

NETWORK SEGMENT MANAGER/NETWORK SUPERVISOR | LSM SERIES

Provides global control of DLM segment networks and access to advanced features

Supports third party integration with BAS through BACnet/IP

Connects to DLM segment network and PC, LAN or Internet via Ethernet



Enables scheduling, power monitoring and remote adjustment of devices on DLM local networks

Friendly browser-based user interface

Optional server-based network supervisor package records energy-use data to create long-term history



Description

The LSM Segment Manager is a network controller designed to communicate with DLM local networks and/or LMCP panels. It provides control, monitoring, adjustment, and standard or Human Centric Lighting (HCL) scheduling functionality for networked DLM systems. The Network Supervisor is a PC server running similar software designed to coordinate control of multiple Segment Managers and store historical data.

Operation

The LSM communicates with DLM local networks and panels over a BACnet MS/TP segment network. The LSM-3E supports three direct-connected segment networks for up to 120 DLM rooms / 750 devices, while the LSM-6E typically utilizes NB-ROUTERS to connect to up to 200 rooms / 1100 devices. The Segment Manager communicates over a TCP/IP connection to any device running a compatible web browser, and is required for initial set up and configuration. Following set up, Supervisor software may be used for centralized control of multiple segments. A BACnet BAS may communicate with an LSM via BACnet/IP, accessing an Export Table that exposes a selection of application-specific BACnet objects.

Features

- Communicates all DLM local network data and device settings via the segment network dataline
- Secure browser-based UI uses SSL industry standard communications and can be accessed via direct TCP/IP connection, local LAN or via the Internet
- Allows remote changes to occupancy sensor and daylighting sensor settings in real time
- Adjusts scheduling of normal and after hours
- Create standard and HCL lighting schedules. Schedules may be repeating seven day, calendar event based or astronomic control
- Allows real time current monitoring of rooms and groups when using load controllers with current monitoring circuitry (e.g. LMRC-2xx or LMPL-201)
- Easy integration with BAS standard BACnet objects to represent DLM device settings and states

Scheduling, Monitoring and Adjustment

Users can easily monitor energy use via a dashboard that displays energy usage and alerts when a room or group exceeds normal usage. A configure screen enables adjustment of DLM device parameters including occupancy and daylighting sensor settings, load parameters, digital switch button configuration and dimming parameters. Normal and after hours parameters can be set or adjusted and users can create seven-day-repeating or calendar-event-based schedules. Additionally, power consumption may be viewed in real time for areas equipped with any DLM load controllers with built-in current monitoring. The software can also be used to create reports for maintenance and building administration.

Applications

The Segment Manager and Supervisor are ideal solutions for managing lighting and plug load energy use, and providing remote access to DLM local networks. They are suitable for schools, office buildings, and all applications that benefit from the ability to adjust settings and calibrations from a central location as well as projects that require automatic reconfiguration of device settings based on a schedule. Both also enable demand response.

PROJECT

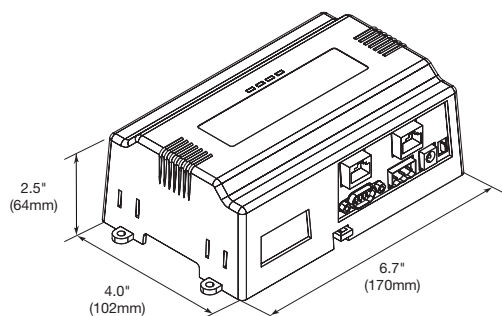
LOCATION/
TYPE

Specifications

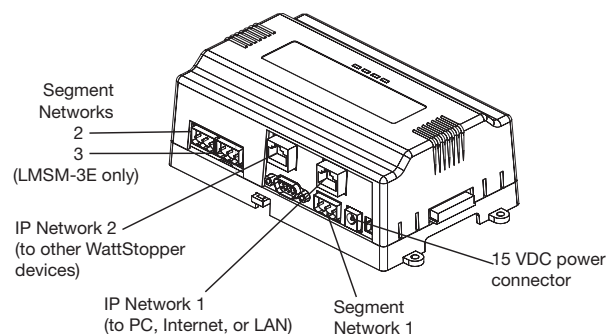
- Operating voltage: 15VDC from 120VAC plug-in power supply (LMSM-PS, included) or auxiliary enclosure
- Plastic housing, mounting via integral DIN rail slot or screw down tabs on housing
- RJ45 Ethernet port for TCP/IP (LAN) connection, green link status LED
- Embedded Power PC platform @ 524Mhz
- QNX real time operating system
- RS485 network, BACnet MS/TP twisted pair, baud rate 9600, 19200, 38400 or 76800 selectable
 - LMSM-3E: three segment networks
 - LMSM-6E: add NB-SWITCH(-x) and NB-ROUTERS as needed for up to 200 rooms
- Segment network parameters:
 - Wattstopper LM-MSTP wire rated for BACnet MS/TP (RS485)
 - Linear topology; 4000' maximum per segment
 - LMSM-3E: Up to 40 local networks or 250 DLM devices per segment (use equivalency table for panels)
 - LMSM-6E: Up to 40 rooms / 250 DLM devices connected to each router, with a maximum of 1110 devices per LMSM-6E
- Status LEDs for power and normal operation
- Operating conditions: for indoor use only; 32-122°F (0-50°C); 5-90% RH, non-condensing
- UL and cUL listed (E207782)
- BTL listed
- FCC part 15 compliant
- One year warranty

Dimensions & Ports

Segment Manager Dimensions

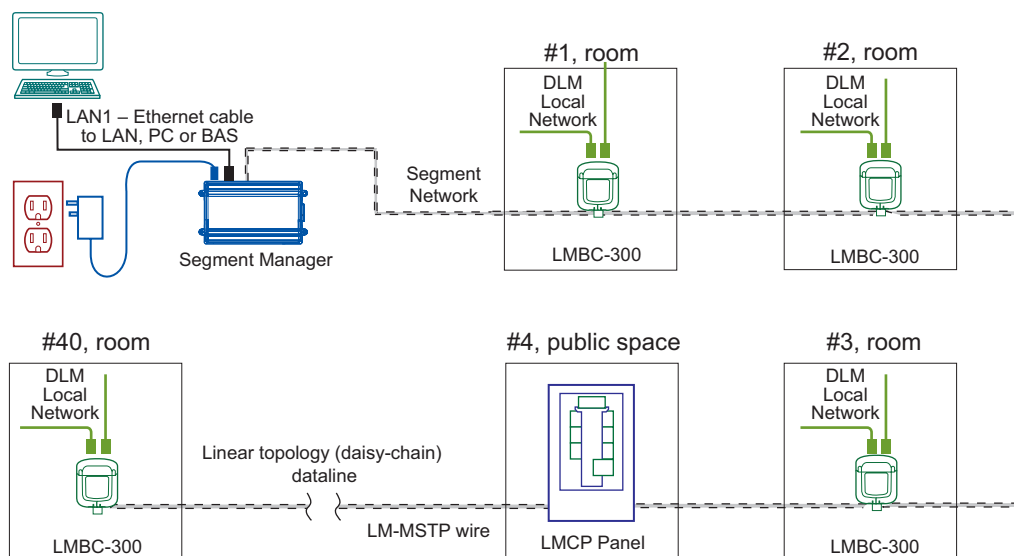


Segment Manager Connections

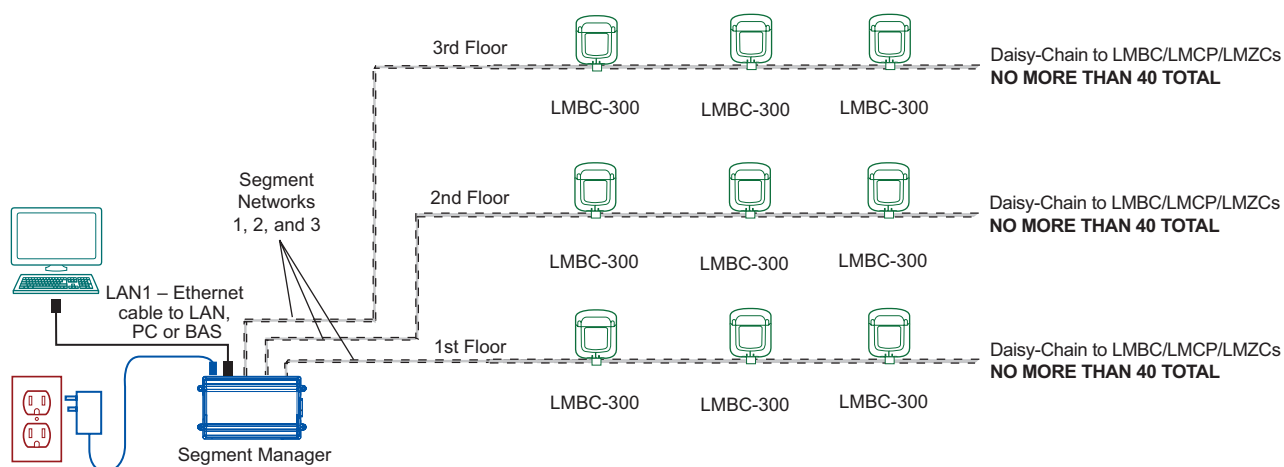


Connecting

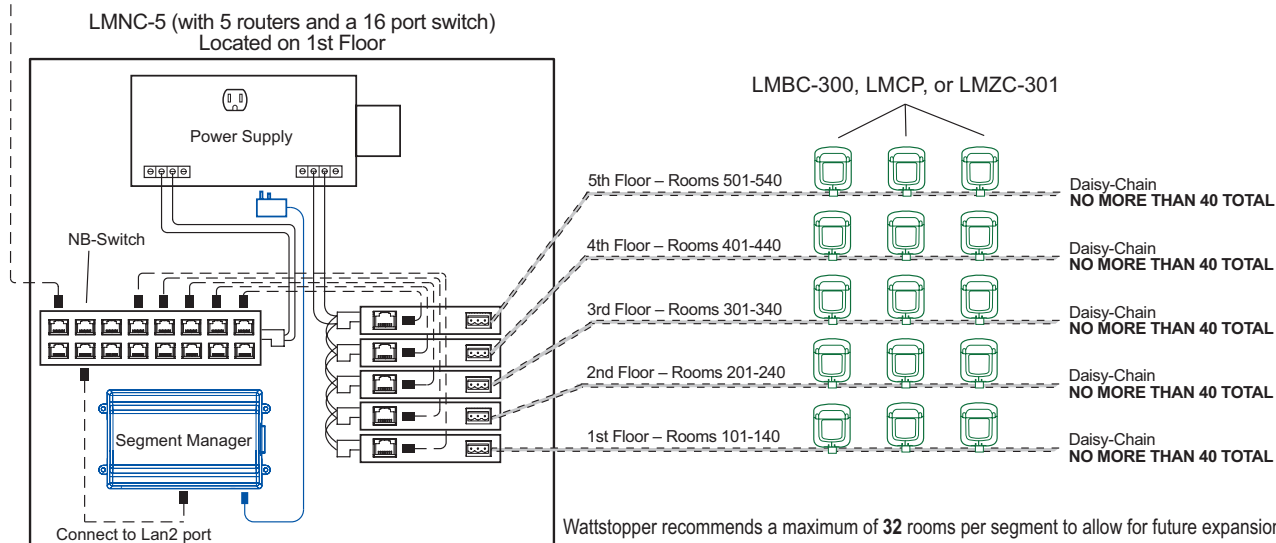
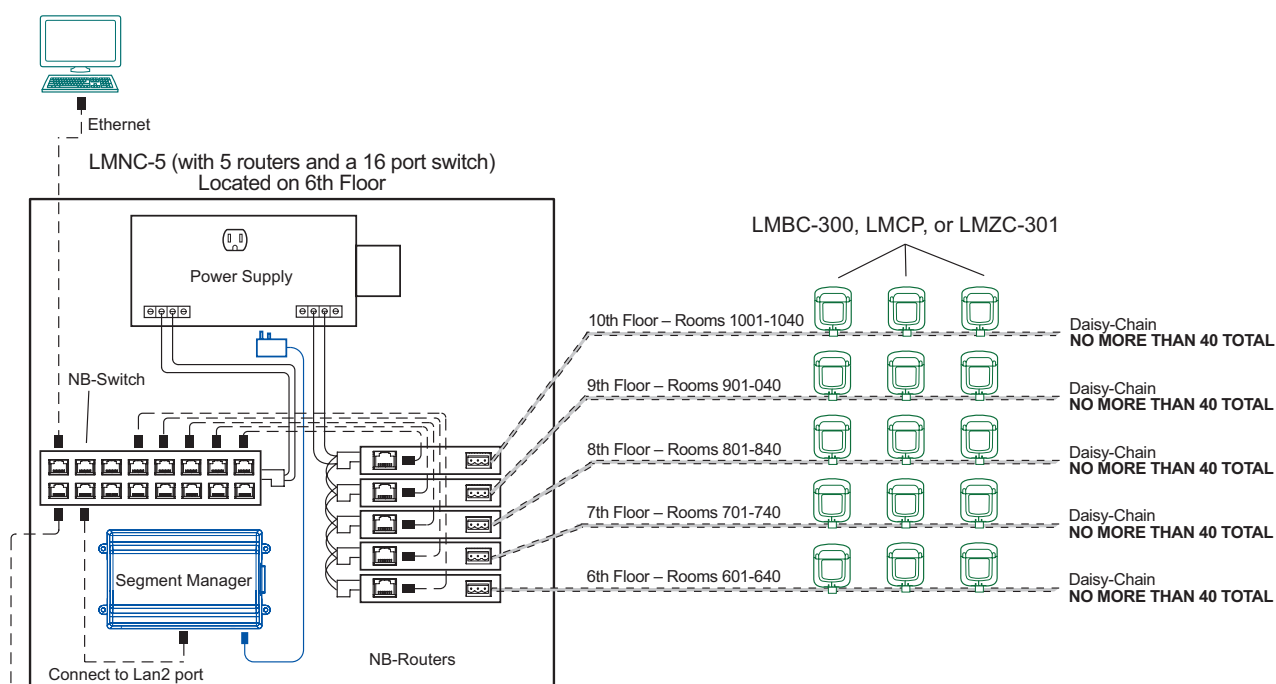
Sample Segment Manager Connection Diagrams



LMSM-3E – Example of a single network segment with 40 or fewer rooms/common space



LSM-3E – Example of a 3 story building with no more than 40 or fewer rooms per floor



LSM-6E – Example of a 10 story building with no more than 40 or fewer rooms per floor

Software Features

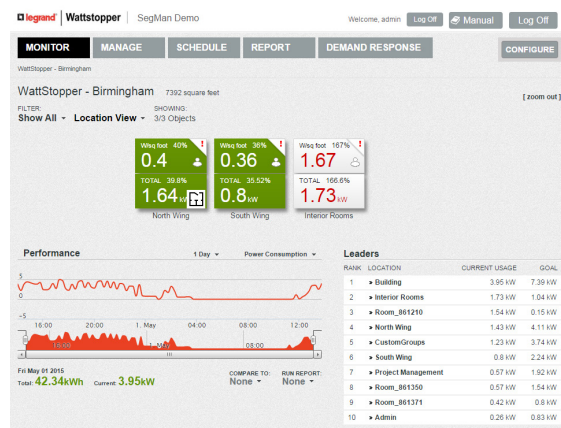
Dashboard

Dashboard mode provides a graphic interface that displays real-time usage as well as a five-day energy-use history. Rooms can be grouped into both location-based and custom groups. Color-coded alerts are provided when an individual room or group exceeds normal usage, based on predetermined target usage. Both the browser-based Segment Manager UI and the Network Supervisor UI allow views of individual rooms and panels as well as groups. The Network Supervisor enables long term storage of historical data not possible on Segment Managers.

Monitoring and Control

Key parameters for every DLM device are accessible and changeable via the web browser interface. Information is displayed in simple, easy-to-use trees with different options for viewing the DLM hierarchy.

User Interface



Dashboard view for room or group energy use

The configuration view shows details for a device named '137 Customer Care' (Device Type: LMBC_300). It includes fields for Description, Serial Number, Operating Mode, Switch Lock, Room Occupancy, Go to Scene, Room Size, Total Lighting Watts(W), Total Watts/VA, Space Type, Total Plug Watts(W), Firmware Version, Application Version, Device ID, and Address.

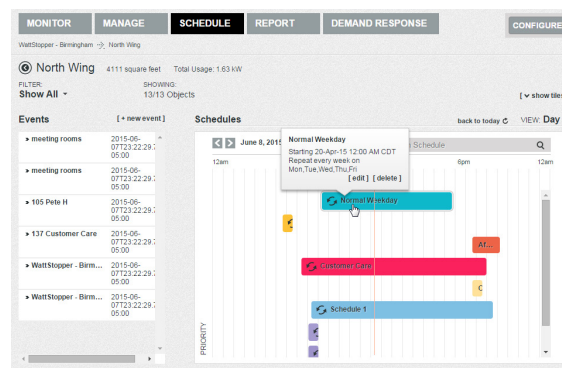
Monitoring and configuration view for individual devices

Event Scheduling

Both the Segment Manager and Supervisor enable creation and editing of complex scheduled control for daily, weekly, monthly or special events based on time of day or astronomical time. These can be for standard and/or HCL lighting types. Schedules can be assigned to individual rooms or to groups, and the schedule display includes a chart of all the schedules currently saved in the platform.

BACnet Integration

The BACnet export function exposes selected DLM data points as BACnet objects for access by a BAS or other BACnet enabled application. Points available for export include the most frequently requested, such as: occupancy state, load status, lighting power, plug load power, light level and schedule mode.



Schedule view

The Demand Response popup window displays the status 'Demand Response: Disabled'. It includes instructions: 'Select "Disable" to Cancel Demand Response.', 'Select "Override" to Allow Users to Adjust Lighting Levels.', and 'Select "Force" to Prevent Tenants from overriding load shed.' There are three buttons: Disable, Override, and Force.

Simple popup to allow or force DR overrides

Network Supervisor Specifications

Software

- SSL Secure Web Browser Interface
- Compatible with LSM-3E/6E (LSM-Connect license required for each Supervisor-connected Segment Manager)
- Windows 64 bit compliant
- Scalable to support large LSM deployments (For projects with more than 100 LSM units, contact Wattstopper Support for additional hardware requirements)

Minimum requirements for PC, server or VM

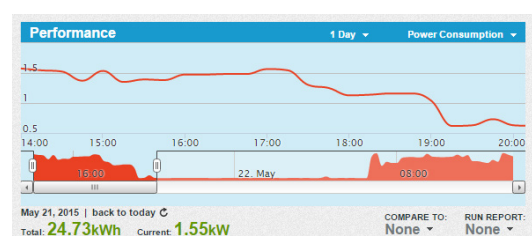
- Compatible operating system: Windows 7 Professional, SP1-64 bit (PC); Windows Server 2008 SP2-6 bit (server/VM); or Windows Server 2012 R2-64 bit (server/VM)
- Processor: Intel Core i7-3770 3.40 GHz
- Memory (RAM): 16 GB
- Hard drive: 500 GB
- Disk drives: DVD RW

- Video card: HD with minimum 1920 x 1080 resolution
- Network interface Card (NIC): Dual 10/100/1000 (must have 2); VM must use Static MAC for NICs
- Battery backup: APC 600va UPS - BN600G
- Peripherals: 23" monitor; standard USB PC keyboard and optical mouse

Wattstopper HDESKTOP-SUP minimum specifications

- IBM-compatible personal computer with 23" LCD flat screen monitor, keyboard and optical mouse; 115VAC, 50-60Hz
- Microsoft Windows 7 Professional OS
- 3.4 GHz dual core processor
- 16GB RAM
- 500 GB hard drive
- DVD/CD drive
- Secondary NIC (network interface card)
- Serial port
- Three-year manufacturer's hardware warranty

Supervisor UI



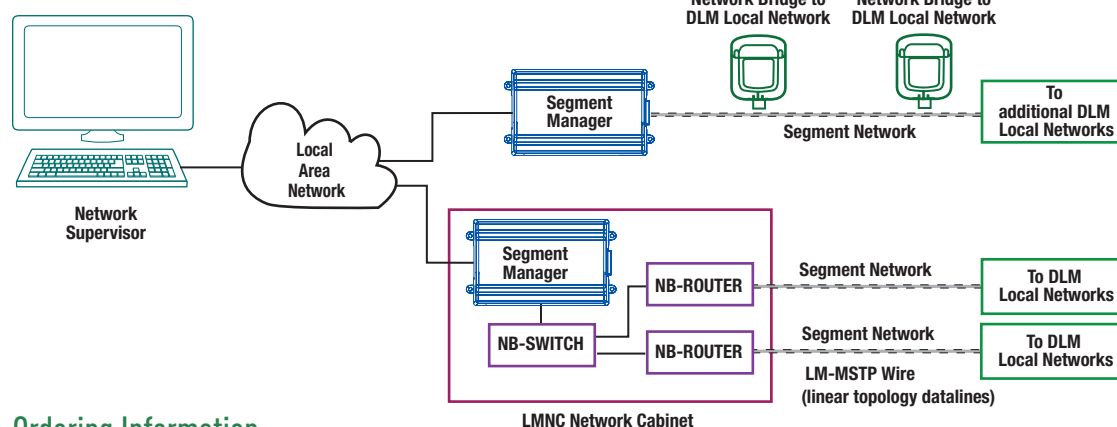
Power consumption graph in day, week, month or year-to-date view.



Connection screen displays all connected LSM units and enables simple synchronization with the Supervisor.

Connecting

Sample Network Supervisor Connection Diagram



Ordering Information

Catalog #	Description
<input type="checkbox"/> LSM-3E	Segment Manager, three MS/TP segment network
<input type="checkbox"/> LSM-6E	Segment Manager, use NB-ROUTERS for up to 300 rooms
<input type="checkbox"/> LSM-CONNECT	Segment Manager license for connection with Supervisor (each connected LSM requires a license)
<input type="checkbox"/> LM-SUPERVISOR	Network Supervisor software pre-installed on Enterprise PC (HDESKTOP-SUP)
<input type="checkbox"/> LM-SUPERVISOR-SW	Network Supervisor software only
<input type="checkbox"/> HDESKTOP-SUP	Enterprise PC; meets minimum hardware requirements for Network Supervisor software
<input type="checkbox"/> LM-SMGRAPHICSCRN	Segment Manager configured screen graphics and layout services