

Newer BACnet configurations have been changed to make the Status Bits easier to read on a wider variety of BACnet controls. This document is available for HeatNet BACnet bridges that have older (pre v2.40 - 11/24/2009) configurations. The bridge can also be updated in the field (using the RUINET utility and an Ethernet cable). If you wish to upgrade, please contact technical services for an updated configuration and instructions. Note that some of the variable names have changed in the newer configurations so full integration may require updates to your Building Management system if you upgrade your configuration.

Input/Output Variables (Read/Write)

Name	Data Type/Units	Description	Valid Values/Range									
HeatDemand	binary_variable[1] no-units	Heat Demand/Request. Setting the state member of this variable will put the boiler in heating mode.	<table border="1"> <thead> <tr> <th>value</th> <th>state</th> <th>Interpretation</th> </tr> </thead> <tbody> <tr> <td>any</td> <td>0</td> <td>no heat demand</td> </tr> <tr> <td>any</td> <td>1</td> <td>heat demand</td> </tr> </tbody> </table>	value	state	Interpretation	any	0	no heat demand	any	1	heat demand
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any	0	no heat demand										
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SetpointTimer	analog_variable[1] seconds	<p>System Setpoint Timer</p> <p>The system setpoint timer and system setpoint work in tandem to externally control (i.e. a BMS - building management system) the operating setpoint. The setpoint (countdown) timer should be loaded with a timeout value (in seconds) prior to writing the system setpoint. When the timer reaches zero, the control assumes that the BMS is no longer operating and the local setpoint (saved on the control) is reloaded. This is a failsafe feature used to help safeguard the system in case of BMS failure. If the setpoint timer is not written, a default timeout value of 60 seconds is assumed.</p>	0 – 65535 seconds									
Setpoint	analog_variable[2] degrees-Fahrenheit	System Setpoint (see <i>nviSetpointTimer</i>)	40 - 220 °F (4.5 – 104.4 °C)									
OARResetEnable	binary_variable[2] no-units	Enables/Disables outdoor air reset mode.	<table border="1"> <thead> <tr> <th>value</th> <th>state</th> <th>interpretation</th> </tr> </thead> <tbody> <tr> <td>any</td> <td>0</td> <td>disabled</td> </tr> <tr> <td>any</td> <td>1</td> <td>enabled</td> </tr> </tbody> </table>	value	state	interpretation	any	0	disabled	any	1	enabled
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any	1	enabled										
OARSetpoint	analog_variable[3] degrees-Fahrenheit	Outdoor air reset setpoint. Temperature at which boiler shuts down.	40 – 100 °F (4.5 – 37.8 °C)									
OARHighWaterTemp	analog_variable[4] degrees-Fahrenheit	Boiler water temperature setpoint when outdoor air temperature is at the high outdoor air temperature setpoint (<i>nviOARHiAirTemp</i>).	60 – 150 °F (15.6 – 65.6 °C)									

KNSX BACnet Bridge Objects (Legacy)

V2.10

Name	Data Type/Units	Description	Valid Values/Range									
OARHighAirTemp	analog_variable[5] degrees-Fahrenheit	High outdoor air temperature setpoint.	50 – 90 °F (10 – 32.2 °C)									
OARLowWaterTemp	analog_variable[6] degrees-Fahrenheit	Header/Supply temperature setpoint when outdoor air temperature is at the low outdoor air temperature setpoint (nviOARLoAirTemp).	70 – 220 °F (21.1 – 104.4 °C)									
OARLowAirTemp	analog_variable[7] degrees-Fahrenheit	Low outdoor air temperature setpoint.	-35 – 40 °F (-37.2 – 4.4 °C)									
SetMonth	analog_variable[8] months	Set real time clock – month (see nviSetClock)	0 (January) – 11 (December)									
SetDay	analog_variable[9] days	Set real time clock – day (see nviSetClock)	1 – 31									
SetYear	analog_variable[10] years	Set real time clock – year (see nviSetClock)	0 – 99									
SetHour	analog_variable[11] hours	Set real time clock – hour (see nviSetClock)	0 – 23									
SetMinute	analog_variable[12] minutes	Set real time clock – minute (see nviSetClock)	0 – 59									
SetSecond	analog_variable[13] seconds	Set real time clock – second (see nviSetClock)	0 – 59									
SetWeekday	analog_variable[14] no-units	Set real time clock – weekday (see nviSetClock)	1 (Monday) – 7 (Sunday)									
SetClock	binary_variable[3] no-units	<p>Set (write) the real time clock.</p> <p>To write the real time clock, the system variables (nviSetMonth, nviSetMonth, nviSetDay, nviSetYear, nviSetHour, nviSetMinute, nviSetSecond, nviSetWeekday) must first be loaded with the correct date and time. Then, a 1 must be written to the state portion of this system variable to write the new date and time to the system clock.</p>	<table border="1"> <thead> <tr> <th>value</th> <th>state</th> <th>interpretation</th> </tr> </thead> <tbody> <tr> <td>any</td> <td>0</td> <td>---</td> </tr> <tr> <td>any</td> <td>1</td> <td>set the clock</td> </tr> </tbody> </table>	value	state	interpretation	any	0	---	any	1	set the clock
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Input Variables (Read Only)

Name	Data Type/Units	Description	Valid Values/Range
BoilersOn	analog_input[1]	The number of boilers currently running.	0 – 16
Modulation	analog_input[2]	Current system modulation level.	0 – 100 %
HeaderTemp	analog_input[3] degrees-Fahrenheit	Header / System temperature.	32 – 250 °F (0 – 121.1 °C)
SupplyTemp	analog_input[4] degrees-Fahrenheit	Supply temperature.	32 – 250 °F (0 – 121.1 °C)
ReturnTemp	analog_input[5] degrees-Fahrenheit	Return temperature.	32 – 250 °F (0 – 121.1 °C)
OutsideTemp	analog_input[6] degrees-Fahrenheit	Outside air temperature.	-40 – 250 °F (-40 – 121.1 °C)
Spare1	analog_input[7]	Raw A/D value from spare 1 input.	-32768 to 32767
Spare2	analog_input[8]	Raw A/D value from spare 2 input.	-32768 to 32767
Month	analog_input[9] months	Real time clock month.	0 – 11
Day	analog_input[10] days	Real time clock day.	1 – 31
Year	analog_input[11] years	Real time clock year.	0 – 99
Hour	analog_input[12] hours	Real time clock hour.	0 – 23
Minute	analog_input[13] minutes	Real time clock minute.	0 – 59
Second	analog_input[14] seconds	Real time clock second.	0 – 59
Weekday	analog_input[15] no-units	Real time clock weekday.	1 – Monday 7 – Sunday

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Boiler01Status1 ... Boiler16Status1	analog_input[16...31] no-units	Boiler status flags #1 (boilers 1 – 16). These bits indicate the state of the 24VAC interlocks, ignition circuit, and various other conditions. See the values column for a list of conditions.	<p>0 = off, disabled, or not present 1 = on, enabled, or present</p> <table border="1" data-bbox="1396 362 1860 1211"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>0</td><td>Disabled</td></tr> <tr><td>1</td><td>---</td></tr> <tr><td>2</td><td>Alarm</td></tr> <tr><td>3</td><td>Failed</td></tr> <tr><td>4</td><td>Member Error</td></tr> <tr><td>5</td><td>Boiler Running</td></tr> <tr><td>6</td><td>Pump Running</td></tr> <tr><td>7</td><td>System Flow (Spare 3) Interlock</td></tr> <tr><td>8</td><td>LWCO Interlock</td></tr> <tr><td>9</td><td>VFD Interlock</td></tr> <tr><td>10</td><td>Gas Prove</td></tr> <tr><td>11</td><td>Spare 4</td></tr> <tr><td>12</td><td>Operator Interlock</td></tr> <tr><td>13</td><td>Water Prove (Flow) Interlock</td></tr> <tr><td>14</td><td>Air Prove UV Sensor Interlock</td></tr> <tr><td>15</td><td>Main Valve</td></tr> <tr><td>16</td><td>Pilot Valve</td></tr> <tr><td>17</td><td>Blower</td></tr> <tr><td>18</td><td>Ignition Alarm</td></tr> <tr><td>19</td><td>Valve Alarm</td></tr> <tr><td>20</td><td>High Limit</td></tr> <tr><td>21</td><td>Air Prove Switch</td></tr> <tr><td>22</td><td>---</td></tr> <tr><td>23</td><td>Software Operator</td></tr> <tr><td>24</td><td>Header Sensor not Present</td></tr> <tr><td>25</td><td>Supply Sensor not Present</td></tr> <tr><td>26</td><td>Return Sensor not Present</td></tr> <tr><td>27</td><td>Outside Sensor not Present</td></tr> <tr><td>28</td><td>System Pump</td></tr> <tr><td>29</td><td>Combustion Air Damper</td></tr> <tr><td>30</td><td>Master Boiler</td></tr> <tr><td>31</td><td>Present (Boiler Detected)</td></tr> </tbody> </table>	Bit	Description	0	Disabled	1	---	2	Alarm	3	Failed	4	Member Error	5	Boiler Running	6	Pump Running	7	System Flow (Spare 3) Interlock	8	LWCO Interlock	9	VFD Interlock	10	Gas Prove	11	Spare 4	12	Operator Interlock	13	Water Prove (Flow) Interlock	14	Air Prove UV Sensor Interlock	15	Main Valve	16	Pilot Valve	17	Blower	18	Ignition Alarm	19	Valve Alarm	20	High Limit	21	Air Prove Switch	22	---	23	Software Operator	24	Header Sensor not Present	25	Supply Sensor not Present	26	Return Sensor not Present	27	Outside Sensor not Present	28	System Pump	29	Combustion Air Damper	30	Master Boiler	31	Present (Boiler Detected)
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Boiler01Status2 ... Boiler16Status2	analog_input[32...47] no-units	Boiler stage control input flags. These bits indicate the state of the stage control inputs. See the values column for a list of conditions.	0 = off or not present 1 = on or present <table border="1"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>AA High Fire</td> </tr> <tr> <td>1</td> <td>Heat Demand (Local Override)</td> </tr> <tr> <td>2</td> <td>4-20ma Remote Enable</td> </tr> <tr> <td>3</td> <td>Outdoor Air Reset Override</td> </tr> <tr> <td>4</td> <td>T1</td> </tr> <tr> <td>5</td> <td>T2</td> </tr> <tr> <td>6</td> <td>T3</td> </tr> <tr> <td>7</td> <td>T4</td> </tr> <tr> <td>8 - 15</td> <td>---</td> </tr> </tbody> </table>	Bit	Description	0	AA High Fire	1	Heat Demand (Local Override)	2	4-20ma Remote Enable	3	Outdoor Air Reset Override	4	T1	5	T2	6	T3	7	T4	8 - 15	---
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Boiler01Runtime ... Boiler16Runtime	analog_input[48...63] minutes	The total number of minutes that the boiler has been running (with the current control board).	0 – 35791394 minutes																				
Boiler01Cycles ... Boiler16Cycles	analog_input[64...79] no-units	The total number of boiler cycles (with the current control board).	0 – 2147483647 cycles																				
--- The following are supported bridge configuration versions 2.40 and greater ---																							
Boiler01_SupplyTemp ... Boiler16_SupplyTemp	analog_input[80...95] degrees-Fahrenheit	The boiler supply (outlet) temperature.	32 – 250 °F (0 – 121.1 °C)																				
Boiler01_ReturnTemp ... Boiler16_ReturnTemp	analog_input[96...111] degrees-Fahrenheit	The boiler return (inlet) temperature.	32 – 250 °F (0 – 121.1 °C)																				