LUTRON

Lutron/Siemens® BACnet® Integration

Quantum Overview

GreenGlance client

iPad with
Q-Control+ app

**Corporate
Building
Management
System**

Quantum
server

Quantum Vue

Building
Management
System

Lighting
management
hub (floor 2)

Lighting
management
hub (floor 1)
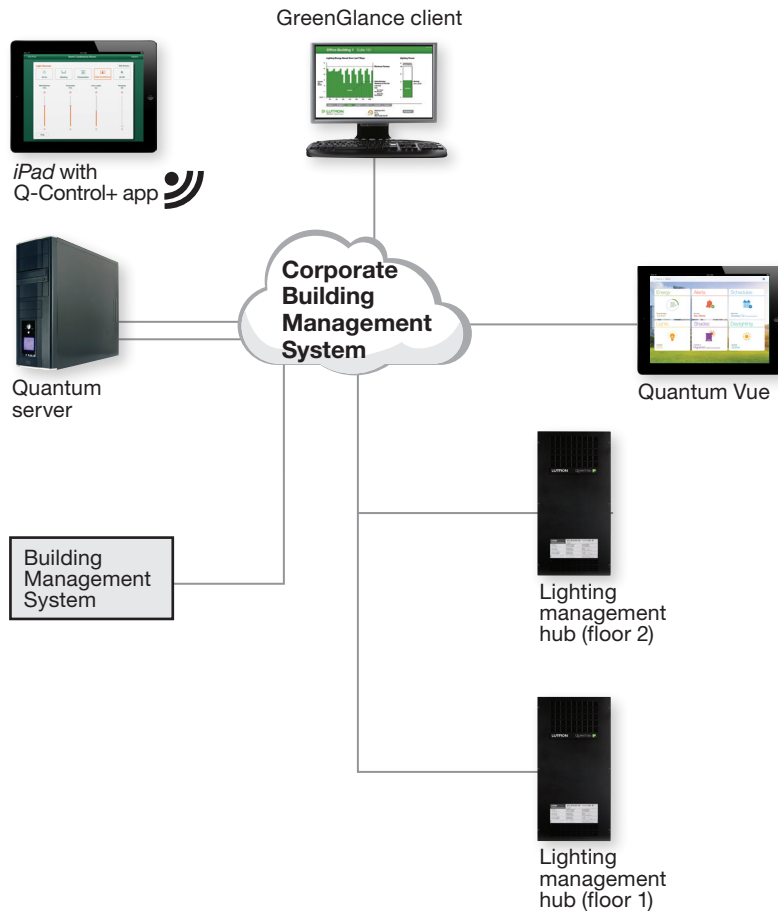
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The Lutron Quantum system is the total light management system that incorporates lighting controls, motorized window shades, digital ballasts and LED drivers, centralized dimming and switching panels, and sensors together under one system/software umbrella. It is a processor-based system and the processor(s) reside in the hubs shown in the diagram above. In a typical building, you will typically have at least 1 hub per floor connected over the building network or a dedicated network for the lighting system.

Quantum can seamlessly and reliably integrate with other building systems. The BACnet®/IP protocol is the primary means of integration. BACnet® is embedded or native in the Quantum processors, which means no external interfaces or gateways are required in order to communicate with other systems. Only a single point of connection is needed on the Quantum network for total and complete communication to the entire system. The diagram above shows a Quantum server. The server is used for historical data logging for the reports used in the Quantum software. It is NOT required for BACnet® integration. Only a Lighting Management Hub is required.

Additionally, the Quantum system has been tested by BACnet® Testing Laboratories (BTL) and is certified to comply with all of their necessary interoperability requirements.

How to Set Up Integration:

What needs to be done in the Lutron Quantum system

1. BACnet® is native to the Quantum processor. However, in order to enable this capability, a BACnet® software license must be purchased for the job.

2. With the BACnet® software license, the Lutron service representative will turn on the BACnet® capability. Only one processor per subsystem will be enabled. This processor will act as the master for all BACnet® communications for the subsystem.

3. If the Quantum processor and Building Management Systems are not on the same subnet, a BACnet® Broadcast Management Device (BBMD) is required by the integrator. The Quantum processor supports foreign device registration of BBMD. The IP address of the BBMD should be given to the Lutron field service representative during setup (if required).

What to Integrate:

Data Sharing

Lutron exposes lighting objects as Analog objects, Binary objects and Multi-State objects. This allows Building Management Systems to use BACnet® services to monitor and command the lighting objects.

Most devices and objects from the Lutron system are virtual BACnet® objects. Virtual devices are area-based so they correspond to a geographical area of the building (e.g., conference room, private office, etc.). Virtual device names are job specific and created at the time of Lutron database creation, which is done in-house at Lutron headquarters just prior to startup. To simplify the integration process, it is recommended that the integrator and Lutron field service representative coordinate on area naming conventions. For a summary of Lutron BACnet® objects, naming conventions, and functionality, reference the additional tables located in the Lutron BACnet® PICS statement. To get the latest PICS statement that corresponds to the Quantum software version you are running, contact any Lutron representative or find them at www.lutron.com/quantum under the "Product Specification Submittals" section.

A Building Management System Field Panel is required to use BACnet® objects like the Schedule object, Trend Log object, and Event Enrollment to communicate to the Lutron Quantum system for advanced functionality.

BACnet® Scheduling

Lutron does not currently support the BACnet® Schedule Object. There are three approaches that can be employed for scheduling the lighting system.

Approach 1: The Building Management System Field Panel supports the Schedule which can be used to directly command the Lutron lighting objects. The Schedule can be viewed and modified the Building Management System Software.

Approach 2: The Lutron Quantum system can support the schedule and the Quantum Vue software can be used to view and modify events. The Building Management System can enable/disable an entire timeclocks, per subsystem, through BACnet binary objects.

Approach 3: The Lutron Quantum system does have the ability to allow time clocks created using the Quantum Vue software to be modified by a Building Management system by changing the values of Binary Value, Analog Value and Multi-State Value Instances.

BACnet® Trending

Lutron does not support the BACnet® Trend Log object. However, Lutron's system does share historical information (power usage, occupancy, etc.) through binary, analog, and multi-state objects, which can be used for trending. The Building Management System may also be able to create trend log objects by archiving the real-time analog values from the Lutron objects. The reporting module within Lutron Quantum Vue software can also be used to view historical trends of these objects.

BACnet® Alarming

Lutron does not support the BACnet alarm convention described in clause 13, Alarm and Event Services of the standard. However, the Lutron system does share asset and maintenance data appropriate for alarms (lamp failure, ballast failures, low battery failures on wireless devices, etc.) through binary, analog, and multi-state objects. The Building Management System may also be able to create alarm objects using the device failure analog values from the Lutron objects. The alerts module within Lutron Quantum Vue software can also be used to configure and view alerts.

Common Integration Examples

- A BMS system can trigger loadshed events in the Quantum system.
- Occupancy sensor status can be shared with the HVAC system to set back temperatures when areas become unoccupied.
- Quantum energy usage information can be shared with the BMS to eliminate the need to add costly energy meters.

Important Integration Notes:

- BACnet® /IP is the primary means of integration for Quantum.
- To simplify the integration process, it is recommended that the integrator and Lutron field service representative or project manager assigned to the job coordinate on area/point naming conventions when designing the job, not during installation.
- Coordinate with Lutron to disable Lutron schedule if BACnet® schedules are used.
- "Who-Is" requests should be separated by a minimum of 10 seconds. More frequent requests may cause communication issues due to the number of points available in the Lutron system through a single IP address.

System Integration

Both the Lutron and Siemens systems are designed to communicate using the BACnet® IP Protocol; Lutron as the BACnet® Server and Siemens as the BACnet® client. Both systems have been certified to comply with the BACnet® standard by the BAcnet Testing Laboratories (BTL). For these reasons these systems are able to be integrated with each other. Contact Lutron with any additional questions you may have on how to integrate these systems and the capabilites available via integration.

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