nLight®
BMS Integraion Guide

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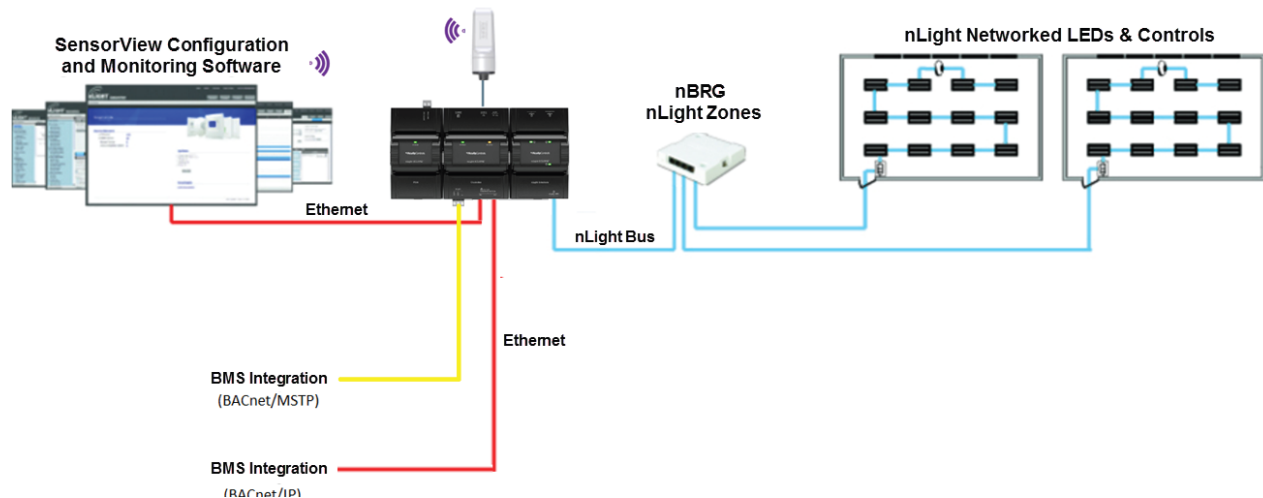# BMS Integration with the nLight Lighting Solution

This guide is intended to aid in integrating an nLight lighting installation with a Building Management System (BMS). Best practices for naming conventions and site organization will be outlined to facilitate BMS integration.

nLight System Overview

Installing SensorView

SensorView software is required to set up, commission, and program an nLight system. The SensorView application installer is downloaded from the Acuity Brands website.
For more information on installation and usage, please refer to the SensorView Software Guides also available on the Acuity Brands website.

nLight Device Labeling Best Practice

Proper labeling of your nLight devices is a key factor for a smooth and coherent integration with a Building Management System. This section provides a recommended device naming practice when using the SensorView application.

Many common BMS monitoring platforms do not interpret labels that have spaces between words, labels that begin with a number, or sometimes even special characters (underscore '_' is the only acceptable special character). If spaces or special characters are used, or if labels begin with a number, the BACnet point label will be affected. To avoid possible issues with third-party BMS monitoring platforms during a BMS integration, a few labeling guidelines must always be followed such as:

- Never use spaces to separate words in a label, always use underscores.
- Never use any special characters other than an underscore.
- Never start a label with a number, always start with a letter.

Helpful Guidelines

Organization of your devices within each room or area is very important to facilitate integration. Here are some tips to aid your set-up.

- Whenever possible, use a building floor plan as a visual aid.
- Labeling should always be consistent throughout the project.
- Use a common point of reference such as beginning with devices closest to the door, or if there are multiple doors begin with devices on the southern wall or door first.
- Identifying fixtures based on the point of reference in the space (e.g. windows, white board, screen, etc.) is also helpful.

NOTE

The maximum length for any device label is 20 alphanumeric characters.

nLight ECLYPSE Labeling

Labels saved to the device appear in the following locations
- nLight ECLYPSE BACnet objects
- ENVYSION
- SensorView
- nLight Explorer

Recommended labeling based on building/floor and device location
- {building name or floor number(s)}_nECY
- If multiple nECY's per floor, label FIL_1A, Flr_1B etc
- Example
  - Flr_1_nECY, Flr_2_nECY
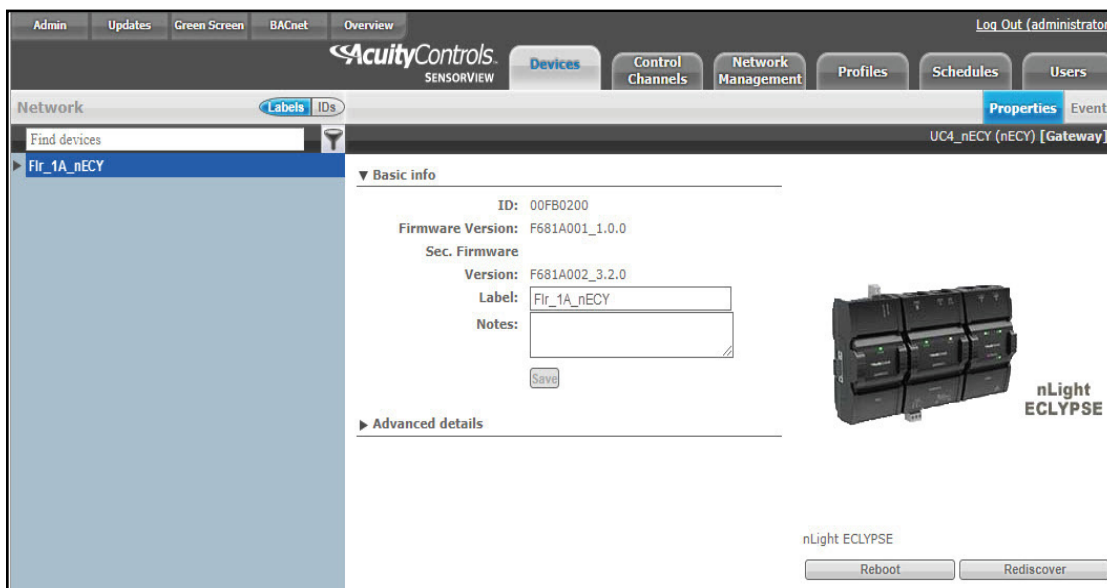 - Flr_1A_nECY, Flr_1B_nECY

Figure 1: nLight ECLYPSE labeling with SensorView

Bridge Labeling

Labels saved to the device appear in the folowing locations
- SensorView
- nLight Explorer

Recommended labeling based on building/floor and device location
- {bridge location}_nBRG
- Example
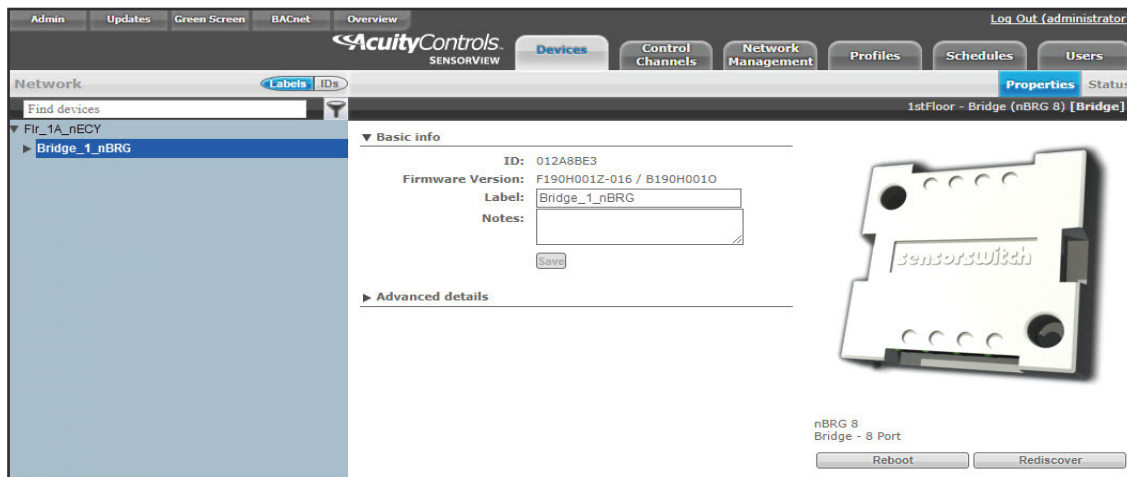 - Class1_Bridge_nBRG, Class2_Bridge_nBRG
  - Bridge_1_nBRG, Bridge_2_nBRG

Figure 2: Bridge labeling with SensorView

Port Labeling

Labels saved to the device appear in the folowing locations
- SensorView (with original database only)
- Space Utilization Edge Application

Recommended labeling based on the room being controlled
- Example
  - **Port 1**: "Office_301"
  - **Port 2**: "Office_302"
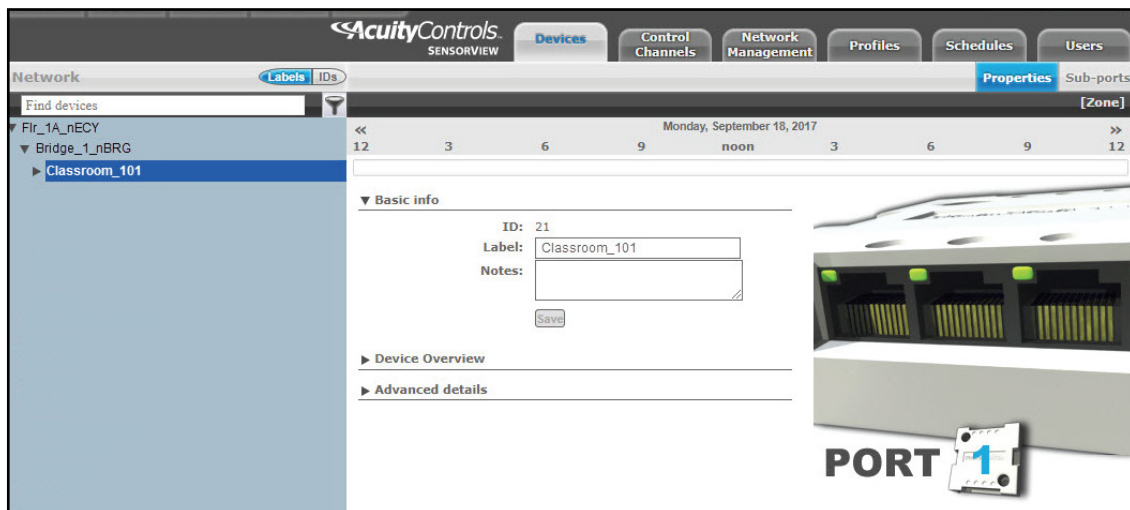 - **Port 3**: "Classroom_101

Figure 3: Port labeling with SensorView

Individual Device Labeling

Labels saved to the device appear in multiple locations
- SensorView (does not require site database)
- nConfig
- nLight Explorer
- nLight ECLYPSE BACnet Objects
- ENVYSION

Recommended labeling based on multiple criteria
- Room name
- Device type
- Load being controlled
- Location (e.g. multiple sensors, NEF)
- Examples
  - **Power Pack (model nPP16 D):** "Rm_101_Lights", "Rm_101_PP", (If multiple) "Rm_101_Can Lights", (If multiple) "Rm_101_Cove Lights"
  - **Plug Load Controller (model nPP20 PL):** "Rm_101_PL"
  - **Ceiling Mount Occupancy Sensor (model nCM PDT 9):** "Room_101_OS"
  - **Common Areas/Rooms with Multiple Occ Sensors:** "Rm_101_OS_1", "Rm_101_OS_2"
  - **Ceiling Mount Photosensor (model nCM ADCX):** "Room_101_PC"
  - **nLight Enabled Fixtures (model nIO EZ PH):** "Rm_101_Fixture_1A", "Rm_101_Row_1-1", "Rm_101_Row_1-2"
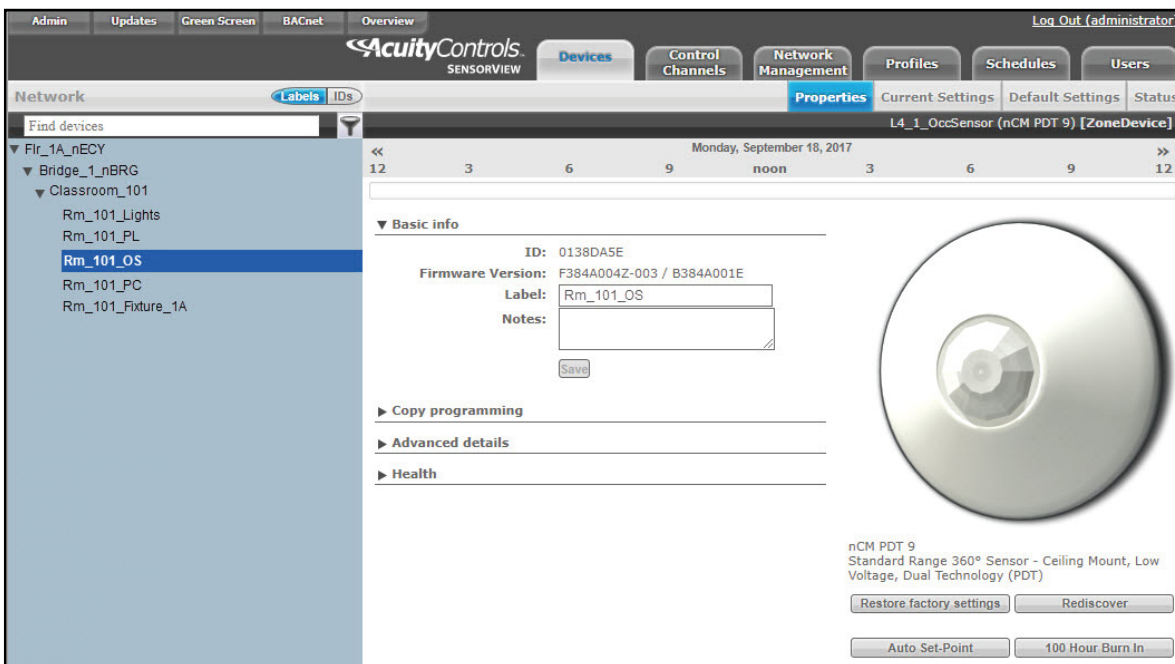

Figure 4: Device labeling with SensorView

Profile Labeling

The Profiles page provides the ability to create, edit, and delete all Profiles configured within the system. All Profiles displayed will be grouped with other Profiles sharing the same state: Synchronized, Mismatched, SensorView Only, or Gateway Only.

While creating or editing a profile, the Device tree will operate in MultiSelect mode, there is no limit on how many devices can participate in a given Profile. As Devices are added to the Profile more settings may become available on the right, settings are only displayed if there is a Device selected that contains it, settings will be omitted if no Devices selected support it.

To add a profile:

1. Under the **Profiles** tab, click the New button.
2. Select which devices you wish to include in the profile. Use the filter option 🔻 to quickly find your device from the list.
3. Choose which command(s) you wish to control in this profile.
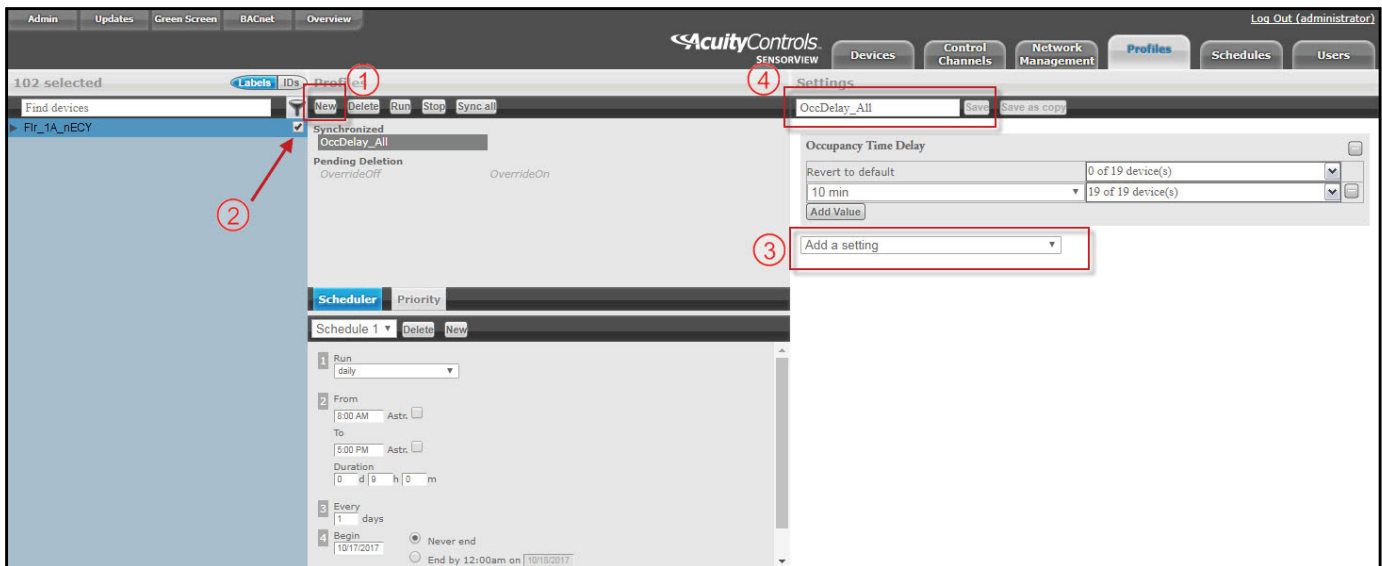4. Choose an appropriate name for the profile and click **Save**.

Figure 5: Saving a profile label

Lighting Commands with BMS

The preferred method to creating custom lighting scenes or to control lights by a schedule, is through SensorView. All profiles in SensorView have priorities assigned to them. Whichever enabled profile with the highest priority will be the active profile.

The Scheduler, visible at the bottom of the screen, controls the Schedule for the Profile. Profiles can be configured to start/stop at a particular time of day, or based on an offset from Sunrise or Sunset. Recurrences specify how often the Profile should recur in the future, available Recurrences are Daily, Weekly, Monthly, and Yearly.

The Scheduler also contains a tab for Priority, which allows specification of how Scheduling conflicts should be handled. If two or more Profiles' execution times overlap, then the Priority determines which Profile will run on each Device.
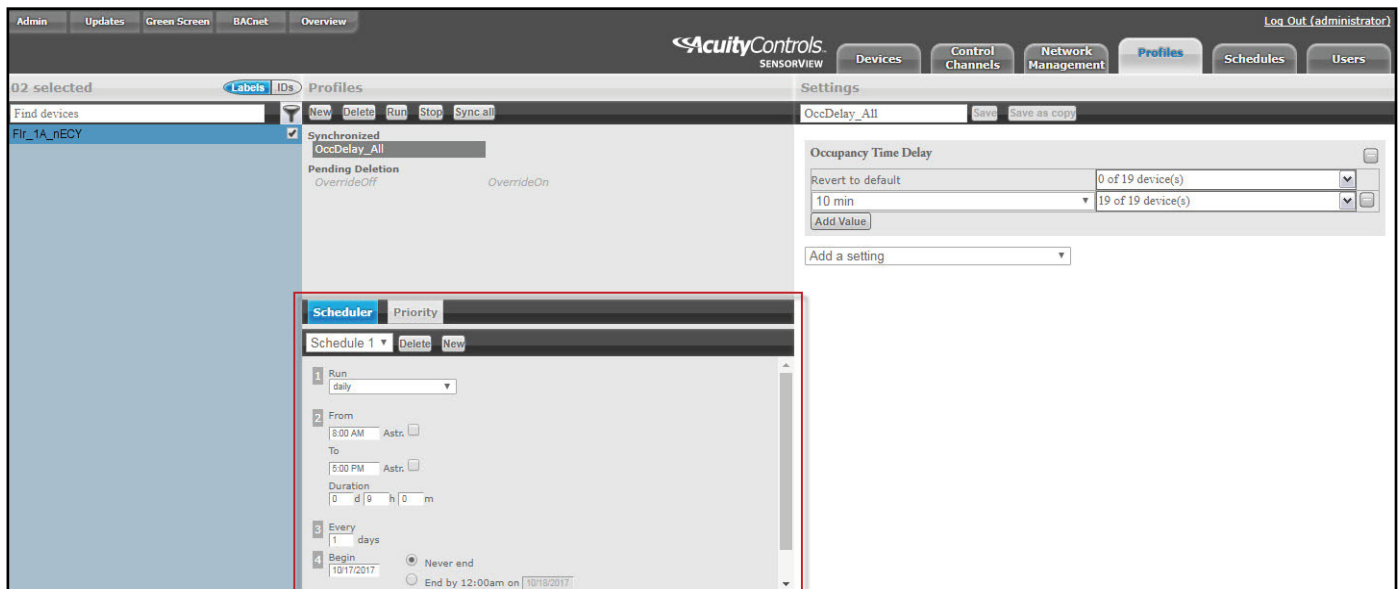

Figure 6: Scheduling with SensorView

About BACnet Objects

BMS Integration requires access to a building management system to be able to control the BACnet objects that are created by the nLight ECLYPSE.

nLight ECLYPSE

Once the devices have been properly labeled in SensorView, the nLight ECLYPSE can find the devices and arrange them in an easy to understand tree view using the labels from SensorView.

The nLight ECLYPSE polls devices on the nLight network one at the time. Once a device value has been polled, the nLight ECLYPSE will immediately update the BACnet object value. Polling a large network can take up to 10 minutes depending on the size of the network. If system performance is critical on the site, please consider installing more nLight ECLYPSE devices. Network polling speed is directly linear with the number of device available.
To view the BACnet objects, you will require a third-party BACnet browser (not available from Acuity Brands).

nLight ECLYPSE BACnet Object Filter

BACnet points for all nLight devices are automatically generated in the ECLYPSE controller once the network scan is launched.
To optimize the automatic BACnet point generation, there is a filter function in the ECLYPSE web interface that will filter certain types of nLight resources to be skipped in the BACnet resources creation process.

To benefit from this feature, once the SensorView configuration is done and before configuring the ECLYPSE BACnet resources, go on the ECLYPSE web interface and click on the nLight Icon from the navigation pane.

Figure 7: BACnet object mapping

Once the BACnet Object Mapping page is open, toggle to the ON position all of the resources you want included in the nLight devices scan. The unwanted device points will be automatically filtered and will not appear in the devices points under the nLight BACnet Data tree in ENVYSION

nLight ECLYPSE BACnet Points

The **nLight ECLYPSE™** controller is a BACnet Building Controller (**B-BC**) certified device that acts as the IP interface for an nLight lighting control system, including support for both nLight and nLight AIR devices. It provides a BACnet interface (optional) that is BACnet Testing Laboratories (**BTL**) listed for system integration to a building management system through BACnet/IP and BACnet MS/TP.

Object Name	Type	Units	Range	Read	Write	COV	Inactive State (0)	Active State (1)	Notes
							State (Multi-state)		
Occupied (Px)	BI	-	-	X	-	X	Unoccupied	Occupied	The occupancy state provides feedback on whether an occupancy sensor is occupied or unoccupied (e.g. nCM PDT 9, rCMS, rCMSB). For multi-pole occupancy sensors (e.g. nCM 9 2P), two BACnet objects will be available.
Relay State (Px)	BV	-	-	X	X	X	Relay Open	Relay Closed	The relay state provides feedback on whether the relay in a device is open or closed (e.g. nPP16 D, rPP20 D, rLSXR).
Dimming Output Level (Px)	AV	Percentage	0 - 100	X	X	X	-	-	The dimming output level provides the intensity of a dimming devices (e.g. nPP16 D, nLight Enabled Fixture, nSP5 PCD, nIO D, rPP20 D, rLSXR).
Measured Light Level	AI	Foot-Candles	0 - 212	X	-	X	-	-	The measured light level provides an analog foot-candle reading from a device with a photocell (e.g. nCM ADCX, rES 7, rCMS, rCMSB, rLSXR).
Photocell Inhibiting (Px)	BI	-	-	X	-	X	Not Inhibiting	Inhibiting	When a photocell device is programmed to turn lights off or inhibit lights from turning on, photocell inhibiting provides indication when the photocell has provided this "off/inhibit" command. This point is available with nLight devices only (e.g. nCM PC, rCMS, rCMSB).
Active Load	AI	Watts	0 - 4432	X	-	X	-	-	The active load provides an analog power consumption reading of the lighting load connected to a device with the current monitoring feature (e.g. nPP16 IM, rPP20 D IM, rLSXR, rSBOR).
Dimming Input Level	AI	Percentage	0 - 100	X	-	X	-	-	The dimming input level provides an analog reading of the input percentage on the signal to an input device. This point is available with nLight devices only (e.g. nIO 1S).
Battery Status	MS	Level	1-5	X	-	X	1 = Unknown 2 = Replace Battery 3 = Poor 4 = Fair 5 = Good		The battery status provides feedback on battery health and whether it should be replaced soon. This point is available for battery-powered nLight devices only (e.g. rPOD Micro and rCMSB).
Online	BI	-	-	X	-	X	Device Offline	Device Online	The online status provides indication whether a device is communicating with nLight ECLYPSE controller or not.
System Profile[1]	BV	-	-	X	X	X	Profile Inactive	Profile Active	The system profile object provides feedback on whether a profile is active/inactive.
Channel Occupied[1]	BI	-	-	X	-	X	Unoccupied	Occupied	Aggregate state of all occupancy sensors broadcasting on an occupancy channel: Unoccupied = all occupancy sensors on the channel are unoccupied. Occupied = one or more occupancy sensors on the channel are occupied.
Channel Relay State[1]	BV	-	-	X	X	X	Inactive	Active	The channel relay state provides feedback on whether the relays in a channel are open or closed.
Channel Dimming Output Level[1]	AV	Percentage	0 - 100	X	X	X	-	-	This value represents the average of all dimming output levels on the respective switch channel. Writing to this value is the equivalent of sending an nLight switch "go to level" command.
Automated Demand Response Level	MS	Level	1 - 4	X	-	X	1 = Normal 2 = Moderate 3 = High 4 = Special		This setting is only exposed if a valid license for ADR has been added to an ECLYPSE. This value represents the current status of a system responding to demand response.
System Input State	BV	-	-	X	-	X	Inactive	Active	The system input state represents the current status of a dry contact output that has been connected to an input device.
System Input Level	AV	-	0-100	X	-	X	-	-	The system input level represents the current status of an analog output that has been connected to an input device.

COV = Object is capable of providing "Change of Value" notification

Px = Indicates device pole. Most devices only have a single pole (P1), devices with secondary pole will display P1 and P2.

BV = Binary Value   BI = Binary Input

AV = Analog Value   AI = Analog Input

MS = Multi-state

NOTE

1. A BACnet object is available after a user has completed programming of the initial artifact (profile, channel, etc.).

For additional information on nLight ECLYPSE BACnet integration, please see the [nLight ECLYPSE B-BC PICS](#) document.