

The following variables are available on BACnet Bridges with configuration versions 2.40 and above.

Some objects reference “boiler_number” when calculating the object id. The following substitutions should be used:

- Master = 1
- Member 2 = 2
- Member 3 = 3
- ...
- Member 16 = 16

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
value	state	Interpretation										
any	0	no heat demand										
any	1	heat demand										
SetpointTimer	analog_variable 1 seconds	<p>System Setpoint Timer</p> <p>The system setpoint timer is a BMS failsafe feature. This countdown timer should be periodically reloaded with a timeout value (in seconds). If 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.</p> <p>When any (1) Read/Write variable is timer is written, if the SetpointTimer is less than 60, it is automatically reloaded with 60.</p> <p>(1) In control firmware versions < 2.70, the BMS has to write the SystemSetpoint to automatically reload the SetpointTimer.</p>	0 – 65535 seconds									
Setpoint	analog_variable 2 degrees-Fahrenheit	System Setpoint (see <i>SetpointTimer</i>)	40 - 220 °F (4.5 – 104.4 °C)									

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Name	Data Type/Units	Description	Valid Values/Range									
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
value	state	interpretation										
any	0	disabled										
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 (OARHiAirTemp).	60 – 190 °F (15.6 – 87.8 °C)									
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 (OARLoAirTemp).	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 (<i>see SetClock</i>)	0 (January) – 11 (December)									
SetDay	analog_variable 9 days	Set real time clock – day (<i>see SetClock</i>)	1 – 31									
SetYear	analog_variable 10 years	Set real time clock – year (<i>see SetClock</i>)	0 – 99									

Name	Data Type/Units	Description	Valid Values/Range									
SetHour	analog_variable 11 hours	Set real time clock – hour (<i>see SetClock</i>)	0 – 23									
SetMinute	analog_variable 12 minutes	Set real time clock – minute (<i>see SetClock</i>)	0 – 59									
SetSecond	analog_variable 13 seconds	Set real time clock – second (<i>see SetClock</i>)	0 – 59									
SetWeekday	analog_variable 14 no-units	Set real time clock – weekday (<i>see SetClock</i>)	1 (Monday) – 7 (Sunday)									
SetClock	binary_variable 3 no-units	Set (write) the real time clock. To write the real time clock, the system variables (SetMonth, SetMonth, SetDay, SetYear, SetHour, SetMinute, SetSecond, SetWeekday) 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.	<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
value	state	interpretation										
any	0	---										
any	1	set the clock										
--- The following are supported bridge configuration versions 2.50 and greater --- (HeatNet control firmware version 2.70 or greater required)												
DHWSetpoint	analog_variable 15 degrees-Fahrenheit	DHW Setpoint	40 – 200 °F (4.4 – 93.3 °C)									

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 (target) modulation level. This is the modulation level that the system is trying to run at to meet the heating demand.	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

Name	Data Type/Units	Description	Valid Values/Range
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
DHWTemp	analog_input 16 degrees-Fahrenheit	DHW Temperature.	32 – 250 °F (0 – 121.1 °C)
Boiler01_Runtime ... Boiler16_Runtime	analog_input 48...63 minutes	The total number of minutes that the boiler has been running (with the current control board).	0 – 35791394 minutes
Boiler01_Cycles ... Boiler16_Cycles	analog_input 64...79 no-units	The total number of boiler cycles (with the current control board).	0 – 2147483647 cycles

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Name	Data Type/Units	Description	Valid Values/Range
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)
Boiler##_Disabled	binary_variable 1000 + ((boiler_number - 1) * 32)	Boiler is disabled. For instance, when minimum off time has not been met.	0 = enabled, 1 = disabled
Boiler##_LocalOverride	binary_variable 1001 + ((boiler_number - 1) * 32)	Local Override (member boilers only)	0 = no override, 1 = override
Boiler##_Alarm	binary_variable 1002 + ((boiler_number - 1) * 32)	Boiler Alarm	0 = ok, 1 = alarm
Boiler##_Failed	binary_variable 1003 + ((boiler_number - 1) * 32)	Boiler Failed	0 =ok, 1 = failed
Boiler##_MemberError	binary_variable 1004 + ((boiler_number - 1) * 32)	Member Alarm or Failed	0 =ok, 1 = error
Boiler##_Running	binary_variable 1005 + ((boiler_number - 1) * 32)	Boiler is running/firing.	0 =off, 1 = running (firing)
Boiler##_PumpOn	binary_variable 1006 + ((boiler_number - 1) * 32)	Local pump is on/running.	0 = off, 1 = on (running)
Boiler##_Spare4Interlock	binary_variable 1011 + ((boiler_number - 1) * 32)	Spare 4 (application defined) Interlock.	0 = open, 1 = closed
Boiler##_FlowInterlock	binary_variable 1013 + ((boiler_number - 1) * 32)	Local Flow Interlock.	0 = open, 1 = closed
Boiler##_MainValve	binary_variable 1015 + ((boiler_number - 1) * 32)	Main Valve.	0 = closed, 1 = open
Boiler##_BlowerOn	binary_variable 1017 + ((boiler_number - 1) * 32)	Blower is on/running.	0 = off, 1 = on (running)
Boiler##_IgnitionAlarm	binary_variable 1018 + ((boiler_number - 1) * 32)	Ignition Circuit Alarm.	0 = ok, 1 = alarm

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Name	Data Type/Units	Description	Valid Values/Range
Boiler##_HighLimit	binary_variable 1020 + ((boiler_number - 1) * 32)	High Limit.	0 = ok, 1 = tripped
Boiler##_SoftwareOperator	binary_variable 1023 + ((boiler_number - 1) * 32)	Software Operator Tripped.	0 = not tripped, 1 = tripped
Boiler##_HeaderSensorNA	binary_variable 1024 + ((boiler_number - 1) * 32)	Header Sensor not available (detected).	0 = detected, 1 = not available
Boiler##_SupplySensorNA	binary_variable 1025 + ((boiler_number - 1) * 32)	Supply/Outlet Sensor not available (detected).	0 = detected, 1 = not available
Boiler##_ReturnSensorNA	binary_variable 1026 + ((boiler_number - 1) * 32)	Return/Inlet Sensor not available (detected).	0 = detected, 1 = not available
Boiler##_OutsideSensorNA	binary_variable 1027 + ((boiler_number - 1) * 32)	Header Sensor not available (detected).	0 = detected, 1 = not available
Boiler##_DamperProve1	binary_variable 1029 + ((boiler_number - 1) * 32)	Combustion Air Damper Prove (J10B). Obsolete – available only on revision 1.x controls.	0 = not proven, 1 = proven
Boiler##_Master	binary_variable 1030 + ((boiler_number - 1) * 32)	This is the Master Boiler.	0 = member, 1 = master
Boiler##_Detected	binary_variable 1031 + ((boiler_number - 1) * 32)	Boiler ## is detected (present).	0 = not detected, 1 = detected
Boiler##_AAHighFire	binary_variable 2000 + ((boiler_number - 1) * 16)	AA/High Fire Input.	0 = open, 1 = closed
Boiler##_HeatDemand	binary_variable 2001 + ((boiler_number - 1) * 16)	Heat Demand (Local Override) Input.	0 = open, 1 = closed
Boiler##_4to20Remote	binary_variable 2002 + ((boiler_number - 1) * 16)	4 to 20ma Remote Input.	0 = open, 1 = closed
--- The following are supported bridge configuration versions 2.50 and greater --- (HeatNet control firmware version 3.48 or greater required)			
Boiler01_DHWTemp ... Boiler16_DHWTemp	analog_input 112...127 degrees-Fahrenheit	The boiler DHW sensor temperature.	32 – 250 °F (0 – 121.1 °C)
Boiler01_Modulation ... Boiler16_Modulation	analog_input 128...143 percent	The boiler modulation percent. Does not work in AA/High Fire, T1, or T2 modes.	0 – 100 %

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Name	Data Type/Units	Description	Valid Values/Range
OperatingSetpoint	analog_input 144 degrees-Fahrenheit	This is the current operating or active setpoint. It may be: 1) The normal heating setpoint. 2) The DHW setpoint if running in DHW mode. 3) A calculated setpoint if running in Outdoor Air Reset Mode 4) The 4-20ma (0-10V) setpoint.	40 - 220 °F (4.5 – 104.4 °C)
Boiler##_DHWSensorEnabled	binary_variable 3000 + ((boiler_number - 1) * 16)	DHW Sensor has been enabled in the menus.	0 = disabled, 1=enabled
Boiler##_DamperProve2	binary_variable 3001 + ((boiler_number - 1) * 16)	Combustion Air Damper Prove	0 = not proven, 1 = proven
Boiler##_BlowerFault	binary_variable 3003 + ((boiler_number - 1) * 16)	Blower fault.	0 = ok, 1 = fault
Boiler##_BlockedInlet	binary_variable 3004 + ((boiler_number - 1) * 16)	Blocked Inlet	0 = = blocked, 1 = ok
Boiler##_BlockedFlue	binary_variable 3005 + ((boiler_number - 1) * 16)	Blocked Flue	0 = blocked, 1 = ok
Boiler##_DHWInput	binary_variable 3006 + ((boiler_number - 1) * 16)	DHW Input	---
Boiler##_LowFireInput	binary_variable 3007 + ((boiler_number - 1) * 16)	Low Fire Input	---
Boiler##_DHWFault	binary_variable 3008 + ((boiler_number - 1) * 16)	DHW Fault	0 = ok, 1 = fault
Boiler##_DHWSensorNA	binary_variable 3009 + ((boiler_number - 1) * 16)	DHW Sensor is not available (detected).	0 = detected, 1 = not available
Boiler##_OpLimitClamp	binary_variable 3011 + ((boiler_number - 1) * 16)	Boiler input is limited (clamped) due to high supply (outlet) temperature.	0 = not clamped, 1 = clamped