# ExactLogic BACnet Communicating Thermostat
# EXL01613 Sequence Datasheet

## AHU w/ Economizer, DX Cooling, and Modulating or Floating Heat

BACnet is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of listed products to requirements of ASHRAE Standard 135 is the responsibility of the BACnet International. BTL is a registered trademark of the BACnet International.

DataSheet Rev 1.20.001/4.2
October 9, 2023

ExactLogic

# 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 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 - Fan

The fan is commanded ON by a request due to heating, cooling, or if used by a kitchen hood (BI-5). There is a fan status input at BI-3 that is required for this sequence to operate correctly.

The fan will be overridden off by a Unit Alarm, BV-20, or by a Unit Disable command at BV-66.

## Control Sequence – Supply Temperature Reset

There are multiple modes that the Supply Temperature can command to.

### Warmup Mode

If the unit is commanded to be in a Warmup Mode (BV-41 = ACTIVE), The Supply Air Temperature SP (AV-3) will be set to the Warmup Setpoint (AV-52).

### Manual Mode

The Supply Air Temperature SP can be set to a manual setpoint. By setting BV-50 = INACTIVE, AV-3 will be set to the value of AV-51. AV-3 will not be able to change values until BV-50 is set to ACTIVE (Auto Mode).

### Auto Mode

Auto Mode is set by commanding BV-50 to ACTIVE. When in this mode there is always a 5 minute Startup delay. The Supply Air Temperature SP (AV-3) will be commanded to the value of AV-51 whenever the Supply Fan Status (BI-3) changes from an INACTIVE state to ACTIVE for 5 minutes. After the 5 minutes, AV-3 will be set to the calculated setpoint determined by the heating/cooling signals.

*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

2

## Control Sequence – Economizer

The Economizer is commanded by AO-0.  Under normal operation, it modulates to maintain a Mixed Air Temperature of 2 degrees below the Supply Air Setpoint (AV-3).  The Economizer will be locked out if the Outside Air Temperature falls below the lockout setpoint (AV-40).

The lockout and modulating signal will be overridden if there is a call for make-up air on BI-5.  The Economizer will be commanded to the position set by AV-46.

If the Mixed Air Temperature falls below the Low Limit set at AV-38, the Economizer will be commanded to the value set at AV-45.  This will take priority over the make-up air position, the modulating position, or the lockout position.

## Control Sequence – Heating/Cooling

Heating and cooling both have multiple output configurations.  Heating has a modulating and PO-PC configuration. Cooling has a 1-stage and PO-PC configuration.

### Heating

The modulating output for the heating valve is at AO-1.  If there is a Low Limit Alarm (BV-21) the heating valve will be commanded to 100%.  Under normal operation there are two modulating signals that will command the position of AO-1.  If the Supply Fan Status (BI-3) is ACTIVE, the valve will modulate to maintain the Supply Air SP (AV-3).  If the Supply Fan Status is INACTIVE, valve will modulate to maintain a mix air temperature setpoint set at AV-39.The Heating valve will be locked out if the Outside Air Temperature falls below the lockout setpoint set at AV-42.

The PO-PC outputs at BO-3/4 can be used to control fin tube radiation or a heating value in the unit.  The mode is set be BV-52.  If BV-52 is INACTIVE, the outputs are commanded from the modulating signal at AV-16.  With BV-52 ACTIVE, the FTR sequence will command the outputs based off the heating signal (AV-8) using a 2:1 ratio. (ie 50% heating signal = 100% valve position)  If the Outside Air Temperature falls below zero, the FTR is commanded to 50%.  The position of the FTR or heating valve is found at AV-15.

### Cooling

The 1-stage of cooling and PO-PC configurations share BO-1, BO-2 is only used to command the cooling valve closed in the PO-PC mode.  The cooling output mode is selected by using BV-53.

Setting BV-53 ACTIVE selects BO-1 to be used in the 1-stage cooling mode.  The output is commanded ACTIVE when the Cooling Signal (AV-9) is over 10% and the Supply Fan Status (BI-3) is also ACTIVE. There is a 120 second ON/OFF short cycle delay on BO01 in this mode.

Setting BV-53 INACTIVE selects BO-1 to be used in the PO-PC mode.  The cooling valve position is commanded by the Cooling Signal (AV-9).  The valve position is found at AV-17.

Both modes can be locked out if the Outside Air Temperature falls below the lockout setpoint set at AV-40.  A Low Limit Alarm (BV-21) will also lockout the cooling outputs.

## *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.

ExactLogic

*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

3

## 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.

## 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).

ExactLogic

*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

4

## *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.  Once the motion sensor does not sense motion, the delay at AV-81 is used to delay the ACTIVE to INACTIVE command to the Scheduled Occupied command at BO-5, priority array entry 10.  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

ExactLogic

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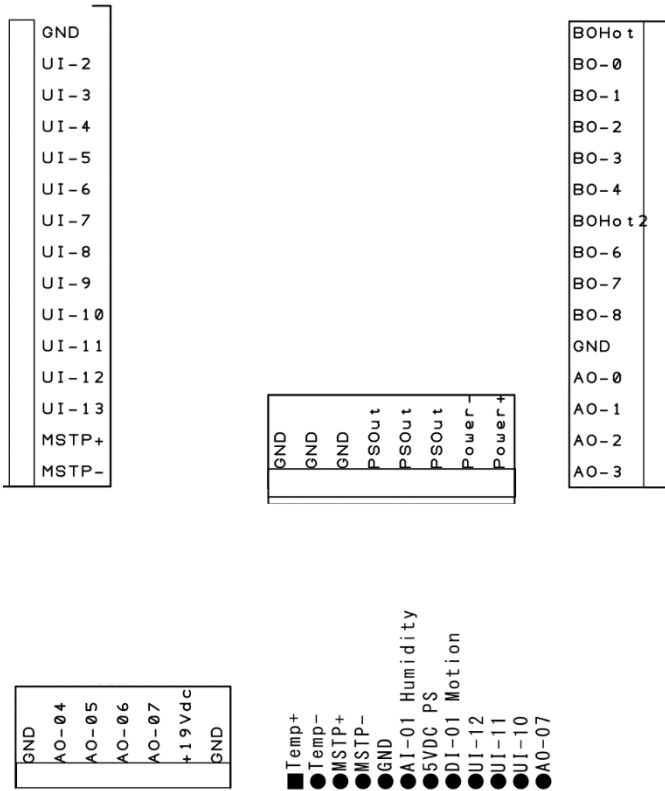1-866-714-0522 | www.exactlogic.com

5

# 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

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

6

## Output Wiring

**Output/Label**

| BO0 | Fan |
|---|---|
| BO1 | Cooling DX/ Valve Open |
| BO2 | Cooling Valve Close |
| BO3 | Radiation/Heating Valve Open |
| BO4 | Radiation/Heating Valve Close |
| AO0 | Economizer 0-10 Vdc 0-100% |
| AO1 | Heating 0-10 Vdc 0-100% |

# 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 | Mixed Air Temp | Mixed Air Temperature sensor input | R | variable |
| AI-3 | Analog Input 03 | Reading of the external input 3 in counts. 0-1024 | R | variable |
| AI-4 | Supply Air Temp | Supply Air Temperature sensor input | 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 | 0-10V output for control of the economizer | R/W | 0.0 |
| AO-1 | Heating Valve | 0-10V output for control of the heating valve | 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 | Current Supply Air Temp SP | Current Supply Air Temperature Setpoint based from the reset schedule (AV47/48) | R | varies |

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

7

| 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 | Occupied 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 | Occupied 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 | FTR Position | Estimated position of the radiation valve | R | 0% |
| AV-16 | Heating Valve Position | Estimated position of the heating valve | R | 0% |
| AV-17 | Cooling Valve Position | Estimated position of the cooling valve | R | 0% |
| 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.<br>0 = counts<br>1 = temperature<br>2 = 4-20mA<br>3 = 0-5V<br>4 = 0-10V<br>5 = pulse | R/W | 1 |
| AV-31 | AI-1 Setup | See AV-30 | R/W | 0 |
| AV-32 | AI-2 Setup | See AV-30 | R/W | 0 |
| AV-33 | AI-3 Setup | See AV-30 | R/W | 0 |

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

8

| AV-34 | AI-4 Setup | See AV-30 | R/W | 0 |
|---|---|---|---|---|
| AV-35 | AI-5 Setup | See AV-30 | R/W | 0 |
| AV-36 | Supply Air Low Limit SP | The lowest Supply Air Temperature allowed before triggering and alarm (BV-21) | R/W | 45˚F |
| AV-37 | Mixed Air Low Limit SP | The lowest Mixed Air Temperature allowed before triggering an alarm (BV-24) | R/W | 40˚F |
| AV-38 | Mixed Air Low SP | If the Mixed Air Temperature falls below this setpoint the Economizer is commanded to minimum position (AV-45) | R/W | 45˚F |
| AV-39 | Off Mode Mixed Air SP | When the supply fan is off, this setpoint maintains a Mixed Air Temperature to prevent freezing.  The heating valve is modulated to maintain this setpoint. | R/W | 55˚F |
| AV-40 | OSA Temperature Economizer Lockout SP | When the Outside Air Temperature is above this setpoint, the Economizer is locked out | R/W | 70˚F |
| AV-41 | Analog Value 041 | | | |
| AV-42 | OSA Temp HW Valve Lockout SP | When the Outside Air Temperature is above this setpoint, heating is locked out | R/W | 65˚F |
| AV-43 | Supply Air Deviation DB | Amount the Supply Air Temperature is allowed to be from SP (+/-) before triggering an alarm (BV-23) | R/W | 10˚F |
| AV-44 | Htg Valve Minimum Position | Minimum position allowed for the Modulating/ PO-PC Heating Valve | R/W | 0% |
| AV-45 | OSA Damper Minimum Position | Minimum position of the Economizer when the Mixed Air Temperature falls below SP (AV-38) | R/W | 10% |
| AV-46 | Make-up Air Position | Minimum position for the Economizer when using BI-5 with a Kitchen Hood | R/W | 10% |
| AV-47 | Supply Air Low SP | The low setpoint for the Supply Air Temperature SP reset schedule | R/W | 55˚F |
| AV-48 | Supply Air High SP | The high setpoint for the Supply Air Temperature SP reset schedule | R/W | 100˚F |
| AV-49 | Cooling Valve Deadband | Maximum percentage difference between the current damper position and the cooling signal before the damper will adjust its position. | R/W | 5% |
| AV-50 | Cooling Valve Motor Time | Amount of time to drive the valve full open/close | R/W | 90 sec |
| AV-51 | Supply Air SP Manual/Startup | The Supply Air Temperature SP when the unit is in Startup or the reset schedule is in Manual (BV-50) | R/W | 75˚F |
| AV-52 | Supply Air SP Warmup | The Supply Air Temperature when the unit is in Warmup Mode | R/W | 85˚F |
| AV-53 | Radiation/Htg Valve Deadband | Maximum percentage difference between the current damper position and the heating signal before the damper will adjust its position. | R/W | 5% |
| AV-54 | Radiation/Htg Valve Motor Time | Amount of time to drive the valve full open/close | R/W | 90 sec |
| AV-55 | Filter Alarm SP | Maximum runtime for the filter before triggering an alarm (BV-25). | R/W | 3000 hrs |
| AV-56 | Filter Runtime | The number of runtime hours on the filter.  Set to zero (0) after changing filter. | R/W | 0 hrs |
| AV -57 | Supply Fan Runtime | The number of runtime hours on the fan. | R/W | 0 hrs |
| AV-58 | Reserved | This point is reserved for internal thermostat use and its value cannot be changed | R | 1.6 |
| AV-59 | Ave Time Base | Factor used to average the room temperature.  A small number will allow the room temperature to | R | 100 |

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

9

| | | | | |
|---|---|---|---|---|
| | | change faster over time. A large number will cause the room temperature to change slower over time. | | |
| 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.<br>0 = Auto Only<br>1 = AUTO - ON<br>2 = Off - AUTO - ON<br>3 = Off-1-2-AUTO<br>4 = Off-1-2-3-AUTO | R/W | 0 |
| AV-63 | Current Fan Speed | The fan speed the thermostat is currently running.<br>0 = OFF<br>1 = Fan Speed 1<br>2 = Fan Speed 2<br>3 = Fan Speed 3<br>4 = AUTO<br>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 | 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 |

ExactLogic

*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

10

| | | | | |
|---|---|---|---|---|
| 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 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 | |

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

11

## Binary Inputs

| Instance | Object Name | Description | Read/Write | Default |
|---|---|---|---|---|
| BI-0 | Binary Input 00 | | R | |
| BI-1 | Motion Input | Status of the Motion Sensor | R | OFF |
| BI-2 | Binary Input 02 | | R | |
| BI-3 | Supply Fan Status | Status of the Supply Fan sensor | R | OFF |
| BI-4 | Binary Input 04 | | R | |
| BI-5 | Kitchen Hood Status | Status of the Kitchen Hood sensor used for make-up air | R | OFF |

## Binary Outputs

| Instance | Object Name | Description | Read/Write | Default |
|---|---|---|---|---|
| BO-0 | Fan | Output for Fan Control | R/W | OFF |
| BO-1 | Cooling DX/Open | Output for Cooling Stage 1 or OPEN command for cooling valve | R/W | OFF |
| BO-2 | Cooling Close | CLOSE command for cooling valve | R/W | OFF |
| BO-3 | Radiation/Htg Open | OPEN command for radiation or heating valve | R/W | OFF |
| BO-4 | Radiation/Htg Close | CLOSE command for radiation or heating valve | 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 | Fan Request - Heat | Fan request due to a heating command | R | OFF |
| BV-7 | Fan Request - Cool | Fan request due to a cooling command | R | OFF |
| BV-8 | Fan Request - DX | Fan request due to DX command | R | OFF |
| 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 | Binary Value 012 | | | |
| BV-13 | Binary Value 013 | | | |
| BV-14 | Supply Fan Status | Current status of the supply fan | R | OFF |
| BV-15 | 5 Minute Startup Delay | This delay commands the Supply Air SP to the Manual/Startup SP (AV-51) for 5 minutes after the supply fan starts | R | OFF |

ExactLogic

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
12

| BV-16 | Binary Value 016 | | | |
|---|---|---|---|---|
| BV-17 | DX Cooling Request | The DX Cooling output has been request to turn ON | R | OFF |
| BV-18 | Cooling Open Request | The Cooling Valve output has been requested to OPEN | R | OFF |
| BV-19 | Binary Value 019 | | | |
| BV-20 | Unit Alarm | An alarm on BV-21 to 35 or BV-28 to 29 has been triggered | R | OFF |
| BV-21 | Low Limit Alarm | The Supply Air Temperature is too low | R | OFF |
| BV-22 | Supply Fan Alarm | The Supply Fan has been commanded on, but has not started | R | OFF |
| BV-23 | Supply Deviation Alarm | The Supply Air Temperature (AI-4) is +/- AV-43 degrees from the current Supply Air SP (AV-3) | R | OFF |
| BV-24 | Low Mixed Air Temp Alarm | The Mixed Air Temperature is too low | R | OFF |
| BV-25 | Filter Alarm | The filter runtime is over the setpoint hours | R | OFF |
| BV-26 | Too Warm Status | Status of the Too Warm Alarm before checking the Space Alarm Delay | R | OFF |
| BV-27 | Too Cool Status | Status of the Too Warm Alarm before checking the Space Alarm Delay | R | OFF |
| BV-28 | 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-29 | 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-30 | Unit Alarm Reset | Reset the status of BV-20 | R/W | OFF |
| BV-31 | Low Limit Alarm Reset | Reset the low Supply Air Temperature alarm status | R/W | OFF |
| BV-32 | Supply Fan Alarm Reset | Reset the Supply Fan alarm status | R/W | OFF |
| BV-33 | Binary Value 033 | | | |
| BV-34 | Binary Value 034 | | | |
| BV-35 | Binary Value 035 | | | |
| BV-36 | Binary Value 036 | | | |
| BV-37 | Economizer Enable | Indicated whether the Economizer has been locked out due to Outside Air Temperate (OFF = Locked Out) | R | ON |
| BV-38 | Heating Enable | Indicated whether heating has been locked out due to Outside Air Temperate (OFF = Locked Out) | R | ON |
| 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 | Warmup Command | A Warmup command has been sent to the thermostat. When ON the thermostat will switch to occupied settings. | R/W | OFF |
| BV-42 | Cooldown Command | 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 |

ExactLogic

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

13

| | | | | |
|---|---|---|---|---|
| BV-44 | After Hours Status | The thermostat has been set to afterhour's 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 | Supply Air Temperature SP Mode | OFF = Manual Setpoint ON = Auto calculated setpoint | R/W | ON |
| BV-51 | Binary Value 051 | | | |
| BV-52 | Radiation Enabled | OFF = BO-3/4 used for Heating Valve sequence ON = BO-3/4 used for Radiation sequence | R/W | OFF |
| BV-53 | Cooling Output Select | OFF = BO-1 used for Cooling Valve sequence ON = BO-1 used for DX sequence | R/W | OFF |
| BV-54 | Binary Value 054 | | | |
| BV-55 | Binary Value 055 | | | |
| 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 | Binary Value 060 | | | |
| BV-61 | Binary Value 061 | | | |
| BV-62 | Binary Value 062 | | | |
| 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 | Disable Unit | When ON this point will disable and lockout all analog and binary outputs. | R/W | OFF |
| BV-67 | Binary Value 067 | | | |
| BV-68 | Backlight Off/On | When ON the LCD backlight will remain on | R/W | OFF |
| BV-69 | Binary Value 069 | | | |
| 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 | Binary Value 074 | | | |
| | | | | |
| | | | | |
| 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 |

ExactLogic

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

14

| 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 |