ExactLogic BACnet Communicating Thermostat
EXL01812 Sequence Datasheet

Heat Pump, Roof Top Unit, Fan Coil 2-Stage Heat/Cool with Economizer as 1st Stage Cooling

Data Sheet Rev 1.20.001/4.1
October 9, 2023

Operating Sequence

Standard Occupied

During normal occupied operation the display will show the current room temperature. The first press of either right pair of keys will show the current room setpoint. Additional presses will adjust the setpoint up or down by 0.5 degrees. The thermostat keypad will time out after 5 seconds without a key press, and the display will switch back to displaying the room temperature.

The left pair of keys allows for the adjustment of the fan speed. The current mode is shown with the first key press; additional key presses will show the adjustment to the mode. AV-62 is used to select the number of fan speeds, and AV-63 will show what speed the fan is currently set to. Refer to the table below for the values of AV-62 (Fan Mode Status) and AV-63 (Fan Speed Status)

AV-62	Mode
0	AUTO Only
1	AUTO-ON
2	OFF-AUTO-ON
3	OFF-1-2-AUTO
4	OFF-1-2-3-AUTO

AV-63	Fan Speed
0	OFF
1	Fan Speed 1
2	Fan Speed 2
3	Fan Speed 3
4	AUTO
5	ON

Internal/External Thermistor Control

The thermostat control sequence can use the internal thermistor or an external thermistor connected to AI-2. Setting BV-67 to OFF (default) the thermostat will use the internal thermistor. Setting BV-67 to ON the control sequence will use the external thermistor.

The current controlling temperature is located at AV-20. This value will be displayed on the LCD of the thermostat and should be used on any workstation displays.

Control Sequence – Economizer

The Economizer will be commanded 0 to 100% based on the cooling signal (AV-9) 0-50%. A Mixed Air Low Limit is used to limit the maximum position should the Mix Air fall below the Low Limit. When the cooling signal is above 10% (BV-14) the Economizer will be allowed to modulate.

The Economizer can be locked out by an Outside Air Temperature transferred to AV-112 and using a lockout setpoint at AV-54. When the economizer is locked out and the unit is occupied the damper will be commanded to a minimum position set at AV-55.

The physical output can be scaled to accommodate different actuator voltages using AV-56 and AV-57.

Control Sequence – Heat / Cool

For Heat/Cool applications, such as RTU's or Heat/Cool type Heat Pumps set BV-72 active. The control sequence is as follows.

The occupancy of the thermostat can be controlled by a schedule or a binary input. The schedule point is BO-5. The binary input (BI-5) can be used to control occupancy by setting BV-51 to ACTIVE. When scheduled to be occupied, the thermostat will maintain its occupied setpoint. The deadband is controlled by the cooling/heating offset (default 1 degree).

Should the room temperature get 1 degree (AV-36/40) above or below the current cooling/heating setpoints, the fan will turn on and the cooling or heating will turn on (unless fan is set to continuous in which case the fan will already be energized). Second stage cooling/heating turns on after stage one has been on for 5 minutes and the room is 2 degrees (AV-38/42) above or below setpoint. Second stage cooling/heating will turn off when the room temperature is 1 degree (AV-39/43) above or below the cooling/heating setpoint. At this point stage one is still engaged. Stage one cooling/heating will turn off when the room temperature is 0.2 degrees (AV-37/41) below or above the cooling/heating setpoint. See Fig. 1.

Cooling Note: BV-50 when active, Mechanical cooling will not run unless fan status is proved on BI-5 for 30 Seconds.
BV-52 – On = if no status on Input BI-5 the fan command will go off until it is manually reset by BV-32
Off = fan status is ignored and will not shut down the unit if BI-5 is not active.
Mechanical Cooling will be allowed to run when the (Economizer is locked out (BV-37 = Active) | Economizer position (AV-16) is > 99 | Economizer is disabled (BV-36 = Active)).

Note: All digital outputs have a 180 second ON/OFF anti-short cycle.

Analog heating and cooling outputs modulate to the heating and cooling setpoint via a PI control.

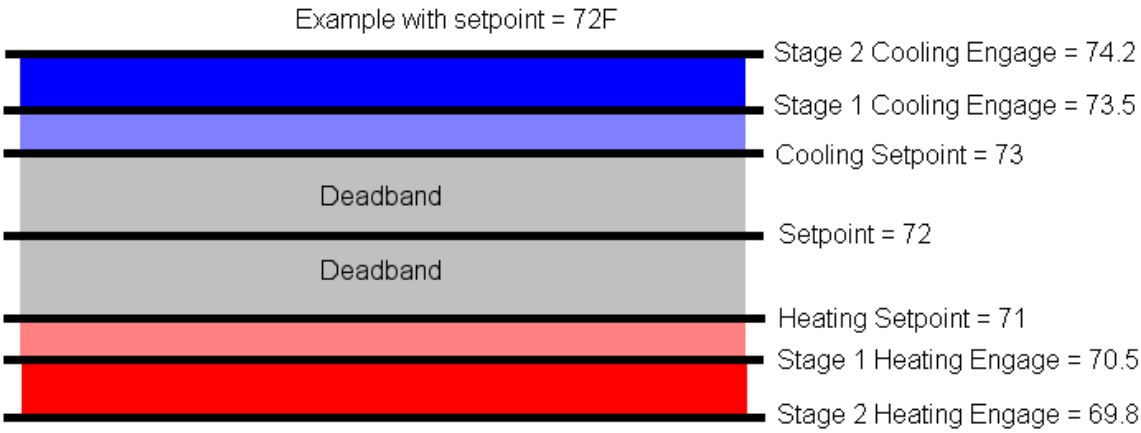

Fig. 1

Control Sequence – Compressor / Reversing Valve

For Heat Pumps of a compressor/reversing valve type, set BV-72 inactive. The control sequence is as follows.

The fan will engage when the room temperature is 0.5 degrees above or below the cooling/heating setpoint. The reversing valve command is on BV-73, 0 = Heat and 1 = Cool. The reversing valve command will determine if the reversing valve will be engaged for a cooling call or a heating call. If the reversing valve is commanded on there will be a 5 second delay before the compressor is engaged. If there is no reversing valve command the compressor will be engaged with the fan. The command for the reversing value is held until the thermostat switches modes. For instance, if the reversing valve to set to engage with heat, the command is held until the thermostat enters a cooling mode.

Note: All outputs for a 180 second ON/OFF anti-short cycle.

Standard Unoccupied

During unoccupied operation the thermostat will continue to display the room temperature. When in an unoccupied state pressing one of the right pair of keys will display a message indicating the thermostat is in night mode, preventing the setpoint from being adjusted. To adjust the room setpoint when unoccupied the thermostat must be set to night override.

Control Sequence

When in the unoccupied mode, the room will be controlled by the unoccupied cooling/heating setpoints. The fan and cooling/heating stages will operate the same as the occupied control sequence.

Vacancy

If a room is known to be vacant, vacant setpoints can be used to override the unoccupied setpoints. By setting BV-70, a room will be controlled by the vacant cooling/heating setpoints (AV-64/65).

Night Overrride

Set the night override by pressing one of the left pair of keys. The display will switch to allow the user to set the night override time. Additional presses of the keys will adjust the time up or down by 0.5 hour increments. The night override can be increased up to the override limit set at AV-73, the default is 5 hours. When the thermostat is in night override, the first press of one of the left pair of keys will display the override time remaining. Additional key presses will add/subtract 0.5 hours to the time that was remaining. When the timer reaches zero the thermostat will return to the unoccupied mode.

In the night override mode, the right pair of keys can be used to adjust the room setpoint. The thermostat keypad will time out after 5 seconds without a key press, and the display will switch back to displaying the room temperature.

The thermostat can be set to a night override by writing a value to AV-74 through BACnet. The value can not exceed the night override limit set at AV-73. If the night override time is set higher than the limit, the night override timer will be set to the limit. The night override limit default is 5 hours.

If the thermostat is commanded to the occupied mode while in night override, the override timer will be cleared to zero and the thermostat will enter the occupied mode.

Control Sequence

When the thermostat is in the override mode, the room will be controlled by the occupied cooling/heating setpoints. The fan and cooling/heating stages will operate the same as the occupied control sequence.

Note: There is no fan control in the override mode. The fan will run in the AUTO mode.

Vacancy

If a room is known to be vacant, vacant setpoints can be used to override the unoccupied setpoints. By setting BV-70 to active, a room will be controlled by the vacant cooling/heating setpoints (AV-64/65).

Motion/Humidity Option Card

The Motion/Humidity Option Card can be used for Motion Only, Humidity Only, or Motion/Humidity together. In order to use the Motion Sensor (either stand alone or with Humidity), BV-64 must be set to ACTIVE. The Humidity Sensor can be enabled by setting AV-31 to 4. These settings will automatically provide the required voltage to power the sensors. The motion sensor status will show on BI-1.

When the motion sensor, senses motion, it puts the unit in occupied “Active” Mode by writing to the Scheduled Occupied Command BO-5 at priority array entry 11, this will remain active until it does not see any motion for the entire duration of the time delay (AV-81 Units=seconds), it will then return to an inactive state.

When the internal occupancy sensor is enabled by setting BV-64 to ACTIVE, the occupied mode is controlled only by the occupancy sensor. The optimum start warmup point, BV-41, and optimum start cooldown point, BV-42, will set the unit to the occupied mode and then return to the unoccupied mode until motion is sensed.

The Humidity value is shown on AI-1. The Humidity Sensor will automatically be scaled by setting AV-31 to 4.

Installation

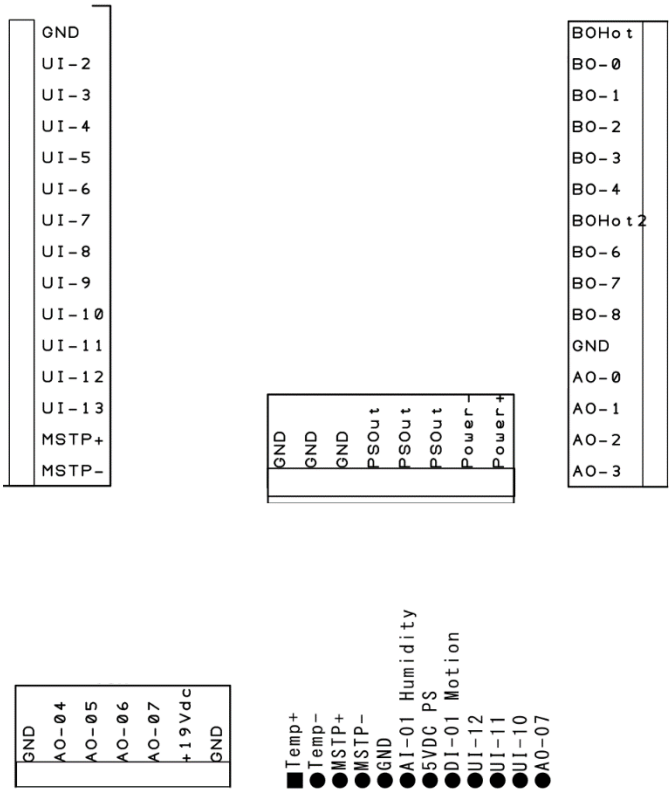

Fig. 4

*Note: Thermostat Common Relay point (BO Hot) usually 24VAC/DC or R

*Note: AI-2 through AI-5 and BI-2 through BI-5 are wired to UI-2 through UI-5. Each universal Input can only be used as an AI or a BI

GND ..... Neutral/Ground
UI-2 ..... Universal Input 2
UI-3 ..... Universal Input 3
UI-4 ..... Universal Input 4
UI-5 ..... Universal Input 5
UI-6 ..... Universal Input 6
UI-7 ..... Universal Input 7
UI-8 ..... Universal Input 8
UI-9 ..... Universal Input 9
UI-10 ..... Universal Input 10
UI-11 ..... Universal Input 11
UI-12 ..... Universal Input 12
UI-13 ..... Universal Input 13
MSTP + ... Network Line Positive
MSTP - ..... Network Line Negative

BO Hot ..... 24VAC/DC Input for Relays 1-5*
BO-0..... Relay 1 Output, 24VAC/DC
BO-1..... Relay 2 Output, 24VAC/DC
BO-2..... Relay 3 Output, 24VAC/DC
BO-3..... Relay 4 Output, 24VAC/DC
BO-4..... Relay 5 Output, 24VAC/DC
BO Hot 2 ..... 24VAC/DC Input for Relays 7-9*
BO-6..... Relay 7 Output, 24VAC/DC
BO-7..... Relay 8 Output, 24VAC/DC
BO-8..... Relay 9 Output, 24VAC/DC
GND ..... Neutral/Ground
AO-0..... Analog Output 0, 0-10V
AO-1..... Analog Output 1, 0-10V
AO-2..... Analog Output 2, 0-10V
AO-3..... Analog Output 3, 0-10V

GND ..... Neutral/Ground
GND ..... Neutral/Ground
GND ..... Neutral/Ground
PSOut ..... 24VAC/DC Hot
PSOut ..... 24VAC/DC Hot
PSOut ..... 24VAC/DC Hot
Power -..... Neutral/Ground
Power +..... 24VAC/DC Hot

GND ..... Neutral/Ground
AO-04..... Analog Output 4, 0-10V
AO-05..... Analog Output 5, 0-10V
AO-06..... Analog Output 6, 0-10V
AO-07..... Analog Output 7, 0-10V
+19Vdc..... 19V DC
GND ..... Neutral/Ground

Output Wiring

Output/Label	Heat / Cool Mode	Compressor / Reversing Mode
BO0	Fan	Fan
BO1	Cooling Stage 1	Compressor
BO2	Heating Stage 1	Reversing Valve
BO3	Cooling Stage 2	Cooling Stage 2
BO4	Heating Stage 2	Heating Stage 2
AO0	Economizer 0-10 Vdc 0-100%	Economizer 0-10 Vdc 0-100%
AO1		

Input Wiring

Input/Label	
UI0	Internal Thermistor
UI1	Humidity/Motion
UI2	External Thermistor
UI3	Mixed Air Sensor
UI4	Discharge Air Sensor
UI5	Ext. Occupancy/Fan Status

Reserved BACnet Points

The following are points reserved by the thermostat for operation.

Analog Inputs

Instance	Object Name	Description	Read/Write	Default
AI-0	Room Temp	Reading of the internal thermistor in counts. 0-1024	R	variable
AI-1	Humidity	Humidity reading for add-on card	R	variable
AI-2	Ext. Room Temp	Optional external room temperature input	R	variable
AI-3	Mixed Air	Reading of the mixed air temperature	R	variable
AI-4	Discharge Air	Reading of the discharge air temperature	R	variable
AI-5	Analog Input 05	Reading of the external input 5 in counts. 0-1024	R	variable

Analog Outputs

Instance	Object Name	Description	Read/Write	Default
AO-0	Economizer Cmd	0-10V output for control of an economizer damper	R/W	0.0
AO-1	Analog Output 1	0-10V output	R/W	0.0
AO-2	Analog Output 2	Variable 0-14VDC, 150mA output	R/W	0.0

Analog Values

Instance	Object Name	Description	Read/Write	Default
AV-0	Mode of Operation	The mode that the thermostat is currently in. 0 = Heat Mode 1 = Cool Mode 2 = Idle 3 = Afterhours 4 = Unoccupied Idle 5 = Unoccupied Heat Mode 6 = Unoccupied Cool Mode	R	4
AV-1	Analog Value 001			
AV-2	Analog Value 002			
AV-3	Analog Value 003			
AV-4	Current Htg SP	The setpoint that controls heating. If the room temperature goes below this setpoint the thermostat will enter heating mode.	R	80.0˚F
AV-5	Current Clg SP	The setpoint that controls cooling. If the room temperature goes above this setpoint the thermostat will enter cooling mode.	R	60.0 ˚F
AV-6	Heating SP	The setpoint used for heating during occupied mode. This setpoint is calculated by AV-66 (Current SP) – AV-70 (Heating Offset)	R	72.0˚F
AV-7	Cooling SP	The setpoint used for cooling during occupied mode. This setpoint is calculated by AV-66 (Current SP) + AV-69 (Cooling Offset)	R	74.0˚F
AV-8	Heating Signal	Current heating signal as a percent	R	0%
AV-9	Cooling Signal	Current cooling signal as a percent	R	0%
AV-10	Analog Value 010			
AV-11	Analog Value 011			
AV-12	Analog Value 012			
AV-13	Analog Value 013			
AV-14	Analog Value 014			
AV-15	MAT Damper Control Signal	Economizer Damper Control Signal limited by the Mixed Air Temperature	R	0%
AV-16	Economizer Position	Current position of the economizer.	R	0%
AV-17	Analog Value 017			
AV-18	Analog Value 018			
AV-19	Analog Value 019			
AV-20	Room Temp	Selected from either AI-0 or AI-2. BV-67 is used for selection. This is the value displayed on the LCD of the thermostat and should be used to display the temperature on any workstation display.	R	variable
AV-21	Analog Value 021			
AV-22	Analog Value 022			
AV-23	Analog Value 023			
AV-24	Analog Value 024			
AV-25	Analog Value 025			

AV-26	Cooling Deviation	Number of degrees that the room temperature is away from the cooling setpoint	R	variable
AV-27	Heating Deviation	Number of degrees that the room temperature is away from the heating setpoint	R	variable
AV-28	Deviation from SP	Number of degrees that the room temperature is away from the room setpoint	R	variable
AV-29	Zone Scan	Numerical representation of the thermostats mode. 100 = full heat, -100 = full cool	R	0
AV-30	AI-0 Setup	Parameter used to set the input type. 0 = counts 1 = temperature 2 = 4-20mA 3 = 0-5V 4 = 0-10V 5 = pulse	R	1
AV-31	AI-1 Setup	See AV-30	R	0
AV-32	AI-2 Setup	See AV-30	R	0
AV-33	AI-3 Setup	See AV-30	R	0
AV-34	AI-4 Setup	See AV-30	R	0
AV-35	AI-5 Setup	See AV-30	R	0
AV-36	Stage 1 Cooling Trigger SP	When the Room Temperature (AV-20) is above the Cooling Setpoint (AV-5) by this setpoint amount, trigger the first stage of cooling	R/W	1
AV-37	Stage 1 Cooling Reset SP	When the Room Temperature (AV-20) is below the Cooling Setpoint (AV-5) by this setpoint amount, reset the first stage of cooling OFF	R/W	.2
AV-38	Stage 2 Cooling Trigger SP	When the Room Temperature (AV-20) is above the Cooling Setpoint (AV-5) by this setpoint amount, trigger the second stage of cooling	R/W	2
AV-39	Stage 2 Cooling Reset SP	When the Room Temperature (AV-20) is below the Cooling Setpoint (AV-4) by this setpoint amount, reset the second stage of cooling OFF	R/W	-1
AV-40	Stage 1 Heating Trigger SP	When the Room Temperature (AV-20) is below the Heating Setpoint (AV-4) by this setpoint amount, trigger the first stage of heating	R/W	1
AV-41	Stage 1 Heating Reset SP	When the Room Temperature (AV-20) is above the Heating Setpoint (AV-4) by this setpoint amount, reset the first stage of heating OFF	R/W	.2
AV-42	Stage 2 Heating Trigger SP	When the Room Temperature (AV-20) is below the Heating Setpoint (AV-4) by this setpoint amount, trigger the second stage of heating	R/W	2
AV-43	Stage 2 Heating Reset SP	When the Room Temperature (AV-20) is above the Heating Setpoint (AV-5) by this setpoint amount, reset the second stage of heating OFF	R/W	-1
AV-44	Analog Value 044			
AV-45	Analog Value 045			
AV-46	Analog Value 046			
AV-47	Analog Value 047			
AV-48	Analog Value 048			

AV-49	MAT Low Limit	Low Limit setpoint of the mixed air used to control the maximum position of the economizer	R/W	45
AV-50	MAT Low Limit Kp	Integral constant used for the MAT control	R/W	1.5
AV-51	MAT Low Limit Ki	Proportional constant used for the DAT control	R/W	1.5
AV-52				
AV-53				
AV-54	Economizer Lockout SP	When the OSA Temperature is above this setpoint, the economizer will not be allowed to open	R/W	65°F
AV-55	Economizer Minimum Position	Lowest position the economizer is commanded too when locked out	R/W	10%
AV-56	Economizer Min Scalar	Used to scale the minimum input signal used for the economizer	R/W	0
AV -57	Economizer Max Scalar	Used to scale the maximum input signal used for the economizer	R/W	100
AV-58	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	1.6
AV-59	Avg Time Base	Factor used to average the room temperature. A small number will allow the room temperature to change faster over time. A large number will cause the room temperature to change slower over time.	R	100
AV-60	Calibration Offset	The calibration offset for the internal thermistor.	R	variable
AV-61	Space Alarm Offset	This offset +/- the Current Cooling/Heating SP is used to determine if the space is too warm/cold, and set an alarm if necessary.	R/W	5.0˚F
AV-62	# of Fan Speeds	Select the number of fan speeds for a multispeed fan. 0 = Auto Only 1 = AUTO - ON 2 = Off - AUTO - ON 3 = Off-1-2-AUTO 4 = Off-1-2-3-AUTO	R/W	0
AV-63	Current Fan Speed	The fan speed the thermostat is currently running. 0 = OFF 1 = Fan Speed 1 2 = Fan Speed 2 3 = Fan Speed 3 4 = AUTO 5 = ON	R	4
AV-64	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R/W	85.0˚F
AV-65	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R/W	55.0˚F
AV-66	Room Setpoint	The occupied room setpoint	R/W	73.0˚F
AV-67	Occupied SP Hi Limit	The maximum occupied room setpoint allowed.	R/W	85.0˚F
AV-68	Occupied SP Lo Limit	The minimum occupied room setpoint allowed	R/W	55.0˚F
AV-69	Clg Offset	The offset from Room Setpoint used to calculate the Occupied Cooling SP	R/W	1.0˚F
AV-70	Htg Offset	The offset from Room Setpoint used to calculate the Occupied Heating SP	R/W	1.0˚F
AV-71	Unoccupied Clg SP	The cooling setpoint used when the thermostat is unoccupied.	R/W	80.0˚F

AV-72	Unoccupied Htg SP	The heating setpoint used when the thermostat is unoccupied.	R/W	60.0˚F
AV-73	After Hours Limit	The maximum hours the thermostat is allowed to run during afterhours time. Setting this will set the thermostat to occupied operation. (0-99.9 hrs)	R/W	5.0 hrs
AV-74	After Hours Timer	The current amount of afterhours time left.	R	0.0 hrs
AV-75	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
AV-76	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
AV-77	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
AV-78	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
AV-79	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
AV-80	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
AV-81	Motion OFF Delay	This is the delay used to transition that Occupied Command from ACTIVE to INACTIVE after no motion is detected from the sensor	R/W	900 sec
AV-82	Analog Value 82			
AV-83	Analog Value 83			
AV-84	Analog Value 84			
AV-100	Analog Value 100	Internal thermistor display descriptor. The present value is automatically transferred. The AV description holds the descriptor to display.	R	variable
AV-101	Analog Value 101	Mixed Air Temp display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display.	R/W	
AV-102	Analog Value 102	Discharge Air Temp display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-103	Analog Value 103	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-104	Analog Value 104	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-105	Analog Value 105	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-106	Analog Value 106	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-107	Analog Value 107	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-108	Analog Value 108	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	

AV-109	Analog Value 109	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-110	Analog Value 110	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-111	Analog Value 111	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
AV-112	Analog Value 112	Display descriptor. Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	

Binary Inputs

Instance	Object Name	Description	Read/Write	Default
BI-0	Binary Input 00		R	
BI-1	Motion Status	Current status of the motion add-on sensor	R	OFF
BI-2	Binary Input 02		R	
BI-3	Binary Input 03		R	
BI-4	Binary Input 04		R	
BI-5	Occupied Relay/Fan Status	Optional occupancy relay input or fan status. Selected by BV-51	R	OFF

Binary Outputs

Instance	Object Name	Description	Read/Write	Default
BO-0	Fan	Output for Fan Control	R/W	OFF
BO-1	Compressor/Clg	Output for Compressor in Comp/Rev Mode. Output for Cooling Stage 1 in Htg/Clg Mode.	R/W	OFF
BO-2	Rev. Valve/Htg	Output for Reversing Valve when in Comp/Rev Mode. Output for Heating Stage 1 when in Htg/Clg Mode.	R/W	OFF
BO-3	Clg Stage 2	Output for Cooling Stage 2	R/W	OFF
BO-4	Htg Stage 2	Output for Heating Stage 2	R/W	OFF
BO-5	Scheduled Occupied	Logical point only. Used for scheduling purposes. INACTIVE is unoccupied.	R/W	OFF

Binary Values

Instance	Object Name	Description	Read/Write	Default
BV-0	Bad Sensor Alarm	Alarm for a bad internal thermistor	R	OFF
BV-1	H/C Mode	Sequence point to show analog heating or cooling. OFF = Cooling ON = Heat	R	OFF
BV-2	Binary Value 002			
BV-3	Binary Value 003			
BV-4	Binary Value 004			
BV-5	Binary Value 005			
BV-6	Binary Value 006			

BV-7	Binary Value 007			
BV-8	Binary Value 008			
BV-9	Space Alarm Delay	Delay used to prevent a space alarm after receiving an occupied command. The delay is 7200 sec	R	OFF
BV-10	Program Status	Used to determine if the sequence was loaded correctly on a BACnet Restore or power up.	R	OFF
BV-11	Binary Value 011			
BV-12				
BV-13				
BV-14	Call for Cooling	Economizer cooling has been requested	R	OFF
BV-15	Supply Fan Status	Status from the fan sensor	R	OFF
BV-16	Htg Stage 1 Request	Stage 1 heat is requested. The sequence determines if this is a Htg/Clg request or a Comp/Rev request	R	OFF
BV-17	Clg Stage 1 Request	Stage 1 cool is requested. The sequence determines if this is a Htg/Clg request or a Comp/Rev request	R	OFF
BV-18	Binary Value 018			
BV-19	Binary Value 019			
BV-20	Supply Fan Alarm	Triggered ACTIVE if the Fan Command (BO-0) has been ACTIVE for 20 seconds without status from BI-5	R	OFF
BV-21	Binary Value 021			
BV-22	Too Warm Status	Status of the Too Warm Alarm before checking the Space Alarm Delay	R	OFF
BV-23	Too Cool Status	Status of the Too Warm Alarm before checking the Space Alarm Delay	R	OFF
BV-24	Space To Warm Alarm	The space temperature has been below the Room Set point (AV-66) – Space Alarm Offset (AV-61) for at least 7200 seconds.	R	OFF
BV-25	Space To Cool Alarm	The space temperature has been above the Room Set point (AV-66) + Space Alarm Offset (AV-61) for at least 7200 seconds.	R	OFF
BV-26	Heat Stage 1 Status	The status of the stage 1 heat request before the 180 second anti-short cycle delay.	R	OFF
BV-27	Cool Stage 1 Status	The status of the stage 1 cool request before the 180 second anti-short cycle delay.	R	OFF
BV-28	Heat Stage 2 Status	The status of the stage 2 heat request before the 180 second anti-short cycle delay.	R	OFF
BV-29	Cool Stage 2 Status	The status of the stage 2 cool request before the 180 second anti-short cycle delay.	R	OFF
BV-30	Binary Value 030			
BV-31	Binary Value 031			
BV-32	Supply Fan Alarm Reset	Reset the latch on the Supply Fan Alarm (BV-20)	R/W	OFF
BV-33	Binary Value 033			
BV-34	Binary Value 034			
BV-35	Binary Value 035			
BV-36	Disable Economizer Cooling	When ACTIVE, this disables the requirement that the Economizer position be above 99% before allowing Cooling Stage 1 command	R/W	ON

BV-37	Economizer Lockout	When ACTIVE, the economizer is lockout out from opening; allowing Cooling Stage 1 command	R	OFF
BV-38	Binary Value 038			
BV-39	Binary Value 039			
BV-40	Occupied Status	The status of this point switches the thermostats occupancy settings. When ON, the thermostat is in Occupied Setpoint Mode or After Hours Mode.	R	OFF
BV-41	Opt. Start Warmup	A Warmup command has been sent to the thermostat. When ON the thermostat will switch to occupied settings.	R/W	OFF
BV-42	Opt. Start Cooldown	A Cooldown command has been sent to the thermostat. When ON the thermostat will switch to occupied settings.	R/W	OFF
BV-43	Occ Set point Mode	The thermostat has been commanded occupied via BO-5, or a Warmup/Cooldown command has been sent via BV-41/BV-42.	R	OFF
BV-44	After Hours Status	The thermostat has been set to afterhours mode. When ON the thermostat will switch to occupied settings.	R	OFF
BV-45	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
BV-46	Binary Value 046			
BV-47	Binary Value 047			
BV-48	Binary Value 048			
BV-49	Update Descriptors	When ON descriptor changes are sent to the thermostats LCD, this point will auto reset to OFF.	R/W	OFF
BV-50	Fan DX Interlock	Fan Status Input-5 needs to be active for 30 seconds to allow DX Cooling	R/W	OFF
BV-51	BI for Occupancy	ON = BI-5 will be used to indicate occupancy OFF = BI-5 is not used for occupancy	R/W	OFF
BV-52	SF Alarm Interlock	When Active = if BV-20 SF Alarm is active the unit will disable Fan Cmd. Until it is reset BV-32	R/W	OFF
BV-53	Binary Value 053			
BV-54	Binary Value 054			
BV-55	Binary Value 055			
BV-56	Binary Value 056			
BV-57	Disable Splash	ON = The splash screen will be disabled after key presses	R/W	OFF
BV-58	Disable Setup Menu	ON = The Setup Mode to configure the Network/MAC/Baud Rate/etc will be disabled	R/W	OFF
BV-59	Disable FSM Menu	ON = The Field Service Mode to configure the Time/Schedule/etc will be disabled	R/W	OFF
BV-60	Binary Value 060			
BV-61	Binary Value 061			
BV-62	Binary Value 062			
BV-63	Binary Value 063			
BV-64	Enable Motion	Set this BV to ACTIVE to enable the motion option card.	R/W	OFF
BV-65	Binary Value 065			
BV-66	Disable Unit	When ON this point will disable and lockout all analog and binary outputs.	R/W	OFF
BV-67	Room Temp Select	When OFF, the internal thermistor is selected for the control sequence. When ON, an external	R/W	OFF

		thermistor attached to AI-2 is selected for control of the sequence		
BV-68	Backlight Off/On	When ON the LCD backlight will remain on	R/W	OFF
BV-69	Fan Op Mode	Controls if the fan will cycle or run continuously. OFF = Cycle, ON = Continuous, BV-40 must also be ON.	R/W	ON
BV-70	Room Vacant Status	When ON the thermostat will run on Vacant Heating/Cooling setpoints, AV-64/AV-65.	R/W	OFF
BV-71	C/F	Sets the thermostat to display temperatures in Celsius or Fahrenheit. This point is set through the setup menu. ON = F, OFF = C	R	ON
BV-72	HP Type	OFF = Compressor/Reversing Valve Mode ON = Heat/Cool Mode	R/W	ON
BV-73	Rev Valve	Set which mode to turn on the reversing value. OFF = Heat, ON = Cool	R/W	OFF
BV-74	Hotel Mode	This point is reserved for internal thermostat use and its value cannot be changed	R	OFF
BV-100	Binary Value 100	Enable internal thermistor descriptor	R/W	ON
BV-101	Binary Value 101	Enable mixed air temperature descriptor	R/W	OFF
BV-102	Binary Value 102	Enable discharge air temperature descriptor	R/W	OFF
BV-103	Binary Value 103	Enable descriptor	R/W	OFF
BV-104	Binary Value 104	Enable descriptor	R/W	OFF
BV-105	Binary Value 105	Enable descriptor	R/W	OFF
BV-106	Binary Value 106	Enable descriptor	R/W	OFF
BV-107	Binary Value 107	Enable descriptor	R/W	OFF
BV-108	Binary Value 108	Enable descriptor	R/W	OFF
BV-109	Binary Value 109	Enable descriptor	R/W	OFF
BV-110	Binary Value 110	Enable descriptor	R/W	OFF
BV-111	Binary Value 111	Enable descriptor	R/W	OFF
BV-112	Binary Value 112	Enable descriptor	R/W	OFF