

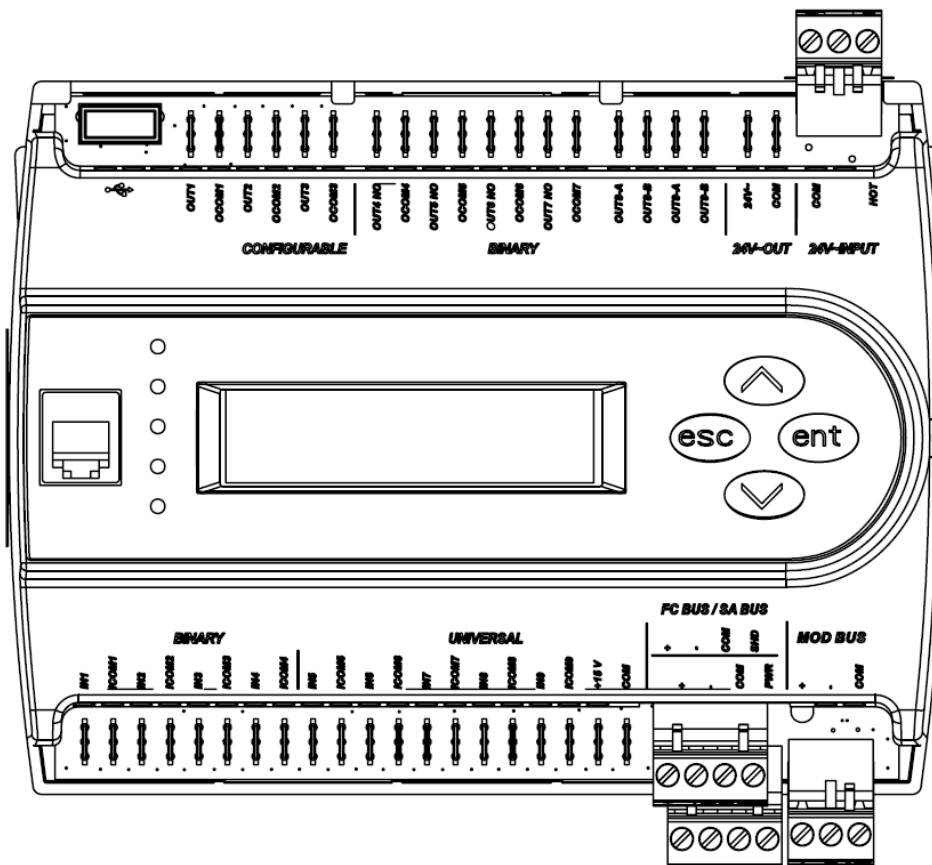


## OPERATING INSTRUCTIONS

### BACNET CONTROLLER- EVAP

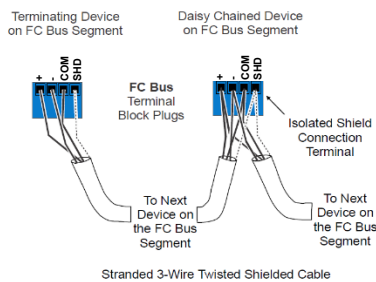
The BACnet Controller is a native BACnet<sup>®</sup>, fully programmable, direct digital controller. It provides a communication link between a BAS (Building Automation System) and the Cambridge unit. The controller provides precise monitoring and control of connected points.

- BACnet<sup>®</sup> MS/TP compliant operating at up to 76.8 kilobaud
- BTL-certified controller
- Standard input points for fan status, cooling status, discharge temperature, zone temperature, and outdoor temperature
- Standard output points for fan control, cooling control and fill and drain valves
- Selectable operating modes (fan off/on/auto, cooling off/on/auto, heating off/on/auto)
- Removable screw terminal blocks
- Onboard USB port for firmware upgrades
- Local user interface display for commissioning and monitoring



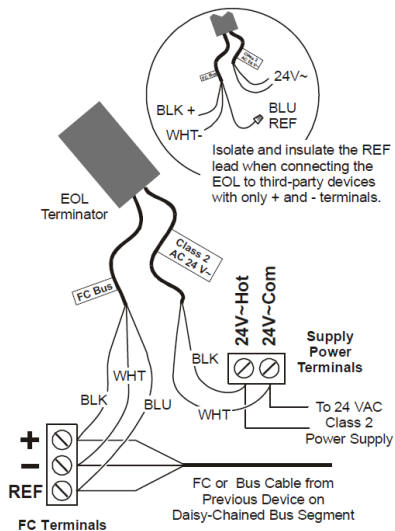
## MS/TP NETWORK CONNECTION

- Use stranded 3-wire twisted pair, shielded cable to connect to FC BUS (blue) terminals.
- Run all low-voltage wiring and cables separate from high-voltage wiring.
- Connect the – terminals in parallel with all other – terminals and the + terminals in parallel with all other + terminals.
- The FC bus Shield (SHD) terminal is isolated and can be used to as a shield drain connection.



## END-OF-LINE TERMINATION

If a controller is on either end of a BACnet MS/TP network an EOL terminator (JCI # MS-BACEOL-0) must be installed for proper network operation.



## NETWORK PARAMETERS

Before operating controllers on a bus, you must set a valid and unique device address for each controller on the bus through the local display or MAP gateway. Device addresses 4 through 127 are the valid addresses for these controllers. The MAC address is set for a default of 4.

The baud rate is set for a default of Auto. The controller will listen for the bus supervisor to communicate first; then automatically set its baud rate to the bus supervisor's baud rate. If you anticipate critical peer-to-peer communication and therefore do not want the controllers to wait for the bus supervisor to establish the baud rate, you can specify the baud rate for each device immediately at startup.

To change any of the network settings (Device Name, Description, Address, Device Object ID) go to Controller > Network from the local display or MAP gateway.

**NOTE:** When changing any network parameters it is recommended that the controller be disconnected from the network while the changes are being made and that the power be cycled to the controller after all changes have been made before reconnecting the controller to the network.

## POINTS LISTS

The following lists of points are accessible via the network. Points listed as optional may not be applicable to all systems.

### INPUT OBJECTS

Type	Object	Input#	Description	Writable	Values	
Binary	MV:29563	BI:1	Burner Status <i>(optional)</i>	False	0 = Off / 1 = On	
Binary	MV:29507	BI:2	Supply Fan Status	False	0 = Off / 1 = On	
Binary	MV:29535	BI:5	Low Water Switch #1	False	0 = Open / 1 = Closed	
Binary	MV:29555	BI:6	Low Water Switch #2 <i>(optional)</i>	False	0 = Open / 1 = Closed	
Type	Object	Input#	Description	Writable	Units	Range
Analog	AV:29504	UI:14	Discharge air temperature	False	°F	-50 - 250
Analog	AV:29550	UI:15	Water Conductivity #2 <i>(optional)</i>	False	(μS/cm)	0-10,000
Analog	AV:29506	UI:16	Outdoor air temperature	False	°F	-50 - 250
Analog	AV:29507	UI:17	Zone temperature <i>(optional)</i>	False	°F	-50 - 250
Analog	AV:29508	UI:18	Water Conductivity #1 <i>(optional)</i>	False	(μS/cm)	0-10,000

### OUTPUT OBJECTS

Type	Object	Output#	Description	Writable	Values	
Binary	MV:29564	BO:4	Burner command <i>(optional)</i>	False	0 = Off / 1 = On	
Binary	MV:29516	BO:6	Indirect Pump command <i>(optional)</i>	False	0 = Off / 1 = On	
Binary	MV:29550	BO:8	Direct Pump command <i>(optional)</i>	False	0 = Off / 1 = On	
Binary	MV:29520	BO:10	Supply Fan command	False	0 = Off / 1 = On	
Binary	MV:29521	BO:11	Drain Valve #1 command	False	0 = Open / 1 = Closed	
Binary	MV:29522	BO:12	Fill Valve #1 command	False	0 = Closed / 1 = Open	
Binary	MV:29553	BO:13	Drain Valve #2 command <i>(optional)</i>	False	0 = Open / 1 = Closed	
Binary	MV:29554	BO:14	Fill Valve #2 command <i>(optional)</i>	False	0 = Closed / 1 = Open	
Type	Object	Output#	Description	Writable	Units	Range
Analog	AV:29551	AO:1	Burner Modulation <i>(optional)</i>	False	%	0 - 100
Analog	AV:29509	AO:2	Supply Fan Output <i>(optional)</i>	False	%	0 - 100

### BINARY VALUE OBJECTS

Object	Description	Writable	Values
BV:29501	System Enable	True	0 = Disable / 1 = Enable
BV:29502	Water System Flush	True	0 = Off / 1 = On
BV:29512	Supply Fan Runtime Reset	True	0 = Off / 1 = Reset
BV:29516	Humidity Lockout Enable	True	0 = Disable / 1 = Enable
BV:29517	Burner Runtime Reset <i>(optional)</i>	True	0 = Off / 1 = Reset

## MULTISTATE VALUE OBJECTS

Object	Description	Writable	States	Values
MV:29501	Unit Status	False	4	1 = Heating 2 = Satisfied 3 = Cooling 4 = Temperature Unreliable
MV:29505	FCB Baud Rate	True	6	1 = Auto 2 = 1200 3 = 9600 4 = 19200 5 = 38400 6 = 76800
MV:29506	Operating Baud Rate	False		
MV:29507	Supply Fan Status	False	2	1 = Off / 2 = On
MV:29525	Control Points	True	2	1 = State 0 / 2 = State 1
MV:29534	Supply Fan Fault	False	2	1 = Normal / 2 = Alarm
MV:29535	Sensor 1 Alarms	False	2	1 = Alarm / 2 = Normal
MV:29536	Supply Air Temperature Sensor Failure	False	2	1 = Normal / 2 = Alarm
MV:29537	Outdoor Air Temperature Sensor Failure	False	2	1 = Normal / 2 = Alarm
MV:29538	Zone Temperature Sensor Failure	False	2	1 = Normal / 2 = Alarm
MV:29539	Supply Fan Control Mode	True	3	1 = Hand / 2 = Off / 3 = Auto
MV:29540	Indirect Pump Control Mode ( <i>optional</i> )	True	3	1 = Hand / 2 = Off / 3 = Auto
MV:29541	Drain Valve 1 Control Mode	True	3	1 = Auto / 2 = Close / 3 = Open
MV:29542	Fill Valve 1 Control Mode	True	3	1 = Auto / 2 = Close / 3 = Open
MV:29543	Effective Occupancy	False	2	Occupied / Unoccupied
MV:29544	Occupied Fan Mode	True	3	1 = Auto / 2 = Off / 3 = On
MV:29545	Unoccupied Fan Mode	True	3	1 = Auto / 2 = Off / 3 = On
MV:29546	Occupied Cooling Mode	True	3	1 = Auto / 2 = Off / 3 = On
MV:29547	Unoccupied Cooling Mode	True	3	1 = Auto / 2 = Off / 3 = On
MV:29548	Occupancy Override	True	5	1 = Occupied 2 = UnOccupied 3 = Bypass 4 = Standby 5 = Not Set
MV:29549	Occupancy Schedule			
MV:29555	Sensor 2 Alarms	False	2	1 = Alarm / 2 = Normal
MV:29557	Cooling Type	True	3	1 = X / 2 = Y / 3 = Z
MV:29541	Drain Valve 2 Control Mode ( <i>optional</i> )	True	3	1 = Auto / 2 = Close / 3 = Open
MV:29542	Fill Valve 2 Control Mode ( <i>optional</i> )	True	3	1 = Auto / 2 = Close / 3 = Open
MV:29562	Direct Pump Control Mode ( <i>optional</i> )	True	3	1 = Hand / 2 = Off / 3 = Auto
MV:29563	Burner Status	False	2	1 = Off / 2 = On
MV:29565	Burner Modulation Mode	True	2	1 = Auto / 2 = Manual
MV:29566	Burner Control Mode	True	3	1 = Hand / 2 = Off / 3 = Auto
MV:29567	Burner Alarm Reset	True	2	1 = Off / 2 = Reset
MV:29568	Heat/Cool Mode	True	2	1 = Heating / 2 = Cooling
MV:29569	Burner Fault	False	2	1 = Normal / 2 = Alarm
MV:29570	DAT Low Temperature Alarm	False	2	1 = Normal / 2 = Lockout
MV:29571	Heater Lockout Alarm	False	2	1 = Normal / 2 = Lockout
MV:29572	System Mode	False	5	1 = Heat 2 = Cool 3 = Fan Only 4 = Auto 5 = Off

## ANALOG VALUE OBJECTS

Object	Description	Writable	Units	Range	Default
AV:29501	Device Address	True	NA	4 - 127	4
AV:29502	Device Object ID	True	NA	0 - 4194302	NA
AV:29510	DAT Sensor Offset	True	°F	-10 – 10	0°F
AV:29512	Deadband	True	°F	0 – 20	0°F
AV:29513	High Drain Threshold	True	µS/cm	0-10,000	X
AV:29514	Drain Delay Time	True	Minutes	0 - 120	X min
AV:29515	Drying Time	True	Minutes	0 - 120	X min
AV:29516	Valve Delay	True	Minutes	0 - 120	X min
AV:29517	Fan Fault Delay	True	seconds	0 - 300	60 sec
AV:29518	Water Flush System	True	µS/cm	0-10,000	X
AV:29519	OAT Sensor Offset	True	°F	-10 – 10	0°F
AV:29520	Low OA Lockout Setpoint	True	°F	40 – 160	40°F
AV:29521	Pump Down Time	True	Minutes	0 - 120	X min
AV:29522	Fan Start Delay	True	Minutes	0 - 120	X min
AV:29524	ZNT Sensor Offset	True	°F	-10 – 10	0°F
AV:29534	Supply Fan Cycle Count	False	Counts	NA	NA
AV:29535	Supply Fan Runtime	False	hours	NA	NA
AV:29536	Supply Fan Speed ( <i>optional</i> )	True	%	0 - 100	100%
AV:29537	Effective Cooling Setpoint	False	°F	NA	NA
AV:29538	OA Econ Lockout Setpoint	True	°F	40 – 160	65°F
AV:29539	Unoccupied Discharge Air Flow Setpoint	True	°F	40 – 160	65°F
AV:29540	Occupied Discharge Air Flow Setpoint	True	°F	40 – 160	65°F
AV:29541	Occupied Zone Cooling Set Point	True	°F	40 – 160	75°F
AV:29542	Unoccupied Zone Cooling Set Point	True	°F	40 – 160	85°F
AV:29543	Freeze Stat Setpoint	True	°F	40 – 160	65°F
AV:29544	Netsensor Temp	False	°F	32 – 104	NA
AV:29545	Netsensor Humidity	False	%	0 – 100	NA
AV:29546	RH Setpoint	True	%	0-100	60%
AV:29547	Inlet Air Cooler	True	NA	1-2	
AV:29548	Number of Pumps	True	NA	1-2	
AV:29549	Stage Up Delay	True	Minutes	0 - 30	X min
AV:29552	OA Heating Lockout Setpoint	True	°F	0 – 130	65°F
AV:29553	Discharge Air High Set Point	True	°F	40 – 160	160°F
AV:29554	Discharge Air Low Set Point	True	°F	40 – 160	70°F
AV:29555	Occupied Zone Heating Set Point	True	°F	60 – 90	60°F
AV:29556	Unoccupied Zone Heating Set Point	True	°F	40 - 80	55°F
AV:29557	Burner Modulation Set Point	False	%	NA	NA
AV:29560	Burner Fault Delay	True	seconds	0 - 300	60 sec
AV:29561	Low Temperature Cutout Setpoint	True	°F	45 - 55	45°F
AV:29562	Low Temperature Cutout Delay	True	seconds	0 - 300	60 sec
AV:29563	Effective Heating Set Point	False	°F	NA	NA
AV:29564	Effective Discharge Air Set Point	False	°F	NA	NA
AV:29565	Burner Runtime	False	hours	NA	NA
AV:29566	Burner Cycle Count	False	Counts	NA	NA

## OPERATING MODES

### FAN / OCCUPIED

- Off – Fan doesn't run
- On – Fan operates continuously
- Auto – Fan operates if Zone Temperature is above Zone Occupied Cooling Set Point or below Zone Occupied Heating Set Point

### FAN / UNOCCUPIED

- Off – Fan doesn't run
- On – Fan operates continuously
- Auto – Fan operates if Zone Temperature is above Zone Unoccupied Cooling Set Point or below Zone Unoccupied Heating Set Point

### COOLING / OCCUPIED

- Off – Cooling doesn't run
- On – Cooling operates continuously
- Auto – Cooling operates if Zone Temperature is above Zone Occupied Cooling Set Point

### COOLING / UNOCCUPIED

- Off – Cooling doesn't run
- On – Cooling operates continuously
- Auto – Cooling operates if Zone Temperature is above Zone Unoccupied Cooling Set Point

### HEATING / OCCUPIED

- Off – Heating doesn't run
- On – Heating operates continuously
- Auto – Heating operates if Zone Temperature is below Zone Occupied Heating Set Point

### HEATING / UNOCCUPIED

- Off – Heating doesn't run
- On – Heating operates continuously
- Auto – Heating operates if Zone Temperature is below Zone Unoccupied Heating Set Point

## COOLING SETUP PARAMETERS

### Cooling Type

- Direct
- Indirect
- Direct/Indirect

### Inlet Air Intakes

- 1
- 2





## DEFAULT SETTINGS

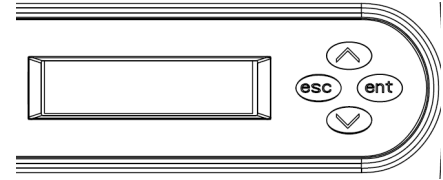
The controller will function to control the unit without the network being connected, provided that a Zone Temperature Sensor is connected. The default settings are:

- Zone Occupied Cooling Set Point = 75°F
- Zone Unoccupied Cooling Set Point = 75°F
- Zone Occupied Heating Set Point = 60°F
- Zone Unoccupied Heating Set Point = 55°F
- Deadband = 5°F
- Cooling Fan Delay = 10 minutes

## LOCAL DISPLAY

The controller includes an onboard illuminated LCD display and 4 buttons for monitoring and adjustment.

Label	Name	Description
	Escape	Exit the current menu level and go up one level
	Enter	Access the menu Accept the current selection
	Up	Scroll through menu selections
	Down	Adjust current parameter selection



## SETTING COMMON PARAMETERS

### NETWORK SETTINGS

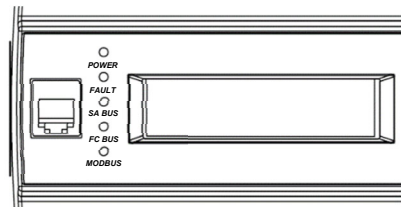
1. Press **ent** button on the controller to access the menus.
2. Press ▼ or ▲ button to scroll to Controller.
3. Press **ent** button.
4. Press ▼ or ▲ button to scroll to Network.
5. Press **ent** button.
6. Press ▼ or ▲ button to select desired setting to change:
  - Address (4-127, must be unique)
  - Device Object ID (must be unique)
  - FC Communication Mode
  - Baud Rate (Auto recommended, use 38400 for Smart Building Hub)
  - BACnet Encoding Type
7. Press **ent** button. Current setting will be displayed.
8. Press and hold **ent** button. Display will flash for editing mode.
9. Press ▼ or ▲ button to change to setting.
10. Press **ent** button. Display will stop flashing to indicate value has been saved.
11. Press **esc** button to return to Network level.
12. Repeat steps 6-11 to change any other settings.
13. When completed continue pressing **esc** button to return to home screen.

### ZONE TEMPERATURE SETPOINTS

1. Press **ent** button on the controller to access the menus.
2. Press ▼ or ▲ button to scroll to Commissioning.
3. Press **ent** button.
4. Press ▼ or ▲ button to scroll to Occupancy.
5. Press **ent** button.
6. Press ▼ or ▲ button to select desired setpoint to change:
  - Occupied Heating Setpoint
  - Occupied Cooling Setpoint
  - Unoccupied Heating Setpoint
  - Unoccupied Cooling Setpoint
7. Press **ent** button. Current setpoint will be displayed.
8. Press and hold **ent** button. Display will flash for editing mode.
9. Press ▼ or ▲ button to change to setting by 0.1°F increments until desired setpoint is reached.
10. Press **ent** button. Display will stop flashing to indicate value has been saved.
11. Press **esc** button to return to Zone Temperature Setpoint level.
12. Repeat steps 6-11 to change any other setpoints.
13. When completed continue pressing **esc** button to return to home screen.

## TROUBLESHOOTING

The status LEDs indicate power connection and network communication



Label	Color	Normal State	Description
Power	Green	On Steady	On Steady = Power Connected Off Steady = No Supply Power. Check Output wiring for short circuits and cycle power to the controller.
Fault	Red	Off Steady	Off Steady = No Faults On Steady = Device Fault: no application loaded; Main Code download required if controller is in Boot mode, or a firmware mismatch exists between the PEAK controllers and the ZRF1811 Wireless Field Bus Router. Blink - 2 Hz = Download or Startup in progress, not ready for normal operation
SA Bus	Green	Blink - 2 Hz	Blink - 2 Hz = Data Transmission (normal communication) Off Steady = No Data Transmission (Auto baud in progress) On Steady = Communication lost, waiting to join.
FC Bus	Green	Blink - 2 Hz	Blink - 2 Hz = Data Transmission (normal communication) Off Steady = No Data Transmission (Auto baud in progress) On Steady = Communication lost, waiting to join.
Mod Bus	Green	Blink - 2 Hz	Blink - 2 Hz = Data Transmission (normal communication) Off Steady = No Data Transmission (Auto baud in progress) On Steady = Communication lost, waiting to join.

### NOTE:

If the display/buttons do not work there is a ribbon cable under the controller cover that may become disconnected. Remove the cover and carefully reconnect the ribbon cable.

## ALARM MESSAGES

Object	Message	Description	Reset
MV:29537	Outside Air Temperature Sensor Failure	Thermistor on Input #16 open or shorted	Automatic
MV:29536	Supply Air Temperature Sensor Failure	Thermistor on Input #14 open or shorted	Automatic
MV:29538	Zone Temperature Sensor Failure	Thermistor on Input #17 open or shorted	Automatic
MV:29569	Burner Fault	Input #1 open with call for burner	Automatic
MV:29535	Low Water Switch #1 Alarm (Sensor 1 Alarm)	Input #5 open	Automatic
MV:29555	Low Water Switch #2 Alarm (Sensor 2 Alarm)	Input #6 open	Automatic
MV:29543	Fan Alarm (Supply Fan Fault)	Input #2 open with call for fan	Automatic
MV:29571	Heater Lockout Alarm	Input #3 closed	Manual
MV:29570	DAT Low Temp Alarm (Low Temperature Fault)	Supply air temperature below Low Temp Cutout Setpoint	Manual



## COMMUNICATION ISSUES

### CONTROLLER PARAMETERS CHECKLIST

- Does each controller have a unique MAC address?
  - Default = 4, Range = 4 – 127
  - Network setting = AV:3003
  - Keypad access = **ent** > ▼ > Controller > Network > Address
  
- Does each controller have a unique Object ID?
  - Default = 0, Range = 0 – 4,194,302
  - Network setting = AV:3004
  - Keypad access = **ent** > ▼ > Controller > Network > Device Object ID
  
- Is the FC Comm Mode set to Wired Field Bus?
  - Keypad access = **ent** > ▼ > Controller > Network > FC Comm Mode
  
- Does the Communication Status show Active?
  - Keypad access = **ent** > ▼ > Controller > Network > Communication Status
  
- Is the baud rate set the same for all components??
  - Default = Auto, Range = Auto, 1200, 9600, 19200, 38400, 76800
  - Network setting = AV:3007
  - Keypad access = **ent** > ▼ > Controller > Network > Baud Rate
  - NOTE:** For 76800 baud be sure the recommended cable type and maximum length are followed.
  
- Is the BACnet Encoding Type set the same for all components?
  - ISO 10646 (USC-2), ANSI X3.4 (US-ASCII), Microsoft DBCS code page, ISO 10646 (UTF-8)
  - Keypad access = **ent** > ▼ > Controller > Network > BACnet Encoding Type

### WIRING CHECKLIST

- Are the network connections wired to the FC bus terminals (blue)?
- Are the network connections using 3-wire twisted shielded cable?
- Are the terminal connections correct at each controller? (SHD/COM/-/+)
- Are end-of-line terminations installed? (JCI # MS-BACEOL-0 recommended)

## MENU STRUCTURE

The following is the menu structure for accessing settings via the local display or MAP gateway.

### STATUS

- Unit Status
- System enable
- Heat Cool Mode
- Effective Discharge Air Temperature
- Effective Outdoor Temperature
- Effective Zone Air Temperature
- Water Meter 1
- Water Meter 2
- Netsensor Temp
- Netsensor Humidity
- Effective Occupancy
- Effective Cooling Setpoint
- Effective Heating Setpoint
- Burner Modulation Output
- Supply Fan Output
- Burner Command
- Pump 1
- Pump 2
- Pump 3
- Pump 4
- Supply Fan Command
- Drain 1 Valve Command
- Drain 2 Valve Command
- Fill Valve
- Iso Valve 2 Command
- Sensor 1 Alarms
- Supply Fan Fault
- Sensor 2 Alarms
- Low OA Lockout Protect
- Freeze Stat Event
- Cooling Disable

### SUMMARY

- Inputs**
  - Burner Status
  - Supply Fan Status BI
  - Sensor 1 Alarms
  - Sensor 2 Alarms
  - Effective Discharge Air Temperature
  - Water Meter 2
  - Effective Outdoor Air Temperature
  - Effective Zone Air Temperature
  - Water Meter 1
- Outputs**
  - Burner Modulation Output
  - Supply Fan Output
  - Burner Command

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- Pump 1
- Pump 2
- Pump 3
- Pump 4
- Supply Fan Command
- Drain 1 Valve Command
- Fill Valve
- Drain 2 Valve Command
- Iso Valve 2 Command
- Network Sensor**
  - Netsensor Temp
  - Netsensor Humidity
- Alarms**
  - Sensor 1 Alarms
  - Sensor 2 Alarms
  - Supply Fan Fault
  - Freeze Stat Event
  - Low OA Lockout Protect
  - Cooling Disable
  - Supply air temperature sensor failure
  - Outside air temperature sensor failure
  - Zone temperature sensor failure
  - Burner Fault
  - DAT Low Temp Alarm
  - Heater Lockout Alarm
- Totalization**
  - Supply Fan Cycle Count
  - Supply Fan Runtime
  - Supply Fan Runtime Reset
    - False
    - True
  - Burner Runtime
    - 0 – 10000 Counts
  - Burner Cycle Count
    - 0-10000 Hours
  - Burner Runtime Reset
    - False
    - True

## COMMISSIONING

### -Clg Config

- System Enable
  - False
  - True
- Control Points
  - 0 (DAT control)
  - 1 (ZNT control)
- Cooling Type
  - 0 (Direct Evap)
  - 1 (Indirect Evap)
  - 2 (Indirect/Direct Evap)
- Inlet Air Cooler
  - 1 (Single inlet)
  - 2 (Dual inlet)
- Number of Pumps
  - 1 (One per cooling stage)
  - 2 (Two per cooling stage)
- Rotate Primary Chilled Water Pumps
  - Lead
  - Lag
- Rotate Secondary Chilled Water Pumps
  - Lead
  - Lag
- Pump Down Time
  - Adjustable 0 – 120 minutes
- Stage Up Delay
  - Adjustable 0 – 30 minutes
- Deadband
  - Adjustable 0.0 – 20.0° F
- Low OA Lockout Setpoint
  - Adjustable 40.0 – 160.0° F
- Freeze Stat Setpoint
  - Adjustable 40.0 – 160.0° F
- OA Econ Lockout Setpoint
  - Adjustable 40.0 – 160.0° F
- Humidity Lockout Enable
  - False
  - True
- RH Setpoint
  - Adjustable 0 – 100%
- Occupied Cooling
  - Auto
  - Off
  - On
- Unoccupied Cooling
  - Auto
  - Off
  - On
- Unoccupied Discharge Air Setpoint
  - Adjustable 40.0 – 160.0° F
- Occupied Discharge Air Setpoint
  - Adjustable 40.0 – 160.0° F

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### -Htg Config

- OA Heating Lockout Setpoint
    - Adjustable 0.0 – 130.0° F
  - Discharge Air High Setpoint
    - Adjustable 40.0 – 160.0° F
  - Discharge Air Low Setpoint
    - Adjustable 40.0 – 160.0° F
  - Burner Modulation Mode
    - Automatic
    - Manual
  - Burner Modulation Setpoint
    - Adjustable 0 – 100%
  - Low Fire Start Output
    - Adjustable 30 – 100%
  - Low Fire Start Delay
    - Adjustable 0 – 20 seconds
  - Burner Fault Delay
    - Adjustable 0 – 300 seconds
  - Low Temperature Cutout Setpoint
    - Adjustable 45 – 55° F
  - Low Temperature Cutout Delay
    - Adjustable 0 – 300 seconds
  - Burner Alarm Reset
    - Off
    - Reset
  - Effective Discharge Air Temperature Setpoint
- ### -Occupancy
- Zone Unoccupied Cooling Setpoint
    - Adjustable 40.0 – 160.0° F
  - Effective Zone Occupied Cooling Setpoint
    - Adjustable 40.0 – 160.0° F
  - Zone Occupied Heating Setpoint
    - Adjustable 40.0 – 160.0° F
  - Zone Unoccupied Heating Setpoint
    - Adjustable 40.0 – 160.0° F
- ### -Drain
- High Drain Threshold
    - Adjustable 0 – 10,000 µS/cm
  - Water Flush System
    - Adjustable 0 – 10,000 µS/cm
  - Drain Delay Time
    - Adjustable 0 – 120 minutes
  - CW Valve Delay
    - Adjustable 0 – 120 minutes

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- Fan Setup
  - Occupied Fan Mode
    - Auto
    - Off
    - On
  - Unoccupied Fan Mode
    - Auto
    - Off
    - On
  - Supply Fan Speed
    - └Adjustable 0 – 100%
  - Fan Start Delay
    - └Adjustable 0 – 120 minutes
  - Fan Fault Delay
    - └Adjustable 0 – 120 minutes
  - Drying
    - └Adjustable 0 – 120 minutes
- Offsets
  - DAT Sensor Offset
    - └Adjustable -10 – 10° F
  - OAT Sensor Offset
    - └Adjustable -10 – 10° F
  - ZNT Sensor Offset
    - └Adjustable -10 – 10° F
- Override
  - Supply Fan Control Mode
    - Hand
    - Off
    - Auto
  - Primary Pump Control
    - Hand
    - Off
    - Auto
  - Secondary Pump Control
    - Hand
    - Off
    - Auto
  - Drain 1 Valve Control Mode
    - Auto
    - Closed
    - Open
  - Fill Valve Control Mode
    - Auto
    - Closed
    - Open
  - Drain 2 Valve Control Mode
    - Auto
    - Closed
    - Open

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- Circuit 2 Valve Output
  - Auto
  - Closed
  - Open
- Occupancy Override
  - Occupied
  - UnOccupied
  - Bypass
  - Standby
  - Not Set
- Burner HOA
  - Hand
  - Off
  - Auto

## CONTROLLER

### -Firmware

- Firmware Status
- Firmware Main Version
- Equipment Template Version
- Equipment Archive Version
- Equipment View Version

### -Time

- Time *(not accessible via display)*
- Date *(not accessible via display)*
- Time Zone
  - ↳ *User can select required time zone*

### -Network

- Device Name
  - ↳ *User can input device name*
- Description
  - ↳ *User can input an equipment description*
- Address
  - ↳ *User can select range 4 - 127*
- Device Object ID
  - ↳ *User can select range 0 – 4,194,302*
- FC Comm Mode
  - Wired Field Bus
  - Wireless Field Bus
  - N2 Slave Field Bus
  - Modbus Field Bus
  - Ethernet Field Bus
  - ↳ *Indeterminate FC Bus Mode*
- Communication Status
- Baud Rate
  - Auto
  - 1200
  - 9600
  - 19200
  - 38400
  - ↳ 76800
- Operating Baud Rate
- BACNET Encoding Type
  - ISO 10646 (USC-2)
  - ANSI X3.4 (US-ASCII)
  - Microsoft DBCS code page
  - ↳ ISO 10646 (UTF-8)

### -Misc

- Language
  - ↳ *User can select required language*
- Units
  - IP
  - ↳ SI
- Display Contrast
  - ↳ *User can select range 2 - 6*
- Relearn System
  - False
  - ↳ True

## DETAILS

### ↳Unit

- Device Status
- Model name
- Hardware Version
- Application Name
- Appl SW Version
- Equipment Template Version
- Equipment Archive Version
- Equipment View Version
- ↳Unit Serial Number

## TREND

### Inputs

- Effective Discharge Air Temperature
  - ↳500 data points at 5 mins interval
- Effective Outdoor Temperature
  - ↳500 data points at 5 mins interval
- Effective Zone Temperature
  - ↳500 data points at 5 mins interval
- Water Meter 1
  - ↳500 data points at 5 mins interval
- Water Meter 2
  - ↳500 data points at 5 mins interval
- Netsensor Temp
  - ↳500 data points at 5 mins interval
- Netsensor Humidity
  - ↳500 data points at 5 mins interval

### Outputs

- Burner Modulation Output
  - ↳500 data points at 5 mins interval
- Supply Fan Output
  - ↳500 data points at 5 mins interval
- Burner Command
  - ↳500 data points at ON/OFF/ON Transition
- Pump 1
  - ↳500 data points at ON/OFF/ON Transition
- Pump 2
  - ↳500 data points at ON/OFF/ON Transition
- Pump 3
  - ↳500 data points at ON/OFF/ON Transition
- Pump 4
  - ↳500 data points at ON/OFF/ON Transition
- Supply Fan Command
  - ↳500 data points at ON/OFF/ON Transition
- Drain 1 Valve Command
  - ↳500 data points at ON/OFF/ON Transition
- Fill Valve
  - ↳500 data points at ON/OFF/ON Transition
- Drain 2 Valve Command
  - ↳500 data points at ON/OFF/ON Transition
- Iso Valve 2 Cmd
  - ↳500 data points at ON/OFF/ON Transition

## SET SCHEDULE

- ↳Water System Flush
- ↳OCC Schedule