LOYTEC Building Management and Control System

Product Guide

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LOYTEC Product Overview

LWEB-900 Building Management System
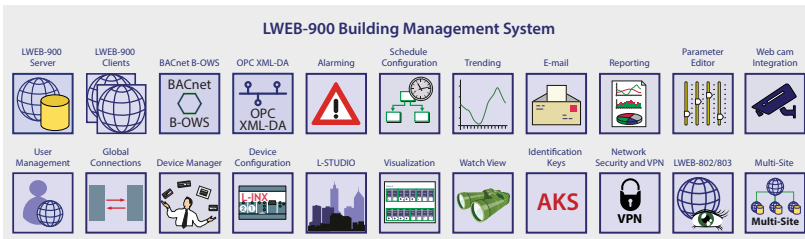
Product Category	Products	LON	BACnet	KNX	EnOcean	Bluetooth	DALI	SMI	Modbus	M-Bus	MP-Bus	OPC	Programmable	IoT
User Interface	L-VIS, L-WEB, L-STAT, L-PAD	✓	✓			✓			✓			✓	✓	✓
Room Automation	L-ROC, L-INX, L-IOB, L-PAD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lighting Control	L-DALI	✓	✓		✓	✓	✓	✓				✓	✓	✓
HVAC Control	L-INX, L-IOB, L-MBUS, L-MPBUS	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
I/O Controller	L-IOB	✓	✓		✓		✓		✓		✓	✓	✓	✓
Energy Management, Metering	L-INX, L-IOB, L-MBUS	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓
Gateways	L-GATE, L-INX, L-DALI	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓
Network Infrastructure	L-IP, L-Switch, NIC	✓	✓									✓		
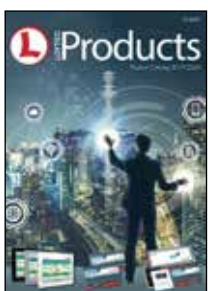
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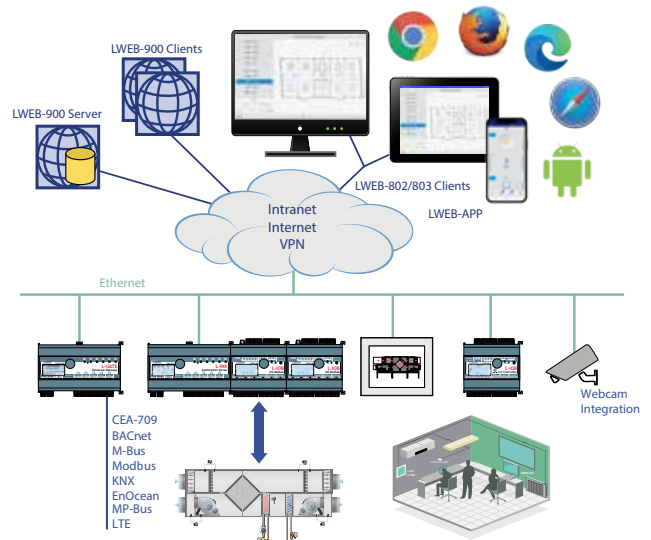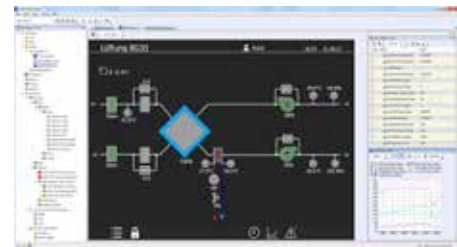
L-WEB Building Management System

The L-WEB System is a powerful building management system platform for managing distributed building automation systems of any size. Maximum flexibility and scalability is achieved through the LWEB-900 client/server architecture in combination with the distributed LOYTEC L-INX Automation Servers and L-ROC Room Controllers.

The L-WEB System provides:

- Visualization of customized graphic pages with dynamic content from a standard web browser

- Analysis and storage of long term data

- Management of distributed time schedules

- Alarm management

- Organization of system parameters and data points

- Device management and updates for all LOYTEC devices

- Reporting, e.g. to document the energy consumption of a building

- Integration of webcams

- Multi-site functionality

- VPN

Multiple users can simultaneously use the system functions on different PCs. LWEB-900 provides comprehensive user management and asset tracking features. Alarming, scheduling and trending (AST™) functions distributed to LOYTEC devices are automatically synchronized to the LWEB-900 server. AST™ functions are ready where they are needed in building automation and fully integrated into the L-WEB System.

Individualized graphics can be created for specific tasks which are available to different users via LWEB-803 dashboards, LWEB-802 HTML5 user interfaces, or through the LWEB-900 building management system.

Connectivity Products

The LGATE-902 and LGATE-952 are powerful universal gateways that can host user specific graphical pages to be used with LWEB-802/803. They can simultaneously integrate and map data points from multiple open protocols. Local operation and override is provided by the built-in jog dial and the backlit display (128×64 pixels). Device and data point information is provided by the Web interface and shown on the display via symbols and in text format.

The LIP-ME201C, LIP-ME202C, and LIP-ME204C BACnet/IP Routers connect BACnet MS/TP channels to a BACnet/IP network. The BACnet routers are compliant with the standards ASHRAE 135-2012 and ISO 16484-5:2012. The routers can be configured to act as a BACnet Broadcast Management Device (BBMD). The L-IP BACnet/IP Routers also provide Foreign Device support.

The L-IP Routers LIP-1ECTC, LIP-3ECTC, LIP-33ECTC, and LIP-3333ECTC connect twisted pair channels (TP/FT-10 or TP/XF-1250) with the Ethernet/IP channel (IP-852) in LonMark Systems. L-IP routes CEA-709 packets through an IP based network such as a LAN (Ethernet), an Intranet, or even the Internet.

L-INX Automation Servers
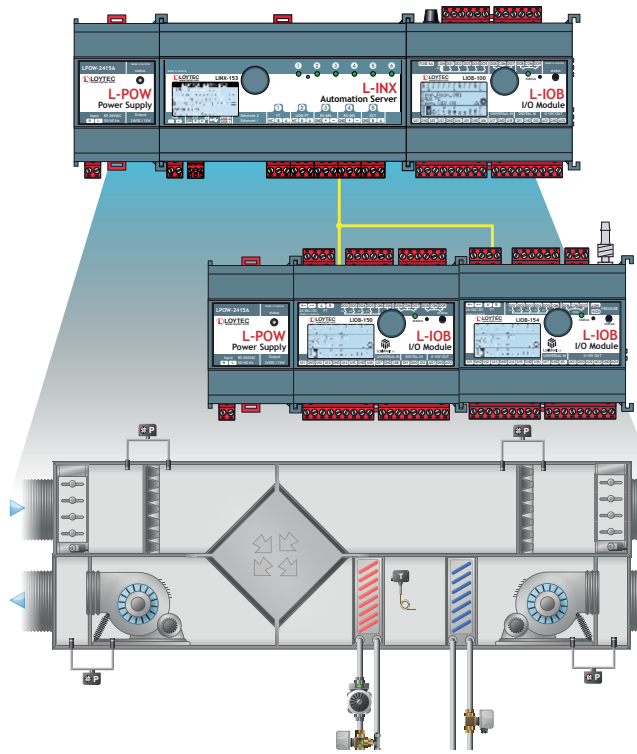
The programmable L-INX Automation Servers are powerful multi-protocol devices that can be expanded by plug and play L-IOB I/O Modules. L-INX Automation Servers feature comprehensive alarming, scheduling, trending (ASTTM), and email notification features. The L-INX can host dynamic graphical pages that can be accessed via a standard web browser.

Protocols supported:

Field level protocols	IP level protocols
BACnet MS/TP	BACnet/IP
LONMARK TP/FT-10	LONMARK IP-852
KNX TP1	KNXnet/IP
M-Bus	OPC XML-DA, OPC UA
Modbus RTU/ASCII	Modbus TCP
EnOcean	HTTPS
SMI	SMTP
MP-Bus	SNMP
	Node.js
	LTE

L-IOB I/O Modules can be connected to the L-INX Automation Servers via LIOB-Connect, LIOB-FT, and LIOB-IP. L-INX integrates smoothly into the L-WEB System via web services. The built-in network security features such as SSL, HTTPS, SSH, and the configurable firewall make the data exchange with the L-INX Automation Servers secure from unauthorized access. L-INX Automation Servers can connect to SMI, MP-Bus, EnOcean, LTE and WLAN through additional interfaces.

L-IOB I/O Controllers & Modules

The programmable L-IOB I/O Controllers and the L-IOB I/O Modules feature various I/O configurations and are based on 32-bit L-CORE, ensuring first class performance and resources. Some models are equipped with a built-in pressure sensor.

L-IOB I/O Controllers and Modules are available with BACnet/IP or LonMark IP-852 Ethernet connectivity, as well as LonMark TP/FT-10. The L-IOB I/O devices communicate independently via network variables or BACnet objects in the corresponding networks. In addition, L-IOB I/O Modules are available with a LIOB-Connect interface for a fast and easy connection to L-INX Automation Servers or L-ROC Room Controllers.

All L-IOB devices contain a 128 x 64 display with backlight. The display shows device and data point information. A jog dial is used for local operation by navigating through detailed information on the display and for operation and control of data points.

All L-IOB I/O Controllers feature comprehensive alarming and scheduling. IP based L-IOB I/O Controllers feature trending and email notification. They can also host dynamic graphical pages accessible via web browser. Universal I/Os are available on LIOB-110, LIOB-112, LIOB-590, LIOB-592, LIOB-593, LIOB-594, LIOB-595, and LIOB-596.

LIOB-AIR Controllers are fully IP based variable air volume controllers (VAV controller) with a predefined, flexible, reprogrammable application program and sophisticated management functions for a building ventilation system.

L-ROC Room Automation

The L-ROC Room Controller is the core of the revolutionary IP based room automation system that allows for changing room layouts within seconds. L-ROC smoothly integrates in native BACnet/IP Networks and LonMark Systems at the controller level.

The L-STUDIO software allows for the creation and adjustment of flexible room applications incorporating HVAC, lighting, sun blinds and security functions into totally integrated automation systems with very little effort.

An integral part of the L-ROC solution is a web-based room operation from PCs or mobile devices (iOS and Android) via LWEB-803 dashboards (virtual room unit on PC desktop), or LWEB-802 HTML5 pages with the automatic generation of graphic projects for local room operation on L-VIS Touch Panels.

The L-ROC Room Controller family of products integrates DALI-2, KNX, LON, BACnet IP and MS/TP, Modbus, SMI, M-Bus, MP-Bus, Bluetooth and EnOcean subsystems at controller level. These integration capabilities are the foundation for outstanding scalability and flexibility.
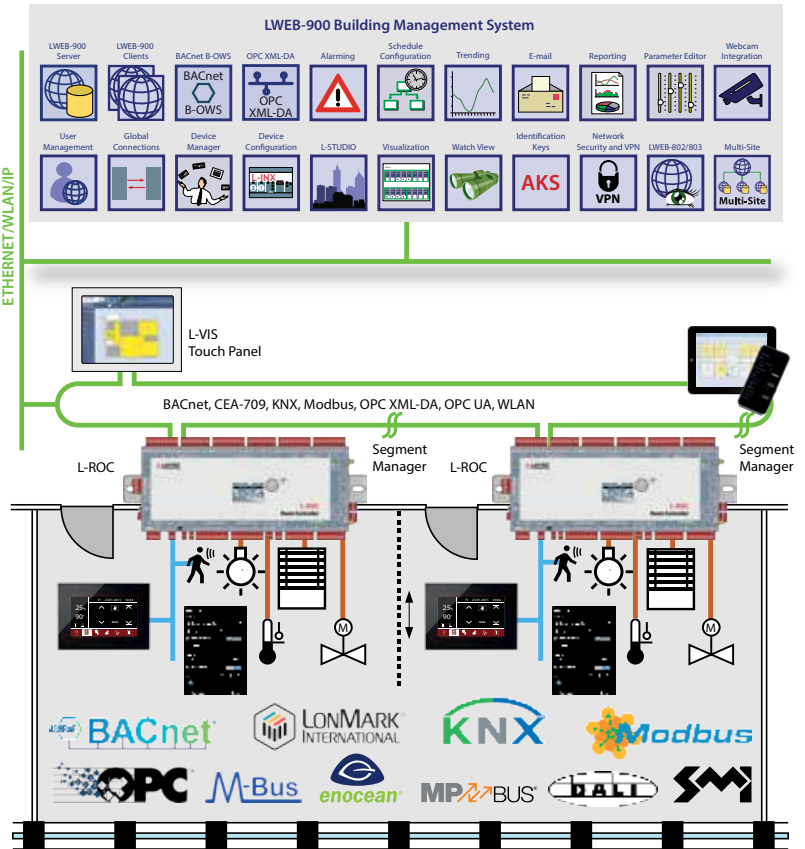
L-DALI Lighting Control
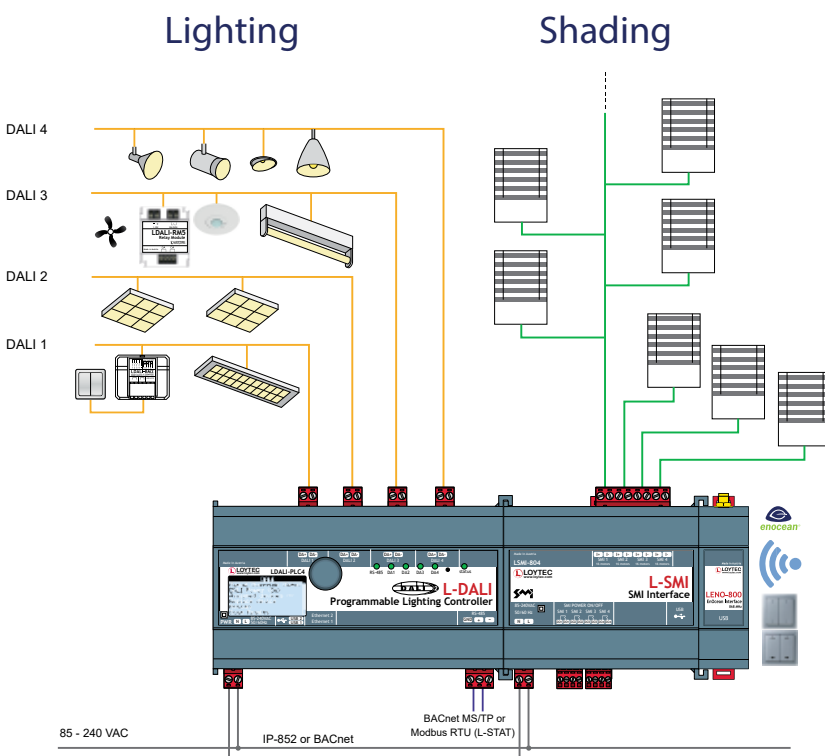
L-DALI Controllers are DALI-2 certified multi-functional devices featuring DALI lighting control and gateway functionality between the DALI protocol (Digital Addressable Lighting Interface) and LonMark Systems or BACnet Networks. In addition to the integration of DALI ballasts and DALI-2 certified input devices the L-DALI controllers support configuration of a variety of L-DALI devices (relay and DALI to 1-10V converter modules, phase-cut dimmers, PWM modules, pushbutton-couplers and multi-sensors).

The built-in web server allows for device configuration, DALI system configuration and maintenance. L-DALI Controllers feature alarming, scheduling, trending (AST™), e-mail notification functionality and together with the new generation of bluetooth-enabled L-DALI multi-sensors, asset tracking functionality and sensor beacon configuration.

EnOcean devices can be integrated via the L-ENO EnOcean interface and, together with the LSMI-804 interface, they can build up an intelligent and efficient sun and anti-glare protection through active slat control and slat adjustment according to the sun position.

LPAD-7 Operator Touch Panels

IP connectivity is via ethernet ports on the device supporting PoE, bridged or separated network configuration in addition to WLAN wireless. LPAD-7 can communicate with Bluetooth or Bluetooth mesh devices in a space.

LPAD-7 implements the most popular open protocols such as BACnet, Bluetooth, Modbus, OPC XML/DA, OPC UA, EnOcean, LonMark IP852 and FT.

LPAD-7 Operator Touch Panels perfectly act as room operator panels, network thermostats, or generic programmable controllers with integrated capacitive touch screen and a variety of built-in sensors. LPAD-7 perfectly fits the requirements to operate in commercial or residential rooms of any type.

LPAD delivers a modern and slim design installed on a wall.

The LPAD-7 senses temperature, humidity, brightness, and presence. Optional mounting sockets add a variety of additional connectivity capabilities and a number of physical inputs and outputs when required.

The IR receiver detects commands from an IR remote control. The proximity sensor turns on the backlight of the display and the detection distance can be set (20-200 cm).

An optional built-in 1.3 Mpx camera with 80° viewing angle streams videos from the monitored area.

L-STAT Room Operator Panels

The L-STAT is a room operator panel with a modern, minimalistic look that fits any interior design. It is directly connected to a LOYTEC controller with a Modbus interface.

Up to 16 L-STAT devices can be connected to one controller. L-STAT is equipped with a segmented LCD display featuring an RGB backlight with adjustable color, offering an elegant way to make the L-STAT match the interior color concept of any building. Eight capacitive touch buttons are used to cycle through sensor values, display parameters, and adjust set points. Additionally, four external buttons can be connected.

Depending on the version, the L-STAT's internal sensors mea-sure temperature, humidity, dew point, ambient light, occupancy, and the CO_2 level of the air. Additionally, the date and time as well as the current level of eco-friendliness in the form of leaves are also displayed on the LCD display.

A buzzer provides acoustic feedback for the touch buttons and can also be used to indicate alarms and error states. To prevent unauthorized modifications, two access levels (end user, system integrator) are provided.

The L-STAT comes with a built-in infrared receiver for comfortable remote control. Custom versions of the L-STAT are available with all three different hardware versions.

Additionally, they can be equipped with an EnOcean interface. In this case, the L-STAT acts as a remote EnOcean transceiver for all controllers supporting an L-STAT interface.

L-VIS Touch Panels

L-VIS Touch Panels are ideally suited for visualization and operation of various applications in building automation. L-VIS Touch Panels visualize building automation systems, can be used as room units, or make a good choice in conference rooms and reception areas.

L-VIS impresses with its timeless design, harmonic integration into modern and historical architecture, with an extremely user friendly concept. The shallow installation depth and low thermal power loss allow mounting in almost any location.

For the operation and monitoring of information in LonMark Systems, BACnet or Modbus networks, the following types of L-VIS Touch Panels are available:

- 7" L-VIS Touch Panel, 800 x 480, 262 144 colors, frameless glass front and capacitive touch

- 12.1" L-VIS Touch Panel, 800 x 600, 262 144 colors, aluminium frame with anodized finish

- 15" L-VIS Touch Panel, 1024 x 768, 262 144 colors, aluminium frame with anodized finish or frameless glass front and capacitive touch
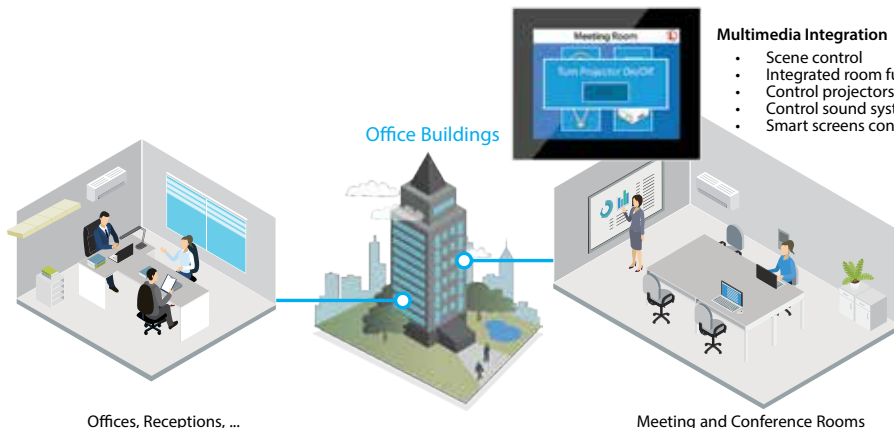
IoT Integration

The Internet of Things has brought forward an offspring of devices with Web-based interfaces, such as Multimedia projectors, A/V systems, Smart-TVs, or smart light bulbs. LOYTEC's groundbreaking JavaScript-based IoT integration allows to integrate them all.

Typical applications are meeting rooms or auditoriums with scene control of lighting and shading, integration of third-party devices, and operation of multimedia equipment by the touch of a single button. Similar products from the consumer sector like a Sonos® audio system, Philips Hue lights or Alexa and friends can be connected to the LOYTEC building control system.

The IoT function (Node.js, Node-RED) allows connecting the system to almost any cloud service, either for uploading historical data to analytics services, delivering alarm messages to alarm processing services or operating parts of the control system over a cloud service (e.g., scheduling based on Web calendars or booking systems).

Processing Internet information such as weather data in forecast-based control is also possible. Finally, the JavaScript kernel also allows implementing serial protocols to non-standard equipment in primary plant control.

In short: If you can control it via app, you can integrate it into the building automation system or touch panel interface.

Multimedia Integration
- Scene control
- Integrated room functions
- Control projectors
- Control sound systems
- Smart screens control

Office Buildings

Offices, Receptions, ...

Meeting and Conference Rooms

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