Title 24 Demand Response Using OpenADR™ with Lutron Commercial Lighting Control Systems

Lutron’s Quantum and Vive lighting control systems can meet the OpenADR™ requirement in Title 24 2019. The purpose of this document is to describe how these systems meet that requirement.

Demand response, also called “DR” or “load shed”, is a change in the power consumption of an electric utility customer to better match the demand for power with the supply. OpenADR™, which stands for Open Automated Demand Response, is described as “a communications data model designed to facilitate sending and receiving DR signals from a utility or independent system operator to electric customers” according to Berkeley Lab. In the context of lighting control systems, demand response often involves lowering the intensity of lighting when a demand response signal is received.
Title 24 and OpenADR™

Title 24 requires that buildings larger than 10,000 ft², excluding spaces with a lighting power density of 0.5 watts per square foot or less, must be able to automatically reduce lighting power in response to a demand response signal by a minimum of 15 percent below the total installed lighting power. Prior to Title 24 2019, which goes into effect on January 1, 2020, a code-compliant system could involve activating demand response manually in several ways, such as contact closure signals, activation via a web interface, or using BACnet™. Title 24 2019 has updated the requirements for demand response for lighting controls in section 110.12 so that OpenADR™ is now required as the method for activating demand response.

OpenADR™ in the Lutron Vive system

Lutron’s Vive system supports OpenADR™ natively in the Vive hub with software version 1.9.7 or later. For details on how to program the demand response/load shed settings in a Vive system, see the “Load Shed” section of the Vive Software Programming and User Guide.

In addition to OpenADR™, there are 3 other methods to activate demand response in the Vive system.

Additional methods of activating demand response:
1. The Vive app or web browser interface.
2. A contact closure on the Vive hub. The contact closure labeled “CCI1” on the Vive hub is used for initiating load shed only.
3. Via BACnet™. For details see the Vive BACnet PICS (requires HJS-2-xx or BACnet license).

What if I have a Vive system with older software that doesn’t currently support OpenADR™?

Vive hub software version 1.9.7 and later natively supports OpenADR™. If you have a hub with an earlier version of software, upgrade the software by following the instructions listed in the “Firmware Update” section of the Vive Software Programming and User Guide.
**OpenADR™ in the Lutron Quantum system**
The Lutron Quantum system supports OpenADR™ using the Lutron Automated Demand Response Kit (LUT-Q-OPNADR-CPN8064).

This kit includes 4 parts:
1. Lutron QSE-CI-NWK-E network interface
2. Universal Devices ISY994-Lutron-OADR
3. Universal Devices 3-foot RS-232 cable
4. Universal Devices ISY994 power plug

The Universal Devices ISY994-Lutron-OADR device must be connected to a customer-provided internet-connected network. For more information, refer to the [Lutron Automated Demand Response Kit Install Guide](#).

**References**

- **Vive Software Programming and User Guide** - This document describes system programming, OpenADR™ setup, configuration of demand response, and the firmware update process.
- **Title 24 of the California Code of Regulations** - Section 110.12 discusses demand response.
- **Specific utility programs and requirements** - for example, [PG&E](#).
- **OpenADR™ Alliance** - Website of the OpenADR™ Alliance, which includes a “Products” page that lists out all products that are compliant with OpenADR™ including the Lutron Vive and Quantum systems.

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