

# ExactLogic BACnet Communicating Thermostat

## EXL01630 Sequence Datasheet

I/O Module and Display Descriptors



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## Operating Sequence

There is no internal operating sequence for this model. There are two applications that the EXL01630 is designed to work in. First, it can be a display only thermostat, using the Display Descriptors. The directions on setting up the Display Descriptors are explained in the Installation Instructions document. The other application is where the thermostat is controlled by an external BACnet device. The control sequence is run on the external BACnet device and this device reads from any of the thermostats inputs and also commands the thermostats outputs.

### ***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.

### ***Motion/Humidity Option Card***

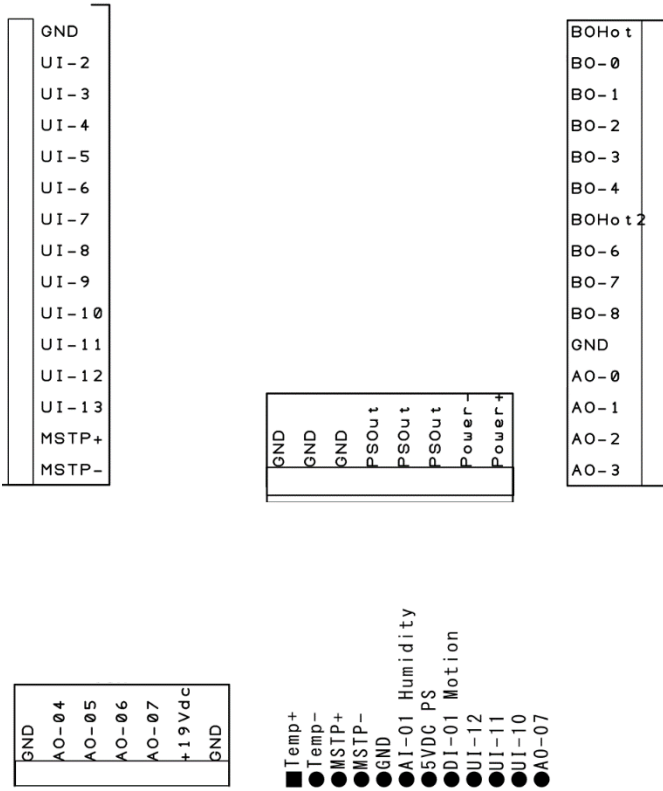
The Motion/Humidity Option Card can be used for Motion Only, Humidity Only, or Motion/Humidity together. In order to use the Motion Sensor (either stand alone or with Humidity), BV-64 must be set to ACTIVE. The Humidity Sensor can be enabled by setting AV-31 to 4. These settings will automatically provide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

# Installation



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

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

## Output Wiring

Output/Label
BO0
BO1
BO2
BO3
BO4
AO0
AO1

## 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	Analog Input 03	Reading of the external input 3 in counts. 0-1024	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	Analog Output 00	0-10V output	R/W	0.0
AO-1	Analog Output 01	0-10V output	R/W	0.0
AO-2	Analog Output 02	Variable 0-14VDC, 150mA output	R/W	0.0

### Analog Values

Instance	Object Name	Description	Read/Write	Default
AV-0	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-1	Analog Value 001			
AV-2	Analog Value 002			
AV-3	Analog Value 003			
AV-4	Analog Value 004			
AV-5	Analog Value 005			
AV-6	Analog Value 006			
AV-7	Analog Value 007			
AV-8	Analog Value 008			

AV-9	Analog Value 009			
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	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	Analog Value 026			
AV-27	Analog Value 027			
AV-28	Analog Value 028			
AV-29	Analog Value 029			
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	Analog Value 036			
AV-37	Analog Value 037			
AV-38	Analog Value 038			
AV-39	Analog Value 039			
AV-40	Analog Value 040			
AV-41	Analog Value 041			
AV-42	Analog Value 042			
AV-43	Analog Value 043			
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	Analog Value 049			
AV-50	Analog Value 050			
AV-51	Analog Value 051			
AV-52	Analog Value 052			
AV-53	Analog Value 053			
AV-54	Analog Value 054			
AV-55	Analog Value 055			
AV-56	Analog Value 056			
AV -57	Analog Value 057			
AV-58	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-59	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	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-61	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-62	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-63	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-64	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-65	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-66	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-67	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-68	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-69	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-70	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-71	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-72	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-73	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
AV-74	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	0
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 after no motion is detected	R/W	900 sec
AV-82	Analog Value 082			
AV-83	Analog Value 083			
AV-84	Analog Value 084			
AV-100	Analog Value 100	<b>Internal thermistor display descriptor.</b> 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	<b>Outside Air Display descriptor.</b> Transfer the value to display to the present value. The AV description holds the descriptor to display	R/W	
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## 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	Binary Input 05		R	

## Binary Outputs

Instance	Object Name	Description	Read/Write	Default
BO-0	Binary Output 00		R/W	OFF
BO-1	Binary Output 00		R/W	OFF
BO-2	Binary Output 00		R/W	OFF
BO-3	Binary Output 00		R/W	OFF
BO-4	Binary Output 00		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	Binary Value 000			
BV-1	Binary Value 001			
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	Binary Value 009			
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	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	Binary Value 019			
BV-20	Binary Value 020			
BV-21	Binary Value 021			
BV-22	Binary Value 022			
BV-23	Binary Value 023			
BV-24	Binary Value 024			
BV-25	Binary Value 025			
BV-26	Binary Value 026			
BV-27	Binary Value 027			
BV-28	Binary Value 028			
BV-29	Binary Value 029			
BV-30	Binary Value 030			
BV-31	Binary Value 031			
BV-32	Binary Value 032			
BV-33	Binary Value 033			
BV-34	Binary Value 034			
BV-35	Binary Value 035			
BV-36	Binary Value 036			
BV-37	Binary Value 037			
BV-38	Binary Value 038			
BV-39	Binary Value 039			
BV-40	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	ON
BV-41	Binary Value 041			
BV-42	Binary Value 042			
BV-43	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	ON
BV-44	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	ON
BV-45	Binary Value 045			
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	Binary Value 051			
BV-52	Binary Value 052			
BV-53	Binary Value 053			
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	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-1 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	Binary Value 069			
BV-70	Reserved	This point is reserved for internal thermostat use and its value cannot be changed	R	ON
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	ON
BV-100	Binary Value 100	<b>Enable internal thermistor descriptor</b>	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	<b>Enable outside air descriptor</b>	R/W	OFF