# LOYTEC

# L-IOB I/O Controllers
## LIOB-18x/LIOB-48x/LIOB-58x

## Common Features L-IOB I/O Controllers

- IEC 61131-3 programmable with L-LOGICAD
- Physical inputs and outputs
- Available for LonMark Systems and BACnet Networks
- 128x64 display with backlight
- Local access to information about device status and data points
- Manual operation using the jog dial
- Alarming and Scheduling
- Removable terminal screws to accommodate diameters from 0.2–2.5 mm² (26–12 AWG)
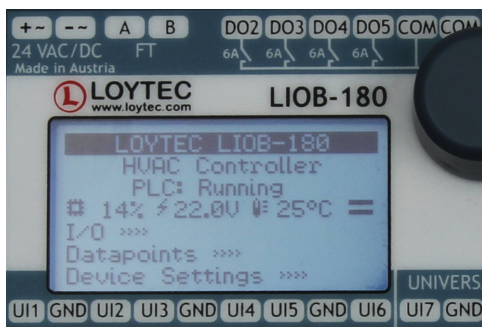- Configuration through L-INX Configurator



## Description

The L-IOB I/O Controller family of products consists of freely programmable controllers featuring different I/O setups. Based on LOYTEC's 32-bit L-CORE platform, the L-IOB I/O Controllers provide first class performance and resources.

Flavors of the L-IOB I/O Controllers are available with Ethernet connectivity featuring BACnet/IP and LonMark IP-852 and with LonMark TP/FT-10 connectivity.

The L-IOB I/O Controllers contain a 128x64 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 operating and overriding of data points.



The configuration of the L-IOB I/O Controllers is done with the L-INX Configuration Tool.

L-IOB Controllers provide removable, vibration-proofed terminal screws with a clamping yoke connection in a 5.08 mm raster for wiring. These terminals can accommodate diameters from 0.2–2.5 mm² (26–12 AWG).

## Controller

The built-in PLC functionality makes the L-IOB I/O Controllers a good fit for various control applications in building automation. Several IEC 61131-3 programs can be run in parallel with different cycle times. IEC 61131-3 applications can be changed during operation and are loaded into the device without interrupting the currently running program. An online test via the network and offline simulation help create the application and support troubleshooting.

Like the L-INX Automation Servers the L-IOB I/O Controllers are programmed with L-LOGICAD in 61131-3. Therefore, the same application libraries and application programs can be used on both platforms.

## Alarming

Depending on the communication protocol, the L-IOB I/O Controllers support either alarming according to the LonMark profile definition or BACnet intrinsic alarming.

## Scheduler

Schedulers and calendars located on the L-IOB I/O Controller are configured with the L-INX Configurator. When used together with L-INX Automation Servers, the schedules and calendars can be parameterized via the L-INX integrated Web server.

The BACnet/IP variants support Scheduling according to the BACnet Standard.

## Trending

Trend and Event logs are supported by all L-IOB I/O Controllers featuring Ethernet connectivity. When using BACnet, the trend logs on the L-IOB I/O Controllers can be accessed by BACnet Clients via BACnet.

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## LIOB-FT I/O Controllers

### Features LIOB-FT I/O Controllers

- LONMARK Certified devices
- Connect to LonMark TP/FT-10 channel
- Support of static network variables (max 200)
- Support of user defined NVs (UNVTs)
- Supports the Extended Command Set (ECS)
- Alarming and Scheduling
- Configuration through L-INX Configurator (can be registered as LNS Plug-In)

The family of LIOB-FT I/O Controllers offers network connectivity to a LonMark TP/FT-10 channel. All LIOB-FT I/O Controllers are LonMark certified.

The LIOB-FT I/O Controllers support the Enhanced Command Set and have 256 address table entries available. This guarantees highest flexibility in operation and makes binding limitations obsolete.

## LIOB-IP852 I/O Controllers

### Features LIOB-IP852 I/O Controllers

- LONMARK Certified devices
- Connect to LonMark IP-852 channel via Ethernet
- Support of static network variables (max 200)
- Support of user defined NVs (UNVTs)
- Supports the Extended Command Set (ECS)
- Integrated OPC XML-DA server (200 DPs max)
- Integrated Web server for device configuration and management
- Configuration through L-INX Configurator (can be registered as LNS Plug-In)

The family of LIOB-IP852 I/O Controllers offers network connectivity to a LonMark IP-852 channel via Ethernet/IP. All LIOB-IP852 I/O Controllers are LonMark certified and feature an embedded Web server for device configuration and management.

The LIOB-IP852 I/O Controllers support the Enhanced Command Set and have 256 address table entries available. This guarantees highest flexibility in operation and makes binding limitations obsolete. An IP-852 configuration server is necessary to use the devices on an IP-852 channel. Such a configuration server is featured by every LOYTEC L-IP router or L-INX Automation Server with a built-in L-IP router.

All LIOB-IP852 I/O Controllers feature a built-in OPC XML-DA server which can host up to 200 data points that can be accessed through Web services.

## LIOB-BIP I/O Controllers

### Features LIOB-BIP I/O Controllers

- BACnet Advanced Application Controller (B-AAC)
- Freely programmable
- BACnet/IP connectivity via Ethernet
- Supports BACnet server objects (max 200)
- Integrated OPC XML-DA Server ( 200 DPs max)
- Integrated Web server for device configuration and management
- Configuration through L-INX Configurator

The family of LIOB-BIP I/O Controllers are BACnet Advanced Application Controllers (B-AAC). They feature Ethernet connectivity to BACnet/IP networks and support comprehensive BACnet alarming, trending and scheduling.

All LIOB-BIP I/O Controllers feature a built-in OPC XML-DA server which can host up to 200 data points that can be accessed through Web services.

## Input and Output specifications

### UI - Universal Input

Configuration is made via the L-INX Configuration Software. Corresponding to class 1 with 1 % accuracy, input voltage range of 0 to 30 V.

Types of input:

- Binary Input (Digital Input)

     Input Impedance: 10 kΩ

     Sampling Rate:   10 ms

- Voltage Metering 0-10 V

     Input Impedance: 10 kΩ

     Sampling Rate:   1 s

- Current Loop 4-20 mA

     Input Impedance: 249 Ω

     Sampling Rate:   1 s

- Resistance Measurement

     Input Impedance: 10 kΩ

     Sampling Rate:   1 s

Resistors in the range of 1 kΩ to 100 kΩ can be measured. Already predefined sensor characteristics for known sensors e.g. Pt1000 and NTC10K temperature sensors are available. New characteristics can be defined or adjusted.

### DI - Digital Input, Counter Input (S0-Pulse)

DIs are fast binary inputs, which can also be used as counter inputs (S0).

Corresponding to class 1 with 1 % accuracy, 0 to 30 V. input voltage range.

     Input Impedance: 10 kΩ

     Sampling Rate:   10 ms

     S0-Pulse: positive switching

### AO - Analog Output

     Resolution: 10 bit

     Signal Range:  0…10 V, optional 0…12 V

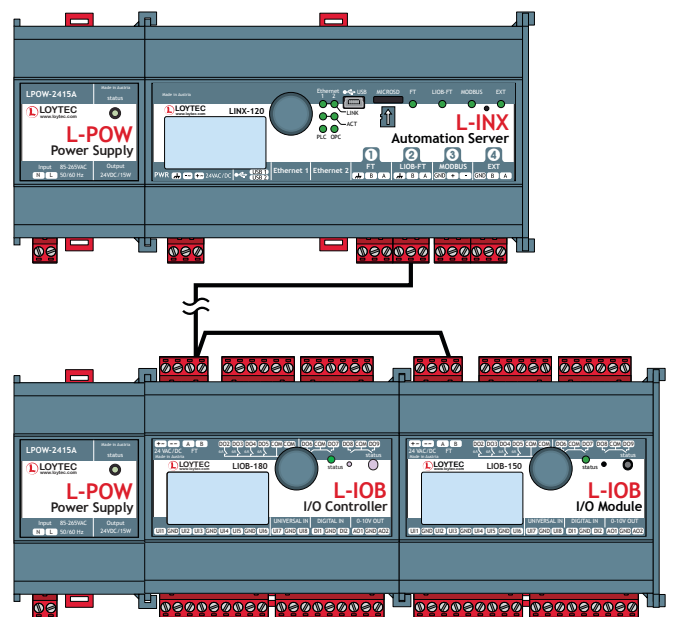     Current: max. 10 mA (short circuit proofed)

     Input Impedance:

     min. 1.2 kΩ for linear output

### DO - Digital Output

- Relay Output
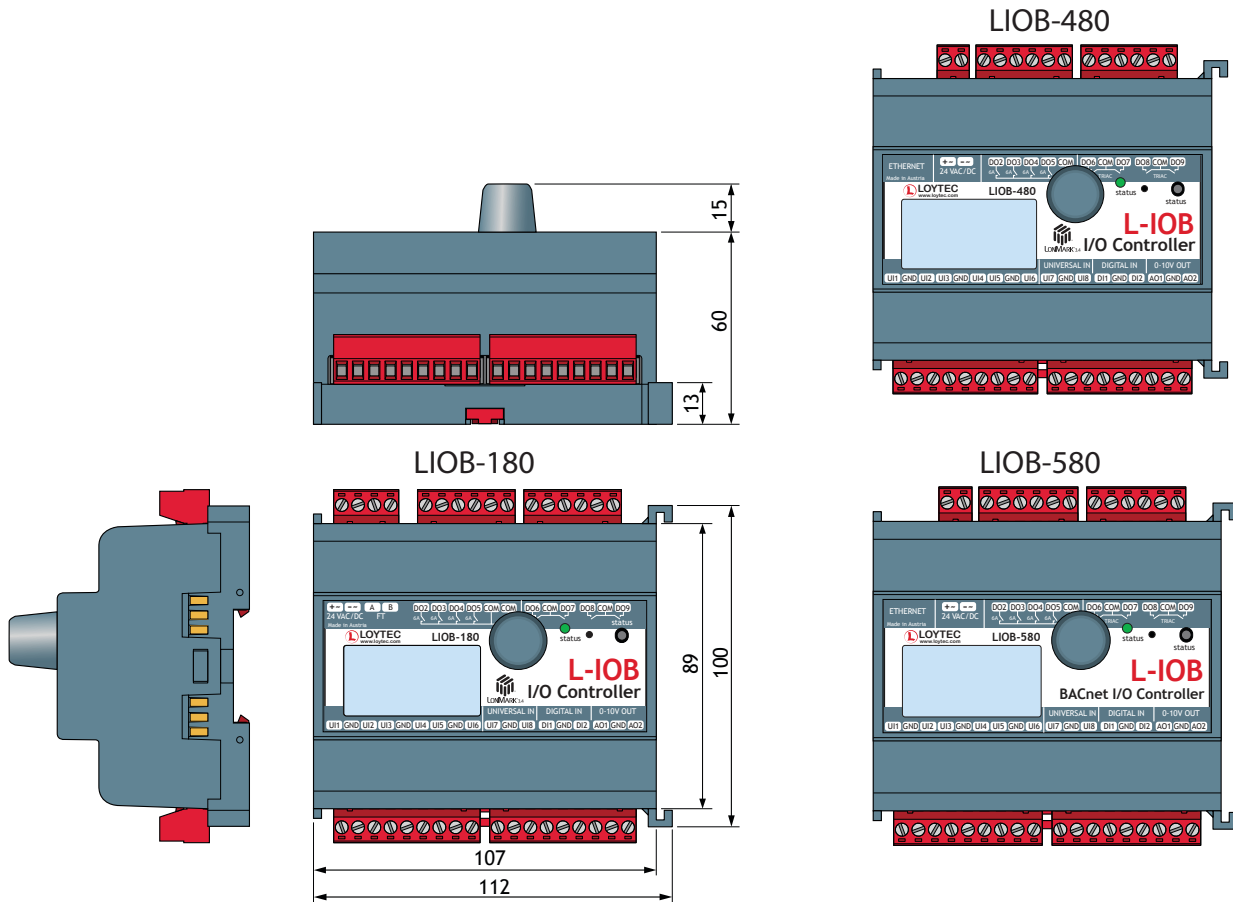
     Switching capacity:

     6 A, 250 VAC resp. 30 VDC

     16 A, 250 VAC resp. 30 VDC

- TRIAC Output

     Switching capacity: 1 A, 24 to 230 VAC

### Pressure Sensor

- Differential Pressure Sensor with 2 hose connectors:

     0–500 Pa

     3/16" (4.8 mm) hose connector



**L-IOB I/O Controller and L-IOB I/ Module in combination with L-INX Automation Server and L-POW Power Supply**

LIOB-480

LIOB-180

LIOB-580

| General Specification | |
|---|---|
| Dimensions (mm) | 107 x 100 x 75 (L x W x H) |
| Operating Temperature | 0°C to +50°C |
| Storage Temperature | -10°C to +85°C |
| Humidity (non condensing) operating / storage | 10 to 90 % RH @ 50°C |
| Enviromental Protection | IP 40 (enclosure); IP 20 (screw terminals) |
| Power supply | 24 VDC / 24 VAC ±10 % |
| Manual Control Level | 128x64 display, white backlight. Access to device information, manual mode, override values, and parameterization of I/Os |
| Programming | L-LOGICAD software (IEC 61131-3) |
| Cycle Time | Down to 10 ms |
| IEC 61131-3 variables | 1000 |
| OPC data points | 200 (XML-DA)) |

![LOYTEC logo]

## Specification LIOB-FT I/O Controller (LIOB-18x)

| | | | | | |
|---|---|---|---|---|---|
| Installation | Connected with a twisted-pair cable (according to LONMARK TP/FT-10 channel), DIN rail mounting (EN 50 022) | | | | |
| Interface | 1 x LIOB-FT or LonMark TP/FT-10 | | | | |
| Address Table Entries | 256 | | | | |
| Types | LIOB-180 | LIOB-181 | LIOB-182 | LIOB-183 | LIOB-184 |
| Power Consumption | 1.7 W<br>2.6 W (all relays on) | 1.7 W | 1.7 W<br>2.7 W (all relays on) | 1.7 W<br>2.5 W (all relays on) | 1.7 W<br>2.6 W (all relays on) |
| Universal Input (UI) | 8 | 8 | 6 | 6 | 7 |
| Digital Input (DI) | 2 | 12 | - | - | - |
| Analog Output (AO) | 2 | - | 6 | 6 | 4 |
| Digital Output (DO) | 8 (4 x Relay, 4 x Triac) | - | 8 (8 x Relay) | 5 (4 x Relay 16 A, 1 x Relay 6 A) | 7 (5 x Relay, 2 x Triac) |
| Digital Output Specification | Relay: 6 A<br>Triac: 1 A @ 24–230 VAC | | Relay: 6 A | Relay: 16 A and 6 A | Relay: 6 A<br>Triac: 1 A @ 24–230 VAC |
| Differential Pressure Sensor | - | - | - | - | 0–500 Pa |

## Specification LIOB-IP852 I/O Controller (LIOB-48x)

| | | | | | |
|---|---|---|---|---|---|
| Installation | Connected to LonMark IP-852 via Ethernet, DIN rail mounting (EN 50 022) | | | | |
| Interface | 1 x Ethernet (100Base-T)<br> - OPC XML-DA<br> - IP-852 (LONMARK® System) | | | | |
| Address Table Entries | 256 | | | | |
| Types | LIOB-480 | LIOB-481 | LIOB-482 | LIOB-483 | LIOB-484 |
| Power Consumption | 1.7 W<br>2.6 W (all relays on) | 1.7 W | 1.7 W<br>2.7 W (all relays on) | 1.7 W<br>2.5 W (all relays on) | 1.7 W<br>2.6 W (all relays on) |
| Universal Input (UI) | 8 | 8 | 6 | 6 | 7 |
| Digital Input (DI) | 2 | 12 | - | - | - |
| Analog Output (AO) | 2 | - | 6 | 6 | 4 |
| Digital Output (DO) | 8 (4 x Relay, 4 x Triac) | - | 8 (8 x Relay) | 5 (4 x Relay 16 A, 1 x Relay 6 A) | 7 (5 x Relay, 2 x Triac) |
| Digital Output Specification | Relay: 6 A<br>Triac: 1 A @ 24–230 VAC | | Relay: 6 A | Relay: 16 A and 6 A | Relay: 6 A<br>Triac: 1 A @ 24–230 VAC |
| Differential Pressure Sensor | - | - | - | - | 0–500 Pa |

## Specification LIOB-BIP I/O Controller (LIOB-58x)

| | | | | | |
|---|---|---|---|---|---|
| Installation | Connected to BACnet/IP via Ethernet, DIN rail mounting (EN 50 022) | | | | |
| Interface | 1 x Ethernet (100Base-T)<br> - OPC XML-DA<br> - BACnet/IP | | | | |
| BACnet Server Objects | 200 | | | | |
| Types | LIOB-580 | LIOB-581 | LIOB-582 | LIOB-583 | LIOB-584 |
| Power Consumption | 1.7 W<br>2.6 W (all relays on) | 1.7 W | 1.7 W<br>2.7 W (all relays on) | 1.7 W<br>2.5 W (all relays on) | 1.7 W<br>2.6 W (all relays on) |
| Universal Input (UI) | 8 | 8 | 6 | 6 | 7 |
| Digital Input (DI) | 2 | 12 | - | - | - |
| Analog Output (AO) | 2 | - | 6 | 6 | 4 |
| Digital Output (DO) | 8 (4 x Relay, 4 x Triac) | - | 8 (8 x Relay) | 5 (4 x Relay 16 A, 1 x Relay 6 A) | 7 (5 x Relay, 2 x Triac) |
| Digital Output Specification | Relay: 6 A<br>Triac: 1 A @ 24–230 VAC | | Relay: 6 A | Relay: 16 A and 6 A | Relay: 6 A<br>Triac: 1 A @ 24–230 VAC |
| Differential Pressure Sensor | - | - | - | - | 0–500 Pa |

| Order number | Configuration |
|---|---|
| LIOB-180 | LIOB-FT I/O Controller: 8 UI, 2 DI, 2 AO, 8 DO (4 x Triac, 4 x Relay 6 A) |
| LIOB-181 | LIOB-FT I/O Controller: 8 UI, 12 DI |
| LIOB-182 | LIOB-FT I/O Controller: 6 UI, 6 AO, 8 DO (Relay 6 A) |
| LIOB-183 | LIOB-FT I/O Controller: 6 UI, 6 AO, 5 DO (2 x Triac, 4 x Relay 16 A) |
| LIOB-184 | LIOB-FT I/O Controller: 7 UI, 6 AO, 5 DO (5 x Relay 16 A, 1 x Relay 6 A), 1 Pressure Sensor |
| LIOB-480 | LIOB-IP-852 I/O Controller: 8 UI, 2 DI, 2 AO, 8 DO (4 x Triac, 4 x Relay 6 A) |
| LIOB-481 | LIOB-IP-852 I/O Controller: 8 UI, 12 DI |
| LIOB-482 | LIOB-IP-852 I/O Controller: 6 UI, 6 AO, 8 DO (Relay 6 A) |
| LIOB-483 | LIOB-IP-852 I/O Controller: 6 UI, 6 AO, 5 DO (4 x Relay 16 A, 1 x Relay 6 A) |
| LIOB-484 | LIOB-IP-852 I/O Controller: 7 UI, 6 AO, 5 DO (5 x Relay 16 A, 1 x Relay 6 A), 1 Pressure Sensor |
| LIOB-580 | LIOB-BIP I/O Controller: 8 UI, 2 DI, 2 AO, 8 DO (4 x Triac, 4 x Relay 6 A) |
| LIOB-581 | LIOB-BIP I/O Controller: 8 UI, 12 DI |
| LIOB-582 | LIOB-BIP I/O Controller: 6 UI, 6 AO, 8 DO (Relay 6 A) |
| LIOB-583 | LIOB-BIP I/O Controller: 6 UI, 6 AO, 5 DO (4 x Relay 16 A, 1 x Relay 6 A) |
| LIOB-584 | LIOB-BIP I/O Controller: 7 UI, 6 AO, 5 DO (5 x Relay 16 A, 1 x Relay 6 A), 1 Pressure Sensor |
| LPOW-2415A | LIOB Connect power supply, 24 VDC, 15 W |
| LPOW-2415B | Power Supply with external power connector 24 VDC, 15 W |
| L-TEMP2 | External temperature sensor (NTC10K) for use with L-IOB Universal Inputs |