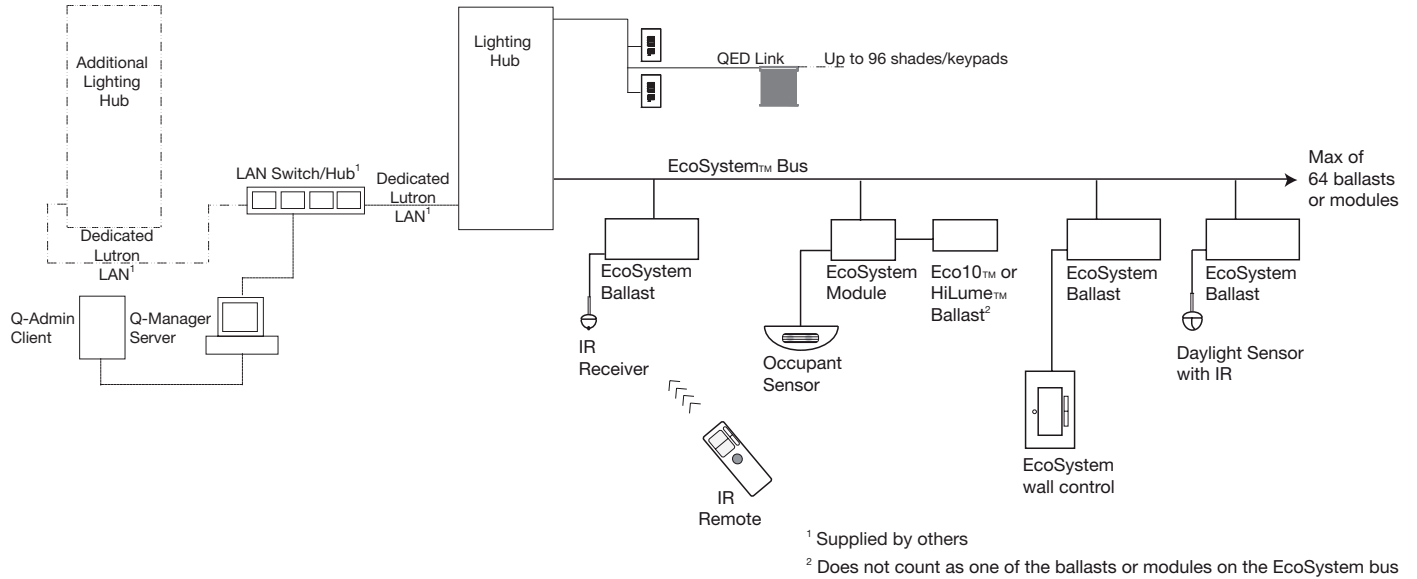


Quantum™

Quantum™ is a facility management solution that creates a flexible, productive, and energy-efficient environment for an entire building or campus by enabling centralized management, monitoring, and control of EcoSystem™ lighting and Sivoia™ QED shade treatments.



System maximums:

- 20 Lighting Hubs
- Combination of 5,120 EcoSystem ballasts and modules
- Combination of 1,920 Sivoia QED window treatments and keypads

Lighting Hub maximums:

- Combination of 256 EcoSystem ballasts and modules
- Combination of 96 Sivoia QED window treatments and keypads

Job Name:	Model Numbers:
Job Number:	

Features

- Manage, monitor, and control EcoSystem ballasts, EcoSystem ballast modules, and Sivoia QED shades in a building or whole campus environment from a central point.
- Uses Lutron's Q-Admin™ Graphical User Interface for easy management of the lighting system.
- Provides automatic timeclock control of EcoSystem ballasts and Sivoia QED shades.
- Quick and easy reconfiguration of lighting when a physical space is redesigned.
- Intelli-Demand™ load shedding of any lighting group in the system.
- Power trending graphs and logs of the lighting system.
- Track Q-Admin use through User Activity Logs.
- Send alerts (e.g. lamp outages, occupancy states, exceeded power threshold) through print-outs and emails.
- Uses standard Ethernet TCP/IP protocol to communicate.

System Capabilities

- Up to 20 Quantum Lighting Hubs can be networked together as a single system.
- Supports up to 4 EcoSystem Busses and 1 Sivoia QED link per Quantum Lighting Hub.
- Supports up to 256 EcoSystem ballasts and EcoSystem ballast modules per Quantum Lighting Hub.
- Supports a combination of 96 Sivoia QED shades and keypads per Quantum Lighting Hub.
- Two normally open or normally closed dry contact closure per EcoSystem Bus for integration with a Building Management System or Security System.
- One normally closed emergency input per EcoSystem Bus.

Quantum™ Communication Requirements

- Uses standard Ethernet 10/100 Base-T to connect all Quantum Lighting Hubs to Lutron's Q-Manager™.
- Quantum requires a dedicated (Lutron only) Ethernet network for proper system operation.
- Auto-discovery of EcoSystem and Sivoia QED devices is accomplished through standard Ethernet UDP and TCP/IP protocol.
- Auto-discovery of EcoSystem and Sivoia QED devices requires that multi-cast protocol is enabled. Manual discovery can be accomplished if multi-cast is disabled.

Job Name: Job Number:	Model Numbers:
--	-----------------------

Q-Manager™ Server

The server-based Q-Manager is a dedicated server for a Quantum system. It is used to support system operation 24/7 and is required for storing data and running Q-Admin software. The Q-Manager allows the following operations:

- Centralized, real-time setup and control
- Interfacing to remote clients (maximum five concurrent users)

Note: The server must run at all times for proper operation of the system.

Available Models

QM-A-CMP-S-O: Dedicated server

QM-A-CMP-R-O: Dedicated server with RAID

- Servers with RAID (-R- models) use an array of three or more hard drives to prevent loss of data

Capability

The Q-Manager Server can control a maximum of 20 Lighting Hubs.

Power

- Operating Voltage: 115 V \sim at 60 Hz
- Server requires at least four power receptacles
- Power should be through a Lutron-supplied uninterruptible power source (UPS) rated for at least 1500 VA



Hardware

- CPU: Intel®¹ Xeon Processor
 - Servers with RAID: 3.0 GHz min.
 - Servers without RAID: 2.8 GHz min.
- Memory: 1 GB RAM at 133 MHz min.
- Monitor: Color 17" with 1024 x 768 resolution
- Disk space: 36 GB min. with 10X RPM SCSI
- Cache: Level 2 / 256 KB min.
- Modem²: 56K Baud V90 or better (for Lutron diagnostic purposes)
- Motherboard: integrated 10/100 Ethernet card
- 48x CDRW/DVD-ROM drive
- RS232 serial port
- US-101 keyboard
- PCI Ethernet³ dual-port 100 Base-T NIC
- 2-button mouse with scroll wheel



CAUTION: The warranty will be voided if unapproved software additions or upgrades are made to this server.

¹ Intel is a registered trademark of Intel Corporation

² The modem, Ethernet port, and pointing device can be run simultaneously (unique COM ports and IRQS)

³ The Lutron dedicated Ethernet port must be connected only to the Quantum System

Job Name:

Model Numbers:

Job Number:

Software

- US Windows®⁴ Operating System Server 2003 Service Pack 4 or later
- Q-Admin software (also available separately for use with a customer-supplied server; consult Lutron factory representative)

System Communications

- Network connection provides dual speed capability at 10 Mbit/sec or 100 Mbit/sec accessed by a multiple redundant RJ45 connector
- Connects to the Quantum Lighting Hubs through one of its network connectors directly

Environment

- Operating temperature: 50-75° F (10-24° C)
- Storage temperature: 0-120° F (-17-48° C)
- Relative humidity: 8% to 80% noncondensing
- Must be installed in a lockable, temperature-controlled environment to maintain the 1-year warranty⁵

Dimensions

- Consult your Lutron factory representative

Monitor Specifications

Electrical

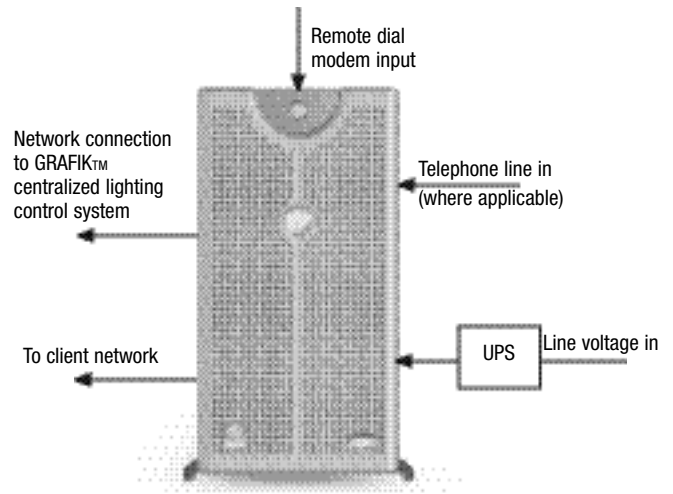
- 17" LCD
- 0.264 mm pixel pitch
- 1024 x 768 optimum resolution
- 1280 x 1024 maximum resolution

Dimensions

- H x W x D: 16.2 x 14.3 x 16.4 in. (409 x 363 x 417 mm)
- Weight: 34.17 lbs. (15.5 kg)

Delivery

- Ships in 4-6 weeks from time of release



UPS Specifications

- Capacity: 1500 VA
 - Output Waveform: Sinewave
 - Features: Hot-swappable (user-replaceable) batteries, Intelligent Battery Management, Overload and Replace Battery Indicator, SmartSlot, Site wiring fault indicator, Automatic Voltage Regulation (AVR)
 - H x W x D: 6.2 x 5.4 x 14.1 in. (158 x 137 x 358 mm)
 - Weight: 29 lbs. (13 kg.)
 - Average Run Time: 18.6 minutes (22 W, half load); 5.8 minutes (450 W, full load)
 - Compliant Standards: CSA, FCC A, UL 1778
 - Device Type: UPS
 - Enclosure Color: Black
 - Energy Rating: 320 joules (surge energy rating)
 - Environmental Parameters: Temperature: 32-104° F (0-40° C) Humidity: <95% relative humidity
- (continued)

⁴ Windows is a registered trademark of Microsoft Corporation

⁵ Warranty may be extended by purchasing an optional Extended Warranty or Service Plan

Job Name:	Model Numbers:
Job Number:	

UPS Specifications (continued)

- Included software: PowerChute Smart-UPS Bundle
- Port(s)/Connector Type: 1x DB-9 RS-232, 1x SmartSlot
- Port(s)/Connector(s) Required: 1x DB-9 RS-232, 1x SmartSlot
- Power Provided: 450 W
- Recharge Time: 3 Hours
- Sound Emission: 41 dBA (audible noise at 1 m from surface of unit)
- Voltage: 120 V \sim
- Max Altitude Operating: 10,000 ft. (3048 m)
- Min/Max Storage Temperature: 5-113° F (-15-45° C)
- Input Connector(s): 1x NEMA 5-15P
- Output Connector(s): 4x NEMA 5-15R, 1x DB-9 RS-232, 1x SmartSlot
- Circuit Protection: Surge protection and filtering
- Clamping Level: Zero clamping response time
- Port(s) Total (Free)/Connector Type: 1x DB-9 RS-232, 1x SmartSlot
- Power Output Connectors Details: 4x NEMA 5-15R
- EMI/RFI Noise Filtration: Full-time multipole noise filtering

RAID Details

- Uses an array of three or more hard drives to achieve transparent data redundancy. Drives are hot swappable and easily removable in the event of a single drive failure

Job Name:	Model Numbers:
Job Number:	

Q-Manager™ Desktop

The desktop-based Q-Manager is a dedicated desktop for a Quantum system. It is used to support system operation 24/7 and is required for storing data and running Q-Admin software. The Q-Manager allows the following operations:

- Centralized, real-time setup and control
- Interfacing to remote clients (maximum five concurrent users)

Note: The desktop must run at all times for proper operation of the system.



Available Models

- QM-A-CMP-D-O: Desktop model

Software

- US Windows®¹ Operating System XP Professional

Minimum Hardware

- CPU: Intel² Pentium P-4, 2.8 GHz
- Memory: 512 MB RAM
- Display: Color VGA
- Disk Space: 30 GB
- CD ROM Drive: 24X
- Modem³: 56K Baud
- Ethernet Port⁴: 1

Environment

- Must be installed in a lockable, temperature-controlled environment to maintain the 1-year warranty.⁵

Monitor Specifications (Desktop Model Only)

Electrical

- 17" flat and square (16" viewable image)
- 0.27 mm pixel pitch
- 1024 x 768 optimum resolution
- 1.5 A input current

Dimensions

- H x W x D: 16.2 x 14.3 x 16.4 in. (409 x 363 x 417 mm)
- Weight: 34.17 lbs. (15.5 kg)



CAUTION: The warranty will be voided if unapproved software additions or upgrades are made to this server.

¹ Windows is a registered trademark of Microsoft Corporation

² Intel is a registered trademark of Intel Corporation

³ The modem, Ethernet port, and pointing device can be run simultaneously (unique COM ports and IRQS); modem is for Lutron diagnostic purposes

⁴ The Lutron dedicated Ethernet port must be connected only to the Quantum System

⁵ Warranty may be extended by purchasing an optional Extended Warranty or Service Plan

Job Name:

Model Numbers:

Job Number:

Q-Admin™

The heart of the Quantum Solution is Q-Admin, Quantum's powerful software that allows facility managers to manage their electric and daylight for maximum energy efficiency, comfort, and productivity. From a central location, Q-Admin will not only control the electric lights but also configure, monitor, analyze, and report on the light for an entire campus.

Setup and Configuration

Automatic discovery of all lighting control system equipment including: EcoSystem bus supplies, EcoSystem ballasts, EcoSystem modules, EcoSystem sensors and wall controls, Sivoia QED controllers, Sivoia QED window treatments, and Sivoia QED wall controls.

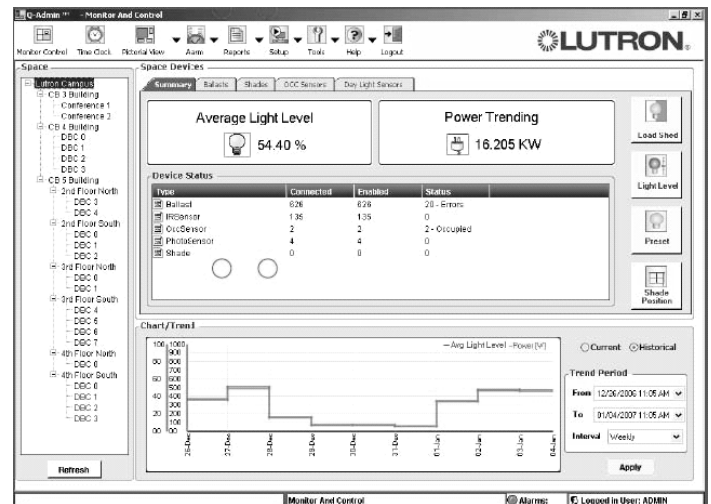
Additional features include:

- Assign names to EcoSystem and Sivoia QED devices
- Create and modify groups of devices
- Create and modify presets of EcoSystem and Sivoia QED
- Define spaces and assign devices to the space
- Graphical creation tool for floorplan control
- Create users with specific access rights
- Create timeclock events

Monitoring and Control

Manage your facility's light at your fingertips. Q-Admin continually monitors all the EcoSystem and Sivoia QED components connected to the Lighting Hubs across an entire campus. Q-Admin monitoring and control includes:

- Electric power demanded by lighting including the power trending graph
- Current light levels and shade positioning
- Quantity of each type of component installed and component status
- Daylight sensor status
- Occupant sensor status (e.g. spaces occupied)
- IntelliDemand Load Shed
- Lamp failure and end-of-life alert



Pictorial View

- Graphical navigation and control of lighting any floor or space in your building
- Navigation between multiple floorplans

Reports

Q-Admin reports help facility managers improve maintenance operations, identify issues before they become problems, get a handle on energy consumption, and support improvements in energy consumption over time.

Available reports include:

- Calculated Power Consumption
- Average Light Level
- Q-Admin user activity log
- Timeclock Events
- Alarms generated and acknowledged

Job Name:

Model Numbers:

Job Number:

Alerts

Facility managers can configure Q-Admin to page or email them when predefined events occur. The ability to define and respond to alerts dramatically improves the effectiveness of facility managers, because they can often address problems with light control before occupants are even aware there is a problem.

Alerts can be sent when:

- Lamp outages are detected
- Unresponsive devices are detected
- Energy consumption exceeds a target level
- Spaces becomes occupied
- Power thresholds are exceeded

Required Hardware

- Lutron's Q-Manager (Desktop or Server)
- Customer-supplied Quantum Manager (contact Lutron for compatibility requirements)
- Lutron's Quantum Lighting Hub
- Lutron's Q-Admin software

Software Features

- Autodiscover all connected Lighting Hubs, EcoSystem ballasts, ballast modules, IR sensors, keypads, daylight sensors, occupant sensors, and Sivoia QED shades
- Create spaces and assign ballasts, sensors, and shades to them for easy control and monitoring
- Create/modify sensor groups for ballasts
- Create/modify time of day and astronomic timeclock events
- Create/modify alerts for any lamp outage, lamp maintenance, or power threshold
- Ability to load shed lighting on any space
- Pictorial navigation of the space to monitor and control both lights and shades
- Graphical chart shows previous 2 hours of light level and power trending for any space
- Graphical chart of trends in lighting spaces for up to a year

Job Name:	Model Numbers:
Job Number:	