

LIOB-590 I/O Controllers are IP-enabled, compact, programmable automation stations for LonMark Systems, BACnet/IP and BACnet/SC networks with bidirectional I/Os configurable as either input or output and integrated graphical visualization.

### Communication

The LIOB-590 I/O Controller is equipped with two Ethernet ports including a built-in Ethernet switch. This allows for building a daisy chained line topology of up to 20 devices, which reduces costs for network installation. Dual Ethernet port devices also allow the setup of a redundant Ethernet installation (ring topology), which increases reliability. The redundant Ethernet topology is enabled by the Rapid Spanning Tree Protocol (RSTP), which is supported by most managed switches.

Technology data points are automatically exposed as OPC tags for higher level OPC client applications or L-WEB system via the integrated OPC server providing TSL encrypted web services (OPC XML-DA) or UA Secure Conversation (OPC UA). The L-IOB I/O Controllers further allow data exchange over global connections (network-wide data exchange), offer AST™ functions (Alarming, Scheduling, and Trending), store custom graphic pages for visualization in LWEB-802/803, and can be seamlessly integrated in the LWEB-900 Building Management System. LIOB-590 I/O Controllers implement the BACnet Building Controller (B-BC) profile and are BTL certified.

### IoT Integration

The IoT function (Node.js) allows connecting the system to almost any cloud service, either for uploading historical data to analytics services, telemetry using MQTT, 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.

### Local Operation and Override

All L-IOB I/O Controllers are equipped with an LCD display (128x64) with backlight and jog dial for manual local operation and override. Device and data point information is displayed in text form and via graphical symbols.

## Features

- Automation station with bidirectional I/Os configurable as either input or output
- Programmable with L-STUDIO (IEC 61131-3 or IEC 61499)
- Room controller for up to 2 room segments
- Node.js support<sup>1</sup> for easy IoT integration (e.g. Google calendar, MQTT, Alexa & friends, multimedia equipment,...)
- Dual Ethernet/IP interface
- Manual operation using the jog dial or VNC client
- 128x64 graphic display with backlight
- Local and remote access to information about device status and data points
- Visualization of customized graphical pages through LWEB-900 (Building Management), LWEB-803 (Monitoring and Control), or LWEB-802 (Web Browser)
- Integrated web server for device configuration and monitoring data points
- Gateway functions including Smart Auto-Connect™
- Access to network statistics
- Compliant with CEA-709, CEA-852, and ISO/IEC 14908 Standard (LonMark System)
- Compliant with ANSI/ASHRAE 135-2012 and ISO 16484-5:2012 standard
- Supports BACnet/ IP, BACnet/SC
- B-BC (BACnet Building Controller) functionality, BTL certified
- BACnet Client Function (Write Property, Read Property, COV Subscription)
- BACnet Client Configuration with configuration tool (scan and EDE import)
- Supports IP-852 (Ethernet/ IP)

<sup>1</sup> requires L-IOT1 software license

# LIOB-590

- Support of dynamically created or static NVs
- Support of user-defined NVs (UNVTs) and Configuration Properties (SCPTs, UCPTs)
- Alarming, Scheduling, and Trending (AST™)
- Event-driven e-mail notification
- Math objects to execute mathematical operations on data points
- 20 x Universal I/O (IO)
- Built-in OPC XML-DA and OPC UA server
- Stores customized graphical pages
- Stores user-defined project documentation

## General Specifications

Dimensions (mm)	107 x 100 x 75 (L x W x H), DIM063
Installation	DIN rail mounting following DIN 43880, top hat rail EN 50022
Operating conditions	0 °C to 50 °C, 10 – 90 % RH, noncondensing, degree of protection: IP40, IP20 (terminals)
Power supply	24 VDC / 24 VAC ±10 % via L-POW, or with an external power supply
Program cycle time	Down to 10 ms
Interface	2 x Ethernet (100Base-T): Web services (OPC XML-DA, OPC UA), LonMark IP-852, BACnet/ IP, BACnet/SC Modbus TCP (Master or Slave), HTTP, FTP, SSH, HTTPS, Firewall, VNC, SNMP
Max. number of Rooms/Segments	2

## Resource limits

Total number of data points	10 000	CEA-709 External NVs (polling)	500
OPC data points	5 000	CEA-709 address table entries	256 (non-ECS mode: 15)
BACnet objects	500 (analog, binary, multi-state)	LonMark Calendars	1 (25 calendar patterns)
BACnet client mappings	500	LonMark Schedulers	10
BACnet calendar objects	25	LonMark Alarm Servers	1
BACnet scheduler objects	10 (64 data points per object)	E-mail templates	50
BACnet notification classes	32	Math objects	50
Trend logs (BACnet or generic)	256 (13 000 000 entries, ≈ 200 MB)	Alarm logs	10
Total trended data points	256	Modbus data points	300
CEA-709 network variables (NVs)	500	Connections (Local / Global)	500 / 100
CEA-709 Alias NVs	500	Number of L-WEB clients	32 (simultaneously)

## Runtime licenses

Programming, Tools	L-STUDIO software (IEC 61131-3 or IEC 61499), L-INX Configurator
License	L-STUDIO: included

## Specifications

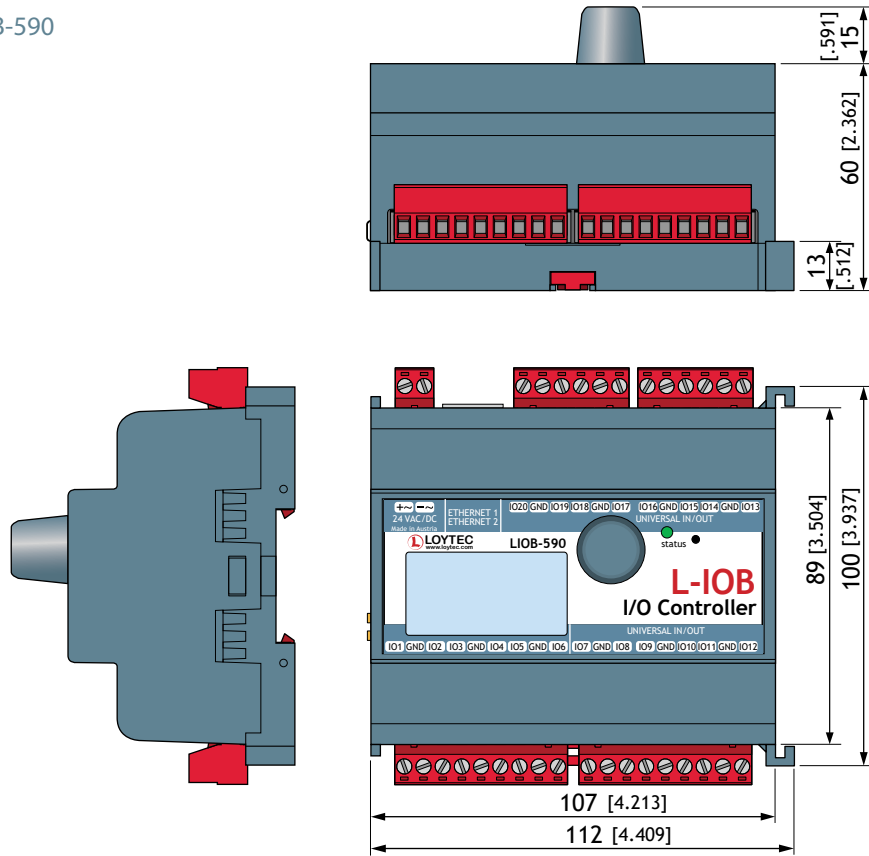
Power consumption	4.5 W <sup>2</sup>
Universal I/O (IO)	20
I/O Specification	Please refer to the " <a href="#">General Input and Output Specification of LOYTEC devices</a> " at the end of the L-IOB section for more details.

Order number	Product description
LIOB-590	L-IOB I/O Controller: 20 Universal I/O (IO)
L-STUDIO	Development and integration platform for programmable LOYTEC controllers
L-IOT1	Add-on Software License to enable IoT functionality on LIOB-585/586/587/588/589/59x, LIOB-AIR, and LINX-102/103/202/203
LPOW-2415A	LIOB-Connect power supply unit, 24 VDC, 15 W
LPOW-2415B	Power supply unit with power connector 24 VDC, 15 W
L-TEMP2	External temperature sensor (NTC10K) for use with L-IOB Universal Inputs

<sup>2</sup> Add external load: Sum of max. current drawn from all outputs x 24V + power drawn from USB and L-STAT connectors.

# Dimensions of the devices in mm and [inch]

**DIM063** LIOB-590



The products of LOYTEC electronics GmbH are subject to constant development. Therefore, LOYTEC reserves the right to modify technical specifications at any time without prior notice. The most recent datasheet can be downloaded from [www.loytec.com](http://www.loytec.com).