ExactLogic BACnet Communicating Thermostat
EXL01612 Sequence Datasheet

4-pipe/2-pipe heating and cooling with staged, modulating, and floating outputs

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HumeraTech is the exclusive U.S. distributor for ExactLogic products
14295 James Rd. Suite #200 | Rogers, MN | 55374
1-866-714-0522 | www.exactlogic.com

Operating Sequence

Standard Occupied

Thermostat occupancy can be set from a number of different sources. The Occupied Schedule Command at BO-5, a Warmup Command at BV-41, a Cooldown Command at BV-42, an External Occupancy Sensor at BI-5, or from the Field Service Mode. The External Occupancy Sensor is enabled with BV-51. See the separate Installation documentation to set the occupancy from the Field Service Mode.

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 – 4-Pipe Mode Heating/Cooling

The fan is commanded ON when the heating or cooling signal is above the setpoints set at AV-46/47, BV-60 must also be set INACTIVE. The fan will shut off 2 minutes after the room temperature has returned to within 1 degree of the setpoint.

For heating/cooling there are two digital stages, two modulating, or a floating output available. The digital stages are set for either heating or cooling via BV-61; INACTIVE sets the outputs for cooling. The outputs are commanded ON or OFF based off the setpoints set at AV-38 through AV-41. The modulating outputs can be used for both heating and cooling. The modulating output signal is based off the heating/cooling signals and can be scaled (E.g. 2-10V) using the setpoints at AV-53 through AV-55. The floating point output can be used for heating or cooling, or heating only. The position is based off the heating/cooling signal, and commands BO-3/4. The position is read at AV-25. For heating only mode, set BV-55 ACTIVE. The floating output is disabled in 2-Pipe Mode (BV-60 = ACTIVE).

Control Sequence – 2-Pipe Mode Heating/Cooling

In the 2-Pipe Mode the system uses the Supply Water Temperature, AI-3, to determine the mode the system is in and when to allow heating and cooling. The Summer Mode setpoint is configured at AV-37 and the status is at BV-5. The Winter Mode setpoint is configured at AV-36 and the status is at BV-6.

The fan is commanded ON in Summer Mode when the cooling signal is above the setpoint set at AV-46; BV-60 must also be set ACTIVE. The fan will only command with a call for heat in the Summer Mode if the optional electric heat is enabled through the Field Service Mode. The status is at BV-64. The fan is commanded ON in Winter Mode when the heating signal is above the setpoint set at AV-47; BV-60 must also be set ACTIVE. The fan will not turn on with a call for cooling while in Winter Mode. If the water supply temperature is between the Summer and Winter Mode setpoints, the fan will be allowed to run. The fan will shut off 2 minutes after the room temperature has returned to within 1 degree of the setpoint.

Heating Mode

Winter Mode heating is allowed when the water supply temperature is above the setpoint configured at AV-36. Upon a call for heat the fan will start and the water supply valve on BO-1 will open. If space temperature is less than 5° from setpoint for a period of 30 minutes, the option electric heater, on BO-2, will be allowed to run as 2nd stage heat. The optional electric heat is enabled or disabled via the Field Service Mode or BV-62.

Summer Mode heating occurs when the water-supply temperature reads below the Summer Mode setpoint configured at AV-37 and the optional electric heat is enabled via the Field Service Mode or BV-62. Upon a call for heat, the fan will run and the electric heater will be enabled as 1st stage heat on BO-2. There is no 2nd stage heat.

When the water supply temperature is in between Summer and Winter Mode setpoints, a call for heat will run the fan and the water supply valve, on BO-1, will open. If space temperature is less than 5° from setpoint for a period of 30 minutes and the optional electric heat is enabled via the Field Service Mode or BV-62., the electric heater will be allowed to run as 2nd stage heat.

Cooling Mode

Cooling is not allowed in the Winter Mode. Upon a call for cooling the fan will not start and the water supply valve, on BO-1, will remain closed.

Summer Mode cooling occurs when the water supply temperature reads less than the Summer Mode setpoint configured at BV-37. Upon a call for cool, the fan will run and the water supply valve, on BO-1, will open.

When the water supply temperature is between Summer and Winter Mode setpoints, a call for cooling will run the fan and the valve will open.

Supply Valve Purge

If the water supply valve has not been commanded open for more than the Delay time set at AV-45, (7200 seconds default), a purge command will be issued. The water supply valve, on BO-1, will be commanded open for 2 minutes and the water supply temperature, AV-21, will be updated. This allows for the water to circulate through the system to keep the Summer or Winter Mode status, BV-5/6 accurate, and prevent an inadvertent lockout of heating or cooling. A manual valve purge can be commanded using BV-12. The point must be set back to INACTIVE to end the manual purge. Also, when using a 3-way valve there should always be water flowing through the valve. By setting BV-53 to ACTIVE, the water temperature at AV-21 will continuously be updated.

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 Override

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.

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.

Disabling of the Splash, Setup Menu, or Field Service Mode

When the thermostat is installed in a public location there may be times when the setup of the thermostat will need to be disabled to prevent tenants from changing the configuration while still giving them access to change the setpoints and control after hours modes. The following points have been added to allow this:

BV-57 = Setting ACTIVE will disable the “EXACTLOGIC” splash display after key presses
BV-58 = Setting ACTIVE will disable access to the Setup Menu where the Network/MAC/Baud Rate/etc are set
BV-59 = Setting ACTIVE will disable access to the Field Service Mode where Time/Schedule/Setpoints/etc are set

Installation

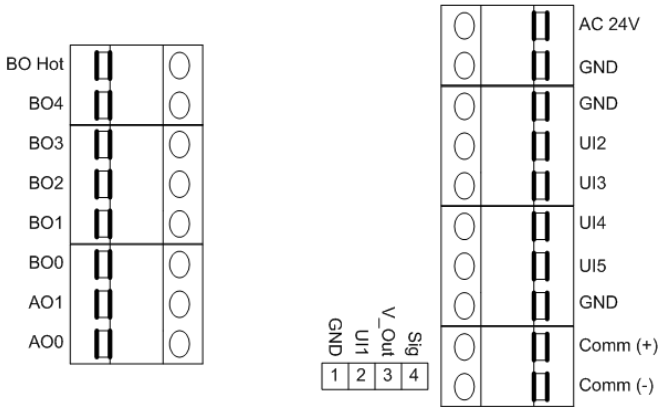

Fig. 4

*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

AC 24V.....24VAC/DC Hot
GND ..... Neutral/Ground
GND ..... Neutral/Ground
UI2 .....Universal Input 2
UI3 .....Universal Input 3
UI4 .....Universal Input 4
UI5 .....Universal Input 5
GND ..... Neutral/Ground
Comm (+)..... Network Positive Line
Comm (-).....Network Negative Line
BO Hot ..... Com, 24VAC Hot for relays*
BO4..... Relay 5 Output, 24VAC/DC
BO3..... Relay 4 Output, 24VAC/DC
BO2..... Relay 3 Output, 24VAC/DC
BO1..... Relay 2 Output, 24VAC/DC
BO0..... Relay 1 Output, 24VAC/DC
AO1..... Analog Output 1, 0-10V
AO0..... Analog Output 0, 0-10V

1 ..... Neutral/Ground
2 .....Universal Input 1
3 .....Analog Output 2
4 .....Reserved

Output Wiring

Output/Label	2 Pipe Mode	4 Pipe Mode
BO0	Fan	Fan
BO1	Heating/Cooling Valve On=Open	Heating/Cooling Stage 1
BO2	Aux Heat 2nd Stage	Heating/Cooling Stage 2
BO3	Valve Open Command	Valve Open Command
BO4	Valve Close Command	Valve Close Command
AO0	Heating 0-10 Vdc 0-100%	Heating 0-10 Vdc 0-100%
AO1	Cooling 0-10 Vdc 0-100%	Cooling 0-10 Vdc 0-100%

Input Wiring

Input/Label	
UI0	Internal Thermistor
UI1	Humidity/Motion
UI2	External Room Temperature
UI3	Water Supply Temperature
UI4	Valve Close Command
UI5	Occupancy Relay

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	Reading from the Humidity sensor add-on card	R	variable
AI-2	Ext. Room Temp	Optional external room temperature input	R	variable
AI-3	Water Supply Temp	2-pipe system water temperature	R	variable
AI-4	Analog Input 04	Reading of the external input 4 in counts. 0-1024	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	Heat	0-10V output for control of heating	R/W	0.0
AO-1	Cool	0-10V output for control of cooling	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	Heat Signal (%)	Current heating signal as a percent	R	0%
AV-9	Cool 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	Analog Value 015			
AV-16	Analog Value 016			
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	Water Temp	In a 2-pipe system this is the current temperature of the supply water	R	variable
AV-22	Analog Value 022			
AV-23	Analog Value 023			
AV-24	Analog Value 024			
AV-25	Valve % Open	Current position of the heating/cooling valve	R	0%
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	Winter Enable SP	In a 2-pipe system, this setpoint is used to determine if the supply water temperature is high enough to allow heating.	R/W	90.0°F
AV-37	Summer Enable SP	In a 2-pipe system, this setpoint is used to determine if the supply water temperature is low	R/W	55.0°F

		enough to allow cooling.		
AV-38	Stage 1 Heat Enable %	The percentage of heating signal required to turn on the stage 1 heating digital output	R/W	10%
AV-39	Stage 2 Heat Enable %	The percentage of heating signal required to turn on the stage 2 heating digital output	R/W	60%
AV-40	Stage 1 Cool Enable %	The percentage of cooling signal required to turn on the stage 1 cooling digital output	R/W	10%
AV-41	Stage 2 Cool Enable %	The percentage of cooling signal required to turn on the stage 2 cooling digital output	R/W	60%
AV-42	OSA Switchover Setpoint	If OSA Mode (BV-52) is ACTIVE, this setpoint will be used to determine the Heat/Cool Mode. If the OSA Temperature is below the setpoint the Heat Moe is enabled and cooling is locked out.	R/W	65.0°F
AV-43	Fan Shutoff Delay	Delay to prevent short cycling of the fan output	R/W	120 sec
AV-44	2-pipe Stage 2 Delay	In 2-pipe mode this will delay the command for an optional stage 2 electric heat output	R/W	900 sec
AV-45	Purge Delay Time	In 2-pipe mode, this is the number of second without a call for heating/cooling that must elapse before a valve purge request (BV-11) is initiated.	R/W	7200 sec
AV-46	Cooling % for Fan Start	The cooling signal percentage that is required to command the fan ON.	R/W	5%
AV-47	Heating % for Fan Start	The heating signal percentage that is required to command the fan ON.	R/W	5%
AV-48	Valve Deadband	The deadband used to determine when to open or close the valve	R/W	5%
AV-49	Valve Motor Time	The amount of time to open the valve from 0% open to 100% open	R/W	90 sec
AV-50	Heating Scalar In1	Minimum setpoint used to scale the heating signal used to control the modulating output.	R.W	0%
AV-51	Heating Scalar In2	Maximum setpoint used to scale the heating signal used to control the modulating output.	R/W	100%
AV-52	Heating Scalar Out1	Minimum setpoint used to scale the heating signal used to control the modulating output.	R.W	0%
AV-53	Heating Scalar Out2	Maximum setpoint used to scale the heating signal used to control the modulating output.	R/W	100%
AV-54	Cooling Scalar In1	Minimum setpoint used to scale the cooling signal used to control the modulating output.	R.W	0%
AV-55	Cooling Scalar In2	Maximum setpoint used to scale the cooling signal used to control the modulating output.	R/W	100%
AV-56	Cooling Scalar Out1	Minimum setpoint used to scale the cooling signal used to control the modulating output.	R.W	0%
AV -57	Cooling Scalar Out2	Maximum setpoint used to scale the cooling signal used to control the modulating output.	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	Pseudo Ave 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,	R/W	5.0°F

		and set an alarm if necessary.		
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	Vacant Clg SP	Used in Hotel Mode. When a room is known vacant, the setpoint can be set below the unoccupied setpoint.	R/W	85.0°F
AV-65	Vacant Htg SP	Used in Hotel Mode. When a room is known vacant, the setpoint can be set below the unoccupied setpoint.	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	0
AV-76	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-77	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-78	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-79	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-80	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-81	Motion OFF Delay	The amount of time to delay the ON->OFF transition of the motion sensor occupied command	R/W	900 sec

		after no motion is detected		
AV-82	Analog Value 082			
AV-83	Analog Value 083			
AV-84	Analog Value 084			
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	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	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	Outside Air 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	Motion sensor status from the add-on card	R	
BI-2	Binary Input 02		R	
BI-3	Binary Input 03		R	
BI-4	Binary Input 04		R	
BI-5	Opt. Occupied Relay	Optional occupancy relay input	R	

Binary Outputs

Instance	Object Name	Description	Read/Write	Default
BO-0	Fan	Output for Fan Control	R/W	OFF
BO-1	Heat/Cool Stage 1	Stage 1 heating or cooling digital output	R/W	OFF
BO-2	Heat/Cool Stage 2	Stage 2 heating or cooling digital output	R/W	OFF
BO-3	Valve Open	Heating or Cooling valve open command	R/W	OFF
BO-4	Valve Close	Heating or Cooling valve close command	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	Summer Mode	The supply water temperature is suitable for cooling, heating will be locked out.	R	OFF
BV-6	Winter Mode	The supply water temperature is suitable for heating, cooling will be locked out.	R	OFF
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	Purge Valve Mode	If the supply water valve has not been opened within the delay set at AV-45, open the valve to refresh the water temperature	R	OFF
BV-12	Manual Purge Command	Manually enable a purge of the valve in 2-pipe mode. Command must be set back to INACTIVE to end valve purge.	R/W	OFF
BV-13	Purge Valve Status	A manual or automatic purge of the water valve has been requested.	R	OFF

BV-14	Binary Value 014			
BV-15	Binary Value 015			
BV-16	Binary Value 016			
BV-17	Binary Value 017			
BV-18	Binary Value 018			
BV-19	2-pipe Cool Request	2-pipe Stage 1 cooling request	R	OFF
BV-20	2-pipe Heat Request	2-pipe Stage 1 heating request	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 after the anti-short cycle delay.	R	OFF
BV-27	Heat Stage 2 Status	The status of the stage 2 heat request after the 180 second anti-short cycle delay.	R	OFF
BV-28	Cool Stage 1 Status	The status of the stage 1 cool request after the anti-short cycle delay.	R	OFF
BV-29	Cool Stage 2 Status	The status of the stage 2 cool request after the anti-short cycle delay.	R	OFF
BV-30	4-pipe Stage 1 Request	4-pipe mode stage 1 heating or cooling request	R	OFF
BV-31	4-pipe Stage 2 Request	4-pipe mode stage 2 heating or cooling request	R	OFF
BV-32	2-pipe Stage 1 Request	2-pipe mode stage 1 heating or cooling request	R	OFF
BV-33	2-pipe Stage 2 Request	2-pipe mode stage 2 heating or cooling request	R	OFF
BV-34	Binary Value 034			
BV-35	Heat Call for Fan	A call for heat has requested the fan to start	R	OFF
BV-36	Cool Call for Fan	A call for cool has requested the fan to start	R	OFF
BV-37	Binary Value 037			
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	Binary Value 050			
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	OSA Mode	ON = Heat/Cool Mode determined by the OSA Switchover SP (AV-42) OFF = Heat/Cool Mode determined by the heat/cool signal (AV-8/9)	R/W	OFF
BV-53	3-Way Valve Enabled	When using a 3-way valve in the 2-pipe mode, setting this point to ACTIVE will capture the water temperature continually at AV-21.	R/W	OFF
BV-54	Binary Value 054			
BV-55	Radiation Valve Mode	Used when the floating valve connected to BO-3/4 is for heat only	R/W	OFF
BV-56	Binary Value 056			
BV-57	Disable Splash	When ACTIVE, the “EXACTLOGIC” splash will not show after key presses	R/W	OFF
BV-58	Disable Setup Menu	When ACTIVE, there will be no access to the Setup Menu where the Network/MAC/Baud Rate is set	R/W	OFF
BV-59	Disable FSM Menu	When ACTIVE, there will be not access to the Field Service Mode where the Time/Schedule/Point Access is set	R/W	OFF
BV-60	2-pipe Mode	Enable the sequence to run for a 2-pipe system	R/W	OFF
BV-61	Stages for Heat/Cool	Sets the digital stages to be commanded from the heating or cooling calls (BV-26->29). (INACTIVE = HEAT)	R/W	OFF
BV-62	FSM Heat Enable	The Stage 2 heat for 2-pipe mode has been enabled via the Field Service Mode	R/W	OFF
BV-63	Binary Value 063			
BV-64	Enable Motion	When ACTIVE, the power to the Motion add-on card is set to the proper voltage	R/W	OFF
BV-65	Binary Value 065			
BV-66	Binary Value 066			
BV-67	Room Temp Select	When OFF, the internal thermistor is selected for the control sequence. When ON, an external thermistor attached to AI-2 is selected for control of the sequence	R/W	OFF
BV-68	Backlight Off/On	When ON the LCD backlight will remain on	R/W	OFF
BV-69				

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	Binary Value 072			
BV-73	Binary Value 073			
BV-74	Reserved	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 descriptor	R/W	OFF
BV-102	Binary Value 102	Enable 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 outside air descriptor	R/W	OFF