply Fan Max Speed setpoint.

1. Click on the *Setpoints and Setup* tab.



2. Locate the Supply Air Setpoints group on the screen.
3. Locate the Supply Fan Max Speed setpoint, and click on the *Max Speed* button to the right.
4. A small Set window appears. Enter the new fan speed, then click OK.



The change is then reflected on the Setpoints and Setup screen.

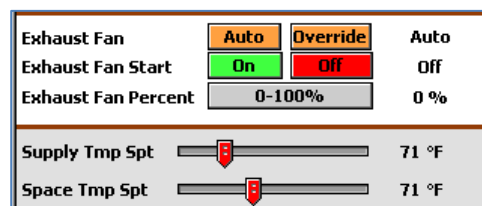
Manually Overriding a Setpoint

Many setpoints can be manually overridden during troubleshooting. Refer to the [Manual Override](#) section on page 52 for definitions of override points.

1. Click on the *Manual Override* tab.



2. Set Enable Manual Override to *On*.
3. Locate the setpoint to override.
4. Depending on the setpoint, to override the point:
 - Click on the *Override* button.
 - Click on the *On* or *Off* button.
 - Click and move the slider button to increase or decrease the value.
 - Click on the *0-100%* button, then use the pop-up Set screen to enter a new value.



The change is reflected for the setpoint on the Manual Override screen.

The manual override mode is in effect for four hours, after which setpoints return to the previous state or Auto.

To stop an override, click on the *Auto* button. To cancel the override mode before it expires, set Enable Manual Override to *Off*.

Changing a Schedule

1. To access the schedules, click on the *Setpoints and Setup* tab.
2. Locate the Occ Schedule setpoint midway down the screen.
3. Click on the *Schedule* button.

The screenshot shows the 'Setpoints and Setup' tab in the HVAC control interface. The 'Occupancy Settings' section is highlighted in green. Within this section, the 'Occ Schedule' button is selected, and a red arrow points to it. Other settings visible include 'System Enable' (On), 'Damper Min' (30.0 %), 'Remote Damper Enable' (Disabled), 'Econ Setpoint Enthalpy' (23.0 BTU/lb), 'Econ Setpoint Temp' (60.0 °F), and 'TOV Duration' (120.0 min).

4. The Weekly Schedule is displayed. This screen can be used to control the unit with a set schedule for each day of the week. The default schedule of the controller is 24-hour Occupied.

The screenshot shows the 'Weekly Schedule' display. It features a grid with days of the week (Sun through Sat) as columns and time slots (3:00 AM, 6:00 AM, 9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM, 9:00 PM) as rows. The 'Occupied' status is indicated by green shading for most of the week, and 'Unoccupied' by white shading. A red arrow points to the 'Occ Schedule' button in the previous screenshot.

5. To edit the schedule, use the mouse to drag the start/stop times for each day. Click on the dividing line in the column and push it up or down to a new time. Event Start and Event Finish times can also be edited directly using the fields near the bottom of the screen.
6. When the changes are complete, click on **Save**.

Refer to the **UMT scheduling** section on page 19 for information on using the other schedule features:

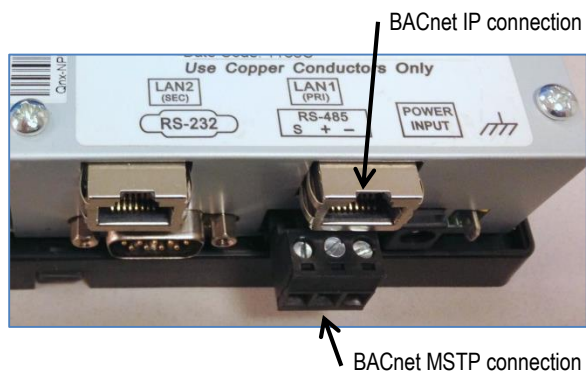
[Scheduling a Special Event](#)
[Viewing Schedule Properties](#)
[Viewing the Schedule Summary](#)

Using BACnet Communications

Wiring

The connection for BACnet IP is a standard CAT5 Ethernet port which is located on the bottom of the controller.

The connection for BACnet MSTP should be made with shielded 18-22 AWG, twisted pair, stranded wire (Belden 3106A or Belden 3107A) connected to the three-position RS-485 connector on the bottom of the controller.



BACnet connections on the bottom of the JENESys controller.

Changing the BACnet IP Settings

The BACnet IP settings for the JENESys controller are available in the POINTS menu of the LCD display. For information on how to access the IP settings, refer to [Reviewing BACnet IP or MSTP Settings](#) on page 9.

BACnet is an optional feature which must be licensed. Although data will appear for viewing on the communication menu, settings cannot be changed if the unit has not been licensed.

Changing the BACnet MSTP Settings

The BACnet MSTP setting for the JENESys controller are available in the POINTS menu of the LCD display. For information on how to access the MSTP settings, refer to [Reviewing BACnet IP or MSTP Settings](#) on page 9.

BACnet is an optional feature which must be licensed. Although data will appear for viewing on the communication menu, settings cannot be changed if the unit has not been licensed.

Using LonTalk Communications

Wiring

The wiring for LonTalk communications should be made with shielded 18-22 AWG, twisted pair, stranded wire connected to the two-port LonTalk connector on the TOP of the controller.



Checking the LonWorks Settings

The JENESys controller's LonWorks settings are available in the POINTS menu on the LCD. For more information, refer to [Reviewing LonWorks Settings](#) on page 9.

LonTalk is an optional feature which must be licensed. Although data will appear for viewing on the communications menu, settings cannot be changed if the unit has not been licensed.

Input/Output Points

34-Point Module

Universal Input		Terminals	Type	Notes
1	Supply Air Temperature	U1 0V	10K Ω Thermistor, Type III	
2	Cooling Coil Leaving Air Temperature	0V U2	10K Ω Thermistor, Type III	
3	Outdoor Air Temperature	U3 0V	10K Ω Thermistor, Type III	
4	Space Temperature	0V U4	10K Ω Thermistor, Type III	
5	Outdoor Air Relative Humidity	U5 0V	0-10 VDC (0-100%)	
6	Space Relative Humidity	0V U6	0-10 VDC (0-100%)	
7	Damper End Switch Contact	U7 0V	Contact Closed = End Switch(es) Made, Damper(s) OPEN	
8	Supply Fan Status	0V U8	Contact Closed = Fan ON	
9	Circuit A High/Low Cutout	U9 0V	Contact Closed = Normal	
10	Circuit B High/Low Cutout	0V U10	Contact Closed = Normal	
11	Outdoor Air or Supply Air Flow Measuring Station (Outdoor Air if equipped with both Supply and AMD)	U11 0V	0-10 VDC (display range varies)	
12	Duct Static Pressure	0V U12	0-10 VDC (0-5 InWc)	
13	Filter Pressure Switch	U13 0V	Contact Closed = Dirty Filter	
14	Space Setpoint Adjustment	0V U14	0-10K Ω Linear Resistance Input	
15	Occupancy Input	U15 0V	Contact Closed = Occupied	
16	Shutdown Input	0V U16	Contact Closed = Run	

Digital Output		Terminals	Type	Notes
1	Supply Fan Start/Stop	D1 1C2	2-position relay	
2	Compressor 1 Start/Stop	1C2 D2	2-position relay	
3	Compressor 2 Start/Stop	D3 3C4	2-position relay	Used only for units with 2 or more compressors
4	Compressor 3 Start/Stop	3C4 D4	2-position relay	Used only for units with 3 or more compressors
5	Compressor 4 Start/Stop	D5 5C6	2-position relay	Used only for units with 4 compressors
6	Heating Stage 1 Enable	5C6 D6	2-position relay	
7	Heating Stage 2 Enable	D7 7C8	2-position relay	
8	Heating Stage 3 Enable	7C8 D8	2-position relay	
9	Alarm Output	D9 9C10	2-position relay	Closed/Lit = Alarm
10	Preheat Output	9C10 D10	2-position relay	

Analog Output		Terminals	Type	Notes
1	OA Damper Output	AO1 0V	0-10 VDC (0-100%). Used for (analog) modulating dampers.	
2		0V AO2		
3	Modulating Heat Percentage	AO3 0V	0-10 VDC (0-100%) / 0-10 VDC (0-100% or 100-0%) Direct or reverse acting for hot water valve Default: Reverse	
4	Supply Fan Speed Output	0V AO4	0-10 VDC (0-100%)	
5	Electric Heat Output	AO5 0V	0-10 VDC (0-100%)	
6	Digital Scroll Output / Chilled Water Output	0V AO6	0-5 VDC (0-100%) / 0-10 VDC (0-100% or 100-0%) Direct or reverse acting for chilled water valve Default: Direct	
7	Modulating Hot Gas Reheat	AO7 0V	0-10 VDC (0-100%)	
8		0V AO8	0-10 VDC (0-100%)	

16-Point Module 1

Universal Input		Terminals	Type	Notes
1	Space Static Pressure	U1 0V	0-10 VDC (-0.5 to 0.5 InWc)	
2	Exhaust Temperature	0V U2	10kΩ Thermistor, Type III	
3	Refrigerant Pressure A	U3 0V	0-10 VDC (0-750 psi)	
4	Exhaust Fan Status	0V U4	Contact Closed = Fan ON	
5	CO ₂ Level	U5 0V	0-10 VDC (0-2000 ppm)	
6	Heat Wheel Status	0V U6	Contact Closed = Stopped (wired to N/C relay)	
7	Mixed Air Temperature	U7 0V	10kΩ Thermistor, Type III	
8	Refrigerant Pressure B	0V U8	0-10 VDC (0-750 psi)	

Digital Output		Terminals	Type	Notes
1	Exhaust Fan Start/Stop	D1 1C2	2-position relay	
2	Energy Recovery Wheel Start/Stop	1C2 D2	2-position relay	
3	Reversing Valve Output	D3 3C4	2-position relay	Heat Pump Reversing Valve On = Heat, Off = Cool
4	Condenser Fan Start/Stop	3C4 D4	2-position relay	

Analog Output		Terminals	Type	Notes
1	Exhaust Fan Speed Output (VFD)	AO1 0V	0-10 VDC (0-100%)	
2	Heat Wheel Speed Control (VFD)/ Flat Plate Face and Bypass Damper Output	0V AO2	0-10 VDC (0-100%, Direct Acting; 100% = Full Recovery)	
3	Water Valve Circuit A / Head Pressure AO (A if AHPC 2.0) Actual→Condenser Fan VFD/Valve A	AO3 0V	0-10 VDC (0-100%)	
4	Water Valve Circuit B/ Head Pressure AO (B if AHPC 2.0) Actual→Condenser Fan VFD/Valve B	0V AO4	0-10 VDC (0-100%)	

16-Point Module 2 (Optional)

Universal Input		Terminals	Type	Notes
1	Exhaust Fan Control (Hardwired)	U1 0V	0-10 VDC (0-100%)	
2	Supply Air Flow Measuring Station (if equipped with both supply and AMD)	0V U2	0-10 VDC (display range varies)	
3	Damper Control (Hardwired)	U3 0V	0-10 VDC (0-100%)	
4	Exhaust Air Flow Measuring Station	0V U4	0-10 VDC (display range varies)	
5	Supply Fan Control (Hardwired)	U5 0V	0-10 VDC (0-100%)	
6		0V U6		
7	Freezestat Input	U7 0V	Contact Closed = Normal (Hot Water and Chilled Water freezestats wired in series if both coils exist)	
8		0V U8		

Digital Output		Terminals	Type	Notes
1		D1 1C2	2-position relay	
2		1C2 D2	2-position relay	
3		D3 3C4	2-position relay	
4		3C4 D4	2-position relay	

Analog Output		Terminals	Type	Notes
1		AO1 0V	0-10 VDC (0-100%)	
2		0V AO2	0-10 VDC (0-100%)	
3		AO3 0V	0-10 VDC (0-100%)	
4		0V AO4	0-10 VDC (0-100%)	

Setpoint List

Setpoints, listed by the Description name, are defined in the [Setpoint Descriptions](#) section on page 40.

Description	UMT Name ■ = Editable	LCD Name ■ = Editable	Web UI Name ■ = Editable	Min	Max	Default	States
1.0 Air Cooled Head Pressure Setpoint	1.0 Air Cooled Head Pressure Setpoint	—	Air Cooled Cond Temp	90°F	140°F	115°F	—
10 Volts Opens Chilled Water Valve	10 Volts Opens Chilled Water Valve	—	—	—	—	False	False, True
10 Volts Opens Hot Water Valve	10 Volts Opens Hot Water Valve	—	—	—	—	True	False, True
2.0 Air Cooled Head Pressure Dehumidification Setpoint	2.0 Air Cooled Head Pressure Dehumidification Setpoint	—	Air Cooled Cond Temp	90°F	140°F	115°F	—
2.0 Air Cooled Head Pressure Setpoint	2.0 Air Cooled Head Pressure Setpoint	—	Air Cooled Cond Temp	90°F	140°F	115°F	—
Air Flow Monitoring Damper Area	AMD Damper Area	—	Damper Area	—	—	—	—
Air Flow Monitoring Damper Flow	AMD Airflow	AMD	Air Flow AMD	—	—	—	—
Air Flow Monitoring Damper K Factor	AMD K Factor	—	K Factor AMD	—	—	—	—
Air Flow Monitoring Damper M Factor	AMD M Factor	—	M Factor	—	—	—	—
Air Flow Monitoring Damper Setpoint	Damper Setpoint	SETPOINT	Damper Spt	—	—	0 cfm	—
Air Flow Monitoring Device Transducer Range	AMD Transducer Range	—	AMD Transducer Range	—	—	0-1 InWc	0-25, 0-5, 0-1, 0-2
Air Flow Monitoring Exhaust Cone Flow	Exhaust Airflow	EXHAUST	Air Flow Exhaust	—	—	—	—
Air Flow Monitoring Exhaust Cone K Factor	Exhaust Inlet Cone K Factor	—	K Factor Exhaust Fan	—	—	—	—
Air Flow Monitoring Supply Cone Flow	Supply Airflow	SUPPLY	Air Flow Supply	—	—	—	—
Air Flow Monitoring Supply Cone K Factor	Supply Inlet Cone K Factor	—	K Factor Supply Fan	—	—	—	—
Air Flow Monitoring Thermal Dispersion Damper Max Velocity	AMD Thermal Dispersion Max Velocity	—	TD AMD Max Velocity	—	—	—	—
Air Flow Monitoring Type	Type	—	AFMS Installed?	—	—	—	—
Air Source Heat Pump Allow Defrost Mode	ASHP Allow Defrost Mode	—	—	—	—	True	False, True
Air Source Heat Pump Defrost Cancel Condensing Setpoint	ASHP Defrost Cancel Condensing Setpoint	—	ASHP Defrost Cancel	55°F	80°F	60°F	—
Air Source Heat Pump Defrost Status	ASHP Defrost Status	ASHP	—	—	—	Normal	Normal, 1x Defrost, 2x Defrost, 3x -> Aux Heat, Defrosting, Defrost Disabled, Low Sat -> Aux Heat, Low Amb -> Aux Heat, Aux Heat, Not Installed
Air Source Heat Pump Electric Heat Defrost	ASHP Electric Heat Defrost	—	—	—	—	Disabled	Enabled, Disabled
Air Source Heat Pump Electric Heat Defrost Enable	ASHP Electric Heat Defrost Enable. Call Valent for Password.	—	ASHP Electric Defrost	—	—	—	Password required.
Air Source Heat Pump Low Ambient Compressor Lockout Setpoint	ASHP Low Ambient Compressor Lockout Setpoint	—	ASHP Low Ambient	10°F	50°F	17°F	—
Alarm Reset	Alarm Reset	ALARM RESET	Alarm Reset	—	—	False	False, True
Alarm Status	Alarm Status	ALARM STATUS	Alarm Status	—	—	Normal	Alarm, Normal
Ambient Cooling Lockout	AMB Lockout	AMB LOCKOUT	Cooling Lockout	50°F	90°F	55°F	—
Ambient Heating Lockout	AMB Lockout	AMB LOCKOUT	Heating Lockout	65.0°F	100.0°F	80.0°F	—
BACnet Time Synch	Time Synch	—	—	—	—	Disabled	—
BACnet UDP Port	UDP Port Number	—	—	—	—	47808	—
Bapi Space Sensor Enable	Bapi Space Sensor Enable	—	—	—	—	False	False, True
Chilled Water Valve Position When Unit Off	Chilled Water Valve Off Position	—	—	—	—	Closed	Closed, Open
CO2 Control	CO2 Control	—	CO2 Enabled	—	—	—	Enabled, Disabled
CO2 Damper Maximum Position	Maximum Damper Control Position	—	CO2 Damper Max	0%	100%	30%	—
CO2 Deadband	CO2 Deadband	—	CO2 Deadband	0 ppm	500 ppm	100 ppm	—

Description	UMT Name ■ = Editable	LCD Name ■ = Editable	Web UI Name ■ = Editable	Min	Max	Default	States
CO2 Enabled	Control Enabled	INSTALLED	Enable CO2 Control	—	—	—	Not Installed, Installed
CO2 Level	CO2 Level	CO2 LEVEL	—	0 ppm	2,000 ppm	—	—
CO2 Setpoint	CO2 Setpoint	SETPOINT	CO2 Setpoint	0 ppm	2,000 ppm	900 ppm	—
Compressor 1 Ambient Lockout Setpoint	Compressor 1 Ambient Lockout Setpoint	—	Comp #1 Lockout Setpoint	40.0°F	90.0°F	55°F	—
Compressor 1 Output	Compressor 1 Output	COMP 1	Compressor 1	—	—	—	Off, On
Compressor 2 Ambient Lockout Setpoint	Compressor 2 Ambient Lockout Setpoint	—	Comp #2 Lockout Setpoint	40.0°F	90.0°F	55°F	—
Compressor 2 Output	Compressor 2 Output	COMP 2	Compressor 2	—	—	—	Off, On
Compressor 3 Ambient Lockout Setpoint	Compressor 3 Ambient Lockout Setpoint	—	Comp #3 Lockout Setpoint	40.0°F	90.0°F	55°F	—
Compressor 3 Output	Compressor 3 Output	COMP 3	Compressor 3	—	—	—	Off, On
Compressor 4 Ambient Lockout Setpoint	Compressor 4 Ambient Lockout Setpoint	—	Comp #4 Lockout Setpoint	40.0°F	90.0°F	55°F	—
Compressor 4 Output	Compressor 4 Output	COMP 4	Compressor 4	—	—	—	Off, On
Cooling Execution Time	Cooling Execution Time	—	—	0	100	0.5	—
Cooling Integral Constant	Cooling Integral Constant	—	—	0	100	0.5	—
Cooling Proportional Constant	Cooling Proportional Constant	—	—	0	100	3	—
Damper Configuration	Damper Configuration	DAMPER CONFIG	—	—	—	—	100% OA, Recirc
Damper Output	Damper Output	OA DAMPER	OA Damper Position	0%	100%	—	—
Damper Remote Control	Damper Remote Control	—	Remote Damper Enabled	—	—	—	Enabled, Disabled
Defrost Mode	Defrost Mode	DEFROST MODE	Defrost Mode	—	—	—	Normal, Defrost
Dehumidification Priority	Dehumidification Has Priority	—	Dehumidification Priority	—	—	Yes	No, Yes
Dehumidification Status	Dehumidification Status	DEHUM STATUS	—	—	—	—	False, True
Digital/Chilled Water Output	Digital/Chilled Water Output	CHW/DIGITAL OUT	Digital Output	0%	100%	—	—
Duct Pressure	Duct Pressure	PRESSURE	Duct Pressure	0 InWc	5 InWc	—	—
Duct Pressure High Limit Setpoint	Duct Pressure High Limit Setpoint	HIGH LIMIT	Duct Pressure High Limit	0 InWc	5 InWc	2.50 InWc	—
Duct Pressure Setpoint	Duct Pressure Setpoint	SETPOINT	Duct Pressure Setpoint	0 InWc	5 InWc	1.00 InWc	—
DX Coil Leaving Temperature	DX Coil Leaving Temperature	DX COIL TEMP	DX Coil Temperature	-13°F	326°F	—	—
DX Coil Low Limit Safety	DX Coil Low Limit Safety	—	Coil Safety Limit	35°F	55°F	46°F	—
DX Coil Low Limit Setpoint	DX Coil Low Limit Setpoint	—	Coil Low Limit	35°F	45°F	42°F	—
DX Coil Setpoint	DX Coil Setpoint	DX COIL SETPT	DX Coil Setpoint	50°F	80°F	55°F	—
Economizer Configuration	Economizer Configuration	—	—	—	—	Outdoor Temperature	Comparative Enthalpy, Outdoor Enthalpy, Outdoor Temperature
Economizer Enable Setpoint Enthalpy	Economizer Enable Setpoint Enthalpy	ENTHALPY SPT	Econ Setpoint Enthalpy	15 Btu/lb	40 Btu/lb	23 Btu/lb	—
Economizer Enable Setpoint Temperature	Economizer Enable Setpoint Temperature	DRY BULB SPT	Econ Setpoint Temp	50°F	90°F	60°F	—
Electric Heat Output	Electric Heat Output	ELECTRIC	Electric Output	0%	100%	—	—
Enable Compressor 1 Ambient Lockout	Enable Compressor 1 Ambient Lockout	—	Comp #1 Lockout Enable	—	—	No	No, Yes
Enable Compressor 2 Ambient Lockout	Enable Compressor 2 Ambient Lockout	—	Comp #2 Lockout Enable	—	—	No	No, Yes
Enable Compressor 3 Ambient Lockout	Enable Compressor 3 Ambient Lockout	—	Comp #3 Lockout Enable	—	—	No	No, Yes
Enable Compressor 4 Ambient Lockout	Enable Compressor 4 Ambient Lockout	—	Comp #4 Lockout Enable	—	—	No	No, Yes
Enable Occupancy Auto Mode	Enable Occupancy Auto Mode	—	Enable Occ Auto	—	—	Occ On	Occ Auto, Occ On
Enable Winter Ramp	Enable Winter Ramp	—	Winter Ramp	—	—	True	False, True
Exhaust Air Temperature	Exhaust Temp	EXHAUST TEMP	Exhaust Temperature	-13°F	326°F	—	—
Exhaust Fan Configuration	Configuration	—	—	—	—	—	None, Supply Tracking, EF Space Pressure, EF Hardwired, EF BAS Control
Exhaust Fan Enable Damper Position	Exhaust Fan Enable Damper Position	EX FAN DAMP POS	Exhaust Damper Enable	0%	100%	15%	—
Exhaust Fan Maximum Speed	Exhaust Fan Max Speed	EX FAN MAX SPEED	Exhaust Max Speed	25%	100%	100%	—
Exhaust Fan Minimum Speed	Exhaust Fan Min Speed	EX FAN MIN SPEED	Exhaust Min Speed	25%	100%	25%	—
Exhaust Fan Offset	Exhaust Fan Offset	EX SPEED OFFSET	Exhaust Fan Offset	-20%	20%	0%	—
Exhaust Fan Output	Exhaust Fan Output	EXH FAN	Exhaust Fan	—	—	—	Off, On
Exhaust Fan Reaction Speed	Exhaust Fan Reaction Speed	EXHAUST REACTION	Exhaust Static Reaction	—	—	Medium	Very Slow, Slow, Medium, Fast, Very Fast

Description	UMT Name ■ = Editable	LCD Name ■ = Editable	Web UI Name ■ = Editable	Min	Max	Default	States
Exhaust Fan Speed	Exhaust Fan Speed	EXH FAN SPEED	Exhaust Fan Speed	0%	100%	—	—
Exhaust Fan Status	Exhaust Fan Status	EXH FAN STATUS	Exhaust Fan Status	—	—	—	Off, On
Flat Pate Defrost Setpoint	Flat Plate Exhaust Defrost	—	Flat Plate Defrost	15°F	60°F	38°F	—
Furnace Ramp Limit 1	Furnace Ramp Limit 1	—	—	0%	100%	60%	—
Furnace Ramp Limit 2	Furnace Ramp Limit 2	—	—	0%	100%	80%	—
Furnace Ramp Release Delay	Ramp Release Delay	—	—	0 min	20 min	5 min	—
Furnace Ramp Release Temp 1	Furnace Ramp Release Temp 1	—	—	-20°F	60°F	20°F	—
Furnace Ramp Release Temp 2	Furnace Ramp Release Temp 2	—	—	-20°F	60°F	0°F	—
Furnace Supply Fan Limit Offset	Supply Fan Furnace Limit Offset	—	—	-20%	20%	0%	—
Gas Heat Stage 1 Output	Stage 1	STAGE 1	Furnace 1	—	—	—	Off, On
Gas Heat Stage 2 Output	Stage 2	STAGE 2	Furnace 2	—	—	—	Off, On
Gas Heat Stage 3 Output	Stage 3	STAGE 3	Furnace 3	—	—	—	Off, On
Head Pressure Control Analog Output 1	Head PR Output 1	HEADPRESSURE	Cond Fan Speed	0%	100%	—	—
Head Pressure Control Digital Output 2	Head PR Output 2	HEADPRESSURE	Head Pressure Output	—	—	—	On, Off
Heat Pump Water Valve A Output	Valve A Output	VALVE A OUTPUT	Heat Pump Vlv A	0%	100%	—	—
Heat Pump Water Valve B Output	Valve B Output	VALVE B OUTPUT	Heat Pump Vlv B	0%	100%	—	—
Heat Wheel Defrost Setpoint	Heat Wheel Exhaust Defrost	—	Heat Wheel Defrost	15°F	60°F	36°F	—
Heat Wheel Jog Duty Cycle	HW Jog Duty Cycle	—	—	0%	100%	10%	—
Heat Wheel Jog Period	HW Jog Period	—	—	—	—	—	—
Heat Wheel Operating Mode	Heat Wheel Operating Mode	—	—	—	—	On When Economizing	Off When Economizing, On When Economizing, Always On
Heat Wheel Output	Heat Wheel Output	WHEEL OUTPUT	Heat Wheel	—	—	—	Off, On
Heat Wheel Speed / Bypass Damper Position	Heat Wheel Speed/Damper Position	ENERGY RECOV	Energy Recovery	0%	100%	—	—
Heat Wheel Speed When Economizing	HW Speed When Economizing	—	—	8.5%	30%	17%	—
Heat Wheel Status	Heat Wheel Status	WHEEL STATUS	Heat Wheel Status	—	—	—	Rotating, Stopped
Heating Execution Time	Heating Execution Time	—	—	0	100	0.5	—
Heating Integral Constant	Heating Integral Constant	—	—	0	100	0.5	—
Heating Proportional Constant	Heating Proportional Constant	—	—	0	100	1.75	—
High/Low Pressure Trip Shutdown Unit if Circuits Tripped	High/Low Pressure Trip Shutdown Circuit	—	Unit Shutdown Circuit	—	—	All Tripped	All Tripped, Any Tripped
High/Low Pressure Trips Shutdown Unit	Shutdown Unit During High/Low Pressure Trip	—	High/Low Pressure Trip	—	—	No	No, Yes
Hot Water Case Heat Outside Temperature Enable	Hot Water Case Heat Outside Temp Enable	HW CASE HEAT ENABLE	OAT Enable	-20°F	120°F	35°F	—
Hot Water Case Heat Setpoint	Hot Water Case Heat Setpoint	HW CASE HEAT SPT	Case Temp	35°F	50°F	40°F	—
Hot Water Valve Position When Unit Off	Hot Water Valve Off Position	—	—	—	—	Modulating	Open, Closed, Modulating
Mixed Air Temperature	Mixed Air Temperature	MIXED AIR TEMP	Mixed Air Temperature	-13°F	326°F	—	—
Modulating Heat Output	Modulating Heat Output	MODULATING	Modulating Output	0	100	—	—
Morning Warm Up Enable	Enable	ENABLE	—	—	—	Disabled	Enabled, Disabled
Morning Warm Up Status	Morning Warm Up Status	WARM UP STATUS	Warm Up Mode	—	—	—	Inactive, Active
Morning Warm Up Type	Morning Warm Up	—	—	—	—	—	None, Installed
Night Purge Enable	Night Purge Enable	—	Night Purge Enable	—	—	Disabled	Enabled, Disabled
Night Purge Type	Night Purge	—	—	—	—	—	None, Installed
Occupancy Controlled By	Occupied By	OCC BY	Occupied By	—	—	—	Unoccupied, External Input, Schedule, Optimal SS, BAS, Timed Override
Occupancy Schedule	System Schedule	SCHEDULE	Occ Schedule	—	—	24/7	—
Occupancy Status	Occupancy Status	OCC STATUS	Occupancy Mode	—	—	—	Unoccupied Off, Unocc Cooling, Unocc Heating, Unocc Dehum, Unoccupied On, Occupied Auto, Shutdown
Optimal Start Enable	Enable Optimal Start	—	Enable Optimal Start	—	—	No	No, Yes
Optimal Start/Stop Earliest Start Time	Earliest Start Time	—	Earliest Start Time	0 hr	24 hr	6 hr	—

Description	UMT Name ■ = Editable	LCD Name ■ = Editable	Web UI Name ■ = Editable	Min	Max	Default	States
Optimal Start/Stop Earliest Stop Time	Earliest Stop Time	—	Earliest Stop Time	0 hr	24 hr	18 hr	—
Optimal Stop Enable	Enable Optimal Stop	—	Enable Optimal Stop	—	—	No	No, Yes
Outdoor Air Damper Maximum Position	Outdoor Air Damper Maximum	OAD MAX POS	OA Damper Max	0%	100%	100%	—
Outdoor Air Damper Minimum Position	Outdoor Air Damper Minimum	OAD MIN POS	OA Damper Min	0%	100%	30%	—
Outdoor Air Dewpoint Deadband	Outdoor Dewpoint Deadband	—	—	0°F	15°F	3°F	—
Outdoor Air Enthalpy	Outdoor Enthalpy	OUTDOOR ENTH	OA Enthalpy	0 Btu/lb	60 Btu/lb	—	—
Outdoor Air Relative Humidity	Outdoor Air Relative Humidity	OUTDOOR RH	Outdoor Air RH	0%	100%	—	—
Outdoor Air Temperature	Outdoor Air Temperature	OA TEMP	Outdoor Air Temp	-13°F	326°F	—	—
Outdoor Dewpoint	Outdoor Dewpoint	—	OA Dewpoint	—	—	—	—
Outdoor Dewpoint Setpoint	Outdoor Dewpoint Setpoint	OA DEWPOINT SPT	OA Dewpoint	55°F	100°F	99°F	—
Overcool Offset	Overcool Offset	—	—	2.0°F	10.0°F	4.0°F	—
Preheat Ambient Setpoint	Preheat Ambient Setpoint	—	Preheat Setpoint	-50.0°F	65.0°F	10.0°F	—
Preheat Output	Preheat Output	PREHEAT	Pre Heater	—	—	—	Off, On
Refrigerant Pressure Circuit A	Refrigerant Pressure Circuit A	PRESSURE CIRC A	Refrigerant A	0 psi	750 psi	—	—
Refrigerant Pressure Circuit B	Refrigerant Pressure Circuit B	PRESSURE CIRC B	Refrigerant B	0 psi	750 psi	—	—
Space Dewpoint	Space Dewpoint	—	Space Dewpoint	—	—	—	—
Space Dewpoint Dehumidification Disable Setpoint	Space Dewpoint Dehumidification Cutout	—	Space DPT Disable	0.0°F	70.0°F	45.0°F	—
Space Enthalpy	Space Enthalpy	SPACE ENTH	Space Enthalpy	0 Btu/lb	60 Btu/lb	—	—
Space Pressure High Limit Setpoint	Space Pressure High Limit Setpoint	HIGH LIMIT	Space Pressure High Lim	0.000 InWc	+0.500 InWc	+0.200 InWc	—
Space Relative Humidity	Space Relative Humidity	SPACE RH	Space RH	0%	100%	—	—
Space Relative Humidity Occupied Deadband Setpoint	Occupied Space Humidity Low Deadband	—	—	0%	15%	5%	—
Space Relative Humidity Setpoint	Space Relative Humidity Setpoint	SPACE RH SPT	Space RH Setpoint	0%	100%	55%	—
Space Relative Humidity Unoccupied Deadband Setpoint	Unoccupied Space Humidity Low Deadband	—	—	0%	15%	5%	—
Space Reset Deadband	Space Reset Deadband	—	—	0°F	2°F	0.25°F	—
Space Static Pressure	Space Pressure	PRESSURE	Space Pressure	-0.5 InWc	+0.5 InWc	—	—
Space Static Pressure Setpoint	Setpoint	SETPOINT	Space Pressure Setpoint	-0.500 InWc	+0.500 InWc	+0.050 InWc	—
Space Temperature	Space Temperature	SPACE TEMP	Space Temperature	-13°F	326°F	—	—
Space Temperature Adjust Disable	Local Temp Adjust Disable	LOCAL ADJ DISABLE	—	—	—	False	False, True
Space Temperature Cooling Setpoint	—	—	Space Cooling Setpoint	—	—	—	—
Space Temperature Heating Setpoint	—	—	Space Heating Setpoint	—	—	—	—
Space Temperature Setpoint	Space Temperature Setpoint	SPACE SETPT	Space Temp Setpoint	60°F	90°F	74°F	—
Space Temperature Setpoint Offset	Space Temperature Setpoint Offset	SPACE OFFSET	Space Temp Offset	0.0°F	20.0°F	0.0°F	—
Space Setpoint Slider	Space Setpoint Slider	SPT SLIDER	Space Setpoint Slider	—	—	—	—
Supply Air Cooling High Deadband Setpoint	Supply Air Cooling High Deadband	—	Supply Deadband	0.0°F	8.0°F	0.0°F	—
Supply Air Cooling Low Deadband Setpoint	Supply Air Cooling Low Deadband	—	Supply Deadband	0.0°F	8.0°F	0.0°F	—
Supply Air Deadband Enable Setpoint	Temperature Control PID Deadband Enable	—	Deadband Enable	—	—	Disable	Enabled, Disabled
Supply Air Heating High Deadband Setpoint	Supply Air Heating High Deadband	—	Supply Deadband	0.0°F	8.0°F	0.0°F	—
Supply Air Heating Low Deadband Setpoint	Supply Air Heating Low Deadband	—	Supply Deadband	0.0°F	8.0°F	0.0°F	—
Supply Air Temperature Control	Supply Air Temperature Control	SUPPLY CONTROL	—	—	—	Auto	Auto, Yes
Supply Air Temperature High Limit	Supply Temperature High Limit	—	Supply High Limit	90°F	120°F	120°F	—
Supply Air Temperature High Limit Alarm Delay	Supply High Temp Alarm Delay	—	—	3 min	15 min	3 min	—
Supply Air Temperature Low Limit	Supply Temperature Low Limit	—	Supply Low Limit	30°F	50°F	35°F	—

Description	UMT Name ■ = Editable	LCD Name ■ = Editable	Web UI Name ■ = Editable	Min	Max	Default	States
Supply Air Temperature Maximum Cooling Setpoint	Supply Air Maximum Cooling Setpoint	SUPPLY MAX COOL	Supply Max Cool Setpoint	70.0°F	95.0°F	95.0°F	—
Supply Air Temperature Maximum Heating Setpoint	Supply Air Maximum Heating Setpoint	SUPPLY MAX HEAT	Supply Max Heat Setpoint	70.0°F	95.0°F	95.0°F	—
Supply Air Temperature Minimum Cooling Setpoint	Supply Air Minimum Cooling Setpoint	SUPPLY MIN COOL	Supply Min Cool Setpoint	50.0°F	70.0°F	55.0°F	—
Supply Air Temperature Minimum Heating Setpoint	Supply Air Minimum Heating Setpoint	SUPPLY MIN HEAT	Supply Min Heat Setpoint	50.0°F	70.0°F	65.0°F	—
Supply Air Temperature Setpoint	Supply Air Temperature Setpoint	SUPPLY SETPT	Supply Temp Setpoint	50°F	95°F	70°F	—
Supply Fan Maximum Speed Spt	Supply Fan Max Speed Setpoint	SUP FAN MAX	Supply Fan Max Speed	50%	100%	100%	—
Supply Fan Minimum Speed Setpoint	Supply Fan Min Speed	SUP FAN MIN	Supply Fan Min Speed	50%	100%	50%	—
Supply Fan Output	Supply Fan Output	SUPPLY FAN	Supply Fan	—	—	—	Off, On
Supply Fan Reaction Speed (Duct Pressure)	Supply Fan Reaction Speed	SUPPLY REACTION	—	—	—	Medium	Very Slow, Slow, Medium, Fast, Very Fast
Supply Fan Reaction Speed (Space Pressure)	Supply Fan Reaction Speed	SUPPLY REACTION	—	—	—	Medium	Very Slow, Slow, Medium, Fast, Very Fast
Supply Fan Speed	Supply Fan Speed	SUP FAN SPEED	Supply Fan Speed	0%	100%	—	—
Supply Fan Status	Supply Fan Status	SUP FAN STATUS	Supply Fan Status	—	—	—	Off, On
Supply Setpoint Calculated	Supply Setpoint Calculated	SUPPLY CALC	Calculated Supply Spt	—	—	—	—
Supply Temperature	Supply Temperature	SUPPLY TEMP	Supply Temperature	—	—	—	—
System Enable	System Enable	SYSTEM ENABLE	System Enable	—	—	Off	Off, On
Timed Override Duration	Timed Override Duration	—	TOV Duration	0 min	240 min	120 min	—
Unit Schedule	Unit Schedule	SCHEDULING	—	—	—	24/7	—
Unoccupied Outdoor Air Damper Minimum	Unoccupied Outdoor Air Damper Minimum	—	Unocc OA Damp Min	0%	100%	0%	—
Unoccupied Space Cooling Setpoint	Unoccupied Space Cooling Setpoint	UNOCC COOL	Unocc Cool Setpoint	75°F	85°F	80°F	—
Unoccupied Space Heating Setpoint	Unoccupied Space Heating Setpoint	UNOCC HEATING	Unocc Heat Setpoint	55°F	70°F	60°F	—
Unoccupied Space Relative Humidity Setpoint	Unoccupied Space Humidity Setpoint	—	Space Unocc RH Spt	0%	100%	68%	—
Unoccupied Supply Fan Offset	Unoccupied Supply Fan Speed Offset	—	—	0%	50%	0%	—
Water Source Heat Pump Cold Start Duration	WSHP Cold Start Duration	—	WSHP Cold Start	0 sec	300 sec	60 sec	—
Water Source Heat Pump Cold Start Enable Temperature	WSHP Cold Start Enable Temp	—	WSHP Cold Start	0°F	60°F	30°F	—
Water Source Heat Pump Compressor Off Water Valve Position	WSHP Compressor Off Water Valve Position	COMP OFFVLVPOS	WSHP Valve Off	0%	100%	100%	—
Water Source Heat Pump Condenser Temperature Setpoint	WSHP Condenser Temperature Setpoint	—	WSHP Cond Temp	90°F	120°F	115°F	—
Water Source Heat Pump Suction Temp Low Limit	WSHP Suction Temp Low Limit Safety	WSHP SUC LOWLIM	WSHP Suction Safety	0°F	40°F	25°F	—
Water Source Heat Pump Water Valve Max Closed Position Setpt	WSHP Valve Max Closed Position	—	—	50%	100%	85%	—
Winter Ramp Control Type	Winter Ramp Control Type	—	Winter Control	—	—	Supply Fan	Supply Fan, Damper
Winter Ramp OA Enable Setpoint	Cold OAT Setpoint	—	—	20°F	60°F	40°F	—
Winter Ramp Type In Control	Winter Ramp Type In Control	—	—	—	—	—	—

BACnet Setpoint List

Setpoints, listed by the Description name, are defined in the [Setpoint Descriptions](#) section on page 40.

* BAS reported sensor values: Sensor readings as relayed by a building management system override any hardwired sensors connected to the unit.

** All editable BACnet points can be written to at the following priorities: in2, in3, in4, in5, in7, in8, in9, in10, in11, in12, in13, in14, in15, in16.

Description ■ =Editable**	Object Name	Object Type	Instance
Supply Temperature	Supply Temp	Analog Value	1
Space Temperature	Space Temp	Analog Value	2
DX Coil Leaving Temperature	DXCoilTemp	Analog Value	3
Space Relative Humidity	SpaceRH	Analog Value	4
Indoor Enthalpy	Indoor Enthalpy	Analog Value	5
Space Dewpoint	Space Dewpoint	Analog Value	6
Space CO2	SpaceCO2	Analog Value	7
Outdoor Air Temperature	OutdoorTemp	Analog Value	8
Outdoor Relative Humidity	OutdoorRH	Analog Value	9
Outdoor Enthalpy	Outdoor Enthalpy	Analog Value	10
Outdoor Air Dewpoint	OA Dewpoint	Analog Value	11
Exhaust Temperature	ExhaustTemp	Analog Value	12
Mixed Air Temperature	MixedAirTemp	Analog Value	13
Duct Static Pressure	DuctStaticPressure	Analog Value	14
Space Static Pressure	SpaceStaticPressure	Analog Value	15
Circuit A Refrigerant Pressure	CircuitA_Pressure	Analog Value	16
Circuit B Refrigerant Pressure	CircuitB_Pressure	Analog Value	17
Air Flow Monitoring Station CFM	AFMS CFM	Analog Value	18
Supply Fan Speed	SupplyFanSpeed	Analog Value	19
Exhaust Fan Speed	ExFanSpeed	Analog Value	20
Outdoor Damper Position	OutdoorDamperPos	Analog Value	21
Hot Gas Reheat Percentage	HotGasReheatPct	Analog Value	22
Digital Scroll Compressor Percentage	DigitalScrollPct	Analog Value	23
Chilled Water Valve Position	ChilledWaterValvePos	Analog Value	24
Modulating Heat Percentage, Primary	HeatPrimaryPct	Analog Value	25
Modulating Heat Percentage, Secondary	HeatSecondaryPct	Analog Value	26
Head Pressure Analog Output Status	HeadPressureAO	Analog Value	27
Heat Pump Water Valve A Percentage	HP_WaterValveA	Analog Value	28
Heat Pump Water Valve B Percentage	HP_WaterValveB	Analog Value	29
Space Temperature Setpoint from BAS *	Space Temp Setpoint	Analog Value	30
Supply Temperature Setpoint from BAS *	Supply Temp Setpoint	Analog Value	31
Space Humidity Setpoint from BAS *	Space Humidity Setpoint	Analog Value	32
CO2 Level Setpoint from BAS *	CO2 Setpoint	Analog Value	34
Supply Duct Static Pressure Setpoint from BAS *	Supply Duct Pressure Setpoint	Analog Value	35
Space Static Pressure Setpoint from BAS *	Space Pressure Setpoint	Analog Value	36
BAS Reported Space Temperature *	Space Temp BAS	Analog Value	37
BAS Reported Space Relative Humidity *	Space RH BAS	Analog Value	38
BAS Reported Outdoor Relative Humidity *	Outdoor RH BAS	Analog Value	39
BAS Reported Outdoor Air Temperature *	Outdoor Temp BAS	Analog Value	40
BAS Reported Space Static Pressure *	Space Static BAS	Analog Value	41
BAS Reported Supply Duct Static Pressure *	Duct Static BAS	Analog Value	42
BAS Reported Space CO2 Level *	CO2 BAS	Analog Value	43
Exhaust Fan BAS Speed Command *	ExhaustSpeedBAS	Analog Value	44
BAS Remote Damper Signal *	OA_DamperPOS_BAS	Analog Value	45
Supply Fan BAS Speed Command *	Supply Fan BAS Speed	Analog Value	46
Air Flow Monitoring Station CFM 2	AFMS CFM 2	Analog Value	47

Description ■ =Editable**	Object Name	Object Type	Instance
Energy Recovery Control Output	Energy Recovery	Analog Value	48
Space Unoccupied Cooling Setpoint	Space Unoccupied Cooling Setpoint	Analog Value	49
Space Unoccupied Heating Setpoint	Space Unoccupied Heating Setpoint	Analog Value	50
Space Unoccupied Humidity Setpoint	Space Unoccupied Humidity Setpoint	Analog Value	51
Space Temperature Heating Setpoint	SpaceHeatingSetpoint	Analog Value	52
Space Temperature Cooling Setpoint	SpaceCoolingSetpoint	Analog Value	53
Space Temperature Setpoint Offset	SpaceTempSptOffset	Analog Value	54
Air Flow Monitoring Exhaust Cone Flow	Exhaust CFM	Analog Value	55
Outside Air Damper Minimum Position	OAD Min Pos	Analog Value	56
Active Space Temperature Setpoint	Active Space Temperature Setpoint	Analog Value	57
Space Setpoint Slider	Space Setpoint Slider	Analog Value	58
System Start Command	SystemStart	Binary Value	1
Shutdown Input Status	RunStopStatus	Binary Value	2
Supply Fan Status	SupplyFanStatus	Binary Value	3
Exhaust Fan Status	ExFanStatus	Binary Value	4
Heat Wheel Status	HeatWheelStatus	Binary Value	5
Compressor 1 Status	Compr1Status	Binary Value	6
Compressor 2 Status	Compr2Status	Binary Value	7
Compressor 3 Status	Compr3Status	Binary Value	8
Compressor 4 Status	Compr4Status	Binary Value	9
Gas Heat Enable, Stage 1	GasHeatEnaStg1	Binary Value	10
Gas Heat Enable, Stage 2	GasHeatEnaStg2	Binary Value	11
Gas Heat Enable, Stage 3	GasHeatEnaStg3	Binary Value	12
Head Pressure Digital Output Status	HeadPressureDO	Binary Value	13
Reversing Valve Position	RevValve	Binary Value	14
Enables BAS to Control Occupancy *	BAS_Occ_Enable	Binary Value	15
BAS Occupancy Command *	BAS_Occ_Command	Binary Value	16
BAS Cooling Disable Request *	Cooling Disable Request	Binary Value	17
BAS Heating Disable Request *	Heating Disable Request	Binary Value	18
BAS System Emergency Shutdown Command *	System Shutdown BAS	Binary Value	19
Alarm Reset	AlarmReset	Binary Value	20
System Alarm Status	Alarm Status	Binary Value	21
Shutdown Input Alarm	Shutdown Input Alarm	Binary Value	22
Supply Fan Alarm	Supply Fan Alarm	Binary Value	23
Exhaust Fan Alarm	ExhaustFanAlarm	Binary Value	24
Damper End Switch Alarm	EndSwitchAlarm	Binary Value	25
Circuit A High Low Pressure Alarm	HPC_LPC_A_Alarm	Binary Value	26
Circuit B High Low Pressure Alarm	HPC_LPC_B_Alarm	Binary Value	27
Refrigerant Pressure Transducer Circuit A Alarm	RefPressureAAlarm	Binary Value	28
Refrigerant Pressure Transducer Circuit B Alarm	RefPressureBAlarm	Binary Value	29
Supply Temperature Sensor Alarm	SupplyTempSensorAlarm	Binary Value	30
Exhaust Temperature Sensor Alarm	ExhaustTempSensorAlarm	Binary Value	32
Mixed Air Temperature Sensor Alarm	MixedTempSensorAlarm	Binary Value	33
Outdoor Air Relative Humidity Sensor Alarm	OA_RH_Sensor_Alarm	Binary Value	34
Outdoor Air Temperature Sensor Alarm	OASensorAlarm	Binary Value	35

Description ■ =Editable**	Object Name	Object Type	Instance
Space High Static Pressure Alarm	SpaceStaticAlarm	Binary Value	36
Supply Duct High Static Alarm	DuctStaticAlarm	Binary Value	37
Heat Wheel Rotation Sensor Alarm	HWSensorAlarm	Binary Value	38
CO2 Sensor Alarm	CO2SensorAlarm	Binary Value	39
Clogged Filter Alarm	FilterAlarm	Binary Value	40
Supply Temperature Low Limit Alarm	SupplyLowLimitAlarm	Binary Value	41
Supply Temperature High Limit Alarm	SupplyHighLimitAlarm	Binary Value	42
Space Temperature Sensor Alarm	SpaceTempSensorAlarm	Binary Value	43
Energy Recovery Defrost Mode. True = Defrost	Energy Recovery Defrost	Binary Value	45
Allows BAS to Override the supply fan signal. *	BAS SF Override Enable	Binary Value	46
Allows BAS to Override the exhaust fan signal. *	BAS EF Override Enable	Binary Value	47
Allows BAS to Override the outdoor air damper signal. *	BAS OAD Override Enable	Binary Value	48
WSHP Refrigerant Low Pressure Alarm	WSHP Ref Low Pressure Alarm	Binary Value	49
Freezestat Alarm	FreezestatAlarm	Binary Value	50
Allows BAS to disable local setpoint adjust	BAS LocalAdjDisable	Binary Value	51
Occupancy Mode 1.Unocc Off 2.Unocc Cooling 3.Unocc Heating On 4.Unocc Dehum 5.Occupied On 6.Occupied Auto 7.Shutdown	OccupancyMode	Multi State Value	1
1.Fan Only 2.Economizing 3.Energy Recovery 4.Cooling 5.Cooling w/Energy Recovery 6.Heating 7.Heating w/Energy Recovery 8.Dehumidifying 9.Off 10.Shutdown Delay	Unit Mode	Multi State Value	2

LonTalk Setpoint List

Setpoints, listed by the Description name, are defined in the [Setpoint Descriptions](#) section on page 40.

*BAS reported sensor values: Sensor readings as relayed by a building management system override any hardwired sensors connected to the unit.

Description ■ =Editable	Name	SnvtType	NvIndex
Object Request	nviRequest	SNVT_obj_request	0
Object Status	nvoStatus	SNVT_obj_status	1
Supply Temperature	nvoSupplyTemp	SNVT_temp_p	2
Space Temperature	nvoSpaceTemp	SNVT_temp_p	3
DX Coil Leaving Temperature	nvoDXCoilTemp	SNVT_temp_p	4
Space Relative Humidity	nvoSpaceRH	SNVT_lev_percent	5
Indoor Enthalpy	nvoSpaceEnth	SNVT_enthalpy	6
Space Dewpoint	nvoSpaceDewpoint	SNVT_temp_p	7
Space CO2	nvoSpaceCO2	SNVT_ppm	8
Outdoor Air Temperature	nvoOutdoorTemp	SNVT_temp_p	9
Outdoor Relative Humidity	nvoOutdoorRH	SNVT_lev_percent	10
Outdoor Enthalpy	nvoOutdoorEnth	SNVT_enthalpy	11
Outdoor Air Dewpoint	nvoDewpoint	SNVT_temp_p	12
Exhaust Temperature	nvoExhaustTemp	SNVT_temp_p	13
Mixed Air Temperature	nvoMixedTemp	SNVT_temp_p	14
Duct Static Pressure	nvoDuctStatic	SNVT_press_p	15
Space Static Pressure	nvoSpaceStatic	SNVT_press_p	16
Circuit A Refrigerant Pressure	nvoCircPressA	SNVT_press_f	17
Circuit B Refrigerant Pressure	nvoCircPressB	SNVT_press_f	18
Air Flow Monitoring Station CFM	nvoAirflow	SNVT_flow	19
Supply Fan Speed	nvoFanSpeed	SNVT_lev_percent	20
Exhaust Fan Speed	nvoExhFanSpeed	SNVT_lev_percent	21
Outdoor Damper Position	nvoOAD_Pos	SNVT_lev_percent	22
Hot Gas Reheat Percentage	nvoHotGas_Pos	SNVT_lev_percent	23
Digital Scroll Compressor Percentage	nvoDigitalScroll	SNVT_lev_percent	24
Chilled Water Valve Position	nvoCW_ValvePos	SNVT_lev_percent	25
Modulating Heat Percentage, Primary	nvoHeatGas	SNVT_lev_percent	26
Modulating Heat Percentage, Secondary	nvoHeatElec	SNVT_lev_percent	27
Head Pressure Analog Output Status	nvoHeadPress1	SNVT_lev_percent	28
Heat Pump Water Valve A Percentage	nvoWaterValveA	SNVT_lev_percent	29
Heat Pump Water Valve B Percentage	nvoWaterValveB	SNVT_lev_percent	30
Space Temperature Setpoint from BAS *	nviSpaceSetpt	SNVT_temp_p	31
Supply Temperature Setpoint from BAS *	nviSupplySetpt	SNVT_temp_p	32
Space Humidity Setpoint from BAS *	nviSpaceRH_SP	SNVT_lev_percent	33
CO2 Level Setpoint from BAS *	nviCO2_SP	SNVT_ppm	34
Supply Duct Static Pressure Setpoint from BAS *	nviDuctStaticSP	SNVT_press_p	35
Space Pressure Setpoint from BAS *	nviSpaceStaticSP	SNVT_press_p	36
BAS Reported Space Temperature *	nviSpaceTemp	SNVT_temp_p	37
BAS Reported Space Relative Humidity *	nviSpaceRH	SNVT_lev_percent	38
BAS Reported Outdoor Relative Humidity *	nviOutdoorRH	SNVT_lev_percent	39
BAS Reported Outdoor Air Temperature *	nviOutdoorTemp	SNVT_temp_p	40
BAS Reported Space Static Pressure *	nviSpaceStatic	SNVT_press_p	41
BAS Reported Supply Duct Static Pressure *	nviDuctStatic	SNVT_press_p	42

Description ■ =Editable	Name	SnvtType	NvIndex
BAS Reported Space CO2 Level *	nviCO2	SNVT_ppm	43
Exhaust Fan BAS Speed Command *	nviExhFanSpeed	SNVT_lev_percent	44
BAS Remote Damper Signal *	nviOAD_Pos	SNVT_lev_percent	45
Supply Fan BAS Speed Command *	nviFanSpeed	SNVT_lev_percent	46
System Start Command	nvoUnitStart	SNVT_switch	47
Shutdown Input Status	nvoShutdown	SNVT_switch	48
Supply Fan Status	nvoFanStatus	SNVT_switch	49
Exhaust Fan Status	nvoExhFanStatus	SNVT_switch	50
Heat Wheel Status	nvoWheelStatus	SNVT_switch	51
Compressor 1 Status	nvoCompr1Status	SNVT_switch	52
Compressor 2 Status	nvoCompr2Status	SNVT_switch	53
Compressor 3 Status	nvoCompr3Status	SNVT_switch	54
Compressor 4 Status	nvoCompr4Status	SNVT_switch	55
Gas Heat Enable, Stage 1	nvoGasStage1	SNVT_switch	56
Gas Heat Enable, Stage 2	nvoGasStage2	SNVT_switch	57
Gas Heat Enable, Stage 3	nvoGasStage3	SNVT_switch	58
Head Pressure Digital Output Status	nvoHeadPress2	SNVT_switch	59
Reversing Valve Position	nvoRevValve	SNVT_switch	60
Enables BAS to Control Occupancy *	nviBAS_OccEnable	SNVT_switch	61
BAS Occupancy Command *	nviBAS_OccCmd	SNVT_switch	62
BAS Cooling Disable Request *	nviCoolDisable	SNVT_switch	63
BAS Heating Disable Request *	nviHeatDisable	SNVT_switch	64
BAS System Emergency Shutdown Command *	nviShutdown	SNVT_switch	65
Alarm Reset	nviAlarmReset	SNVT_switch	66
System Alarm Status	nvoAlarmStatus	SNVT_switch	67
Shutdown Input Alarm	nvoAlmShutdown	SNVT_switch	68
Supply Fan Alarm	nvoAlmFan	SNVT_switch	69
Exhaust Fan Alarm	nvoAlmExhFan	SNVT_switch	70
Damper End Switch Alarm	nvoAlmEndSwitch	SNVT_switch	71
Circuit A High Low Pressure Alarm	nvoAlmCircA	SNVT_switch	72
Circuit B High Low Pressure Alarm	nvoAlmCircB	SNVT_switch	73
Refrigerant Pressure Transducer Circuit A Alarm	nvoAlmCircPressA	SNVT_switch	74
Refrigerant Pressure Transducer Circuit B Alarm	nvoAlmCircPressB	SNVT_switch	75
Supply Temperature Sensor Alarm	nvoAlmSupplyTmp	SNVT_switch	76
Space Temperature Sensor Alarm	nvoAlmSpaceTmp	SNVT_switch	77
Exhaust Temperature Sensor Alarm	nvoAlmExhTmp	SNVT_switch	78
Mixed Air Temperature Sensor Alarm	nvoAlmMixedTmp	SNVT_switch	79
Outdoor Air Relative Humidity Sensor Alarm	nvoAlmOA_RH	SNVT_switch	80
Outdoor Air Temperature Sensor Alarm	nvoAlmOA_Temp	SNVT_switch	81
Space High Static Pressure Alarm	nvoAlmSpcStatic	SNVT_switch	82
Supply Duct High Static Alarm	nvoAlmDuctStatic	SNVT_switch	83
Heat Wheel Rotation Sensor Alarm	nvoAlmHWRotation	SNVT_switch	84
CO2 Sensor Alarm	nvoAlmCO2	SNVT_switch	85
Clogged Filter Alarm	nvoAlmFilters	SNVT_switch	86
Supply Temperature Low Limit Alarm	nvoAlmSupLow	SNVT_switch	87
Supply Temperature High Limit Alarm	nvoAlmSupHigh	SNVT_switch	88
1.Fan Only 2.Economizing 3.Energy Recovery 4.Cooling 5.Cooling w/Energy Recovery 6.Heating	nvoOccStatus	SNVT_str_asc	89

Description =Editable	Name	SnvtType	NvIndex
7.Heating w/Energy Recovery 8.Dehumidifying 9.Off 10.Shutdown Delay			
Air Flow Monitoring Station CFM 2	nvoAirflow2	SNVT_flow	90
Energy Recovery Control Output	nvoEnergyRecovery	SNVT_lev_percent	91
Energy Recovery Defrost Mode. True = Defrost	nvoDefrostMode	SNVT_switch	92
Allows BAS to override the supply fan signal. *	nviBAS_SF_Ovrd	SNVT_switch	93
Allows BAS to override the exhaust fan signal. *	nviBAS_EF_Ovrd	SNVT_switch	94
Allows BAS to override the outdoor air damper signal. *	nviBAS_OAD_Ovrd	SNVT_switch	95
WSHP Refrigerant Low Pressure Alarm	nvoAlmWSHPLowPSI	SNVT_switch	96
Space Unoccupied Cooling Setpoint	nviUnocCoolSpt	SNVT_temp_p	97
Space Unoccupied Heating Setpoint	nviUnocHeatSpt	SNVT_temp_p	98
Space Unoccupied Humidity Setpoint	nviUnocHumidSpt	SNVT_lev_percent	99
Occupancy Mode 1.Unocc Off 2.Unocc Cooling 3.Unocc Heating On 4.Unocc Dehum 5.Occupied On 6.Occupied Auto 7.Shutdown	nvoUnitMode	SNVT_str_asc	100
Freezestat Alarm	nvoAlmFreezestat	SNVT_switch	101
Space Temperature Setpoint Offset	nviSpaceOffset	SNVT_temp_diff_p	102
Space Temperature Cooling Setpoint	nvoSpaceCoolSpt	SNVT_temp_p	103
Space Temperature Heating Setpoint	nvoSpaceHeatSpt	SNVT_temp_p	104
Air Flow Monitoring Exhaust Cone Flow	nvoExhaustCFM	SNVT_flow	105
Allows BAS to disable local setpoint adjust	nviBAS_LocalAdjDisable	SNVT_switch	106
Outside Air Damper Minimum Position	nviOAD_Min_Pos	SNVT_lev_percent	107
Active Space Temperature Setpoint	nvoActiveSpaceSetpoint	SNVT_temp_p	108
Space Setpoint Slider	nvoSpaceSetpointSlider	SNVT_temp_p	109

Setpoint Descriptions

This section contains definitions for all setpoints available on the LCD, UMT, Web UI, and also via BACnet and LonTalk. Setpoints are listed here by their descriptions. Setpoints may have different names on different displays. Refer to the following for display names and setpoint parameters:

Setpoint List, page 29.

BACnet Setpoint List, page 34.

LonTalk Setpoint List, page 37.

1.0 Air Cooled Head Pressure Setpoint

Sets the saturated condensing temperature target for the Active Head Pressure Control (condenser fan) control loop. Applies to air-cooled units equipped with Active Head Pressure Control 1.0 and running in Cooling or Dehumidification mode. Consult the factory before adjusting this setpoint.

10 Volts Opens Chilled Water Valve

When set to True, the control system assumes that a direct acting water valve is installed and 10VDC output = full flow. If set to False, the control system assumes a reverse acting water valve is installed.

10 Volts Opens Hot Water Valve

When set to True, the control system assumes that a direct acting water valve is installed and 10VDC output = full flow. If set to False, the control system assumes a reverse acting water valve is installed.

2.0 Air Cooled Head Pressure Dehumidification Setpoint

Sets the saturated condensing temperature target for the Active Head Pressure Control (condenser fan) control loop. Applies to air-cooled units equipped with Active Head Pressure Control 2.0 and running in Dehumidification mode. Consult the factory before adjusting this setpoint.

2.0 Air Cooled Head Pressure Setpoint

Sets the saturated condensing temperature target for the Active Head Pressure Control (condenser fan) control loop. Applies to air-cooled units equipped with Active Head Pressure Control 2.0 and running in Cooling

mode. Consult the factory before adjusting this setpoint.

Air Flow Monitoring Damper Area

Consult the factory before adjusting this setpoint.

Air Flow Monitoring Damper Flow

The airflow, in CFM, as measured by the airflow monitoring damper (AMD), if installed in the outdoor air stream.

Air Flow Monitoring Damper K Factor

Consult the factory before adjusting this setpoint.

Air Flow Monitoring Damper M Factor

Consult the factory before adjusting this setpoint.

Air Flow Monitoring Damper Setpoint

The rate of air flow, in CFM, that the air flow monitoring damper maintains when the unit is occupied.

Air Flow Monitoring Device Transducer Range

Consult the factory before adjusting this setpoint.

Air Flow Monitoring Exhaust Cone Flow

The exhaust air flow, in CFM, as measured by a fan inlet cone air flow monitoring station, if installed.

Air Flow Monitoring Exhaust Cone K Factor

Consult the factory before adjusting this setpoint.

Air Flow Monitoring Supply Cone Flow

The air flow, in CFM, as measured by a fan inlet cone air flow monitoring station, if installed.

Air Flow Monitoring Supply Cone K Factor

Consult the factory before adjusting this setpoint.

Air Flow Monitoring Thermal Dispersion Damper Max Velocity

Consult the factory before adjusting this setpoint.

Air Flow Monitoring Type

Indicates if an air flow monitoring station is installed, and the type of station.

Air Source Heat Pump Allow Defrost Mode

Indicates if defrost is enabled or disabled for an air source heat pump.

Air Source Heat Pump Defrost Cancel Condensing Setpoint

When the condensing temperature reaches this setpoint, the unit will cancel the defrost mode and resume normal operation.

Air Source Heat Pump Defrost Status

Indicates whether an ASHP unit in heating mode is actively defrosting the outside coil by changing from Normal to Defrosting, and also indicates which portion of the defrost logic, if any, is active.

If the unit is configured to operate without defrost mode, this point displays Defrost Disabled.

The number of defrost cycles in the last hour is indicated by: 1x Defrost, 2x Defrost.

If the unit has switched to an auxiliary heat source, this point displays the reason why:

- 3x -> Aux Heat: Third Defrost cycle in a one hour interval.
- Aux Heat: Defrost requested, but unit is configured to operate without defrost mode.
- Low Sat -> Aux Heat: Failure to maintain requested supply temperature.
- Low Amb -> Aux Heat: Ambient conditions too cold to run as an Air Source Heat Pump.

If the unit is not an Air Source Heat Pump, this point displays Not Installed.

Air Source Heat Pump Electric Heat Defrost

Indicates whether the Electric Heater is allowed to operate during ASHP defrost mode.

Air Source Heat Pump Electric Heat Defrost Enable

A password is required to control this point. Contact Valent for password.

Air Source Heat Pump Low Ambient Compressor Lockout Setpoint

If the outdoor air temperature is below this setpoint, the compressors are locked out from heating and cooling.

Alarm Reset

This point resets all of the unit alarms.

Alarm Status

The status of the controller's alarm output (Digital Output 9). Digital Output 9 on the 34-point module closes and the associated LED lights up when any shutdown alarm is present in the system. Refer to the **Alarms** section on page 54 for more information.

Ambient Cooling Lockout

Indicates the current status of the ambient cooling lockout. If the outdoor air temperature falls below the ambient cooling lockout setpoint, mechanical cooling is locked out.

Ambient Heating Lockout

Indicates the current status of the ambient heating lockout. If the outdoor air temperature rises above the ambient heating lockout setpoint, mechanical heating is locked out.

BACnet Time Synch

Consult the factory before adjusting this parameter.

BACnet UDP Port

This adjusts the BACnet UDP port for special BMS integration configurations (default 47808).

Bapi Space Sensor Enable

Enables or disables the use of an optional LCD Space Temperature Sensor (Bapi Sensor).

Chilled Water Valve Position When Unit Off

Sets the position that the chilled water valve will drive to when the unit is off. Configure the 10 Volts Opens Chilled Water Valve setpoint first.

CO₂ Control

Indicates whether or not the unit is configured to control CO₂ levels in the space.

CO₂ Damper Maximum Position

When CO₂ is above setpoint, this is the furthest open the outdoor air damper can be controlled to when this feature is active.

CO₂ Deadband

When the CO₂ level is met, the CO₂, in ppm, must rise or fall by ½ the value of the deadband before the damper will modulate once more.

CO2 Enabled

Indicates whether or not CO2 control is actively modulating the damper.

CO₂ Level

The space CO₂ reading is measured by the field-installed CO₂ sensor located in the space. The sensor provides a 0-10 VDC signal to the controller, which is wired to U5 on the DDC2 I/O module. 0 VDC = 0 ppm CO₂, 10 VDC = 2000 ppm CO₂.

CO₂ Setpoint

The setpoint of CO₂, in ppm, that the unit will maintain by modulating the outdoor air damper.

Compressor 1 Ambient Lockout Setpoint

Compressor 1 will not be allowed to run if the outdoor temperature is below this setpoint. This setpoint is only used if individual compressor lockouts are enabled.

Compressor 1 Output

Indicates whether compressor 1 is on or off. This is Digital Output 2 on the DDC1 I/O module.

Compressor 2 Ambient Lockout Setpoint

Compressor 2 will not be allowed to run if the outdoor temperature is below this setpoint. This setpoint is only used if individual compressor lockouts are enabled.

Compressor 2 Output

Indicates whether compressor 2 is on or off. This is Digital Output 3 on the DDC1 I/O module.

Compressor 3 Ambient Lockout Setpoint

Compressor 3 will not be allowed to run if the outdoor temperature is below this setpoint. This setpoint is only used if individual compressor lockouts are enabled.

Compressor 3 Output

Indicates whether compressor 3 is on or off. This is Digital Output 4 on the DDC1 I/O module.

Compressor 4 Ambient Lockout Setpoint

Compressor 4 will not be allowed to run if the outdoor temperature is below this setpoint. This setpoint is only used if individual compressor lockouts are enabled.

Compressor 4 Output

Indicates whether compressor 4 is on or off. This is Digital Output 5 on the DDC1 I/O module.

Cooling Execution Time

Do not adjust unless given specific direction from the factory.

Cooling Integral Constant

Do not adjust unless given specific direction from the factory.

Cooling Proportional Constant

Do not adjust unless given specific direction from the factory.

Damper Configuration

Indicates the type of damper configuration installed on the system.

Damper Output

Indicates the position of the modulating outdoor air damper, where 100% = fully open. Analog output 1 on the DDC1 I/O module is used to control the modulating dampers. For units with no return damper, the outdoor air damper is controlled open to 15% before the supply fan is allowed to start. When the damper end-switch closes, the supply fan is enabled. The units return air damper, if equipped, modulates inversely to the outdoor air damper (100% outdoor airflow = 0% return air flow).

Damper Remote Control

If "True", indicates that the damper is being controlled by either a remote 0-10V signal or by the building automation system.

Defrost Mode

Indicates whether the energy recovery defrost mode is active. When active:

Units equipped with a flat plate heat exchanger will modulate the face/bypass damper to bypass more outdoor air in order to keep the Exhaust temperature at or above the Flat Plate Defrost Setpoint.

A unit equipped with a Heat Wheel controlled by a variable frequency drive will slow the wheel in order to keep the Exhaust Temperature at or above the Heat Wheel Defrost Setpoint.

Units equipped with a start-stop type Heat Wheel will periodically disable the heat wheel

motor in order to raise the unit Exhaust Temperature.

Dehumidification Priority

Sets whether a unit in Dehumidification mode should choose to maintain Space Temperature or Space Humidity should the space become over-cooled. When set to Temperature Priority: if the space temperature falls 4 degrees (Def) below the Space Temperature Setpoint, the unit will exit Dehumidification mode until the space Temperature rises to Setpoint. If set to Humidity Priority, the unit will continue to dehumidify regardless of the Space Temperature.

Dehumidification Status

Indicates whether dehumidification is currently active.

Digital/Chilled Water Output

If the unit is configured with a Digital Scroll™ Compressor, this reflects the percentage of output being sent to the digital scroll compressor. If the unit is configured with a Chilled Water coil, this reflects the percentage open (if setup as direct acting) or the percentage closed (if setup as reverse acting) of the water valve. The control signal is output from AO6 of the DDC1 I/O module.

Duct Pressure

Displays the duct static pressure reading, in InWc, from the hardwired sensor wired to U12 of the DDC1 I/O module. The sensor outputs 0-10VDC which equates to 0-5 InWc. When installing the duct static pressure sensor, you should run the sensor no less than 2/3 down duct.

Duct Pressure High Limit Setpoint

If the static pressure rises above this setpoint (default 2.50 InWc) for 15 seconds, the unit will shut down and an alarm will be displayed.

Duct Pressure Setpoint

The duct static pressure that the system should maintain, in InWc. As the duct static pressure drops below this setpoint the supply fan speed will increase to raise the duct static pressure. When the duct static pressure rises above this setpoint the supply fan speed will decrease to reduce the duct static pressure.

DX Coil Leaving Temperature

The leaving air temperature of the DX coil as measured using a 10K Type-III thermistor downstream of the coil. The sensor is wired to U2 of the DDC1 I/O module.

DX Coil Low Limit Safety

Sets the DX Coil Leaving Temperature at which the unit will automatically reduce cooling capacity to prevent freezing. Must be set 4°F above the DX Coil Low Limit Setpoint.

DX Coil Low Limit Setpoint

Sets the DX Coil Leaving Air temperature at which the unit will disable mechanical cooling to protect the DX coil. Mechanical cooling is allowed once more at DX Coil Low Limit Setpoint +4. Also see DX Coil Low Limit Safety.

DX Coil Setpoint

The requested temperature of the DX coil during dehumidification mode.

Economizer Configuration

Indicates the type of economizing the system is running: outdoor enthalpy, comparative enthalpy, or outdoor temperature.

Economizer Enable Setpoint Enthalpy

The enthalpy value at which the system will start economizing.

Economizer Enable Setpoint Temperature

The ambient temperature at which the system will start economizing.

Electric Heat Output

The percentage of output of electric heating. The electric heater control module is wired to AO5 on the 34-input module.

Enable Compressor 1 Ambient Lockout

If enabled, compressor 1 will not be allowed to run below the Outdoor Air Temperature set by Compressor 1 Ambient Lockout.

Enable Compressor 2 Ambient Lockout

If enabled, compressor 2 will not be allowed to run below the Outdoor Air Temperature set by Compressor 2 Ambient Lockout.

Enable Compressor 3 Ambient Lockout

If enabled, compressor 3 will not be allowed to run below the Outdoor Air Temperature set by Compressor 3 Ambient Lockout.

Enable Compressor 4 Ambient Lockout

If enabled, compressor 4 will not be allowed to run below the Outdoor Air Temperature set by Compressor 4 Ambient Lockout.

Enable Occupancy Auto Mode

If set to Occ Auto, the unit will only enable the supply fan when there is a call for Occupied Heating Occupied Cooling when occupied. If set to Occ On, the supply fan will run continuously in when the unit is in Occupied mode.

Enable Winter Ramp

Enables and disables the Winter Ramp function.

Exhaust Air Temperature

The temperature of the exhaust air, as measured with a 10K Type-III thermistor factory installed in the exhaust airstream. The sensor is wired to U2 on the DDC2 I/O module.

Exhaust Fan Configuration

Indicates whether exhaust fans are present as well as what control sequence is selected.

Exhaust Fan Enable Damper Position

The percent open that the Outdoor Air Damper must be before the exhaust fan is enabled (Default 15%).

Exhaust Fan Maximum Speed

The maximum requested speed for the exhaust fan VFD, as a percentage of maximum possible speed. For all exhaust fan sequences, the VFD will not be controlled above this maximum speed.

Exhaust Fan Minimum Speed

The minimum requested speed for the exhaust fan VFD, as a percentage of maximum possible speed. For all exhaust fan sequences, the VFD will not be controlled below this minimum speed.

Exhaust Fan Offset

Displays and edits the offset of the commanded supply fan VFD speed for the exhaust fan when *Exhaust Fan Tracks Supply Fan* is selected. The exhaust fan can be slowed by setting this point

toward -20% and accelerated by setting this point toward 20%.

Exhaust Fan Output

Indicates whether the exhaust fan command is currently on or off. This comes from DO1 on the DDC2 I/O module.

Exhaust Fan Reaction Speed

Determines how fast the exhaust fan will react to a change in space pressure. Allows some PID tuning should the exhaust fan “hunt.”

Exhaust Fan Speed

Displays the defined speed for the exhaust fan. The rooftop unit includes a variable frequency drive (VFD) for the exhaust fan motor. In constant volume operation, the speed of the fan remains constant at the defined speed (15-100%, adjustable). At 100%, the fan speed is determined according to the setup of the VFD (the design frequency, in Hz). The speed of the exhaust fan may be slowed for constant volume operation by adjusting the exhaust fan offset in the controller (-20–20%). The minimum speed must not be less than 15% of the design flow to ensure proper motor operation. The demand signal comes from AO1 on the DDC2 I/O module.

Exhaust Fan Status

Reflects the run status of the exhaust fan (U4 on the DDC2 I/O module). When the input contacts are closed, the exhaust fan is running. When the input contacts are open, the exhaust fan is off.

Flat Plate Defrost Setpoint

The exhaust air temperature at which the flat plate goes into defrost mode to prevent ice from forming in the heat exchanger.

Furnace Ramp Limit 1

Consult the factory before adjusting this parameter.

Furnace Ramp Limit 2

Consult the factory before adjusting this parameter.

Furnace Ramp Release Temp 1

Consult the factory before adjusting this parameter.

Furnace Ramp Release Temp 2

Consult the factory before adjusting this parameter.

Gas Heat Stage 1 Output

Turns on Stage 1 of gas heat. This is wired to DO6 on the DDC1 I/O module.

Gas Heat Stage 2 Output

Turns on Stage 2 of gas heat. This is wired to DO7 on the DDC1 I/O module.

Gas Heat Stage 3 Output

Turns on Stage 3 of gas heat. This is wired to DO8 on the DDC1 I/O module.

Head Pressure Control Analog Output 1

Displays the signal, as a percentage of maximum speed, being delivered to the head pressure control VFD that is needed to maintain the condensing temperature in cooling mode and suction temperature in heating mode. This is wired to AO3 on the DDC2 I/O module.

Head Pressure Control Digital Output 2

Displays the status of the head pressure control digital output, which turns on or off one of the condensing fans to maintain the condensing temperature in cooling mode. This is wired to DO4 on the DDC2 I/O module.

Heat Pump Water Valve A Output

Displays the signal, as a percentage of closed position, that is delivered to water valve A to maintain the condensing temperature in cooling mode and suction temperature in heating mode. This is wired to AO3 on the DDC1 I/O module.

Heat Pump Water Valve B Output

Displays the signal, as a percentage of closed position, that is delivered to water valve B to maintain the condensing temperature in cooling mode and suction temperature in heating mode. This is wired to AO4 on the DDC1 I/O module.

Heat Wheel Defrost Setpoint

The exhaust air temperature at which the heat wheel goes into defrost mode to prevent ice from forming on the wheel.

Heat Wheel Jog Duty Cycle

The duration of the jog cycle as a percentage of the heat wheel jog period. This only applies to ON/OFF heat wheel configurations.

Heat Wheel Jog Period

The frequency, in minutes, that the jog cycle will operate. This only applies to ON/OFF heat wheel configurations.

Heat Wheel Operating Mode

Adjusts the heat wheel operation during Economizer Mode.

Heat Wheel Output

Indicates whether the controller is currently commanding the heat wheel on or off. This is wired to DO2 on the DDC2 I/O module.

Heat Wheel Speed / Bypass Damper Position

Indicates the energy recovery demand (in percent) that the unit is requesting. If the unit is equipped with a heat wheel with VFD, this indicates the demand speed (in percent) to which the heat wheel should modulate. If the unit has a flat-plate heat exchanger, this indicates the position of the bypass damper.

Heat Wheel Speed When Economizing

The speed at which the heat wheel will run when Heat Wheel Operating Mode is set to On When Economizing or Always On.

Heat Wheel Status

If a heat wheel rotation sensor is installed, this indicates whether the heat wheel is Rotating or Stopped. This is wired to U6 of the DDC2 I/O module.

Heating Execution Time

Do not adjust unless given specific direction from the factory.

Heating Integral Constant

Do not adjust unless given specific direction from the factory.

Heating Proportional Constant

Do not adjust unless given specific direction from the factory.

High/Low Pressure Trip Shutdown Unit if Circuits Tripped

If Yes is selected, then the unit will shut down if any or all compressors are tripped on high/low pressure. (When shutdown occurs depends on if point High/Low Pressure Trip Shutdown Circuit is set for Any Tripped or All Tripped.) If No is selected, the unit will continue to run regardless

of whether or not compressors are tripped on high/low pressure.

High/Low Pressure Trips Shutdown Unit

If Any Tripped is selected, the unit will shut down when any compressor on any circuit it tripped on high/low pressure. If All Tripped is selected, then the unit will only shut down once all compressors are tripped on high/low pressure on all circuits.

Hot Water Case Heat Outside Temperature Enable

When the supply fan is off, the hot water valve will be enabled at this outdoor air temperature and will modulate to meet the Hot Water Case Heat Setpoint.

Hot Water Case Heat Setpoint

When Hot Water Case Heat Control is enabled, the hot water valve will modulate to maintain this temperature at the coil temperature sensor.

Hot Water Valve Position When Unit Off

Sets the position that the hot water valve will drive to when the unit is off. If set to Modulating, the valve will control to the Hot Water Case Heat Setpoint. Configure the 10 Volts Opens Hot Water Valve setpoint first.

Mixed Air Temperature

The temperature reading from the mixed air temperature sensor. This is wired to U7 on the DDC2 I/O module.

Modulating Heat Output

The percentage of output of gas, hot water, or steam heating. The control module or actuator is wired to AO3 on the DDC1 I/O module.

Morning Warm Up Enable

Enables and disables the Morning Warm Up function.

Morning Warm Up Status

Indicates whether or not the unit is currently in the Morning Warm Up mode.

Morning Warm Up Type

Indicates whether or not Morning Warm Up exists in the unit's software.

Night Purge Enable

Indicates whether the system is currently in night purge mode.

Night Purge Type

Indicates whether or not the Night Purge feature is installed.

Occupancy Controlled By

Indicates the source of the occupancy command currently used by the unit: unoccupied, external input, schedule, optimal start/stop, BAS, or timed override.

Occupancy Schedule

The occupancy state as determined from the unit schedule.

Occupancy Status

The current occupancy mode of the controller.

Optimal Start Enable

This point is used to select whether the unit will allow the optimal start functionality. Optimal start calculates the system start time based on historical data including space temperature, space setpoint, and outdoor air temperature.

Optimal Start/Stop Earliest Start Time

The earliest time of day for the system to start if needed.

Optimal Start/Stop Earliest Stop Time

The earliest time of day for the system to stop if needed.

Optimal Stop Enable

This point is used to select whether the unit will allow the optimal stop functionality. Optimal stop calculates the system stop time based on historical data including space temperature, space setpoint, and outdoor air temperature.

Outdoor Air Damper Maximum Position

The maximum position of the damper during occupied operation.

Outdoor Air Damper Minimum Position

The minimum position of the damper during occupied operation.

Outdoor Air Dewpoint Deadband

Adjusts the threshold the unit uses to determine whether dehumidification is enabled based on the Outdoor Dewpoint. Dehumidification is not requested if the Outdoor Dewpoint is less than (Outdoor Dewpoint Setpoint – Outdoor Air Dewpoint Deadband).

Outdoor Air Enthalpy

Displays the value of the outdoor air enthalpy, as calculated using the factory-installed outdoor air relative humidity sensor and factory-installed outdoor air temperature sensor.

Outdoor Air Relative Humidity

The level of relative humidity from the outdoor air is measured by the field-installed RH sensor located in the outdoor air inlet hood. The sensor provides a 0-10 VDC signal to the controller, which is wired to U5 on the DDC1 I/O module.

Outdoor Air Temperature

The temperature of the outdoor air is measured by the factory-installed sensor located in the outdoor air inlet hood. The sensor is wired to U3 on the DDC1 I/O module.

Outdoor Dewpoint

The dewpoint as calculated from the outdoor temperature and humidity values.

Outdoor Dewpoint Setpoint

If the space humidity sensor is absent or not connected, the unit will control humidity based on the Outdoor Dewpoint Setpoint. If the measured outdoor air dewpoint is greater than the Outdoor Dewpoint Setpoint, the unit will stage into dehumidification. If the outdoor air dewpoint is less than the Outdoor Dewpoint Setpoint minus the Outdoor Air Dewpoint Deadband, dehumidification is disabled.

Overcool Offset

Defines the maximum number of degrees the space temperature can reach below setpoint before cooling is disabled. The space temperature must be below setpoint by this amount for 10 minutes before the cooling is disabled.

Preheat Ambient Setpoint

If the outdoor air temperature is at or below this temperature, the preheater will be enabled.

Preheat Output

Indicates whether the preheater is currently enabled. This is wired to DO10 on the DDC1 I/O module.

Ramp Release Delay

Consult the factory before adjusting this parameter.

Refrigerant Pressure Circuit A

The refrigerant pressure, in psi, of Circuit A. This is wired to U3 on the DDC 2 I/O module.

Refrigerant Pressure Circuit B

The refrigerant pressure, in psi, of Circuit B. This is wired to U8 on the DDC2 I/O module.

Space Dewpoint

The calculated dewpoint of the space, based on the space temperature and humidity values that are currently in control.

Space Dewpoint Dehumidification Disable Setpoint

If the Space Dewpoint falls below this value, then the unit will exit dehumidification until the dewpoint in the space is greater than this value once again. This prevents overcooling of the space.

Space Enthalpy

Space enthalpy is calculated based on the field-installed space temperature sensor (factory provided, if ordered) and field-installed space humidity sensor (factory provided, if ordered).

Space Pressure High Limit Setpoint

This is the highest allowable static pressure. If the static pressure exceeds this limit, the fans and the unit will shut down to prevent extreme over-pressurization of the space. Default is 0.200 InWc.

Space Relative Humidity

Space RH is measured by an optional field-installed relative humidity sensor located in the space. The sensor provides a 0-10 VDC signal to the controller wired to U6 on the DDC1 I/O module.

Space Relative Humidity Occupied Deadband Setpoint

Adjusts the threshold the unit uses to determine when the space does not need dehumidification. Space dehumidification is not requested when the space relative humidity is less than (Occupied Space Humidity Setpoint – Occupied Space Humidity Deadband Setpoint).

Space Relative Humidity Setpoint

The relative humidity level that the system should maintain in the space.

Space Relative Humidity Unoccupied Deadband Setpoint

Adjusts the threshold the unit uses to determine when the space does not need dehumidification. Space dehumidification is not requested when the space relative humidity is less than (Unoccupied Space Humidity Setpoint – Unoccupied Space Humidity Deadband Setpoint).

Space Reset Deadband

For units using Space Temperature Setpoint Offset, this pauses the space reset routine when the space temperature is within the deadband of the active Space Temperature Setpoint.

Space Static Pressure

Displays the space static pressure reading, in InWc, as reported by the field-installed space static pressure transducer. The transducer sends a 0-10VDC signal that equates to -0.500 to +0.500 InWc. The sensor is wired to U1 of the DDC2 I/O module.

Space Static Pressure Setpoint

The space static pressure that the system should maintain. As the space static pressure drops below this setpoint, depending on the unit setup, the supply fan speed will increase, the exhaust fan speed will decrease, or the outdoor air damper will open to increase the space static pressure. When the space static pressure is above this setpoint, depending on the unit setup, the supply fan speed will decrease, the exhaust fan speed will increase, or the outdoor air damper will close to reduce the space static pressure.

Space Temperature

The temperature of the space is measured by the field-installed sensor (factory provided, if ordered) located in the space. This is an IOU Type III thermistor sensor wired to U4 on the DDC1 I/O module.

Space Temperature Adjust Disable

Enables or disables the Space Temperature Adjust feature at the space sensor.

Space Temperature Cooling Setpoint

When a space temperature setpoint offset is entered, the unit will control to this setpoint when in the cooling mode.

Space Temperature Heating Setpoint

When a space temperature setpoint offset is entered, the unit will control to this setpoint when in the heating mode.

Space Temperature Setpoint

The unit will operate heating and cooling to maintain this setpoint for the space.

Space Temperature Setpoint Offset

By increasing the offset above zero (default), the unit will operate with dual setpoints, calculated as follows:

Space Temperature Heating Setpoint = Space Temperature Setpoint – (Space Temperature Setpoint Offset/2)

Space Temperature Cooling Setpoint = Space Temperature Setpoint + (Space Temperature Setpoint Offset/2)

The unit will control to the respective setpoint when in the heating or cooling mode and will transition between modes when space temperature drops below the cooling setpoint or rises above the heating setpoint.

Example: Space Temperature = 70°F

Space Temperature Setpoint Offset = 4°F

Space Temperature Heating Setpoint = 68°F (70 – (4/2))

Space Temperature Cooling Setpoint = 72°F (70 + (4/2))

SPT Slider

Displays the position of the space temperature slider.

Supply Air Cooling High Deadband Setpoint

When Supply Air Deadband is enabled and the unit is cooling, this setpoint defines the amount the Supply Air Temperature can exceed the current control setpoint before the control loop will respond.

Supply Air Cooling Low Deadband Setpoint

When Supply Air Deadband is enabled and the unit is cooling, this setpoint defines the amount the Supply Air Temperature can fall below the current control setpoint before the control loop will respond.

Supply Air Deadband Enable Setpoint

Allows the Supply Air Temperature to go slightly above or below the control setpoint with no correction from the control loop. The amount of error allowed before correction is determined by setting the appropriate Supply Air Deadband Setpoint(s).

Supply Air Heating High Deadband Setpoint

When Supply Air Deadband is enabled and the unit is heating, this defines the amount the Supply Air Temperature can exceed the current control setpoint before the control loop will respond.

Supply Air Heating Low Deadband Setpoint

When Supply Air Deadband is enabled and the unit is heating, this defines the amount the Supply Air Temperature can fall below the current control setpoint before the control loop will respond.

Supply Air Temperature Control

This setpoint is used to force the unit into supply air only mode. If the unit detects a space temperature sensor it will automatically switch from Supply Air Only control to Supply Air With Reset control. If supply air control is desired when a space sensor is installed, this point must be set to Force Supply Only. In supply air temperature control, the unit attempts to control the supply air temperature to a fixed supply temperature setpoint. In space temperature control with supply air temperature reset, the unit compares the space temperature to the space temperature heating setpoint and cooling setpoint to calculate the supply air temperature setpoint. The unit then modulates heating and cooling to maintain the supply air temperature at the setpoint.

Supply Air Temperature High Limit

If the supply air temperature exceeds this temperature limit for three minutes (adjustable via UMT, Supply High Temp Alarm Delay) or more, the unit will go into shutdown mode. The unit must be manually reset to continue operation.

Supply Air Temperature High Limit Alarm Delay

If the supply air temperature reaches the Supply Air Temperature High Limit, this is the time delay, in minutes, before the unit goes into shutdown mode and sends a shutdown alarm.

Supply Air Temperature Low Limit

If the supply air temperature falls below this temperature limit for three minutes or more, the unit will go into shutdown mode. The unit must be manually reset to continue operation.

Supply Air Temperature Maximum Cooling Setpoint

This is the maximum supply air temperature that the unit can reset to when configured for Supply Temperature With Reset Control and in cooling mode.

Supply Air Temperature Maximum Heating Setpoint

This is the maximum supply air temperature that the unit can reset to when configured for Supply Temperature With Reset Control and in heating mode.

Supply Air Temperature Minimum Cooling Setpoint

This is the minimum supply air temperature that the unit can reset to when configured for Supply Temperature With Reset Control and in cooling mode.

Supply Air Temperature Minimum Heating Setpoint

This is the minimum supply air temperature that the unit can reset to when configured for Supply Temperature With Reset Control and in heating mode.

Supply Air Temperature Setpoint

If the system does not have a space temperature sensor, or if one is installed and the point Force Supply is set to True, then the unit will control the supply air temperature to this setpoint.

Supply Fan Furnace Limit Offset

Consult the factory before adjusting this parameter.

Supply Fan Maximum Speed Setpoint

The maximum speed, as a percentage of design speed, that the supply fan will be allowed to run. This setpoint should be used when air balancing the unit. If more air is needed, the speed can be increased to 100% of design speed. If less air is needed, the speed can be reduced toward a minimum of 50% design speed.

Supply Fan Minimum Speed Setpoint

The minimum speed, as a percentage of design speed, that the supply fan VFD will be allowed to run during any supply fan sequence.

Supply Fan Output

Indicates whether the supply fan command is currently on or off. This is wired to DO1 on the DDC1 I/O module.

Supply Fan Reaction Speed

Determines how fast the supply fan will react to a change in duct pressure or space pressure (depending on unit configuration). Allows some PID tuning should the supply fan “hunt.”

Supply Fan Speed

Displays the speed of the supply fan as a percentage of design speed. The rooftop unit includes a variable frequency drive (VFD) for the supply fan motor. In constant volume operation, the speed of the fan remains constant at the defined speed (50-100%, adjustable). At 100%, the fan speed is equal to the design frequency, in Hz. The speed of the supply fan may be slowed for constant volume operation by adjusting the supply fan speed in the controller (50-100%). The minimum speed must not be less than 50% of the design flow to ensure proper heating and cooling operation.

For space static or variable air volume (VAV) applications, the speed of the fan is automatically determined by the controller (50-100%). This is wired to AO4 on the DDC1 I/O module.

Supply Fan Status

Reflects the status of the differential pressure switch for the supply fan (U8 on the DDC1 I/O module). When the input contacts are closed, the supply fan is running. When the input contacts are open, the supply fan is off.

Supply Setpoint Calculated

If the system does not have a space temperature sensor, or if one is installed and the point Force Supply is set to True, then the unit will control the supply air temperature to this setpoint.

Supply Temperature

The supply air temperature is measured by the field-installed (factory provided) sensor located in the supply duct immediately downstream of the rooftop unit. The sensor is an IOU Type III thermistor that is wired to U1 on the DDC1 I/O module.

System Enable

Must be On for normal unit operation. When system enable is Off, the unit is completely disabled and will not operate.

Timed Override Duration

When the override button on the space sensor is pressed, this is the amount of time that the unit will be placed into occupied mode. When the override expires, the unit returns to its prior state or Auto.

Unit Schedule

This is a 24-hour standalone schedule that is programmable from either the LCD interface or the Universal Maintenance Tool software. Occupied and Unoccupied time can be set with minute increments. Defaults to 24/7 Occupied operation.

Unoccupied Outdoor Air Damper Minimum

During unoccupied operation, this is the position of the outdoor air damper on recirculation units, as a percentage of fully open (100%).

Unoccupied Space Cooling Setpoint

This is the temperature at which cooling is enabled during unoccupied operation.

Unoccupied Space Heating Setpoint

This is the temperature at which heating is enabled during unoccupied operation.

Unoccupied Space Relative Humidity Setpoint

This is the Relative Humidity at which dehumidification is enabled during unoccupied operation.

Unoccupied Supply Fan Offset

This is the speed at which the supply fan VFD will run when unoccupied, as a percentage of full speed (100%). When the unit is started in night heating, cooling, or dehumidification, the supply fan runs at this reduced speed. If the supply fan is controlling to maintain a duct or space static pressure, CO2, or is configured for a remote fan input, the fan speed is not reduced.

Water Source Heat Pump Cold Start Duration

This defines the duration of cold start mode, where the compressors will ramp into full operation to allow the unit to start in very cold weather.

Water Source Heat Pump Cold Start Enable Temperature

Cold start mode is enabled when the outdoor air temperature is equal to or less than this setpoint.

Water Source Heat Pump Compressor Off Water Valve Position

For a unit with a water source heat pump, this defines the position of the water valve when the compressors are off.

Water Source Heat Pump Condenser Temperature Setpoint

Consult the factory to adjust this setpoint.

Water Source Heat Pump Suction Temp Low Limit

If the suction temperature is equal to or less than this setpoint, the unit will limit or lockout the compressors.

Water Source Heat Pump Water Valve Max Closed Position Setpoint

Sets the minimum water flow for the WSHP unit coax coils. This setpoint applies to every operating mode.

Winter Ramp Control Type

Selects whether the Winter Ramp mode, if enabled and active, should modulated the Supply Fan or Outdoor Air damper.

Winter Ramp OA Enable Setpoint

Sets the ambient temperature at which the system allows winter ramp to be enabled.

Winter Ramp Type In Control

Indicates whether the unit is currently configured to modulate the Supply Fan or Outdoor Air damper when in Winter Ramp mode. See Winter Ramp Control Type.

Factory Configuration

The following information pertains to the configuration of the system. Many of these items can be viewed from the Factory Setup menu on the LCD or UMT. For more information, please consult the factory.

- Communications Type
- Damper Configuration
- Supply Fan Configuration
- CO2 Control
- Exhaust Fan Control Type
- Remote Damper Control
- Pre-Heater
- Airflow Monitoring Type
- Heating Package
- Cooling Package
- Energy Recovery Configuration
- Unit Type
- Economizer
- AMD Type
- Web UI
- Refrigerant Monitoring
- Optimal Start/Stop
- Heat Pump
- Morning Warmup
- Night Purge
- Reheat Dehumidification
- Heat Wheel Rotation Sensor
- Space Setpoint
- I/O Map
- Sales Order Number
- Tag
- Software Version

Manual Override

The following points can be temporarily overridden during troubleshooting. Manual overrides are displayed on the LCD on the Manual Overrides screen of the POINTS menu, and on the Manual Overrides tab of the UMT and Web UI.

For more information about how to conduct a manual override, refer to:

Manually Overriding a Setpoint

From the LCD, page 6

From the UMT, page 18

From the Web UI, page 23

Override Mode

Enables and disables the manual override function. Override mode is enabled for four hours. To cancel the override before it expires, set Override Mode to Disabled.

Time Remaining

Displays the time remaining before the override mode expires.

Unit Enable

Starts or stops the operation of the system.

Supply Fan Control

Auto: The supply fan runs at the speed set by the Supply Fan Maximum Speed Setpoint.

Manual: The supply fan runs at the speed set by the Supply Speed override point.

Supply Fan Override

Turns the supply fan on or off.

Supply Fan Speed

Enter a speed for the supply fan. This value is used if Supply Fan is set to Manual.

Exhaust Fan Control

Auto: The exhaust fan runs at the speed set by the Exhaust Fan Maximum Speed setpoint.

Manual: The exhaust fan runs at the speed set by the Exhaust Speed override point.

Exhaust Fan Override

Turns the exhaust fan on or off.

Exhaust Fan Speed

Enter a speed for the exhaust fan. This value is used if Exhaust Fan is set to Manual.

Heat Wheel Control

Auto: The heat wheel runs at the energy recovery capacity currently needed by the system.

Manual: The heat wheel runs at the speed set by the Wheel Speed override point.

Wheel Override

Turns the heat wheel on or off.

Wheel Speed

Enter a speed for the heat wheel. This value is used if Heat Wheel is set to Manual.

OA Damper Control

Auto: The outdoor air damper is controlled to the position set by the Outdoor Air Damper Minimum Position setpoint.

Manual: The outdoor air damper is controlled to the position set by the OA Damper Override point.

OA Damper Override

Enter a position to control the outdoor air damper. This value is used if OA Damper Control is set to Manual.

Heat Cool

Auto: Controls the heating or cooling mode based on current unit conditions.

Manual: Controls the heating or cooling components using the values for the following compressor override points.

Compressor 1

Turns Compressor 1 on or off.

Compressor 2

Turns Compressor 2 on or off.

Compressor 3

Turns Compressor 3 on or off.

Compressor 4

Turns Compressor 4 on or off.

Digital Scroll

Enter a value for the digital scroll compressor.

Modulating Heat

Enter the percentage of modulating heat to use in override mode.

Electric Heat

Enter the percentage of electric heat to use in override mode.

Heat 1

Turns stage 1 heating on or off.

Heat 2

Turns stage 2 heating on or off.

Heat 3

Turns stage 3 heating on or off.

Space Setpoint

Enter the space temperature that the system should control to when in override mode.

Supply Setpoint

Enter the supply temperature that the system should control to when in override mode.

Hot Gas Reheat

Auto: Controls to the demand called for by the main control sequence.

Manual: Controls to the demand set by the Reheat Override point.

Reheat Override

Enter a percentage of reheat to run in override mode.

Flat Plate

Auto: Controls the flat plate bypass damper to the position determined by the controller.

Manual: Controls to the value set by the Flat Plate Override point.

Flat Plate Override

Enter a position to control the flat plate bypass damper. This value is used if Flat Plate is set to Manual.

Pre-Heater

Turns the preheater on or off.

Coil Safety

Disables the Coil Low Limit Safety function.

Head Pressure

Auto: Controls the fan speed or water valve position(s) to the values set by the controller.

Override: Controls the fan speed or water valve position(s) to the values set by the following Fan VFD/Valve A and Valve B points. This can be set to Override only when the compressors are off.

Fan VFD/Valve A

Enter the fan speed or position of water valve A, depending on system configuration. These can only be overridden if the compressors are off.

Valve B

Enter the position of water valve B. This can only be overridden if the compressors are off.

Reversing Valve

Auto: Controls the heating or cooling mode based on current unit conditions.

Manual: Controls the heating or cooling components using the values for the following valve override position.

Override: Enter a reversing valve position to use in heating or cooling mode.

Alarms

Alarms are displayed on the Alarms screen of the LCD POINTS menu and on the Alarms tab of the UMT and Web UI.

Alarms are listed here by the Web UI name. The LCD name (IN CAPITALS) and the UMT name are listed underneath.

Web UI Name

LCD NAME, UMT Name

Alarm Status

ALARM STATUS, Alarm Status

Indicates whether or not an alarm is present in the unit.

General Alarms

General alarms are non-critical alarms that automatically reset when conditions return to normal.

Clogged Air Filter

FILTERS, Clogged Air Filter

If the filter differential pressure switch contact is closed, which means there is little airflow through the filter, this alarm is displayed.

CO2 Sensor

CO2 SENSOR, CO2 Sensor

If a CO2 sensor is installed and it shows a value of less than 100 ppm for more than 2 minutes, this alarm is displayed.

Exhaust Fan Fail

EXHAUST FAN, Exhaust Fan

If the exhaust fan output from the controller does not match the exhaust fan status (actual exhaust fan output) within a 30-second time period, this alarm is displayed.

Exhaust Temp Sensor

EXHAUST TEMP, Exhaust Temperature Sensor

If an exhaust temperature sensor is installed, the unit will monitor the value being read from the sensor and display an alarm if the sensor is shorted (300°F) or disconnected (-13°F) for duration of 2 minutes.

Heat Wheel Fail

HW ROTATION, Heat Wheel Rotation

If there is a call for the heat wheel to rotate but

the sensor determines that it is not rotating, the unit will display this alarm.

HPC_LPC_A

HPC_LPC_A, High Pressure/Low Pressure Cutout Circuit A

If the unit senses an open contact on either the high pressure or low pressure switch on compressor circuit A, this alarm is displayed. If the point Shutdown Unit During High/Low Pressure Trip is set to Yes, the unit will go into shutdown mode for this alarm.

HPC_LPC_B

HPC_LPC_B, High Pressure/Low Pressure Cutout Circuit B

If the unit senses an open contact on either the high pressure or low pressure switch on compressor circuit B, this alarm is displayed. If the point Shutdown Unit During High/Low Pressure Trip is set to Yes, the unit will go into shutdown mode for this alarm.

Mixed Air Temp Sensor

MIXED TEMP SEN, Mixed Air Temperature Sensor

If a mixed air temperature sensor is installed, the unit will monitor the value being read from it and display an alarm if the sensor is shorted (300°F) or disconnected (-13°F) for a duration of 2 minutes.

OA Humidity Sensor

OA HUMIDITY SEN, Outdoor Relative Humidity Sensor

If the outdoor air humidity reading is less than 5%, this alarm is displayed.

OA Temp Sensor

OA TEMP, Outdoor Air Temperature Sensor

If the outdoor air temperature sensor reading is greater than 300°F over a 2 minute time period, this alarm is displayed.

Refrigerant A Sensor

REF PRESSURE A, Refrigerant Pressure Transducer A

If the pressure transducer reading on circuit A is less than 25 psi or greater than 650 psi over a duration of 30 seconds, this alarm is displayed.

Refrigerant B Sensor

REF PRESSURE B, Refrigerant Pressure Transducer B

If the pressure transducer reading on circuit B is less than 25 psi or greater than 650 psi over a duration of 30 seconds, this alarm is displayed.

Space Humidity Sensor

SPACE HUMIDITY, Space Humidity Sensor

If a space humidity sensor is installed, this alarm is displayed if the value being read from the sensor is less than 5%.

Space Temp Sensor

SPACE TEMP, Space Temperature Sensor

If a space temperature sensor is installed, this alarm is displayed if the value being read from it is greater than 300°F or less than 0°F over a 2 minute time period.

WSHP Ambient Lockout

WSHP AMBIENT LOCKOUT, WSHP Ambient Lockout

If the unit is a water source heat pump, this alarm indicates that the ambient temperature was below -5°F when the unit attempted to start, thus locking out the compressors. The compressors will remain locked out unless the ambient temperature rises above 0°F after one hour.

WSHP Ref Low PSI

WSHP REF LOW PSI, WSHP Low Refrigerant Pressure

If the unit is a water-source heat pump, then this alarm indicates that the suction temperature of the refrigeration system is below the WSHP Suction Temp Low Limit Safety (25°F default). The digital scroll compressor will be limited in its output until the suction pressure increases again.

Shutdown Alarms

Shutdown alarms are critical alarms that shut down the system and must be reset manually after the condition has been corrected. Refer to the following section on Resetting Shutdown Alarms.

Damper End Switch

DAMPER SWITCH, Outdoor Air Damper End Switch

If there is a call from the controller for the unit to open the dampers and the Damper End Switch is not made within 1 minute, the unit will go into shutdown mode and display this alarm.

Duct High Static

DUCT STATIC, Duct Static Pressure

If the duct static pressure is greater than the user-adjustable value (0-5 InWc; default of 2.5 InWc), the unit will go into shutdown mode and display this alarm.

Freezestat

FREEZESTAT, Freezestat

If the Freezestat of either the hot water coil or the chilled water coil trips (open connection on U7 of the DDC3), the unit will go into shutdown mode, open one or both water valves to full flow, and display this alarm.

HPC_LPC_A Alarm

HPC_LPC_A, High Pressure/Low Pressure Cutout Circuit A

If the unit senses an open contact on either the high pressure or low pressure switch on compressor circuit A, this alarm is displayed. This is a shutdown alarm if the point Shutdown Unit During High/Low Pressure Trip is set to Yes.

HPC_LPC_B

HPC_LPC_B, High Pressure/Low Pressure Cutout Circuit B

If the unit senses an open contact on either the high pressure or low pressure switch on compressor circuit B, this alarm is displayed. This is a shutdown alarm if the point Shutdown Unit During High/Low Pressure Trip is set to Yes.

Shutdown Input

SHUTDOWN INPUT, Shutdown Input

If the Shutdown Input (Universal Input 16; U16) is opened (connection to 0V broken) the unit will go into shutdown mode and display this alarm.

Space High Static

SPACE STATIC, Space Static Pressure

If the space static pressure is greater than the user adjustable value (0-0.5 InWc; default of 0.2 InWc) for 15 seconds, the unit will go into shutdown mode and display this alarm.

Supply Fan Fail

SUPPLY FAN, Supply Fan

If the supply fan output from the controller does not match the supply fan status (actual supply fan output) within a 1 minute time period, the unit will go into shutdown mode and display this alarm.

Supply Temp High Limit

HIGH SUP TEMP, Supply Temp High

If the supply temperature is greater than 120°F for 3 minutes, the unit will go into shutdown mode and display this alarm.

Supply Temp Low Limit

LOW SUP TEMP, Supply Temp Low

If the supply fan is running and the supply temperature is less than 35°F for 5 minutes, the unit will go into shutdown mode and display this alarm.

Supply Temp Sensor

SUPPLY TEMP SEN, Supply Temperature Sensor

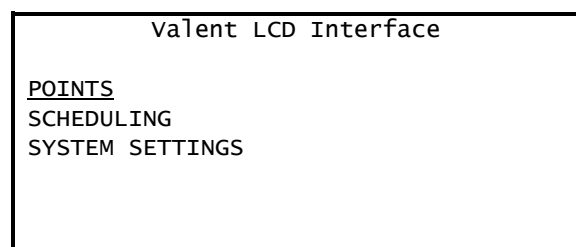
If a supply temperature sensor is not installed, or if the supply temperature reads greater than 300°F or less than 0°F over a 2 minute time period, the unit will go into shutdown mode and display this alarm.

Resetting Shutdown Alarms

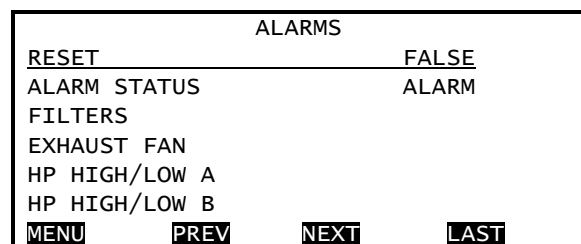
Shutdown alarms are critical alarms that must be reset manually. *The system condition that causes a shutdown alarm must be corrected before the alarm can be reset.*

From the LCD

1. Push any button on the LCD interface to refresh the display. If the main menu is not shown, press the **MENU** button to return to the main menu.



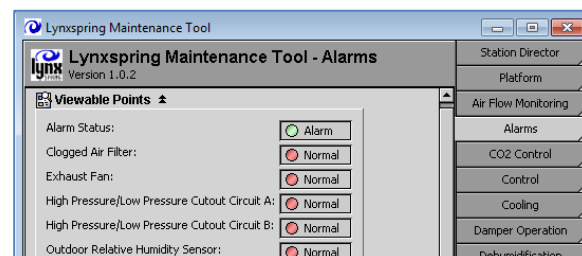
2. Press **Enter** to select the POINTS menu.
3. Press **Right Arrow** to navigate to the ALARMS screen.
4. Use **Down Arrow** to move the underscore to RESET and press **Enter**.



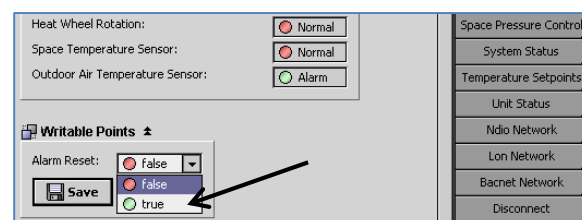
5. Press **Down Arrow** to change the value to TRUE.
6. Press **Enter** to save the change.

From the UMT

1. Select the *Alarms* tab.



2. Locate the Alarm Reset field at the bottom of the alarm list.
3. Click on the arrow to the right of the *Alarm Reset* status and select *True* from the drop-down list.



4. Click on Save.

From the Web UI

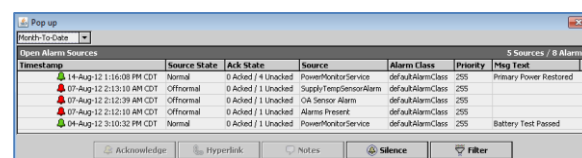
1. On the top right corner of any screen, locate the Alarm Status.



2. Click on the *Reset* button to the right of Alarm Status.

Alarm Detail

To see a detailed list of all General and Shutdown alarms, click on the Detail button on the top right corner of any Web UI screen.



Troubleshooting

Refreshing the LCD Screen

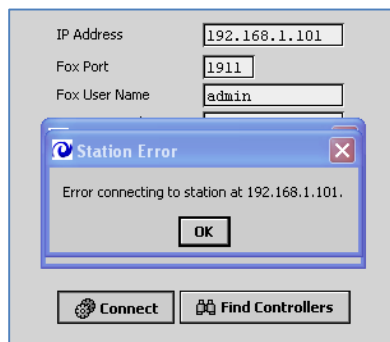
If the LCD screen has frozen, gone blank, or is not responding, refresh the screen by reloading the driver.

1. Locate the Universal Input 3 (U3) on the DDC1 module.
2. Locate 0V directly to the right of U3.
3. Place a jumper wire from U3 to 0V for more than one second.
4. The LCD should refresh and display the initial Valent screen.

If the Valent screen does not appear, check the LCD cord connection to both the controller and the LCD screen to ensure a good connection. Repeat the above steps. If the Valent screen still does not appear, contact Valent Service.

Clearing a Station Error

If the UMT cannot connect to the controller, the following error message is displayed:



If this message is displayed immediately after clicking on the Connect button, the user name or password may be incorrect. These fields are case sensitive. Rekey the user name and password carefully and attempt to reconnect.

If this message is displayed after the connection status has progressed beyond 10%, the LAN adapter settings may be incorrect. Check the adapter settings for the correct configuration, then attempt to reconnect. If adapter settings are changed, restart the UMT before trying to reconnect.

If the LAN adapter settings are correct but the UMT still cannot communicate with the

controller, reboot the controller as described in the next section, then attempt to reconnect. For further help, contact Valent Service.

Rebooting the Controller

If the controller is not communicating with the UMT, first check the LAN adapter settings. If the settings are correct but the controller is still not responding, the controller must be rebooted.

1. Disconnect power from the controller.
2. Wait four minutes for the controller to completely de-energize. All lights must be off.
3. Reconnect the power.

After rebooting the controller, if the UMT still cannot communicate, contact Valent Service.

Locating the Station Folder

To successfully update the software or copy a station, the station folder must be in the correct location. The compressed folder must be copied to the following location and then unzipped:

C:\Lynxspring\Universal Maintenance Tool\stations\

Follow the instructions below for locating the station folder using Windows XP or Windows 7.

Using Windows 7

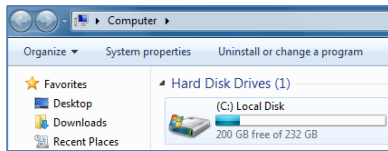
1. Click on the *Windows Start* orb.



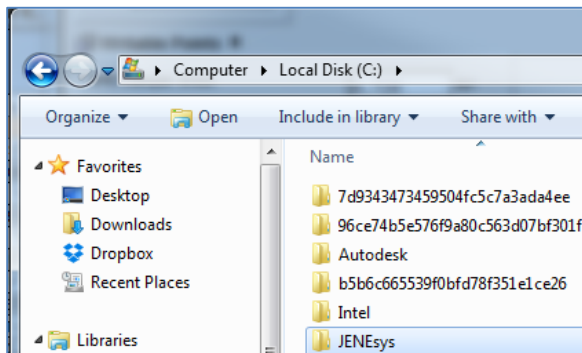
2. Click on *Computer*.



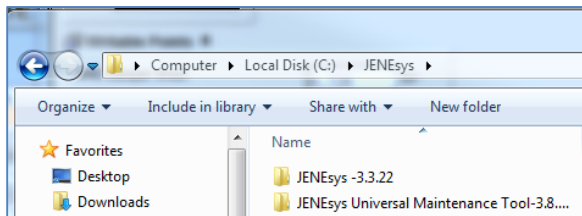
- Double click on the (C:)Local Disk icon. If the UMT software is installed on another drive, click on the icon for that drive.



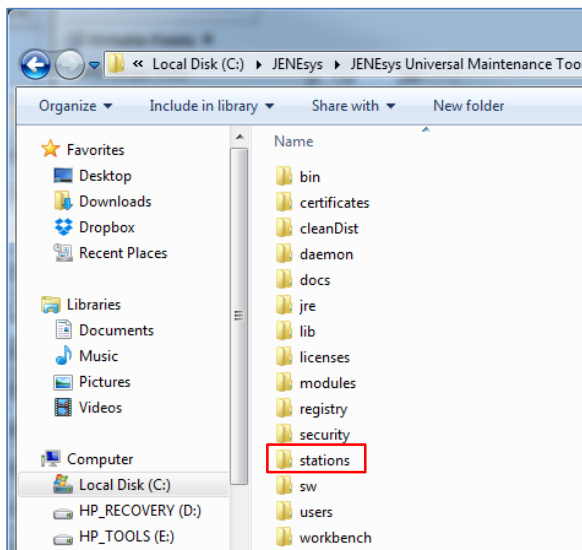
- Double click on the JENESys folder.



- Double click on *JENESys Universal Maintenance Tool -3.8.110*.



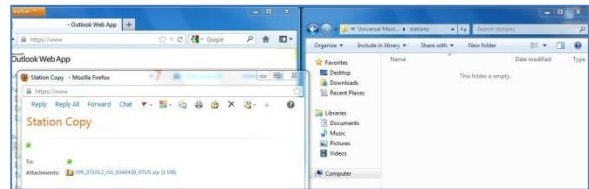
- Double click on the *Stations* folder.



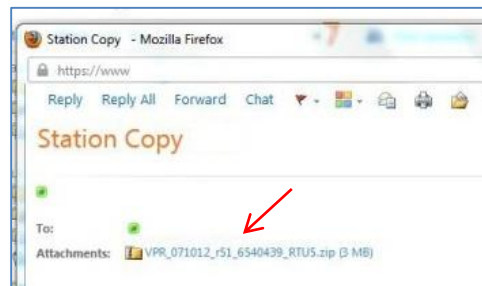
Confirm that the address in the address bar is:

C:\JENESys\JENESys Universal Maintenance Tool-3.8.110\stations

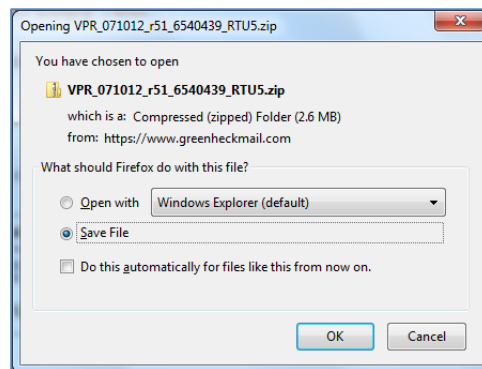
- In a separate window, open the email that contains the compressed file for the Valent software station. Arrange the windows on the desktop so they are both accessible.



- In the email, click on the attachment for the compressed folder.



- Select *Save File* and click *OK*. (On some systems, simply select *Save*.)



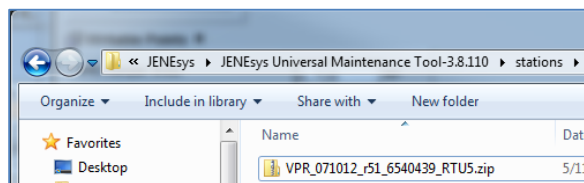
- Specify where to save the file. In the *Save As* box, sequentially select

C:\JENESys\JENESys Universal Maintenance Tool-3.8.110\stations

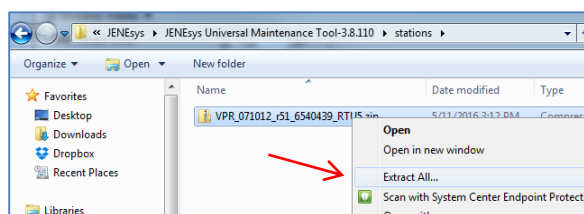
Mozilla Firefox users can simply click on the file name and drag the icon to the destination location.

- When the download is complete, close the window.

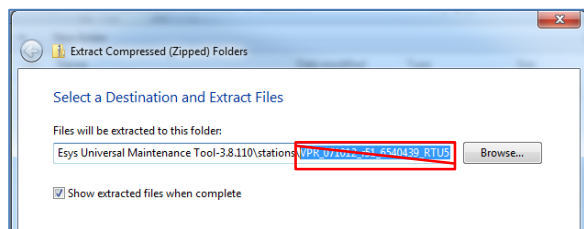
- The compressed Valent software station folder should then be located in the destination directory. Verify the path in the address bar is correct.



- To unzip the compressed folder, right click on the zipped folder icon. Choose *Extract All* from the menu.



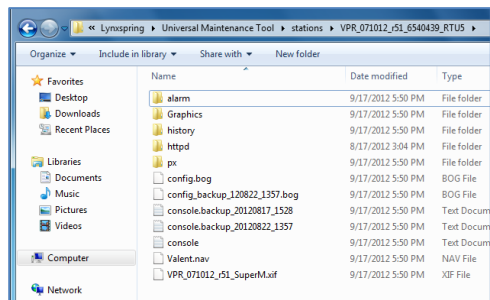
- The Extraction Wizard opens. The default location of the destination directory must be modified. Delete the last part of the entry that includes the name of the compressed file.



Verify that the destination directory is:

C:\JENEsys\JENEsys Universal Maintenance Tool-3.8.110\stations

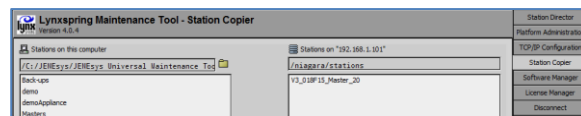
- Click on *Extract*.
- The compressed folder and the Valent software station folder will both be listed in the destination directory. The Valent station folder contains the unzipped software objects, as shown below.



Copying a Station

The UMT Station Copier utility can be used to copy application programs (stations) between the PC and the connected unit controller.

- On the UMT, log into the Platform option. Select the *Station Copier* tab.
- On the Station Copier screen, the information on the left side of the screen represents folders and files from the connected PC. The information on the right side of the screen represents the station running on the connected unit/controller.



Station files received from Valent should be placed in the following folder. Stations copied from the controller to the local PC can also be found in this same folder.

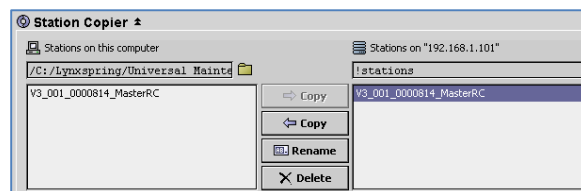
C:\JENEsys\JENEsys Universal Maintenance Tool-3.8.110\stations

Folders received from Valent must be placed into the correct directory for the controller to recognize the files and operate properly. Refer to the prior section [Locating the Station Folder](#) on page 57 for more information.

Uploading from the Controller to the PC

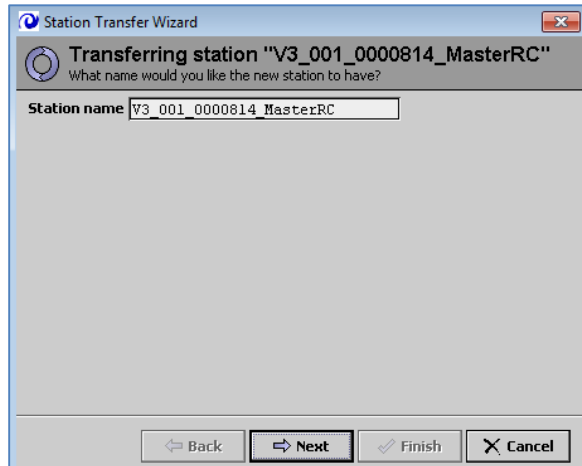
The station copier can also be used to upload or backup the station from the controller to the PC.

- Select the controller's station from the right side of the screen.

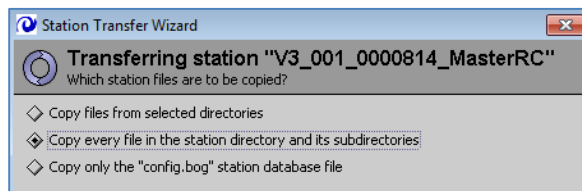


- Select **Copy** to upload/backup the station from the controller to the PC.

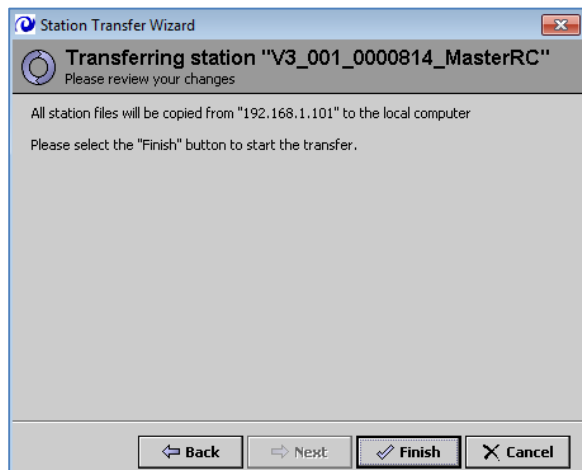
3. Use the suggested station name. Select *Next*.



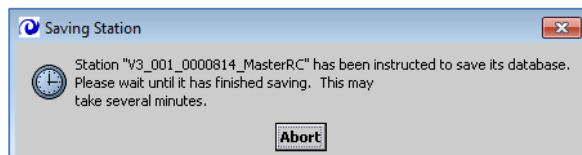
4. Select *Copy every file*, then select *Next*.



5. Select *Finish*.

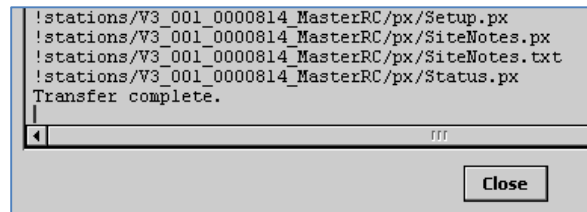


6. A pop-up indicates that the existing station is being saved. This screen automatically closes.



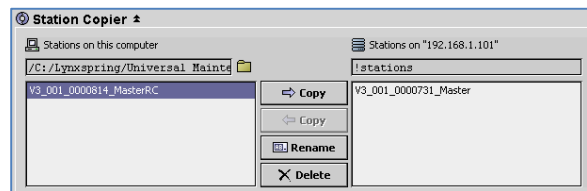
WARNING: Clicking the Abort button cancels the station transfer and could damage the internal software. **Do not press Abort unless instructed by the factory.**

7. When the file transfer is complete, select *Close*.



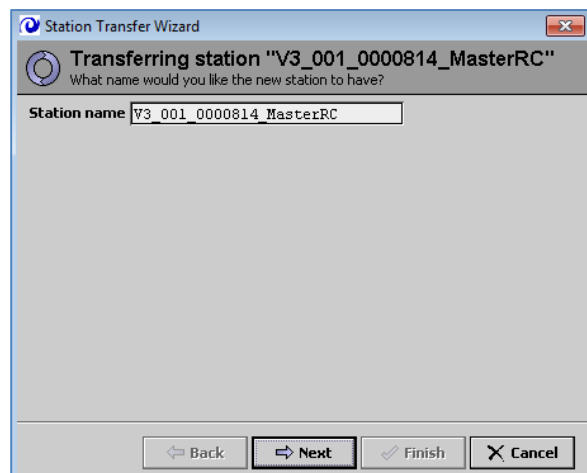
Downloading from the PC to the Controller

1. Click on the desired station from the list on the left side of the screen.

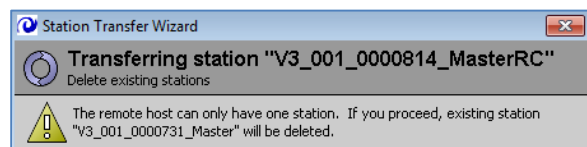


2. Select *Copy* to start the station transfer wizard and download the station from the PC to the controller.

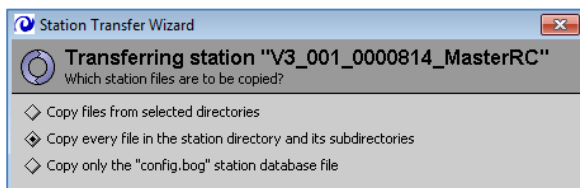
3. Use the suggested station name. Click on *Next*.



4. If a station is already present in the controller, the wizard warns that the existing station will be replaced by the new one, which is correct. Click on *Next*.



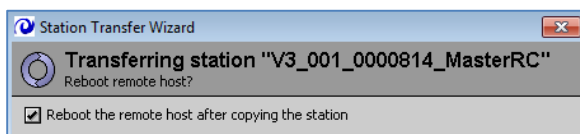
5. Select *Copy every file*, then select *Next*.



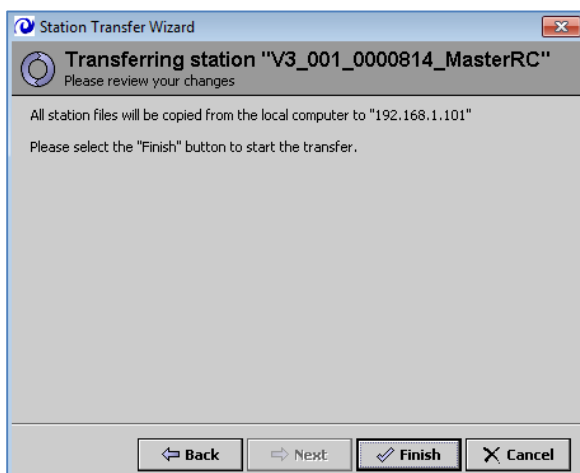
6. Select *Auto-Start*, then select *Next*.



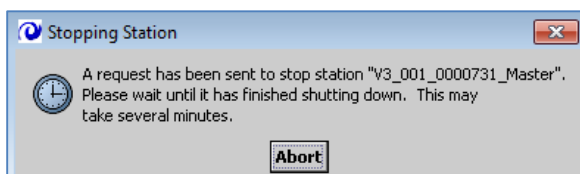
7. Select *Reboot the remote host*, then select *Next*.



8. Select *Finish*.



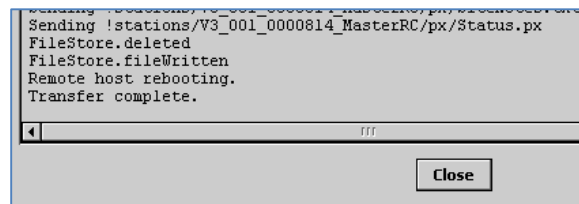
9. A pop-up indicates that the existing station is being shut down. This screen automatically closes when the shutdown is complete.



WARNING:

Clicking on the Abort button cancels the station transfer and could damage the internal software. **Do not press Abort unless instructed by the factory.**

10. When the file transfer is complete, select *Close*.



The controller automatically reboots. Allow several minutes to finish.

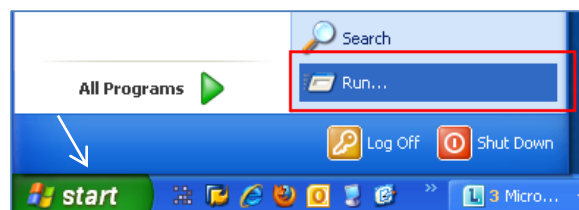
11. Disconnect from the controller and reconnect if desired.

Checking Controller Connection

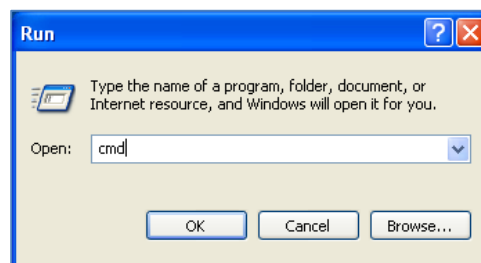
A ping test can be used to check the connection from the controller to the UMT or to check the communication status at any time. The ping test is run from Command Prompt window.

Locating Command Prompt Window from Windows XP

1. Click on the *start* menu.



2. Select the *Run* icon. A pop-up box appears.



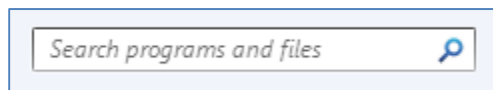
3. Enter **cmd** at the prompt and click on *OK* to open the Command Prompt window.
4. Perform the Ping Test as described later in this section.

Locating Command Prompt Window from Windows 7

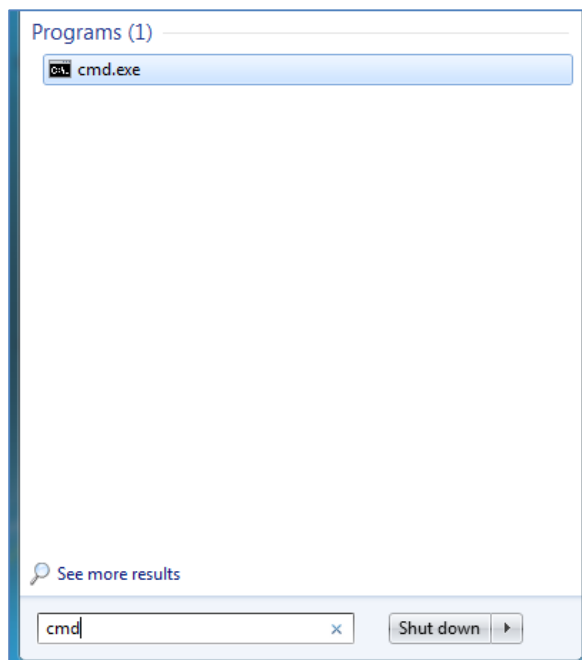
1. Click on the *Windows Start orb*.



2. Enter **cmd** in the Search programs and files box.



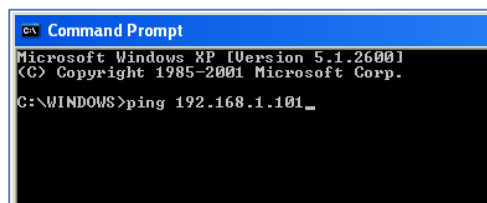
3. Press *Enter* or click on cmd.exe in the list to open the Command Prompt window.



Perform the Ping Test as follows.

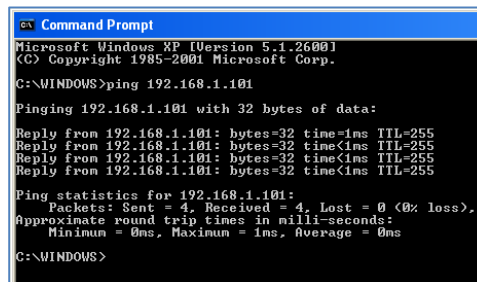
Ping Test

1. At the Command Prompt window, enter **ping [IP address of controller]**
The default IP is 192.168.1.101.



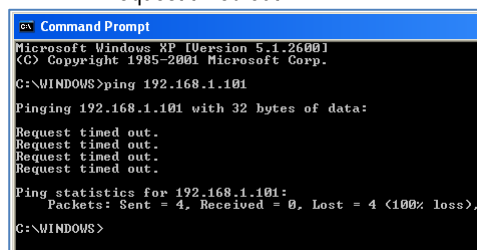
2. Press *Enter*. The UMT tests the ability to communicate with the controller.

If communication is successful, the Command Prompt window shows replies received, with Packets Sent = 4 and Packets Received = 4.

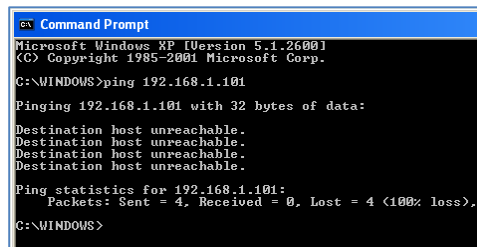


If the UMT is unable to communicate with the controller, the Command Prompt window shows Packets Sent = 4 and Packets Received = 0. One of the following messages is also displayed:

Request timed out.



Destination host unreachable.



If communication is unsuccessful, recheck the LAN adapter settings, then repeat the ping test. If adapter settings are changed, restart the UMT before repeating the ping test.

If the LAN adapter settings are correct but the UMT still cannot communicate with the controller, reboot the controller as described in [Rebooting the Controller](#) on page 57. Repeat the ping test. For further help, contact the factory

Sequence of Operation

1. OCCUPANCY

- 1.1. The controller shall enable occupancy under any one of the following conditions.
 - A. Internal time clock determines occupancy is true.
 - B. Dry contact is closed (internal time clock must be disabled).
 - C. BAS communication signal determines occupancy is true.
 - D. Timed override signal through space temperature sensor is true.
 - E. Optimal start sequence enabled.
- 1.2. The controller shall perform the following functions in the occupied mode.
 - A. Modulate the outdoor air damper and return air damper to the minimum position (return air damper modulates inversely to the outdoor air damper).
 - B. Enable the supply fan upon closure of the outdoor air damper end switch.
 - C. Enable the exhaust fan 30 seconds after closure of the supply fan pressure switch.
- 1.3. The controller shall disable occupancy under any one of the following conditions.
 - A. Internal time clock determines occupancy is false.
 - B. Dry contact is opened (internal time clock must be disabled).
 - C. BAS communication signal determines occupancy is false.
 - D. Timed override signal through space temperature sensor is false.
- 1.4. The controller shall perform the following functions after occupancy is disabled.
 - A. Cooling, dehumidification, heating, or economizer shall be disabled.
 - B. After 30 seconds (adj.) the supply fan shall be disabled.
 - C. Outdoor air damper shall be de-energized and fail closed.
 - D. Return air damper shall be de-energized and fail open.

2. NIGHT SETBACK

- 2.1. Unit shall enable night setback under any one of the following conditions.
 - A. Relative humidity in the space is greater than 55% (adj.) OR dewpoint in the space is greater than 53°F (adj.).
 - B. Space temperature is greater than 80°F (adj.).
 - C. Space temperature is less than 60°F (adj.).
- 2.2. The controller shall perform the following functions in the night setback.
 - A. Supply fan shall enable.
 - B. Temperature control sequence shall enable.
- 2.3. The controller shall disable night setback under any one of the following conditions.
 - A. Space conditions are satisfied.
 - B. Internal time clock in microprocessor controller determines unoccupied mode.
 - C. Dry contact for occupied mode is closed.

3. TEMPERATURE CONTROL

- 3.1. The controller shall enable the temperature control sequence when any of the following conditions are met.
 - A. Occupancy is true.
 - B. Night setback mode enabled.
- 3.2. The supply air temperature setpoint shall be determined by the following inputs.
 - A. [Supply air control] User-defined supply air temperature setpoint.
 - B. [Space temperature and humidity control with supply air reset] PID loop driven by user-defined space temperature setpoint within the supply minimum and maximum setpoints.
- 3.3. The controller shall enable the following modes of operation in order to maintain the supply air temperature setpoint.
 - A. Heating (if equipped).
 - B. Energy recovery (if equipped).
 - C. Economizer (if equipped).
 - D. Cooling.

3.4. Heating

- A. The controller shall enable heating under the following condition.
 - a. Temperature control PID loop determines heating required due to the difference between the supply air temperature and supply air temperature setpoint.
- B. The controller shall perform the following functions in heating mode.
 - a. [Wheel, fixed speed] Enable at full speed before enabling mechanical heat.
 - b. [Wheel, modulating] When the unit modulates out of the economizer function (if equipped) toward the heating mode, the energy recovery wheel shall modulate from 0-100% capacity before enabling mechanical heat.
 - c. [Flat Plate] When the unit modulates out of the economizer function (if equipped), the bypass dampers shall begin to modulate 0-100% full face before enabling mechanical heat.
 - d. Modulate capacity to maintain supply air temperature setpoint.
- C. Defrost Mode
 - a. [Wheel, fixed speed] If the exhaust air temperature drops below 36°F, the energy recovery wheel shall be disabled until the exhaust air temperature rises above 46°F.
 - b. [Wheel, modulating] If the exhaust air temperature drops below 36°F, the energy recovery wheel shall modulate to maintain 36°F.
 - c. [Flat Plate] The bypass dampers shall modulate to maintain 38°F exhaust air temperature.

3.5. Cooling

- A. The controller shall enable cooling under the following conditions.
 - a. Temperature control PID loop determines cooling required due to the difference between the supply air temperature and supply air temperature setpoint.
- B. The controller shall perform the following functions in cooling mode.
 - a. [Wheel, fixed speed] Enable at full speed before enabling mechanical cooling, if ambient temperature is greater than space temperature by 5°F.
 - b. [Wheel, modulating] When the unit modulates out of the economizer function (if equipped) toward cooling mode, the energy recovery wheel shall modulate from 0-100% capacity, if ambient temperature is greater than space temperature by 5°F.
 - c. [Flat Plate] When the unit modulates out of the economizer function (if equipped) toward cooling mode, the bypass dampers shall begin to modulate 0-100% full face, if ambient temperature is greater than space temperature by 5°F.
 - d. Modulate capacity to maintain supply air temperature setpoint.

3.6. Economizer

- A. The controller shall enter the economizer mode under the following conditions.
 - a. Temperature control PID loop determines cooling required due to the difference between the supply air temperature and supply air temperature setpoint.
 - b. [Reference enthalpy] The outdoor air enthalpy is less than the outdoor air enthalpy reference setpoint.
 - c. [Comparative enthalpy] The outdoor air enthalpy is less than the space air enthalpy.
 - d. [Reference temperature] The outdoor air temperature is less than the outdoor air temperature reference setpoint.
- B. The controller shall perform the following functions in economizer mode.
 - a. [Wheel, fixed speed] Energy recovery wheel shall jog based on a user-defined duty cycle.
 - b. [Wheel, modulating] The energy recovery wheel shall operate based upon user-selectable configuration.
 - 1. [Off When Economizing] Disable energy recovery wheel rotation.
 - 2. [On When Economizing] Energy recovery wheel shall rotate at a user-defined speed.
 - 3. [Always On] Energy recovery shall always rotate at a user-defined speed.
 - c. [Flat Plate] Open heat exchanger bypass damper.
 - d. Modulate the outdoor air damper and return air damper positions to maintain the supply air temperature setpoint.

4. DEHUMIDIFICATION

- 4.1. The controller shall enable the dehumidification control sequence when either of the following conditions is met.
 - A. [Supply air control] Outdoor dewpoint is greater than the outdoor air dewpoint setpoint AND the outdoor air temperature is greater than the supply air temperature setpoint.
 - B. [Space temperature and humidity control with supply air reset] Outdoor dewpoint is greater than the outdoor air dewpoint setpoint AND the outdoor air temperature is greater than the supply air temperature setpoint OR the

space relative humidity is greater than the space relative humidity setpoint AND the space dewpoint is above 45°F.

- 4.2. The controller shall perform the following functions in the dehumidification mode.
 - A. Modulate cooling capacity to maintain the coil leaving air temperature setpoint.
 - B. Modulate hot gas reheat valve to maintain the supply air temperature setpoint.

5. COOLING & REFRIGERATION – AIR COOLED PACKAGED DIRECT EXPANSION

- 5.1. In cooling mode the controller shall perform the following functions.
 - A. Enable the Digital Scroll™ compressor and modulate capacity to maintain supply air temperature setpoint.
 - B. If the Digital Scroll™ compressor is not able to maintain the supply air temperature, additional fixed stages of capacity shall be enabled and the Digital Scroll™ shall continue to modulate to maintain the supply air temperature setpoint.
 - C. If the combination of multiple compressors provides lowers the supply air temperature below its setpoint, the controller shall disable one or more fixed stages of capacity.
- 5.2. In dehumidification mode the controller shall perform the following functions.
 - A. Enable a fixed stage of capacity to maintain or exceed the evaporator coil leaving air temperature setpoint.
 - B. Modulate the hot gas reheat valve to maintain the supply air temperature setpoint.
 - C. Enable an additional fixed stage of capacity to maintain or exceed the evaporator coil leaving air temperature setpoint (310 and 350 casings only).
 - D. Enable the Digital Scroll™ compressor to maintain the evaporator coil leaving air temperature setpoint.
 - E. Enable the final fixed stage of capacity and modulate the Digital Scroll™ to maintain the evaporator coil leaving air temperature setpoint (310 and 350 casings only).
- 5.3. [Standard Condensing Performance] To maintain a consistent condensing temperature in cooling and dehumidification mode, the controller shall perform functions.
 - A. Enable a single bank of condensing fans to maintain optimum condensing temperatures.
 - B. As head pressure rises, a mechanical switch shall enable additional condensing fans as needed to maintain optimum condensing temperatures.
 - C. As head pressure lowers, individual condensing fans shall disable condensing fans maintain optimum condensing temperatures.
- 5.4. [Active Head Pressure Control 1.0] To maintain a consistent condensing temperature in cooling and dehumidification mode, the controller shall perform functions.
 - A. Enable and modulate single bank of condensing fans with a variable frequency drive to maintain a condensing temperature of 110°F.
 - B. As head pressure rises, a mechanical switch shall enable additional condensing fans and first bank of condensing fans shall modulate to maintain a condensing temperature of 110°F.
 - C. As head pressure lowers, individual condensing fans shall disable condensing fans first bank of condensing fans shall modulate to maintain a condensing temperature of 110°F.
- 5.5. [Active Head Pressure Control 2.0] To maintain a consistent condensing temperature in cooling and dehumidification mode, the controller shall perform functions.
 - A. Enable and modulate all condensing fans with EC motors at the same speed to maintain a condensing temperature of 110°F.

6. COOLING & REFRIGERATION – AIR SOURCE HEAT PUMP

- 6.1. In cooling mode the controller shall perform the following functions.
 - A. Enable the Digital Scroll™ compressor and modulate capacity to maintain supply air temperature setpoint.
 - B. If the Digital Scroll™ compressor is not able to maintain the supply air temperature, additional fixed stages of capacity shall be enabled and the Digital Scroll™ shall continue to modulate to maintain the supply air temperature setpoint.
 - C. If the combination of multiple compressors provides lowers the supply air temperature below its setpoint, the controller shall disable one or more fixed stages of capacity.
- 6.2. In dehumidification mode the controller shall perform the following functions.
 - A. Enable a fixed stage of capacity to maintain or exceed the evaporator coil leaving air temperature setpoint.
 - B. Modulate the hot gas reheat valve to maintain the supply air temperature setpoint.
 - C. Enable an additional fixed stage of capacity to maintain or exceed the evaporator coil leaving air temperature setpoint (310 and 350 casings only).
 - D. Enable the Digital Scroll™ compressor to maintain the evaporator coil leaving air temperature setpoint.

- E. Enable the final fixed stage of capacity and modulate the Digital Scroll™ to maintain the evaporator coil leaving air temperature setpoint (310 and 350 casings only).
- 6.3. [Active Head Pressure Control 1.0] To maintain a consistent condensing temperature in cooling and dehumidification mode, the controller shall perform functions.
 - A. Enable and modulate single bank of condensing fans with a variable frequency drive to maintain a condensing temperature of 110°F.
 - B. As head pressure rises, a mechanical switch shall enable additional condensing fans and first bank of condensing fans shall modulate to maintain a condensing temperature of 110°F.
 - C. As head pressure lowers, individual condensing fans shall disable condensing fans first bank of condensing fans shall modulate to maintain a condensing temperature of 110°F.
- 6.4. [Active Head Pressure Control 2.0] To maintain a consistent condensing temperature in cooling and dehumidification mode, the controller shall perform functions.
 - A. Enable and modulate all condensing fans with EC motors at the same speed to maintain a condensing temperature of 110°F.

7. COOLING & REFRIGERATION – WATER SOURCE HEAT PUMP

- 7.1. In cooling mode the controller shall perform the following functions.
 - A. Enable the Digital Scroll™ compressor and modulate capacity to maintain supply air temperature setpoint.
 - B. If the Digital Scroll™ compressor is not able to maintain the supply air temperature, additional fixed stages of capacity shall be enabled and the Digital Scroll™ shall continue to modulate to maintain the supply air temperature setpoint.
 - C. If the combination of multiple compressors provides lowers the supply air temperature below its setpoint, the controller shall disable one or more fixed stages of capacity.
- 7.2. In dehumidification mode the controller shall perform the following functions.
 - A. Enable a fixed stage of capacity to maintain or exceed the evaporator coil leaving air temperature setpoint.
 - B. Modulate the hot gas reheat valve to maintain the supply air temperature setpoint.
 - C. Enable the Digital Scroll™ compressor to maintain the evaporator coil leaving air temperature setpoint.
- 7.3. To maintain a consistent condensing temperature in cooling and dehumidification mode the controller shall modulate the water valve on each circuit to maintain a condensing temperature of 110°F.

8. HEATING – INDIRECT GAS FURNACE

- 8.1. In heating mode the unit controller shall perform the following actions.
 - A. Enable indirect gas furnace.
 - B. Modulate capacity to maintain the supply air temperature setpoint.
- 8.2. When an enable signal is received from the unit controller, the furnace controller shall initiate the following ignition sequence.
 - A. Enable the combustion blower at full speed for 15 seconds on 110/210/310 casings and 30 seconds on 350 casings.
 - B. Modulate the gas valve to 100% on 110/210/310 casings and 55% on 350 casing furnace.
 - C. Enable the spark igniter for 10 seconds on 110/210/310 casings and 5 seconds on 350 casings.
 - D. Hold the ignition modulation setpoint for 30 seconds on 110/210/310 casings and 120 seconds for 350 casings.
- 8.3. Once the ignition sequence is complete, the furnace controller shall perform the following actions.
 - A. Modulate the gas valve based on the modulation signal from the unit controller.
 - B. Lower and raise the speed of the combustion fan based on the modulation signal from the unit controller (two-speed).
- 8.4. If the furnace controller does not receive confirmation of a successful ignition sequence (flame providing switch not made), it shall initiate the ignition sequence two additional times on 110/210/310 casings and three additional times on 350 casings.
- 8.5. Upon the loss of the enable signal from the unit controller, the furnace controller shall perform the following actions.
 - A. Modulate the gas valve to 0%.
 - B. Increase the combustion blower to full speed for 30 seconds on 110/210/310 casings and 60 seconds for 350 casings.

9. HEATING – ELECTRIC HEAT

- 9.1. The electric heater shall modulate capacity in order to maintain the supply air temperature setpoint.

10. HEATING – TEMPERATOR

- 10.1. The electric heater shall modulate capacity in order to maintain the supply air temperature setpoint.
- 10.2. If the SCR electric heater is unable to maintain the supply air temperature setpoint, the unit controller shall disable the SCR electric heater and enable the indirect gas furnace.
- 10.3. In heating mode the unit controller shall perform the following actions.
 - A. Enable indirect gas furnace.
 - B. Modulate capacity to maintain the supply air temperature setpoint.
- 10.4. When an enable signal is received from the unit controller, the furnace controller shall initiate the following ignition sequence.
 - A. Enable the combustion blower at full speed for 15 seconds on 110/210/310 casings and 30 seconds on 350 casings.
 - B. Modulate the gas valve to 100% on 110/210/310 casings and 55% on 350 casing furnace.
 - C. Enable the spark igniter for 10 seconds on 110/210/310 casings and 5 seconds on 350 casings.
 - D. Hold the ignition modulation setpoint for 30 seconds on 110/210/310 casings and 120 seconds for 350 casings.
- 10.5. Once the ignition sequence is complete, the furnace controller shall perform the following actions.
 - A. Modulate the gas valve based on the modulation signal from the unit controller.
 - B. Lower and raise the speed of the combustion fan based on the modulation signal from the unit controller (two-speed).
- 10.6. If the furnace controller does not receive confirmation of a successful ignition sequence (flame providing switch not made), it shall initiate the ignition sequence two additional times on 110/210/310 casings and three additional times on 350 casings.
- 10.7. Upon the loss of the enable signal from the unit controller, the furnace controller shall perform the following actions.
 - A. Modulate the gas valve to 0%.
- 10.8. Increase the combustion blower to full speed for 30 seconds on 110/210/310 casings and 60 seconds for 350 casings.

11. HEATING – WATER SOURCE HEAT PUMP

- 11.1. In heating mode the controller shall perform the following functions.
 - A. Enable the Digital Scroll™ compressor and modulate capacity to maintain supply air temperature setpoint.
 - B. If the Digital Scroll™ compressor is not able to maintain the supply air temperature, additional fixed stages of capacity shall be enabled and the Digital Scroll™ shall continue to modulate to maintain the supply air temperature setpoint.
 - C. If the combination of multiple compressors provides too much cooling capacity, the controller shall disable fixed stages of capacity and continue to modulate the Digital Scroll™ compressor to maintain the supply air temperature setpoint.
- 11.2. To maintain a consistent condensing temperature in heating mode the controller shall modulate the water valve on each circuit to maintain a condensing temperature of 110°F.

12. HEATING – AIR SOURCE HEAT PUMP

- 12.1. In heating mode the controller shall perform the following functions.
 - A. Enable the Digital Scroll™ compressor and modulate capacity to maintain supply air temperature setpoint.
 - B. If the Digital Scroll™ compressor is not able to maintain the supply air temperature, additional fixed stages of capacity shall be enabled and the Digital Scroll™ shall continue to modulate to maintain the supply air temperature setpoint.
 - C. If the combination of multiple compressors provides too much cooling capacity, the controller shall disable fixed stages of capacity and continue to modulate the Digital Scroll™ compressor to maintain the supply air temperature setpoint.
 - D. Enable condensing fans at full speed.
- 12.2. [No Defrost Mode] If the unit is not capable of meeting the supply air temperature setpoint the controller shall disable all refrigeration and enable the mechanical heating source.
- 12.3. [DefrostPLUS] The controller shall initiate a defrost sequence to remove the accumulation of frost build up on the outdoor coil.

- A. The controller shall enter the defrost mode when all of the following conditions are met.
 - a. Suction temperature is less than 30°F.
 - b. Suction temperature is equal to or greater than the outdoor air dewpoint less 25°F.
- B. The controller shall perform the following functions in the defrost mode.
 - a. Outdoor air damper shall close.
 - b. Return air damper shall open (operates inversely of outdoor air damper).
 - c. Exhaust fan (if equipped) shall disable.
 - d. Condensing fans shall disable.
 - e. Energy recovery wheel (if equipped) shall disable.
 - f. Supply fan shall modulate to the maximum design speed.
 - g. Reversing valve shall enable to make indoor coil the evaporator and outdoor coil the condenser.
 - h. Compressor(s) shall enable and/or modulate to full capacity.
 - i. Mechanical heat source enabled to maintain supply air temperature setpoint.
- C. The controller shall exit the defrost mode under the following conditions.
 - a. Condensing temperature reaches 60°F.
- D. If the controller enables three defrost modes in one hour of operation, the controller shall disable the heat pump and enable the mechanical form of heating.

13. MODULATION SEQUENCES

13.1. Supply Fan Modulation

- A. The controller shall modulate the supply fan speed based on the following input.
 - a. Duct static pressure.
 - b. Space static pressure.
 - c. 0-10 VDC input (signal provided by others).
 - d. BAS communication.

13.2. Damper Modulation

- A. The controller shall modulate the outdoor air and return air damper based on the following input.
 - a. Space static pressure.
 - b. Outdoor air volume.
 - c. Space carbon dioxide.
 - d. BAS communication.

13.3. Exhaust Fan Modulation

- A. The controller shall modulate the exhaust fan speed based on the following input.
 - a. Space static pressure.
 - b. 0-10 VDC input (signal provided by others).
 - c. BAS communication.
 - d. Supply fan tracking.

Warranty



Innovative HVAC solutions for today's engineering challenges.

UNISON COMFORT TECHNOLOGIES LIMITED WARRANTY & DISCLAIMER POLICY

(Please read the Unison Comfort Technologies terms and conditions of sale Section 9 for additional details, conditions and exclusions.)

PRODUCT WARRANTY

Unison warrants that at the time of delivery and for a period of twelve (12) months from the initial startup or eighteen (18) months from the date of shipment, whichever is less, its products will be free from defects in materials and manufacture, provided that the products have been installed properly, maintained and operated under normal conditions and serviced in accordance with Unison's instructions, and are operating within capacities and ratings set forth in design specifications. **Labor or consumable parts are not included in this limited standard product warranty.** Consumable parts include, but are not limited to, refrigerant, belts and filters.

START-UP LABOR LIMITED WARRANTY

While labor is not included in the Unison standard product warranty, Unison offers a limited labor warranty, for a period beginning on the start-up date and continuing for sixty (60) days, with the completion and documentation of a qualified start-up. The limited labor warranty will not be available if the product warranty has expired.

Start-up services are included on all Innovent compressorized products, and may be available as an option on other Unison products. These services must be performed by a Unison Certified Technician. Startup services include verifying proper operation of the unit, including proper refrigerant charge and repair of minor refrigerant leaks outside the coil. At the completion of start-up, an approved start-up record must be submitted to the Unison service department for processing. Once the start-up record is received, the (60) day limited labor warranty, from date of start-up, will be activated. Labor associated with the diagnosis, validation and repair of warranty parts failures will be covered outside of the start-up, at a negotiated labor rate.

CONSIDERATIONS REGARDING PARTS-SUPPLIED-BY-OTHERS

Unison may supply equipment at a customer's request which has components, like controls, sensors, drives, which are engineered, provided, programmed or configured by other non-Unison parties. Unison does not provide a warranty for these parts or components. These components can be mounted in the factory or at the jobsite. In these instances, Unison's support is limited to verification of basic functionality of the components and not the overall operation or integration of the equipment within the overall building HVAC system. As stated in the Unison Terms & Conditions – *No warranty herein extended shall apply to repair or correction of conditions arising from improper or incorrectly connected air duct, piping, wiring, power supply, blown fuses, freezing, improper Product control when programmed by non-Seller controls, or personnel, or by anyone other than Seller employee or its representative.* In these situations, Unison will assist in the diagnosis of issues and provide support to the customer provided the customer issues a purchase order to cover Unison's expenses in doing so.



Innovative HVAC solutions for today's engineering challenges.

Extended Limited Warranty Certificate



This certificate verifies that _____ has purchased a Limited Extended Warranty policy from Unison Comfort Technologies for the following unit(s):

Unit Brand: Choose Trademark

Unit Model or Tag#: _____

Unit Serial #: _____

The Extended Limited Warranty coverage for this unit is as follows:

Unit/Component Options	Coverage Purchased	Length of Warranty Extension (1,3,5, 10 or 15 years)	Parts Only Or Parts & Labor
DX Unit			
Chilled Water Unit			
Heat Pump Unit			
Unit Casing Only			
Components			
Coil(s)			
Energy Recovery Wheel(s)			
Fan motor(s)			
Furnace Heat Exchanger(s)			
Air-to-air Heat Exchanger(s)			
DDC Controller(s)			
VFD(s)			
Compressor(s)			

All Unison warranties begin at start-up or 6 months after the date of shipment from the Unison factory, whichever occurs first. The ship date for the units noted above is _____. Please refer to the Unison Comfort Technologies terms and conditions of sales for additional details, conditions and exclusions.

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