Quick Start Guide

Autani - BACnet Interface Configuration

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1. Introduction

The Autani BACnet interface allows a Building Automation System (BAS) using the BACnet protocol to control and monitor selected devices connected to an Autani Manager/CORE. Each device is exposed to BACnet as a series of objects. For example, three objects – Lighting, Mode, and Off Delay – might be provided for a light attached to an Autani room controller. Thus, a customer now has the flexibility to install one or more Autani systems alongside other third-party control systems and manage all the equipment from a single, centralized interface.

This document describes how to configure an Autani Manager/CORE appliance to interface with a BACnet system.

- ❑ These instructions require a version 2.2.5 or later of Autani EnergyCenter® (or equivalent product).
- ❑ Autani provides a BACnet/IP service that runs on UDP port 47808. Any BACnet system that will interface with the Manager must be able to communicate with the Manager using this network port.
- ❑ Commissioning activities must be performed using the Autani Manager/CORE, and historical data is retained on the Manager.
- ❑ To perform device scheduling using BACnet, the corresponding schedule must be disabled on the Autani Manager/CORE.

2. Licensing

A license must be installed before an Autani Manager/CORE can use the BACnet interface. The license must be purchased from Autani (or an approved Vendor) and will be provided as a .lic file. This license may be added to an appliance on the Help | Licensing page by clicking the Add a License button as shown below:

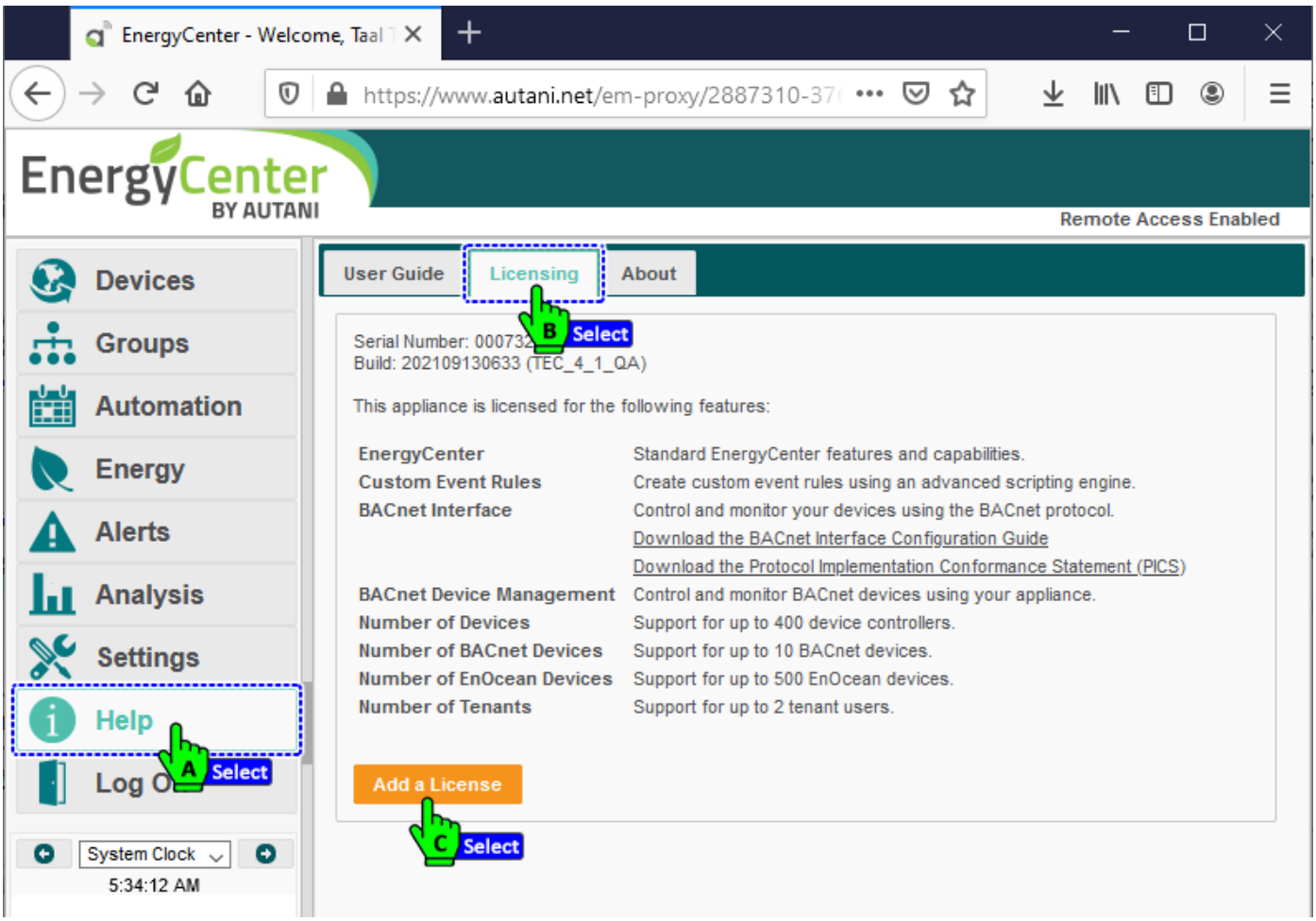

Figure 1: Autani Manager/CORE – Help | Licensing – Add a License

After clicking Add a License, the following dialog opens. Select your license file and click Upload to add your license to the appliance:

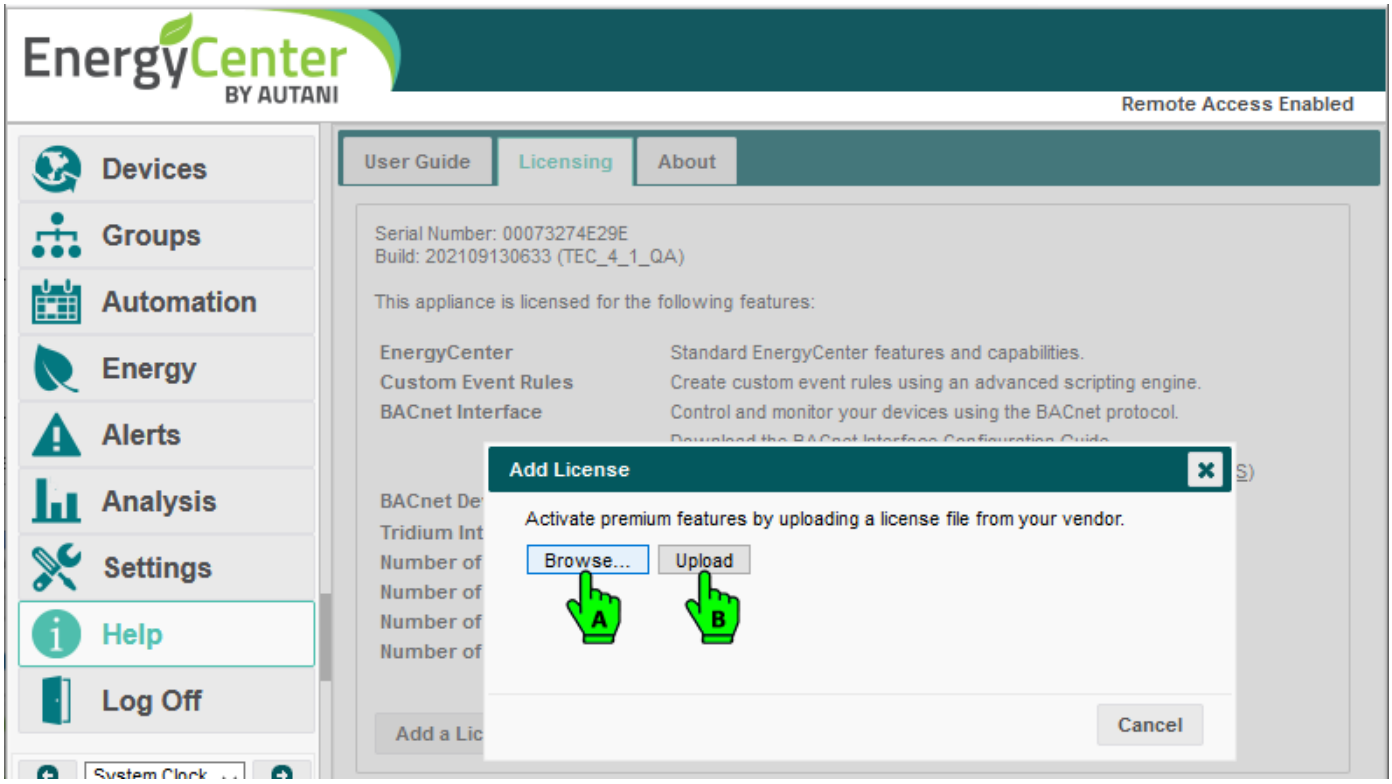

Figure 2: Autani Manager/CORE – Help | Licensing – Upload License File

After the license is added, you can click Done to refresh the browser page and verify the license has been installed successfully:

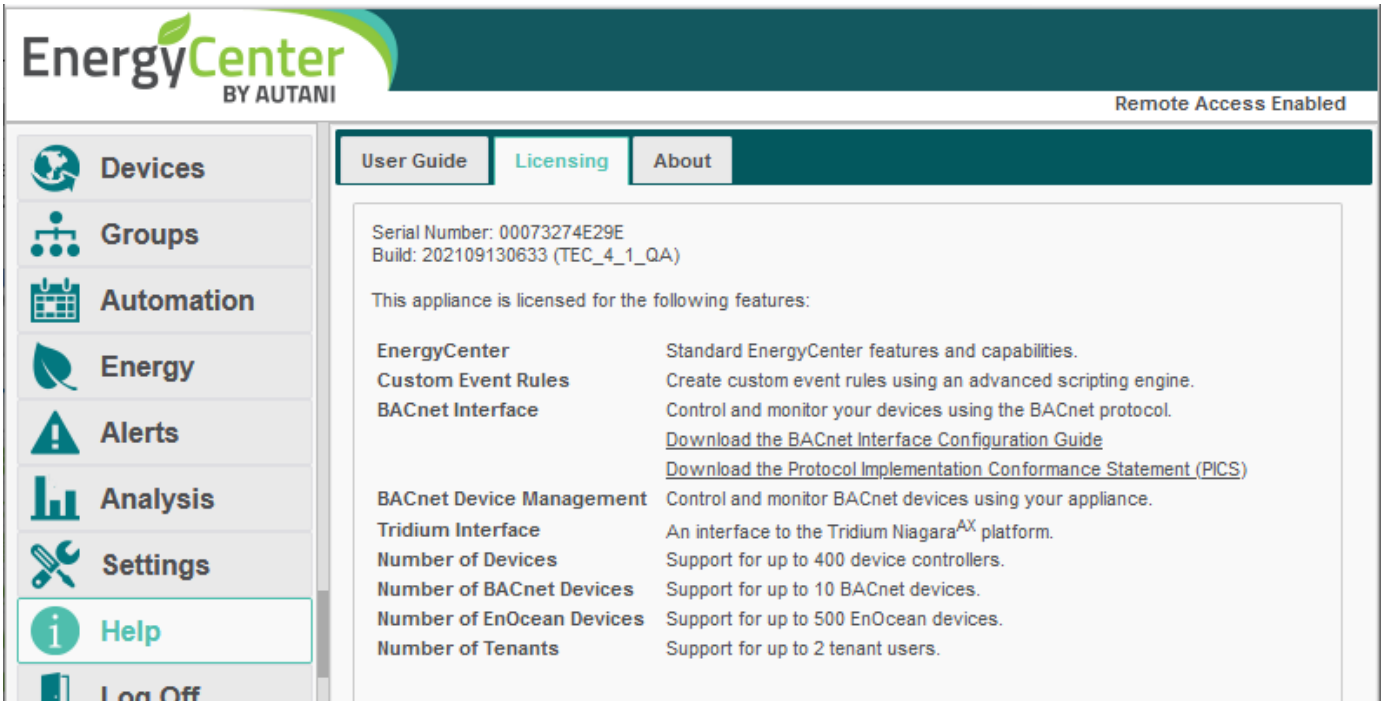

Figure 3: Autani Manager/CORE – Help | Licensing – Review Licenses

Now that a license has been added, the Autani Manager/CORE's feature list contains the BACnet Interface. There is also a link to download the Protocol Implementation Conformance Statement (PICS) which contains additional information about the types of supported objects.

3. BACnet Interface

Once an Autani Manager/CORE has been licensed, the BACnet interface must be enabled to allow the appliance to communicate with another BACnet system.

- ❑ Depending upon how your BACnet system(s) are configured to communicate with other BACnet systems, it may be necessary to set the Manager to a static IP address.

The first step is to open the Settings | Device Setup page and click on the Network Settings button, as shown below:

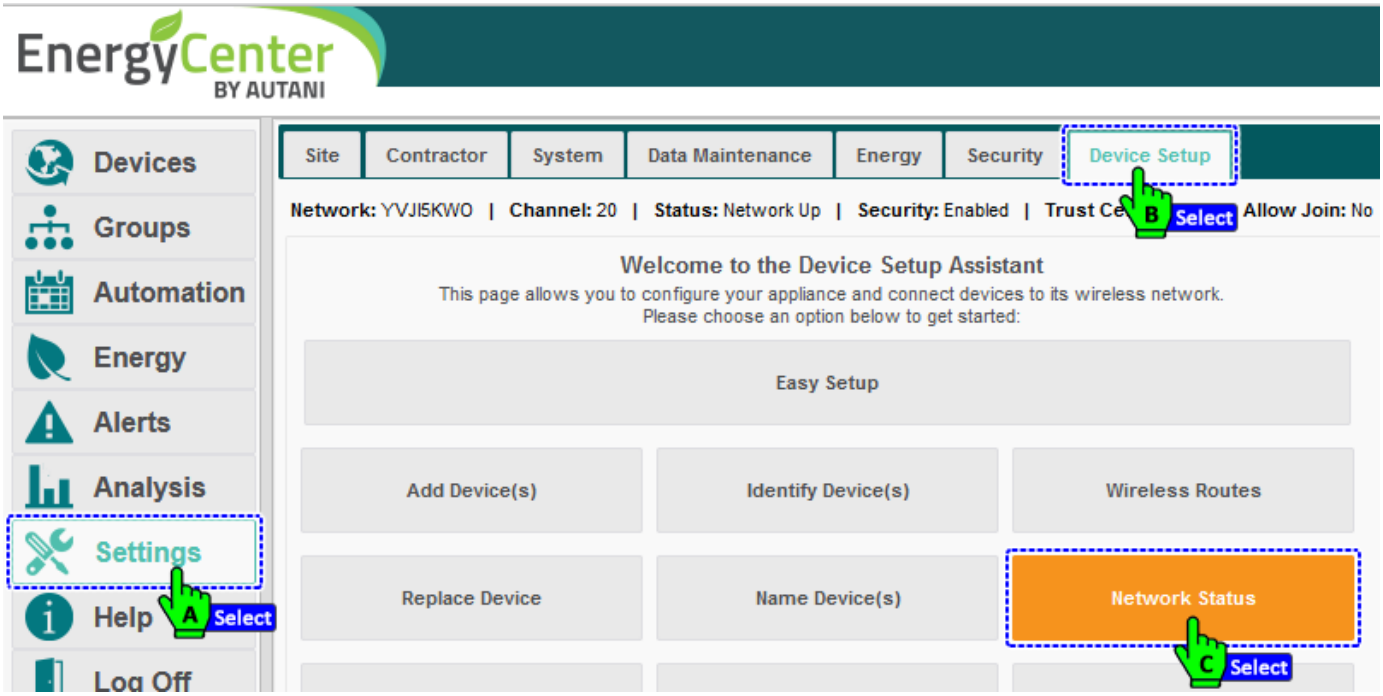

Figure 4: Autani Manager/CORE – Settings | Device Setup

If your machine is licensed for BACnet, there will be a BACnet Interface Enabled checkbox at the top of this page, and a field to configure the BACnet Device Object Identifier for this Manager:

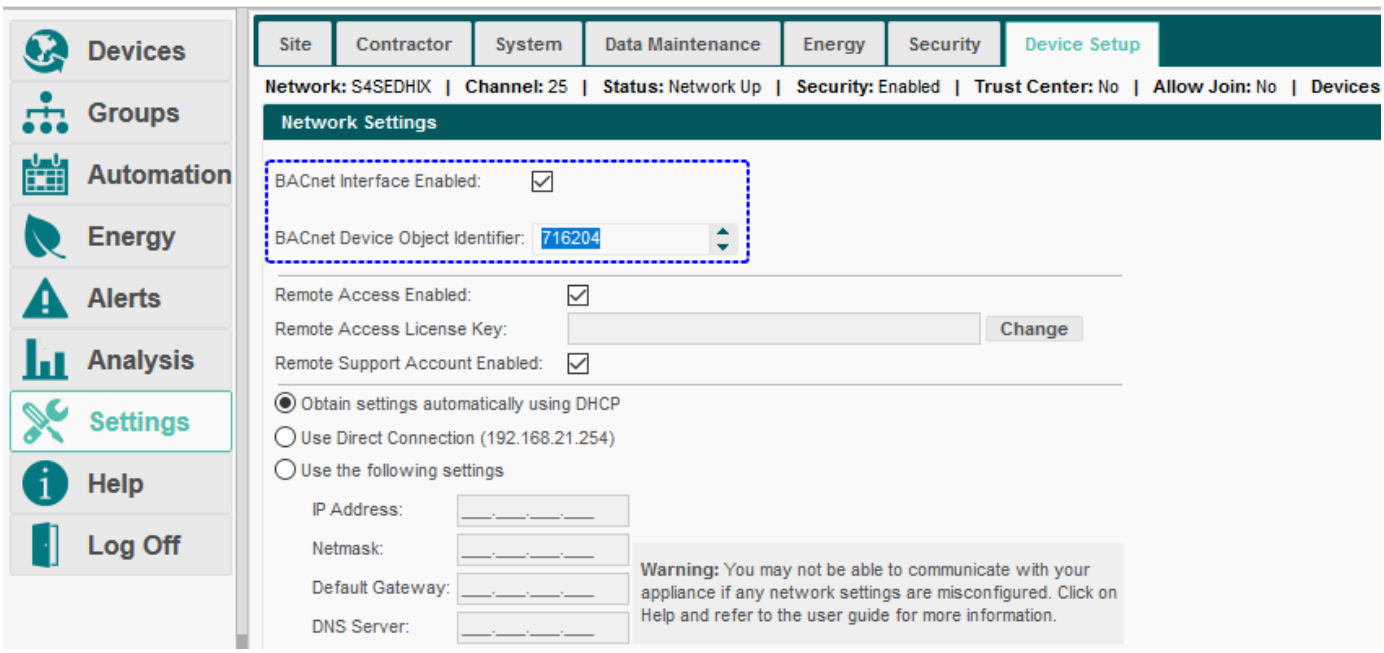

Figure 5: Autani Manager/CORE – Network Settings

The checkbox will only be checked if the interface is enabled. Check the box and click the Save button to start the BACnet Interface:

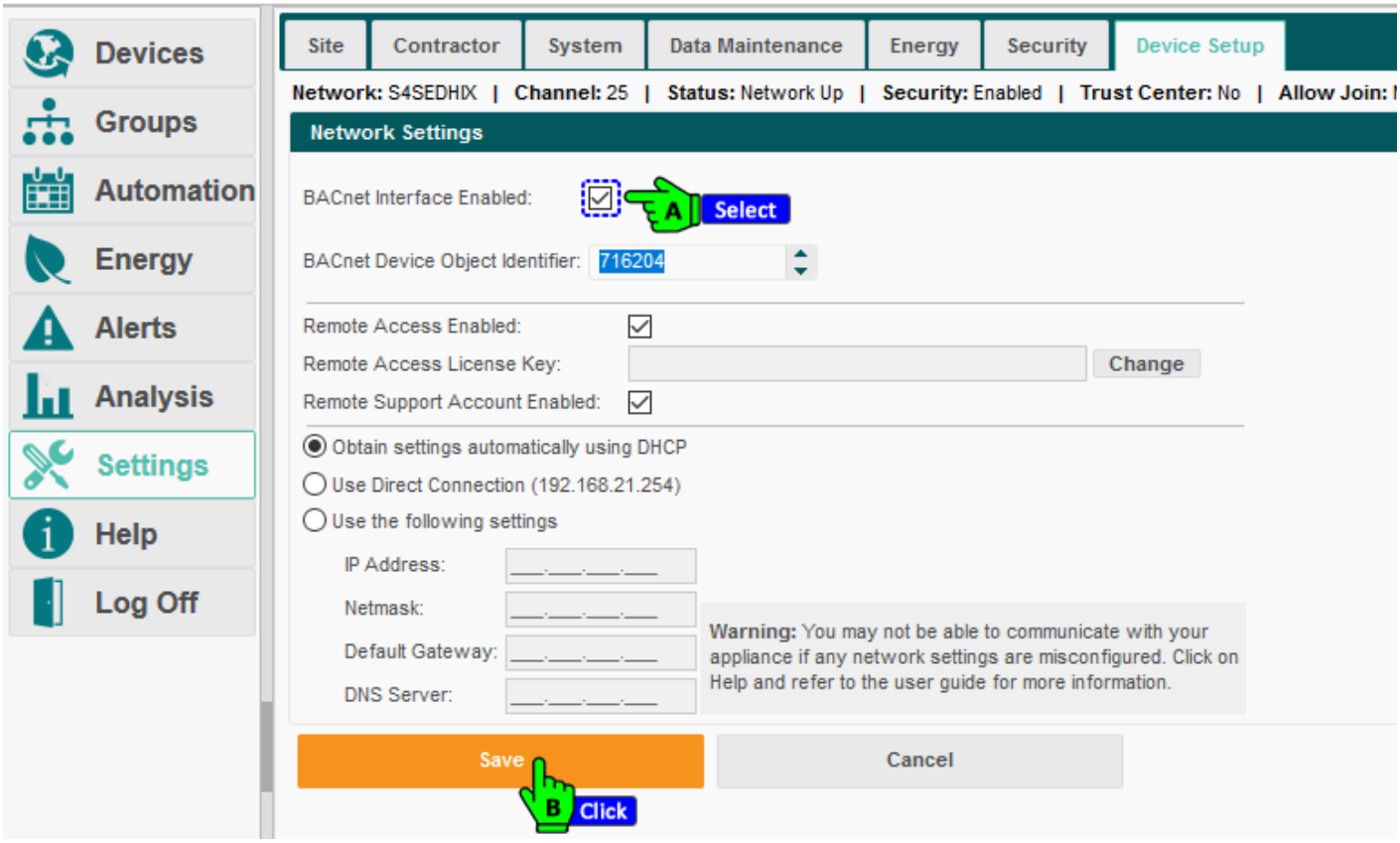

Figure 6: Autani Manager/CORE – Network Settings – Enable BACnet Interface

You are now ready to connect to this Autani Manager/CORE appliance from a BACnet system.

This concludes the Autani setup instructions. Consult your BAS documentation for further information.

4. Control Points

4.1. Object Mapping

BACnet objects are exported by an Autani Manager/CORE for each connected device using mappings in the table below.

Note that Input objects are read only and cannot be controlled via BACnet. Value and Output objects are writeable and may be controlled via BACnet.

The instance ID of each BACnet object is computed using the ID's listed below and a unique ID assigned internally by the Manager to each Autani device during commissioning. For example, the object instance ID for a thermostat's occupied cool setpoint would be generated as follows: 2200 (Unique ID for this thermostat) + 3 (ID in table below) = Analog Value 2203.

Device Type	ID	BACnet Object	Description	Units	Notes
Analog Output Controller	3	Analog Output	State	Percent	
Contact Sensor	0	Binary Input	State	-	
Fan	7	Analog Value	Speed	Percent	1
Lighting (Dimmable)	6	Analog Value	Off Delay	Minutes	
Lighting (Dimmable)	7	Analog Value	Dim Level	Percent	
Lighting (Dimmable)	0	Binary Input	Lighting (On/Off)	-	
Lighting (Dimmable)	4	Multi-State Value	Mode	-	2
Lighting (On/Off)	6	Analog Value	Off Delay	Minutes	
Lighting (On/Off)	0	Binary Input	Lighting (On/Off)	-	
Lighting (On/Off)	4	Multi-State Value	Mode	-	2
Load Controller	6	Analog Value	Off Delay	Minutes	
Load Controller	0	Binary Input	Load State (On/Off)	-	
Load Controller	4	Multi-State Value	Mode	-	
Meter	6	Usage	Usage	kWh	3
Occupancy Sensor	3	Multi-State Input	Occupancy	-	
Parts Per Million Sensor	11	Analog Input	Parts Per Million	PPM	
Plug	6	Analog Input	Usage	kWh	
Plug	6	Analog Value	Off Delay	Minutes	
Plug	0	Binary Input	Plug State (On/Off)	-	
Plug	4	Multi-State Value	Mode	-	
Pressure Sensor	5	Analog Input	Pressure	Inch WC	
Relative Humidity Sensor	4	Analog Input	Relative Humidity	Percent	
Temperature Sensor	0	Analog Input	Temperature	Degrees	4
Thermostat	0	Analog Input	Space Temperature	Degrees	4
Thermostat	0	Analog Value	Heat Setpoint	Degrees	4
Thermostat	1	Analog Value	Cool Setpoint	Degrees	4
Thermostat	2	Analog Value	Occupied Heat Setpoint	Degrees	4
Thermostat	3	Analog Value	Occupied Cool Setpoint	Degrees	4
Thermostat	4	Analog Value	Unoccupied Heat Setpoint	Degrees	4
Thermostat	5	Analog Value	Unoccupied Cool Setpoint	Degrees	4

Device Type	ID	BACnet Object	Description	Units	Notes
Thermostat	0	Character String Value	HVAC Status	-	
Thermostat	4	Multi-State Input	HVAC Type	-	
Thermostat	5	Multi-State Input	Vendor	-	5
Thermostat	6	Multi-State Input	HVAC Relays	-	5
Thermostat	0	Multi-State Value	Fan	-	
Thermostat	1	Multi-State Value	Mode	-	
Thermostat	2	Multi-State Value	Keypad Lockout	-	
Thermostat	3	Multi-State Value	Occupancy	-	
Variable-Frequency Drive	6	Analog Input	Usage	kWh	
Variable-Frequency Drive	7	Analog Input	Speed	RPM	
Variable-Frequency Drive	8	Analog Input	Frequency	Hz	
Zone Control Thermostat	0	Analog Input	Space Temperature	Degrees	4
Zone Control Thermostat	1	Analog Input	Duct Temperature	Degrees	4
Zone Control Thermostat	2	Analog Input	Damper Position	Percent	
Zone Control Thermostat	0	Analog Value	Heat/Cool Setpoint	Degrees	4
Zone Control Thermostat	0	Character String Value	HVAC Status	-	
Zone Control Thermostat	4	Multi-State Input	HVAC Type	-	
Zone Control Thermostat	5	Multi-State Input	Vendor	-	5
Zone Control Thermostat	6	Multi-State Input	HVAC Relays	-	5
Zone Control Thermostat	1	Multi-State Value	Mode	-	

1. Fans may be reversed by using a negative speed. EG: -100% for reverse at full speed.
2. In addition to the lighting modes provided by the Manager's web interface, the BACnet interface also provides Smart Off. This mode turns the lights off immediately but allows the controller's motion sensor to turn the lights back on when motion is detected.
3. Units will be kWh for electric/gas meters, and US gallons for water meters.
4. Units will be degrees Fahrenheit or Celsius depending upon system configuration.
5. Proprietary object not intended for general-purpose use.

4.2. Device Object

The device object provides the following properties:

BACnet Object	BACnet Property	Access Type	Notes
Device	Object Identifier	R/W	
Device	Object Name	R	
Device	Object Type	R	
Device	System Status	R/W	1
Device	Vendor Name	R	
Device	Vendor Identifier	R/W	1
Device	Model Name	R	
Device	Firmware Revision	R	
Device	Application Software Version	R	
Device	Protocol Version	R	
Device	Protocol Revision	R	
Device	Protocol Services Supported	R	
Device	Protocol Object Types Supported	R	
Device	Object List	R	
Device	Max APDU Length Accepted	R	
Device	Segmentation Supported	R	
Device	APDU Timeout	R/W	1
Device	Number of APDU Retries	R/W	1
Device	Device Address Binding	R	
Device	Database Revision	R	
Device	Description	R	
Device	Local Time	R	
Device	UTC Offset	R	
Device	Local Date	R	
Device	Daylight Savings Status	R	
Device	Location	R	

1. Any changes to this property will be reverted when the Manager is restarted.

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