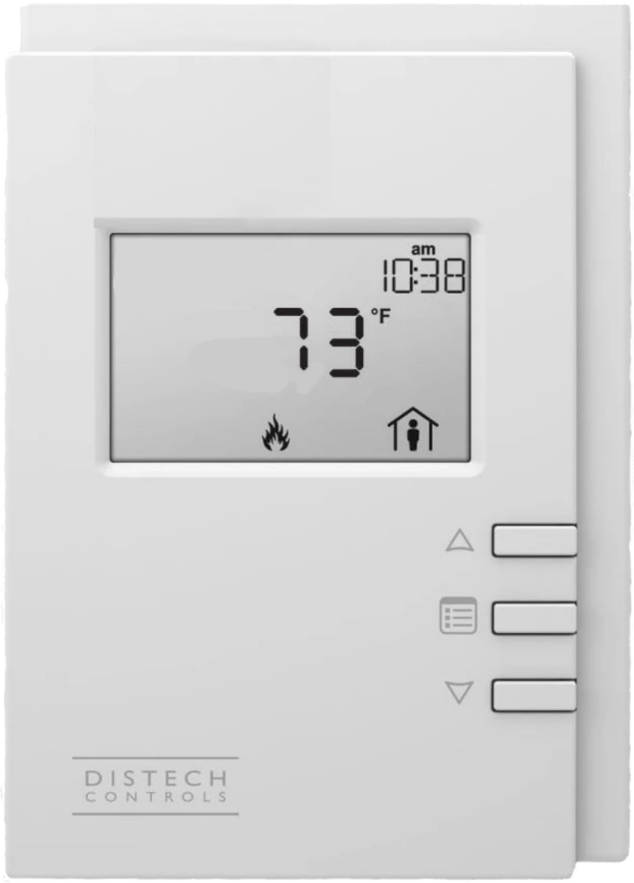
ER-3

User Guide



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WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

Disconnect power supply before making wiring connections or working on this equipment. Follow all applicable safety procedures to prevent accidental power up. Failure to do so can result in injury or death from electrical shock or moving parts and may cause equipment damage.

Improper control adjustments and manual mode control can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before making adjustments.

A Note About Custom Designs

AbsolutAire often builds equipment with special features as requested by the customer. This manual only covers standard features and does not include any changes made for special feature requests by the customer.

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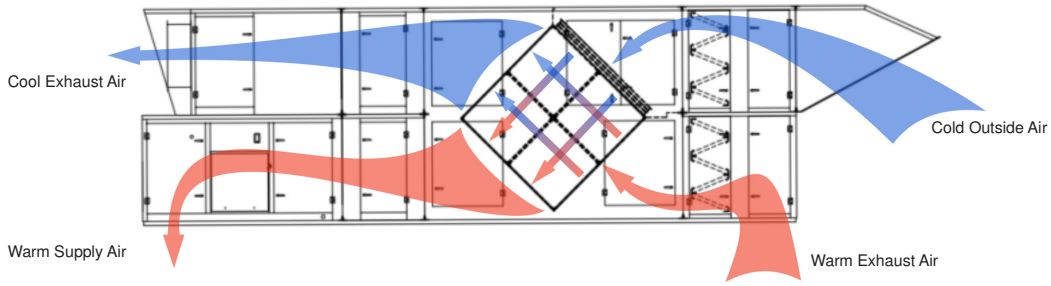
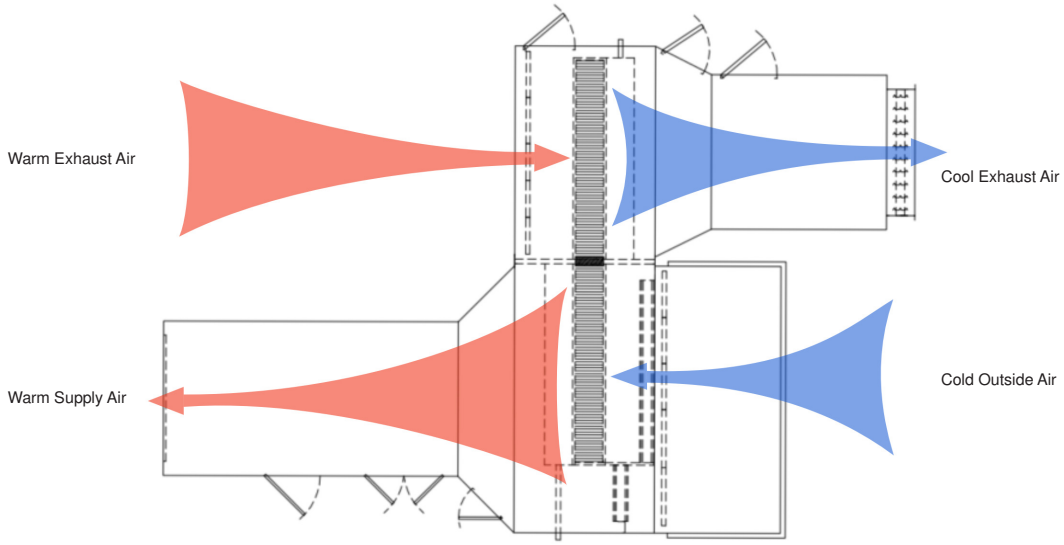
About Heat Recovery

Heat recovery systems are used to reclaim wasted heat from building exhaust. The warm exhaust air is moved through a heat exchanger which transfers part of this energy to the outside air being introduced into the building. This has the effect of pre-heating the incoming air, and as a result, the incoming air requires less energy to heat.

The two primary types of heat recovery systems used by AbsolutAire are plate-to-plate heat exchangers and heat pipe coil exchangers, as shown below.



Typical Plate to Plate Heat Recovery System - Side View



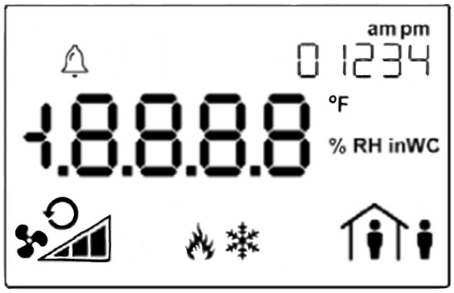
Typical Heat Pipe Coil Recovery System - Top View

The ER-3 Control Package employs enthalpic calculations by monitoring temperature and humidity levels and calculating condensate temperature, frost temperature and system effectiveness to prevent the heat recovery system from freezing while maintaining optimum effectiveness.

Introduction

The Smart-Vue User Interface (UI) for the ER-3 Control System displays the information necessary to operate and diagnose the Heating and Ventilating Unit.

This is connected to the controller via a CAT-5E cable with a maximum length of 600 feet.



HMI Screen Information

At the top left corner of the display there is a bell symbol. This is the system alarm indicator. If an alarm is present in the unit this indicator will blink. If no alarm is present this indicator will not be visible. At the top center of the display is the indicator for indoor temperature. If an outdoor temperature is being displayed the thermometer will be outside of the house. At the top right of the display is the time in 12 hour format during normal display.

When navigating the menu, the menu title will be displayed here. Across the center of the display is the data with the units of measure. The system is capable of displaying up to 4 decimal places. At the bottom left is the fan status. In the bottom center is the mode of operation and at the bottom right is the occupancy status.

Three buttons are available for operation (see cover page). The center button allows you to access the menu and scroll through the menu items. The up/down buttons are used to change values.

Operation

The system has a scrolling display which displays the current Space Temperature, as well as Building Pressure and Relative Humidity (if equipped). The menu is separated into sub-menus for ease of use, and only the options the unit is equipped with will be displayed. When navigating the menu blinking items are set points that can be changed, while non-blinking items are statuses which can be viewed only.

To turn the unit on or off, press the “up arrow” to access the Fan Command. Use the “up arrow” to select the desired option, then press the center button “menu” to return to the main display.

To change set points such as temperature or building pressure, press the “menu” button until you see “SET POINTS” in the top right of the screen. Press the “up arrow” to enter this sub-menu. Your first choice will be “mode”. Use the up arrow to select “heat or vent” (unless the unit has air conditioning, in which case the choices will be “heat/cool/air”). When you have made your choice, press the “menu” button to move to the next menu item, which will be the Occupied Heat Set Point. Again, use the “up/down” arrow buttons to make your entry and press “menu” when finished. Continue scrolling through the Set Points sub-menu until all of your desired settings are completed. When scrolling the menu and you see the option “BACK” in the top right, pressing the “up arrow” will take you to the previous menu.

Scrolling through the “STATUS” sub-menu will allow you to view the status of all of the unit sensors, damper positions, and burner operation. This is useful for checking unit operation or outdoor conditions.

The “ALARMS” menu will only be displayed if there is a system alarm, as indicated by the blinking alarm bell on the display. When an alarm is present, scrolling through this sub-menu will allow you to view the alarm(s) in “plain English” enumerated text. This is useful for diagnosing the unit in the event of a problem.

Sensor Alarm Display

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The “SCHEDULE” will be described later. This is a 7-day occupancy schedule used for the purpose of temperature or operation changes during unoccupied times.

The “CONFIG” menu is where the primary operating set points for the unit are set such as the minimum and maximum allowable discharge temperatures, as well as other items. Again, use the “menu” button to scroll through the sub-menu and the “up/down” buttons to edit your selection.

Schedule

The programmable 7-day occupancy schedule has the ability to set occupied and unoccupied times for a standard week, as well as five individually programmable special events which will override the weekly schedule.

The special event programming monitors the current year, as well as the month being programmed, to prevent invalid days from being programmed as a special event (for example April 31st or February 30th). The system also monitors for leap years so February can have either 28 or 29 days programmed.

Occupancy status is indicated by the occupancy icon in the lower right corner of the HMI screen. A steady icon indicates the system is following the standard 7-day schedule, while a blinking icon indicates the system is following a day programmed as a special event.

To program the 7-day schedule, press the “menu” button until “SCHEDULE” appears in the top right of the display. Press the “up arrow” to enter the schedule.

The first section is the “WEEKLY SCHEDULE”. Press the “up arrow” to enter the weekly schedule. Select the “DAY OF WEEK” to be programmed, with Monday being Day 1. Press “menu” to navigate to “OCC HOUR”. Use the up/down arrows to select the occupied hour, in 24-hour format, and press “menu” to confirm. Press “menu” again to navigate to “OCC MINUTE” and use the up/down arrows to select the occupied minute and press “menu” to confirm. Continue to set the “UNOC HOUR” and “UNOC MINUTE” for this day, then select the next day to program. Leaving the hours and minutes set to “0” for a day will leave that day un-programmed and the system will assume an occupied status for that day.

When finished with the WEEKLY SCHEDULE select “BACK” to return to the menu and program SPECIAL EVENTS if desired.

Special events are used to override the weekly schedule and either keep a facility occupied for an event such as inventory or an important meeting, or to keep a facility unoccupied on a holiday when the building will remain empty.

To program special events, press the “menu” button until “SCHEDULE” appears in the top right of the display. Press the “up arrow” to enter the schedule.

Press “menu” until “SPECIAL EVENTS” appears in the top right of the display. Press the “up arrow” to enter the special event programming menu.

Special events are programmed based on the month and day of the month you wish to program as a special event. Leaving a month and day set to “0” will leave that event un-programmed.

The first option will be the “EVENT NUMBER”. Select the event desired event number (1 - 5) and press “menu” to navigate to “EVENT MONTH”. Select the desired month (1 - 12) and press “menu” to confirm. Press “menu” to navigate to “EVENT DAY”. Select the desired day of the month (1 - 28/29/30/31 as allowed) and press “menu” to confirm.

Press “menu” to navigate to “OCC HOUR”. Select the occupied hour/minutes as well as the unoccupied hours/minutes in the same fashion as programming the weekly schedule.

When finished, either select the next event number to be programmed, or select “BACK” to return to the previous menu.

To remove a special event, set the event month and day to “0”.

Once the schedule is set, the unit will follow the occupied and unoccupied temperature set points for each day as well as any special events.

Menu Tree

Scrolling Display

Space_Temp – Current space temperature at the User Interface (or remote space temperature sensor if equipped - only if unit is space temperature control).

Disch_Temp - Current discharge temperature (only if unit is discharge temperature control).

Bldg_Pressure – Current building pressure (only displayed if the unit has Building Pressure as an option).

Quick Access

Up for On/Off – This is accessed by pressing the “up arrow” from the main screen and is used to turn the unit ON and OFF.

Set Points

Mode – This is the mode of operation. Select “Heat” or “Vent” as desired (if the unit has cooling installed the choices will be “Heat/Cool/Air”)

Occ_Heat – Occupied Heat Set Point.

Unoc_Heat – Unoccupied Heat Set Point (only available if the unit has scheduling as an option).

Occ_Cool – Occupied Cooling Set Point (only available if the unit has cooling as an option).

Unocc_Cool – Unoccupied Cooling Set Point (only available if the unit has scheduling and cooling as options).

BP_Set_Point – Building Pressure Set Point (only available if the unit has building pressure control as an option).

Burner_Reset – Burner reset command for use during a burner lockout alarm. This is an “on/_on_” toggle selectable via the “up arrow” button.

Supply_VFD_Ovrd - Override command for the supply fan VFD. This overrides building pressure control. Use 3 dashes (- - -) for automatic building pressure control.

Exhaust_VFD_Ovrd - Override command for the exhaust fan VFD. This overrides building pressure control. Use 3 dashes (- - -) for automatic building pressure control.

Status

Discharge_Temp - Current discharge air temperature being supplied to the space.

Exhaust_Temp - Current exhaust air temperature.

Outside_Temp - Current outside air temperature.

Outside_Humidity - Current outside air relative humidity.

Return_Temp - Current return air temperature.

Return_Humidity - Current return air relative humidity.

Recovery_Temp - Current heat recovery exit temperature.

Space_Temp - Current Space Temperature (space temp control units only).

Cool_Coil_Temp - Current cooling coil exit air temperature (units with cooling only).

Bldg_Pressure - Current building pressure (units with building pressure control only).

Supply_Fan - Current supply fan status.

Exhaust_Fan - Current exhaust fan status.

Heat_Status - Current heat system status.

Heat_Command - Current command percent for the heat system.

Recovery_Command - Current heat recovery face/bypass damper command.

Effectiveness - Current calculated effectiveness of the heat recovery system.

BTUH_Recovered - Current BTUH rate of heat recovered.

Cooling_Stages - Current number of cooling stages active (only available on units with cooling and multi-stage condensing units).

Cooling_Command - Current command percent for cooling.

Alarms (alarm menu is only visible if an alarm is present)

Burner_Lockout - Burner Lockout Alarm. Reset via burner reset command in Set Points menu.

Low_Temp_Alarm - Low Temperature Lockout Alarm. The unit has discharged cold air for a determined amount of time and has shut off. Command the unit OFF then back ON to reset.

Burner_Response - Burner Not Responding Alarm. The burner was commanded on and confirmation was not received.

Burner_Watchdog - Burner Watchdog Alarm. The burner failed to provide the requested discharge temperature. Possible gas pressure issue to unit.

Supply_Fan - Supply Fan Not Responding Alarm. The supply fan was commanded on and confirmation was not received.

Exhaust_Fan - Exhaust Fan Not Responding Alarm. The exhaust fan was commanded on and confirmation was not received.

Dirty_OA_Filters - Dirty filter notification for the outside air filters.

Dirty_RA_Filters - Dirty filter notification for the return air filters.

Space_Sensor - Space temperature sensor alarm.

Cool_Coil_Temp - Cooling coil exit sensor alarm (only units with cooling).

Bldg_Pres_Sensor - Building pressure sensor alarm (only units with building pressure control).

Discharge_Temp - Discharge temperature sensor alarm.

Exhaust_Temp - Exhaust temperature sensor alarm.

Outside_Temp - Outside temperature sensor alarm.

Outside_Humidity - Outside humidity sensor alarm.

Return_Temp - Return temperature sensor alarm.

Return_Humidity - Return humidity sensor alarm.

Heat_Rec_Temp - Heat recovery temperature sensor alarm.

Hardware_Ovrd - Hardware point override alarm. This indicates that the building management system (BMS) has forced an override to a hardware point on the controller. Remove the BMS override to clear the alarm condition.

Schedule (only visible if the unit has scheduling)

Man_Occupancy - Manual occupancy command. Set to Occupied, Unoccupied or Schedule (occupied and unoccupied override the system schedule).

Weekly Schedule

Day of Week – Schedule day to be programmed.

Occ_Hour – Occupied hour to be programmed. This is the hour (in 24 hour format) that the unit will assume occupied status.

Occ_Minute – Occupied minute to be programmed. This is the minute of the hour the unit will assume occupied status.

Unoc_Hour – Unoccupied hour to be programmed. This is the hour (in 24 hour format) that the unit will assume unoccupied status.

Unoc_Minute – Unoccupied minute to be programmed. This is the minute of the hour the unit will assume unoccupied status.

Special Events

Event_Number - The schedule supports up to five special events. This is the event number to be programmed

Event_Month - Month of the year the special event is in.

Event_Day - Day of the month the special event is on.

Occ_Hour – Occupied hour for the special event. This is the hour (in 24 hour format) that the unit will assume occupied status.

Occ_Minute – Occupied minute for the special event. This is the minute of the hour the unit will assume occupied status.

Unoc_Hour – Unoccupied hour for the special event. This is the hour (in 24 hour format) that the unit will assume unoccupied status.

Unoc_Minute – Unoccupied minute for the special event. This is the minute of the hour the unit will assume unoccupied status.

Config

Control_Type – Determines the type of control the unit will follow. Enumerated “space/discharge”.

Min_Discharge – The units minimum allowable discharge temperature.

Max_Discharge – The units maximum allowable discharge temperature.

Cycle_Occupied – Determines if the unit will cycle on/off to space temperature when in occupied status. Enumerated “yes/no”.

Cycle_Unoccupied – Determines if the unit will cycle on/off to space temperature when in unoccupied status. Enumerated “yes/no”.

Heat_Lockout – Heating mild weather stat setting. When the outside or mixed air temperature is above this setting the burner will be automatically disabled (only available if the unit has mild weather stat as an option).

Cool_Lockout – Cooling mild weather stat setting. When the outside or mixed air temperature is below this setting the cooling will be automatically disabled (only available if the unit has cooling as an option).

Low_Temp_Alarm – If the unit discharges air below this temperature set point for “Low Temp Time” minutes it will shut down and close the isolation dampers (Only available if LTL is available).

Low_Temp_Time – The time delay (in minutes) for the “Low Temp Alarm” (Only available if LTL is available).

LTL_Test - Commissioning tool used to test the low temperature lockout alarm.

Advanced Menu (Press and hold “menu” button for 5 seconds to enter)

Date Time

Year – Set the real time clock year.

Date – Set the real time clock date.

Time – Set the real time clock time.

Network Integration

The controller in this unit can easily be integrated into a BACnet MS/TP Building Management System. The controller will automatically detect the baud rate of the network it is connected to after a power cycle, and will automatically begin communications.

The MAC Address is set via the dip switches on the front of the controller. When shipped, each unit will have a factory default MAC address with multiple units for the same project having incremented MAC addresses. The dip switches are numbered 1 through 8, with 1 being the LSB. The numbering is standard binary format (switches 1 and 3 ON equals an address of 5).

The Network Instance Number (device instance) is automatically configured based on the MAC Address setting. The network instance number will always be 3640+(MAC Address). For example, if the MAC address is set to 25 the network instance number would be 364025. In the event of a duplicate instance number on the network, simply change the MAC address to change the instance number.

The following is a complete listing of the BACnet points with their descriptions.

Point Type	Name	Description	Writeable	Units
Hardware Input 1	Discharge Temperature Sensor	Hardware Input - Discharge Temperature Sensor	NO	Unit: degrees-Fahrenheit
Hardware Input 2	Exhaust Temperature Sensor	Hardware Input - Exhaust Temperature Sensor	NO	Unit: degrees-Fahrenheit
Hardware Input 3	Outside Temperature Sensor	Hardware Input - Outside Temperature Sensor	NO	Unit: degrees-Fahrenheit
Hardware Input 4	Outside Humidity Sensor	Hardware Input - Outside Humidity Sensor	NO	Unit: percent
Hardware Input 5	Return Temperature Sensor	Hardware Input - Return Temperature Sensor	NO	Unit: degrees-Fahrenheit
Hardware Input 6	Return Humidity Sensor	Hardware Input - Return Humidity Sensor	NO	Unit: percent
Hardware Input 7	Heat Recovery Exit Temperature	Hardware Input - Heat Recovery Exit Temperature Sensor	NO	Unit: degrees-Fahrenheit
Hardware Input 8	Remote Space Temperature	Hardware Input - Remote Space Temperature Sensor	NO	Unit: degrees-Fahrenheit
Hardware Input 9	Dirty OA Filter Switch	Hardware Input - Outside Air Dirty Filter Switch	NO	Boolean (DIRTY;NORMAL)
Hardware Input 10	Dirty RA Filter Switch	Hardware Input - Return Air Dirty Filter Switch	NO	Boolean (DIRTY;NORMAL)
Hardware Input 11	Supplyt Fan	Hardware Input - Supply Fan Status	NO	Boolean (ON;OFF)
Hardware Input 12	Exhaust Fan	Hardware Input - Exhaust Fan Status	NO	Boolean (ON;OFF)
Hardware Input 13	Burner	Hardware Input - Burner Status	NO	Boolean (ON;OFF)
Hardware Input 14	Burner Lockout	Hardware Input - Burner Lockout Contact	NO	Boolean (LOCKOUT;NORMAL)
Hardware Input 15	Building Pressure Sensor	Hardware Input - Building Pressure Sensor	NO	Unit: inches-of-water
Hardware Input 16	Cooling Coil Temperature	Hardware Input - Cooling Coil Exit Temperature Sensor	NO	Unit: degrees-Fahrenheit
Hardware Output 1	Unit Enable Relay	[DO NOT WRITE] Hardware Output - Unit Enable Relay	NO	Boolean (ENABLE;OFF)
Hardware Output 2	Heat Enable Relay	[DO NOT WRITE] Hardware Output - Heat Enable Relay	NO	Boolean (ENABLE;OFF)
Hardware Output 3	Common Alarm Relay	[DO NOT WRITE] Hardware Output - Common Alarm Relay	NO	Boolean (ALARM;NORMAL)
Hardware Output 4	Burner Reset Relay	[DO NOT WRITE] Hardware Output - Burner Reset Relay	NO	Boolean (RESET;NORMAL)
Hardware Output 5	Cooling Relay Stage 1	[DO NOT WRITE] Hardware Output - Cooling Stage 1 Enable Relay	NO	Boolean (ENABLE;OFF)
Hardware Output 6	Cooling Relay Stage 2	[DO NOT WRITE] Hardware Outout - Cooling Stage 2 Enable Relay	NO	Boolean (ENABLE;OFF)
Hardware Output 7	Hardware Output 7	Unused	NO	
Hardware Output 8	Analog Cooling Command	[DO NOT WRITE] Hardware Output - Analog Cooling Command	NO	Unit: percent
Hardware Output 9	Supply VFD Command	[DO NOT WRITE] Hardware Output - Supply Fan VFD Speed Command	NO	Unit: percent
Hardware Output 10	Exhaust VFD Command	[DO NOT WRITE] Hardware Output - Exhaust Fan VFD Speed Command	NO	Unit: percent
Hardware Output 11	Heat Recovery Command	[DO NOT WRITE] Hardware Output - Heat Recover Face/Bypass Damper Command	NO	Unit: percent
Hardware Output 12	Heat Command Percent	[DO NOT WRITE] Hardware Output - Heat Command	NO	Unit: percent
Analog Value 1	Config Condenser Low Scale	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Unit: degrees-Fahrenheit
Analog Value 2	Config Condenser High Scale	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Unit: degrees-Fahrenheit
Analog Value 3	Config Stage Delay Minutes	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Unit: minutes
Analog Value 4	Config Supply CFM	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Unit: cubic-feet-per-minute
Analog Value 5	Config Exhaust CFM	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Unit: cubic-feet-per-minute
Analog Value 6	Config Design Temp Rise	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Unit: degrees-Fahrenheit
Analog Value 36	network Occupied Heat	Occupied Heat Set Point	YES	Unit: degrees-Fahrenheit
Analog Value 37	network Unoccupied Heat	Unocupied Heat Set Point	YES	Unit: degrees-Fahrenheit
Analog Value 38	network Occupied Cool	Occupied Cool Set Point	YES	Unit: degrees-Fahrenheit
Analog Value 39	network Unoccupied Cool	Unoccupied Cool Set Point	YES	Unit: degrees-Fahrenheit
Analog Value 40	network Minimum Discharge	Minimum Discharge Temperature	YES	Unit: degrees-Fahrenheit
Analog Value 41	network Maximum Discharge	Maximum Discharge Temperature	YES	Unit: degrees-Fahrenheit
Analog Value 42	network Building Pressure Set Pt	Building Pressure Set Point	YES	Unit: inches-of-water
Analog Value 43	network Heat Lockout Set Point	Heat Lockout Set Point	YES	Unit: degrees-Fahrenheit
Analog Value 44	network Cool Lockout Set Point	Cool Lockout Set Point	YES	Unit: degrees-Fahrenheit
Analog Value 45	network Low Temp Set Pt	Low Temperature Alarm Set Point	YES	Unit: degrees-Fahrenheit
Analog Value 46	network Low Temp Delay	Low Temperature Alarm Delay Time [minutes]	YES	Unit: minutes
Analog Value 47	network Supply Fan Speed	Supply Fan Speed Override [0% to 100% (enter '255' for automatic control)]	YES	Unit: percent
Analog Value 48	network Exhaust Fan Speed	Exhaust Fan Speed Override [0% to 100% (enter '255' for automatic control)]	YES	Unit: percent
Analog Value 49	network Space Temperature	Network Space Temperature Override (enter '255' for local space temperature)	YES	Unit: degrees-Fahrenheit
Analog Value 50	Discharge Temperature	Current Discharge Temperature	NO	Unit: degrees-Fahrenheit
Analog Value 51	Exhaust Temperature	Current Exhaust Temperature	NO	Unit: degrees-Fahrenheit
Analog Value 52	Outside Temperature	Current Outside Temperature	NO	Unit: degrees-Fahrenheit
Analog Value 53	Outside Humidity	Current Outside Humidity	NO	Unit: percent-relative-humidity
Analog Value 54	Return Temperature	Current Return Temperature	NO	Unit: degrees-Fahrenheit
Analog Value 55	Return Humidity	Current Return Humidity	NO	Unit: percent-relative-humidity
Analog Value 56	Heat Recovery Supply Temperature	Current Heat Recovery Exit (supply) Temperature	NO	Unit: degrees-Fahrenheit
Analog Value 57	Local Space Temperature	Local Space Temperature (does not include network space temperature override)	NO	Unit: degrees-Fahrenheit
Analog Value 58	Cooling Coil Exit Temperature	Current Cooling Coil Exit Temperature	NO	Unit: degrees-Fahrenheit
Analog Value 59	Building Pressure	Current Building Pressure	NO	Unit: inches-of-water
Analog Value 60	Heat Command	Current Heat Command	NO	Unit: percent
Analog Value 61	Energy Recovery Command	Current Heat Recovery Face/Bypass Damper Command	NO	Unit: percent
Analog Value 62	Energy Recovery Effectiveness	Current Heat Recovery Effectiveness	NO	Unit: percent
Analog Value 63	Energy Recovered	Current BTUh of Energy Recovered	NO	Unit: btus-per-hour
Analog Value 64	Active Cooling Stages	Current Active Cooling Stages	NO	
Analog Value 65	Cooling Command	Current Cooling Command	NO	Unit: percent
Analog Value 66	Control Space Temperature	Current Control Space Temperature (includes network space temperature override)	NO	Unit: degrees-Fahrenheit
Binary Value 1	Config Schedule Available	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (YES;NO)
Binary Value 2	Config OA DFS Available	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (YES;NO)
Binary Value 3	Config RA DFS Available	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (YES;NO)
Binary Value 4	Config Space Sensor Type	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (REMOTE WIRED;WITHIN HMI)
Binary Value 5	Config Cooling Coil Sensor Used	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (YES;NO)
Binary Value 6	Config LTL Available	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (YES;NO)
Binary Value 7	Config Stage Timer Used	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (YES;NO)
Binary Value 8	Config MWS Available	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Boolean (YES;NO)
Binary Value 21	network Cycle Occupied	Cycle Unit To Space Temperature When Occupied	YES	Boolean (YES;NO)
Binary Value 22	network Cycle Unoccupied	Cycle Unit To Space Temperature When Unoccupied	YES	Boolean (YES;NO)
Binary Value 23	network Control Type	Unit Control Type	YES	Boolean (SPACE;DISCHARGE)
Binary Value 24	network Burner Reset	Burner Reset Command [pulse "reset" for 3 seconds to reset burner lockout alarm]	YES	Boolean (RESET;NORMAL)
Binary Value 25	Supply Fan Status	Current Supply Fan Status	NO	Boolean (ON;OFF)
Binary Value 26	Exhaust Fan Status	Current Exhaust Fan Status	NO	Boolean (ON;OFF)
Binary Value 27	Heat Status	Current Heat Status	NO	Boolean (ON;OFF)
Multi State Value 1	Config Building Pressure Control	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Enum: BUILDING PRESSURE CONTROL
Multi State Value 2	Config Heating Type	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Enum: HEATING TYPE
Multi State Value 3	Config Cooling Type	[DO NOT WRITE - UNIT CONFIGURATION VARIABLE]	NO	Enum: COOLING TYPE
Multi State Value 21	network Fan Command	Fan Command - [USETHISTO ENABLE/DISABLEUNIT]	YES	Enum: FAN COMMAND
Multi State Value 22	network HVAC Mode	HVAC Mode [Enumerated VENT/HEAT/COOL}	YES	Enum: HVAC MODE
Multi State Value 23	network Occupancy Command	Occupancy Command [Enumerated Occupied/Unoccupied/Follow Schedule]	YES	Enum: OCCUPANCY
Multi State Value 24	Burner Not Responding Allram	Burner Not Responding Alarm [failed to light when commanded without burner lockout alarm]	NO	Enum: ALARM / NORMAL
Multi State Value 25	Burner Watchdog Alarm	Burner Watchdog Alarm [failed to reach requested discharge - possible problem with valves or gas pressure]	NO	Enum: ALARM / NORMAL
Multi State Value 26	Supply Fan Not Responding Alarm	Supply Fan Not Responding Alarm [fan failed to report ON status]	NO	Enum: ALARM / NORMAL
Multi State Value 27	Exhaust Fan Not Responding Alarm	Exhaust Fan Not Responding Alarm [fan failed to report ON status]	NO	Enum: ALARM / NORMAL
Multi State Value 28	OA Dirty Filter Alarm	Outside Dirty Filter Alarm	NO	Enum: ALARM / NORMAL
Multi State Value 29	RA Dirty Filter Alarm	Return Dirty Filter Alarm	NO	Enum: ALARM / NORMAL
Multi State Value 30	Space Temperature Sensor Alarm	Slace Temperature Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 31	Cooling Coil Temp Sensor Alarm	Cooling Coil Temperature Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 32	Building Pressure Sensor Alarm	Building Pressure Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 33	Low Temperature Alarm	Low Discharge Temperature Alarm [command unit OFF then ON to reset]	NO	Enum: ALARM / NORMAL
Multi State Value 34	Discharge Temp Sensor Alarm	Discharge Temperature Sensor Alarm	NO	Enum: RELIABILITY

Multi State Value 35	Exhaust Temp Sensor Alarm	Exhaust Temperature Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 36	Outside Temp Sensor Alarm	Outside Temperature Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 37	Outside Humidity Sensor Alarm	Outside Humidity Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 38	Return Temp Sensor Alarm	Return Temperature Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 39	Return Humidity Sensor Alarm	Return Humidity Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 40	Heat Recovery Temp Sensor Alarm	Heat Recovery Exit Sensor Alarm	NO	Enum: RELIABILITY
Multi State Value 41	Burner Lockout Alarm	Burner Lockout Alarm	NO	Enum: ALARM / NORMAL
Multi State Value 42	Hardware Output 1 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 43	Hardware Output 2 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 44	Hardware Output 3 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 45	Hardware Output 4 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 46	Hardware Output 5 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 47	Hardware Output 6 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 48	Hardware Output 7 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 49	Hardware Output 8 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 50	Hardware Output 9 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 51	Hardware Output 10 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 52	Hardware Output 11 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL
Multi State Value 53	Hardware Output 12 Override	Hardware Override Alarm - Remove Network Override	NO	Enum: ALARM / NORMAL