

Eaton RFN LCR switch family



Powering Business Worldwide

The most advanced load control switches on the market

Eaton's RFN LCR switch family (LCR-6200, LCR-6600, LCR-6700) utilizes the radio frequency (RF) mesh network communications to combine the speed and reliability of Eaton RF Mesh Network capabilities with advanced load control functionality using robust group addressing and TrueCycle® smart load control algorithms. A single message can be broadcast over the RF Mesh Network to control one or more LCR switches resulting in fast and efficient communications for targeted load control during a demand response event.

LCR switches with RF Mesh Network communications

Eaton's LCR switches are the most advanced load control switches on the market—providing power quality protection for improved grid reliability and advanced load control functionality using robust group addressing and TrueCycle® smart load control algorithms to maximize demand reduction yield and automate measurement and verification data collection.

Eaton's RFN LCR switches have enhanced capabilities when combined with Eaton's RF Mesh Network communications module. The RF Mesh Network communications module allows for a wide range of two-way data to be collected and broadcast commands to be disbursed to quickly initiate a control event. It also offers flexibility to build out a mesh network starting with the utility's most critical devices.

LCR switches come in three form factors to fit any need

The LCR-6200RFN switch is designed specifically for quick and clean install on HVAC systems. The solution is also used to control strip heat.

The single 5 amp relay is used to cycle the HVAC control circuit to reduce the AC demand while maintaining customer comfort.

The LCR-6600RFN switch is designed for versatility.

It can be delivered with multiple 5 amp and 30 amp relays so that it can control multiple loads with a single LCR switch. Each relay can be addressed and controlled individually, or they can be operated simultaneously if the application requires.

The LCR-6700RFN switch is designed for easy retrofit into select legacy load management switches.

It can be ordered with relay configurations that match the legacy switch it is replacing. It allows the investment in the install wiring to be maintained, while making the hardware upgrade quick and error-proof.

The RFN LCR switch with RF Mesh Network communications offers the most advanced load control technology and communications on the market for your demand response system solution.

Advanced feature set

The RFN LCR switches with RF Mesh Network communications offers:

Installation and control flexibility

- The LCR switches were designed in collaboration with installation contractors to minimize implementation costs and time
- The LCR-6200 switch utilizes a small box footprint supporting a single 5A relay for HVAC only applications
- The LCR-6700 and LCR-6600 switches allow for up to 3 loads to be controlled from a single unit
- The LCR-6700 switch control board is capable of retrofitting into legacy 3rd party enclosures for an easy upgrade path
- LCR-6600 277/480VAC and 24VAC input voltages for custom applications. The LCR-6600 277/480VAC is commonly utilized for Irrigation Control applications

Optimize participation

- Optimized air conditioner cycling with smart control and learning capabilities. Maximize demand reduction while maintaining customer comfort

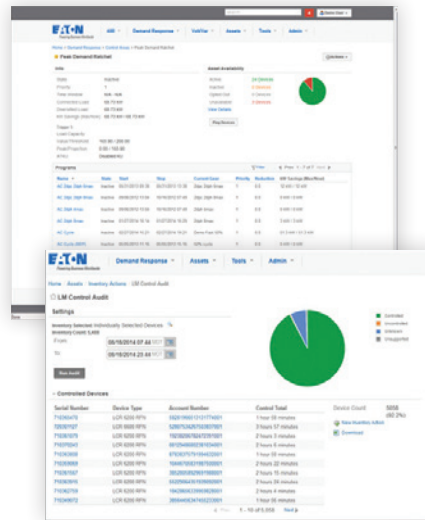
Reliable network

- RF Mesh Network can be installed as an independent demand response system without (or prior to) installation of an AMI metering system
- Expands and strengthens existing RF mesh AMI infrastructure
- Eaton RF Mesh Network offers broadcast communications for rapid, on-demand, system-wide control for demand response events



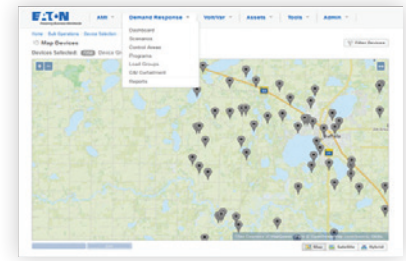
Improved operations

- Daily automated or on-demand data collection provides vital appliance runtime and event information for performing measurement and verification (M&V) studies
- Automatic daily operability testing in the form of the daily Broadcast Verification Report
- Remote/local programmability
- Over-the-air universal firmware upgrade support
- Power quality protection through support of Cold Load Pickup and Voltage and Frequency Response



Yukon™ advanced demand response management

- Utilizes the well-established Yukon™ demand response and inventory management modules
- The reporting capabilities of Yukon allow a user to compile response data from a specified group of switches into valuable information
- Asset Availability Report and Load Estimation Module provide insight into the amount of load reduction a utility can expect from the system as they go through resource planning



Smart cycling

Eaton's proprietary TrueCycle technology allows smart air conditioner cycling control for homes with non-standard or oversized air conditioning units maximizing yield while maintaining customer comfort.

TrueCycle technology adjusts to the home's hourly runtime profile, balancing demand reduction and customer comfort on a home-by-home, hour-by-hour basis.

RF Mesh Network communications

The speed and reliability of Eaton's RF Mesh Network allows for two-way communications and a large amount of data collection from every device.

Each LCR switch acts as an independent device in the mesh network and can be deployed with or without AMI meters. A LCR switch will pass network traffic through and act as an additional path for other mesh network nodes to utilize and strengthen the mesh. The broadcast capability of the mesh network allows for rapid, on-demand, system-wide control for targeted load control events and emergency situations.

Eaton's RF Mesh Network solution is 100% self-forming, self-managing, and self-healing, providing lower implementation and maintenance costs, resulting in a lower total cost of ownership. Broadcast availability report provides the utility with peace of mind that the system will operate when it dispatches a demand response event. The report also helps utilities minimize their maintenance costs by targeting LCR switches specifically in need of maintenance.

Power quality protection

Eaton's RFN LCR switches can automatically shed the connected load if the supply frequency or voltage drops below configurable thresholds.

Cold load pickup can be enabled or disabled for the connected load to minimize feeder in-rush following power outages.

System and appliance protection

The condition of the device is continually monitored. If an abnormality is detected, the microprocessor resets itself and the connected load is returned to its normal state.

LED indicators

In the viewing window, green and yellow LEDs display diagnostics information. Red LEDs indicate the load is under control or a possible circuit fault. A blue LED indicator is also visible through the top of the LCR switch to show the RFN status. A solid light indicates an active connection to the RF Mesh Network.

Local communications

A user can locally access a device to check the operating status, or troubleshoot using Eaton Network Scout™ application.

Network Scout is a field tool designed to help the tech investigate the RFN mesh communication system.

Remote addition or removal of customer participants

Commands to enable or disable the device functions can be sent to individual devices. Deactivation can be sent with either a 'temporary' or 'permanent' setting. This feature improves customer service by reducing customer complaints and minimizing on-site service calls.

Measurement and verification

The data log of the RFN LCR switches can collect hourly appliance runtime and relay shed time. This information read automatically or on-demand over-the-air.

Over-the-air configuration and firmware upgrades

Over-the-air (OTA) programming or addressing, plus individual control or control override communication can update securely. Devices can be configured individually, in dedicated groups, or globally. OTA firmware upgrades are also supported for the RFN LCR switches.

Technical specifications

Environment

Temperature	-40°F to 140°F (-40°C to 60°C)
Optimal reception	-4°F to 140°F (-20°C to 40°C)
Relative humidity	0 to 95% non-condensing

Housing

NEMA 3R injection-molded, UV-stabilized gray polycarbonate plastic	
Rain-tight per UL916	
Small box dimensions	3.23"D x 5.95"H x 9.25"W
Large box dimensions	3.58"D x 10.71"H x 7.66"W

Electronics

Per UL916, transient voltage protection per ANSI C37.90A-1974

Power requirement

Voltage 85 to 265 VAC at 50/60 Hz, 277/480VAC at 60Hz, and 24VAC at 60Hz

Relay control

2A at 28 VDC or 240 VAC resistive, Form C
30A at 240 VAC resistive, Form B

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