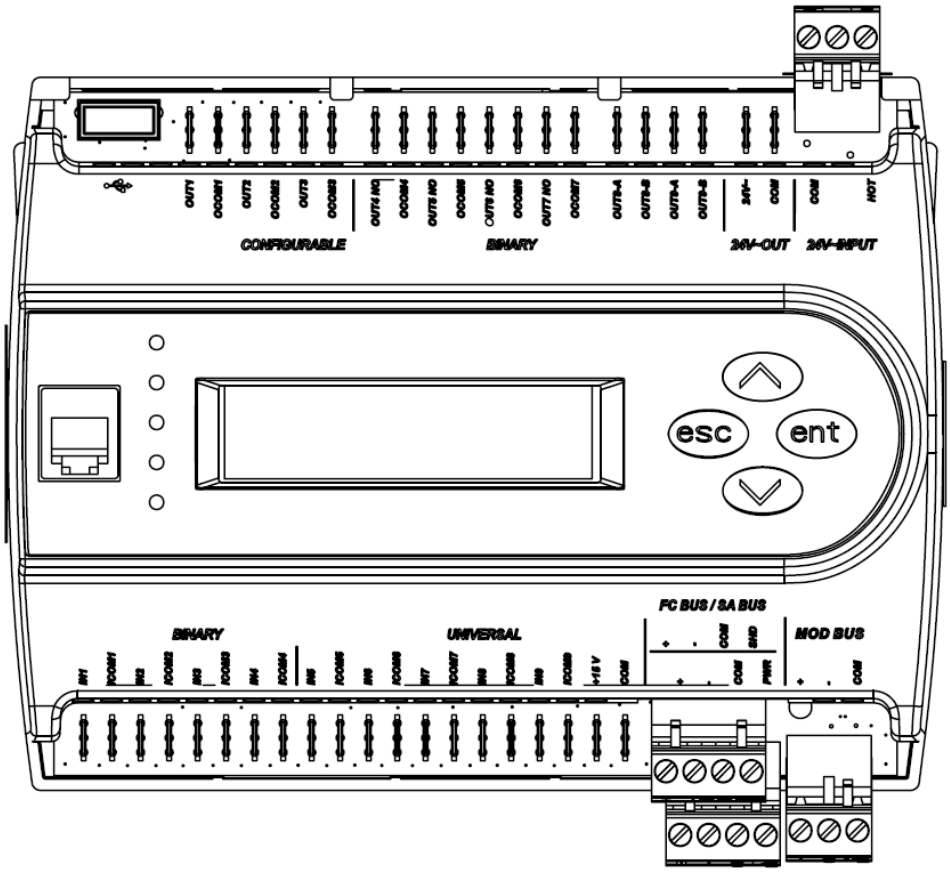
OPERATING INSTRUCTIONS

BACNET CONTROLLER - MAU

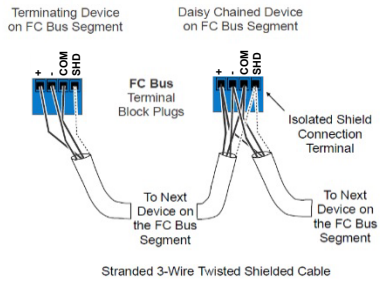
The BACnet Controller is a native BACnet®, fully programmable, direct digital controller. It provides a communication link between a BAS (Building Automation System) and the Cambridge heater. The controller provides precise monitoring and control of connected points.

- BACnet® MS/TP compliant operating at up to 76.8 kilobaud
- BTL-certified controller
- Standard input points for fan status, burner status, discharge temperature, zone temperature, outdoor temperature and unit lockout status
- Standard output points for fan control, burner control and discharge temperature control
- Selectable operating modes (unit heater / makeup air / summer ventilation)
- Removable screw terminal blocks
- Onboard USB port for firmware upgrades
- Local user interface display for commissioning and monitoring



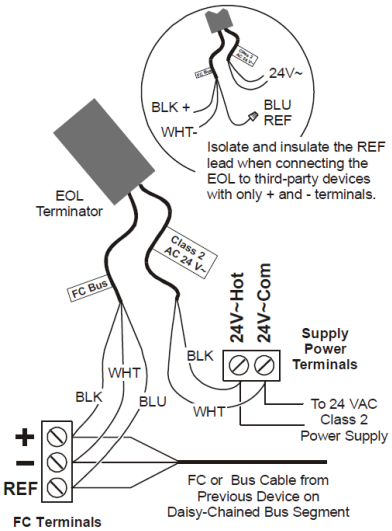
MS/TP NETWORK CONNECTION

- Use stranded 3-wire twisted, 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:3018	BI:1	Burner status	False	0 = Off / 1 = On	
Binary	MV:3016	BI:2	Supply Fan status	False	0 = Off / 1 = On	
Binary	MV:3017	BI:3	Unit lockout status	False	0 = Normal / 1 = Alarm	
Binary	MV:50055	BI:4	Mode Switch (*optional*)	False	0 = Normal / 1 = Override	
Binary	MV:50051	BI:7	Filter status (*optional*)	False	0 = Normal / 1 = Alarm	
Type	**Object**	**Input#**	**Description**	**Writable**	**Units**	**Range**
Analog	AV:3039	AI:5	Filter pressure (*optional*)	False	" wc	0 - 1
Analog	AV:3011	AI:6	Discharge air temperature	False	°F	-50 - 250
Analog	AV:3019	AI:8	Outdoor air temperature	False	°F	-50 - 250
Analog	AV:3020	AI:9	Zone temperature	False	°F	-50 - 250

OUTPUT OBJECTS

Type	Object	Output#	Description	Writable	Values	
Binary	MV:3019	BO:4	Burner command	False	0 = Off / 1 = On	
Binary	MV:3020	BO:5	Supply Fan command	False	0 = Off / 1 = On	
Type	**Object**	**Output#**	**Description**	**Writable**	**Units**	**Range**
Analog	AV:3026	AO:1	Burner Modulation Output	False	%	0 - 100
Analog	AV:3032	AO:2	Supply Fan Output *(optional)*	False	%	0 - 100

BINARY VALUE OBJECTS

Object	Description	Writable	Values
BV:0	Burner Runtime Reset	True	0 = Off / 1 = Reset
BV:1	Burner Cycle Count Reset	True	0 = Off / 1 = Reset
BV:2	Supply Fan Runtime Reset	True	0 = Off / 1 = Reset
BV:3	Supply Fan Cycle Count Reset	True	0 = Off / 1 = Reset

MULTISTATE VALUE OBJECTS

Object	Description	Writable	States	Values
MV:11	Burner HOA	True	3	1 = Hand / 2 = Off / 3 = Auto
MV:1577	Burner Modulation Mode	True	2	1 = Auto / 2 = Manual
MV:3001	Unit Status	False	4	1 = Heating 2 = Satisfied 3 = Cooling 4 = Temperature Unreliable
MV:3006	Units	True	2	1 = IP / 2 = SI
MV:3007	FCB Baud Rate	True	6	1 = Auto 2 = 1200 3 = 9600 4 = 19200 5 = 38400 6 = 76800
MV:3008	Operating Baud Rate	False		
MV:3009	PID Tuning Reset	True	2	1 = Off / 2 = Reset
MV:3010	Occupancy Schedule	True	NA	Occupancy Schedule
MV:3011	Unit Enable Mode	True	2	1 = Shutdown / 2 = Enable
MV:3012	Effective Occupancy	False	2	Occupied / Unoccupied
MV:3016	Supply Fan Status	False	2	1 = Off / 2 = On
MV:3017	Unit Reset Fault	False	2	1 = Normal / 2 = Alarm
MV:3018	Burner Status	False	2	1 = Off / 2 = On
MV:3019	Burner Command	False	2	1 = Off / 2 = On
MV:3020	Supply Fan Command	False	2	1 = Off / 2 = On
MV:3021	Occupancy Override	True	5	1 = Occupied 2 = UnOccupied 3 = Bypass 4 = Standby 5 = Not Set
MV:3022	Emergency Heat Enabled	False	2	1 = Inactive / 2 = Active
MV:50050	Supply Fan HOA	True	3	1 = Hand / 2 = Off / 3 = Auto
MV:50052	Normal Mode	True	6	1 = Unit Heat 2 = Makeup Air 3 = Makeup Air w/Reset 4 = Makeup Air w/Reset & On-Off 5 = Summer Vent 6 = Off
MV:50053	Override Mode	True		
MV:50054	Effective Mode	False		
MV:50056	Burner Fault	False	2	1 = Normal / 2 = Alarm
MV:50057	Supply Fan Fault	False	2	1 = Normal / 2 = Alarm
MV:50058	Reset Unit Fault	True	2	1 = Off / 2 = Reset
MV:50059	Zone Temperature Sensor Failure	False	2	1 = Normal / 2 = Alarm
MV:50060	Supply Air Temperature Sensor Failure	False	2	1 = Normal / 2 = Alarm
MV:50061	Outdoor Air Temperature Sensor Failure	False	2	1 = Normal / 2 = Alarm
MV:50062	DAT Low Temperature Alarm	False	2	1 = Normal / 2 = Lockout
MV:50063	Heater Lockout Alarm	False	2	1 = Normal / 2 = Lockout
MV:50064	ZN-T Remote Setpoint Enable	True	1	1 = No remote Setpoint 2 = Hardware Only 3 = Network Only 4 = Network with Hardware Backup
MV:50065	Continuous Fan Operation in Occupied	True	2	1 = No / 2 = Yes
MV:50066	SF Bypass	True	2	1 = No / 2 = Yes

ANALOG VALUE OBJECTS

Object	Description	Writable	Units	Range	Default
AV:130	Zone Low Limit + Differential	True	°F	-10 – 10	3°F
AV:756	Discharge Air Set Point – Unit Heat Mode	False	°F	NA	NA
AV:1382	Burner Modulation Set Point	False	%	NA	NA
AV:3003	Device Address	True	NA	4 - 127	4
AV:3004	Device Object ID	True	NA	0 - 4194302	NA
AV:3007	Zone Low Limit Set Point	True	°F	0 – 50	40°F
AV:3008	Effective Cooling Set Point	False	°F	NA	NA
AV:3009	Effective Heating Set Point	False	°F	NA	NA
AV:3010	Heating Lockout Set Point	True	°F	0 – 130	55°F
AV:3011	Effective Discharge Air Temperature	False	°F	NA	NA
AV:3012	Discharge Air High Set Point	True	°F	40 – 160	160°F
AV:3014	Discharge Air Low Set Point	True	°F	40 – 160	70°F
AV:3015	Occupied Zone Cooling Set Point	True	°F	60 – 90	60°F
AV:3016	Unoccupied Zone Cooling Set Point	True	°F	60 – 90	60°F
AV:3017	Occupied Zone Heating Set Point	True	°F	40 – 130	65°F
AV:3018	Unoccupied Zone Heating Set Point	True	°F	40 - 80	55°F
AV:3019	Effective Outdoor Temperature	False	°F	NA	NA
AV:3020	Effective Zone Temperature	False	°F	NA	NA
AV:3026	Modulated Burner Control	False	%	NA	NA
AV:3029	Application Software Version	False	NA	NA	NA
AV:3030	Effective Discharge Air Set Point	False	°F	NA	NA
AV:3031	Supply Fan Speed (optional)	True	°F	0 - 100	100%
AV:3033	Burner Runtime	False	hours	NA	NA
AV:3034	Burner Cycle Count	False	NA	NA	NA
AV:3035	Supply Fan Runtime	False	hours	NA	NA
AV:3036	Supply Fan Cycle Count	False	NA	NA	NA
AV:3037	Discharge Air Set Point – Makeup Air Mode	True	°F	40 – 160	65°F
AV:3038	Network Override Outdoor Air Temperature	True	°F	-50 - 250	NA
AV:3040	Filter Pressure Offset	True	“ wc	-1 - 1	0” wc
AV:3041	Fan Fault Delay	True	seconds	0 - 300	60 sec
AV:3042	Burner Fault Delay	True	seconds	0 - 300	60 sec
AV:3043	Low Temperature Cutout Setpoint	True	°F	45 - 55	45°F
AV:3044	Low Temperature Cutout Delay	True	seconds	0 - 300	60 sec
AV:3045	Network Override Zone Temperature	True	°F	-50 - 250	NA
AV:3046	Zone Differential	True	°F	0 - 20	0°F
AV:7018	AI1 Max Value	True	“WC	0 - 5	1.0”WC
AV:7019	AI1 Output Range High	True	“WC	0 – 5	1.0”WC

OPERATING SEQUENCES

UNIT HEAT / OCCUPIED MODE

1. If Zone Temperature is below Zone Set Point then Supply Fan and Burner start.
2. Discharge Temperature modulates to Discharge Set Point.
3. If Zone Temperature is above Zone Set Point plus Differential then Supply Fan and Burner stop.
4. Unit will not operate if Outdoor Temperature is above Heating Lockout Set Point.

MAKEUP AIR / OCCUPIED MODE

1. Supply Fan and Burner run continuously.
2. Discharge Temperature modulates to Discharge Set Point.
3. Burner will not operate if Outdoor Temperature is above Heating Lockout Set Point.

MAKEUP AIR w/RESET / OCCUPIED MODE

1. Supply Fan and Burner run continuously.
2. Discharge Temperature modulates to maintain Zone Set Point based on PID loop.
3. Burner will not operate if Outdoor Temperature is above Heating Lockout Set Point.

MAKEUP AIR w/RESET & ON/OFF / OCCUPIED MODE

1. If Zone Temperature is below Zone Set Point plus Differential then Supply Fan and Burner start.
2. Discharge Temperature modulates to maintain Zone Set Point based on PID loop.
3. If Zone Temperature is above Zone Set Point plus Differential and Continuous Fan Operation is set to "No" then Supply Fan and Burner stop.
4. If Zone Temperature is above Zone Set Point plus Differential and Continuous Fan Operation is set to "Yes" then Supply Fan continues to run and Burner stops.
5. Burner will not operate if Outdoor Temperature is above Heating Lockout Set Point.

SUMMER VENT MODE

1. SF Bypass is set to "Yes"
   a. If Zone Temperature is above Zone Set Point then Supply Fan starts.
   b. If Zone Temperature is below Zone Set Point minus Differential then Supply Fan stops.
2. SF Bypass is set to "No"
   a. If Zone Temperature is above Zone Set Point then Supply Fan starts.
   b. If Zone Temperature is below Zone Set Point minus Differential then Supply Fan stops.
   c. Supply Fan will not operate if Outdoor Temperature is above Zone Temperature.

UNOCCUPIED MODE

1. If Zone Temperature is below Zone Set Point then start Supply Fan and Burner.
2. Discharge Temperature modulates to Discharge Set Point.
3. If Zone Temperature is above Zone Set Point plus Differential then stop Supply Fan and Burner.
4. Unit will not operate if Outdoor Temperature is above Heating Lockout Set Point.

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:

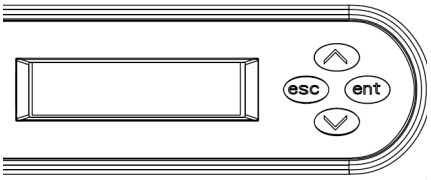
- Normal Mode = Unit Heater
- Discharge Set Point = 160°F
- Zone Set Point = 65°F
- Set Point Differential = 3°F

OPERATING MODE PARAMETERS

Operating Mode	Fan	Burner	OAT Cutout	Control Point	Set Point
Unit Heater	Auto	Auto	No	Discharge	Max Discharge
Makeup Air	On	On	Yes	Discharge	Discharge
Makeup Air w/Reset	On	On	Yes	Zone	Zone
Makeup Air w/ Reset & On/Off Continuous = Yes	On	Auto	Yes	Zone	Zone
Makeup Air w/Reset & On/Off Continuous = No	Auto	Auto	Yes	Zone	Zone
Summer Vent	Auto	Off	No	N/A	Zone
Off	Off	Off	N/A	N/A	N/A

LOCAL DISPLAY

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



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

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 Commission.
3. Press **ent** button.
4. Press ▼ or ▲ button to scroll to Zone Temperature Setpoint.
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.

OPERATING MODES

1. Press **ent** button on the controller to access the menus.
2. Press ▼ or ▲ button to scroll to Summary.
3. Press **ent** button.
4. Press ▼ or ▲ button to scroll to Miscellaneous.
5. Press **ent** button.
6. Press ▼ or ▲ button to scroll to desired mode to change:
    - Normal Mode
    - Override Mode
7. Press **ent** button. Current normal operating mode will be displayed.
8. Press and hold **ent** button. Display will flash for editing mode.
9. Press ▼ or ▲ button to change the operating mode:
    - State 0 (Unit Heat)
    - Summer Vent
    - Makeup Air w/Reset & On/Off
    - Makeup Air w/Reset
    - Makeup Air
10. Press **ent** button. Display will stop flashing to indicate value has been saved.
11. Press **esc** button to return to Miscellaneous level.
12. Repeat steps 6-11 to change any other operating modes.
13. When completed continue pressing **esc** button to return to home screen.

14. SCHEDULES

1. Press **ent** button on the controller to access the menus.
2. Press ▼ or ▲ button to scroll to Schedule.
3. Press **ent** button.
4. Display shows Occupancy Schedule.
5. Press **ent** button.
6. Press ▼ or ▲ button to scroll to Edit Weekly Schedule.
7. Press **ent** button.
8. Press ▼ or ▲ button to scroll to Add Event.
9. Press **ent** button.
10. Display shows Select Weekday.
11. Press ▼ or ▲ button to scroll to desired day.
12. Press **ent** button.
13. Display shows day and current setting. First time digit will flash for editing mode.
14. Press ▼ or ▲ button to set first time digit.
15. Press **ent** button to advance to second time digit.
16. Press ▼ or ▲ button to set second time digit.
17. Press **ent** button to advance to third time digit.
18. Press ▼ or ▲ button to set third time digit.
19. Press **ent** button to advance to fourth time digit.
20. Press ▼ or ▲ button to set fourth time digit.
15. Press **ent** button to advance to schedule selection.
16. Press ▼ or ▲ button to change the schedule status:
    - Not Set
    - Occupied
    - UnOccupied
    - Standby
17. Press **ent** button twice to confirm entry.
18. Repeat steps 11-16 to change any other days.
19. When completed continue pressing **esc** button to return to home screen.

TYPICAL SCHEDULE

Monday	12:00 AM	Unoccupied
	8:00 AM	Occupied
	5:00 PM	Unoccupied
Tuesday	12:00 AM	Unoccupied
	8:00 AM	Occupied
	5:00 PM	Unoccupied
Wednesday	12:00 AM	Unoccupied
	8:00 AM	Occupied
	5:00 PM	Unoccupied
Thursday	12:00 AM	Unoccupied
	8:00 AM	Occupied
	5:00 PM	Unoccupied
Friday	12:00 AM	Unoccupied
	8:00 AM	Occupied
	5:00 PM	Unoccupied
Saturday	12:00 AM	Unoccupied
Sunday	12:00 AM	Unoccupied

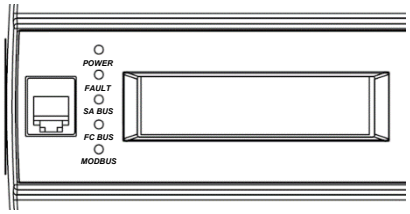
NOTE:

Each day must be programmed with the initial operating status at midnight (12:00 AM).

The current date and time can't be set from the controller, it requires a MAP, SBH or BACnet interface.

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:50061	Outside Air Temperature Sensor Failure	Thermistor on Input #8 open or shorted	Automatic
MV:50060	Supply Air Temperature Sensor Failure	Thermistor on Input #6 open or shorted	Automatic
MV:50059	Zone Temperature Sensor Failure	Thermistor on Input #9 open or shorted	Automatic
MV:50056	Burner Fault	Input #1 open with call for burner	Automatic **
MV:3022	Emergency Heat Enable (Zone Low Temperature Alarm)	Zone Temperature below Zone Low Limit	Automatic
MV:50057	Fan Alarm (Supply Fan Fault)	Input #2 open with call for fan	Automatic **
MV:50063	Heater Lockout Alarm	Input #3 closed	Manual *
MV:50051	Filter Alarm (Filter Status)	Input #7 closed	Automatic
MV:50062	DAT Low Temp Alarm (Low Temperature Fault)	Supply air temperature below Low Temp Cutout Setpoint	Manual *

* Reset by Commissioning > Overrides > Unit Reset > Reset from LCD display or MV:50058 via BACnet
** After three attempts a manual reset is required

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.

- **ALARMS**
- **STATUS**
  - Unit Status
  - Effective Occupancy
  - Effective Mode
  - Effective Discharge Air Temperature
  - Eff Discharge Air Temperature Setpoint
  - Effective Zone Temperature
  - Effective Heating Setpoint
  - Effective Cooling Setpoint
  - Burner Command
  - Modulated Burner Control
  - Supply Fan Command
  - Supply Fan Speed
  - Filter Status
  - Switch State
- **SUMMARY**
  - **Inputs**
    - Effective Discharge Air Temperature
    - Effective Zone Temperature
    - Effective Outdoor Air Temperature
    - Supply Fan Status
    - Burner Status
    - Unit Reset
    - Filter Status
    - Switch State
  - **Outputs**
    - Effective Zone Temperature
    - Effective Outdoor Air Temperature
    - OA Lockout
      - *User can adjust Range 0.0 – 90.0° F*
    - Supply Fan Command
    - Burner Command
    - Modulated Burner Control
    - Supply Fan Output
  - **Effective Setpoint**
    - Effective Heating Setpoint
    - Effective Cooling Setpoint
    - Effective Discharge Air Setpoint
  - **Miscellaneous**
    - Normal Mode
      - *Unit Heat*
      - *Makeup Air*
      - *Makeup Air w/Reset*
      - *Makeup Air w/Reset & On/Off*
      - *Summer Vent*

(continued from left)

  - **Override Mode**
    - *Unit Heat*
    - *Makeup Air*
    - *Makeup Air w/Reset*
    - *Makeup Air w/Reset & On/Off*
    - *Summer Vent*
  - Effective Occupancy
  - Reheat Available
  - Unit Enable Mode
    - *Shutdown*
    - *Enable*
  - **Alarms**
    - Heater Lockout Alarm
    - Emergency Heat Enable
    - Filter Status
  - **Network**
    - Communication Status
  - **Totalization**
    - Supply Fan Runtime
    - Supply Fan Runtime Reset
      - *False*
      - *True*
    - Supply Fan Cycle Count
    - Supply Fan Cycle Count Reset
      - *False*
      - *True*
    - Burner Runtime
      - *False*
      - *True*
    - Burner Cycle Count
    - Burner Cycle Count Reset
      - *False*
      - *True*

COMMISSIONING

- **Options**
  - Low Limit Setpoint
    - *User can adjust range 0.0 – 50.0° F*
  - Low Limit Diff
    - *User can adjust range -10.0 – 10.0° F*
  - OA Heating Lockout Setpoint
    - *User can adjust range 0.0 – 90.0° F*
  - Auto PID tuning Enable
    - *Automatic*
    - *Manual*
  - Low Fire Start Output
    - *User can adjust range 30 – 100%*
  - Low Fire Start Delay
    - *User can adjust range 0 – 300 seconds*
  - Purge Timer
    - *User can adjust range 4 – 32 seconds*
  - Post Purge Timer
    - *User can adjust range 0 – 32 seconds*
  - Fan Fault Delay
    - *User can adjust range 0 – 300 seconds*
  - Burner Fault Delay
    - *User can adjust range 0 – 300 seconds*
  - Low Temperature Fault
    - *Enable*
    - *Disable*
  - Low Temperature Cutout Setpoint
    - *User can adjust range 45 – 55° F*
  - Low Temperature Cutout Delay
    - *User can adjust range 0 – 300 seconds*
  - Continuous Fan Operation in Occupied
    - *No*
    - *Yes*
  - Zone Differential
    - *User can adjust range 0 – 20°F*
- **Miscellaneous**
  - PID Tuning Reset
    - *Off*
    - *Reset*
  - Occupancy Schedule
    - *Occupied*
    - *UnOccupied*
    - *Standby*
    - *Not Set*
  - Unit Enable Mode
    - *Shutdown*
    - *Enable*
  - Network Override Outdoor Air Temperature
    - *User can adjust range -50 – 250° F*
  - Normal Mode
    - *Unit Heat*
    - *Makeup Air*
    - *Makeup Air w/Reset*
    - *Makeup Air w/Reset & On/Off*

(continued from left)

- *Summer Vent*
- Override Mode
  - *Unit Heat*
  - *Makeup Air*
  - *Makeup Air w/Reset*
  - *Makeup Air w/Reset & On/Off*
  - *Summer Vent*
- Network Override Zone Temperature
  - *User can adjust range -50 – 250° F*
- **Discharge Air Setpoint**
  - Discharge Air Temperature Setpoint
    - *User can adjust range 65.0 – 180.0° F*
- **Zone Temperature Setpoint**
  - Occupied Heating Setpoint
    - *User can adjust range 40.0 – 80.0° F*
  - Occupied Cooling Setpoint
    - *User can adjust range 60.0 – 90.0° F*
  - Unoccupied Heating Setpoint
    - *User can adjust range 40.0 – 80.0° F*
  - Unoccupied Cooling Setpoint
    - *User can adjust range 60.0 – 90.0° F*
  - ZN-T Remote Setpoint Enable
    - *No Remote Setpoint*
    - *Hardware Only*
    - *Network Only*
    - *Network with Hardware Backup*
- **Overrides**
  - Supply Fan HOA
    - *Hand*
    - *Off*
    - *Auto*
  - Supply Fan Speed
    - *User can adjust range 0.0 – 100.0%*
  - Supply Fan Bypass
    - *No*
    - *Yes*
  - Burner HOA
    - *Hand*
    - *Off*
    - *Auto*
  - Burner Modulation Mode
    - *Automatic*
    - *Manual*
  - Burner Modulation Setpoint
    - *User can adjust range 0 – 100%*
  - Effective Discharge Air Temperature
  - Effective Outdoor Air Temperature
  - Effective Zone Temperature
  - Effective Mode
  - Unit Reset
    - *User can reset burner fault*

(continued from above)

- **Network**
  - Device Name
    - *User can change name of device*
  - Address
    - *User can adjust range from 4 – 127*

CONTROLLER

- **Firmware**
  - Firmware Status
  - Firmware Main Version
  - Equipment Template Version
  - Equipment Archive Version
  - Equipment View Version
- **Time**
  - Time Zone
    - *User can select required time zone*
- **Misc**
  - Language
    - *User can select required language*
  - Units
    - *IP*
    - *SI*
  - Display Contrast
    - *User can select range 2 - 6*
  - Relearn System
    - *False*
    - *True*
- **Network**
  - Device Name
  - 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*
    - *N2Slave 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)*

DETAILS

- **Unit**
  - Device Status
  - Model name
  - Hardware Version
  - Application Name
  - Appl SW Version
  - Equipment Template Version
  - Equipment Archive Version
  - Equipment View Version
- **Internal**
  - Control Parameters
    - *Effective Discharge Air Temperature*
    - *Eff Discharge Air Temperature Setpoint*
    - *Eff Integral Time*
    - *Eff Proportional Band*
    - *Percent CMD*
- **Input Offset Setup**
  - DAT Sensor Offset
  - ZNT Sensor Offset
  - OAT Sensor Offset
  - BSP Offset
    - *User can select range -1.0 – 1.0”wc*
  - AI1 Max Value
    - *User can select range 0.0 – 5.0”wc*
  - AI1 Output Range High
    - *User can select range 0.0 – 5.0”wc*

SET SCHEDULE

- **Occupancy Schedule**
  - Enable Schedule
    - *On/Off*
  - WeeklyToday
    - *Allows user to change existing schedule*
  - Add
    - *Allows user to add new schedule*

TREND

- **Inputs**
  - Effective Discharge Air Temperature
  - Effective Outdoor Air Temperature
  - Effective Zone Temperature
  - Supply Fan Status
  - Burner Status
  - Effective Pressure
- **Outputs**
  - Supply Fan Command
  - Burner Command
  - Modulated Burner Control