

### Common Features L-IOB I/O Modules

- 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 with a clamping yoke connection to accommodate diameters from 0.2–2.5 mm<sup>2</sup> (26–12 AWG)
- Configuration through L-INX Configurator (also useable as LNS plug-in)



### Description

The L-IOB I/O Module family of products consists of smart I/O devices featuring different I/O setups. Based on LOYTEC's 32-bit L-CORE platform the L-IOB I/O Modules provide first class performance and extensive resources.

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

The L-IOB I/O Modules 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 Modules is done with the L-INX Configuration Tool.

L-IOB Modules 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 mm<sup>2</sup> (26–12 AWG).

### LIOB-FT I/O Modules

#### Features LIOB-FT I/O Modules

- LonMark Certified devices
- Connect to LonMark TP/FT-10 channel
- Interoperable LonMark and L-INX "Plug and Play" mode (switchable)
- Simple device replacement in L-INX mode without software tool

The family of LIOB-FT I/O Modules offer network connectivity to a LonMark TP/FT-10 channel. All devices support the interoperable LonMark mode (network variables based on SNVTs) as well as the L-INX mode for operation with L-INX and L-ROC devices via "Plug and Play" mechanisms (no binding necessary).

All LIOB-FT I/O Modules are LonMark certified.

In LonMark mode, the LIOB-FT I/O Modules support the Enhanced Command Set and have 512 address table entries available. This guarantees highest flexibility in operation and makes binding limitations obsolete.

In L-INX mode, up to 8 LIOB-FT I/O Modules can be connected to a L-INX Automation Server or an L-ROC Room Controller.

During the installation of the LIOB-FT I/O Modules in L-INX mode, the station addresses have to be set up via the jog dial, so each module is properly recognized and integrated at initial operation. The complete L-IOB configuration is stored in the dedicated L-INX or L-ROC device to enable L-IOB device changes without any further device configuration and without the need for further software configuration tools.

## LIOB-IP852 I/O Modules

### Features LIOB-IP852 I/O Modules

- LonMark Certified devices
- Connect to LonMark IP-852 channel via Ethernet
- Integrated Web server for device configuration and management
- Interoperable LonMark and L-INX "Plug and Play" mode (switchable)
- Simple device replacement in L-INX mode without software tool

The family of LIOB-IP852 I/O Modules offer network connectivity to a LonMark IP-852 channel via Ethernet/IP. All devices support the interoperable LonMark mode (network variables based on SNVTs) as well as the L-INX mode for operation with L-INX and L-ROC devices via "Plug and Play" mechanisms (no binding necessary).

All LIOB-IP852 I/O Modules are LonMark certified and feature an embedded Web server for device configuration and management.

In LonMark mode, the LIOB-IP852 I/O Modules support the Enhanced Command Set and have 512 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 built-in L-IP router.

In L-INX mode, up to 8 LIOB-IP852 I/O Modules can be connected to a L-INX Automation Server or an L-ROC Room Controller.

During installation of the LIOB-IP852 I/O Modules in L-INX mode, the IP address of the dedicated L-INX or L-ROC devices and a station address have to be set up via the L-IOB's jog dial. The complete L-IOB configuration is stored in the dedicated L-INX or L-ROC device to enable L-IOB device changes without any further device configuration and without the need for further software configuration tools.



## LIOB-BIP I/O Modules

### Features LIOB-BIP I/O Modules

- 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 Modules are smart I/O modules to be connected to a BACnet/IP network via Ethernet. They support up to 200 BACnet server objects to access the local I/Os.

All LIOB-BIP I/O Modules feature a built-in Web Server for device management and configuration. In addition they feature an embedded 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 k $\Omega$
  - Sampling Rate: 10 ms
- Voltage Metering 0-10 V
  - Input Impedance: 10 k $\Omega$
  - Sampling Rate: 1 s
- Current Loop 4-20 mA
  - Input Impedance: 249  $\Omega$
  - Sampling Rate: 1 s
- Resistance Measurement
  - Input Impedance: 10 k $\Omega$
  - Sampling Rate: 1 s

Resistors in the range of 1 k $\Omega$  to 100 k $\Omega$  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 k $\Omega$
- 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)

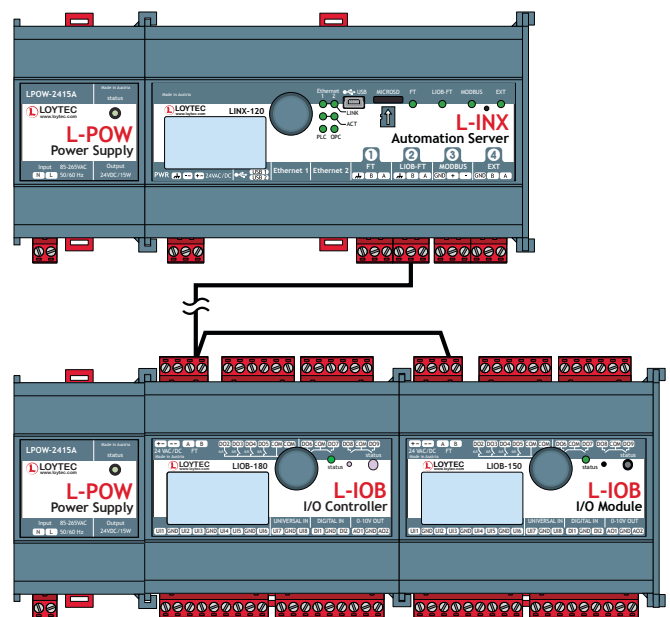
Input Impedance:  
min. 1.2 k $\Omega$  for linear output

### DO - Digital Output

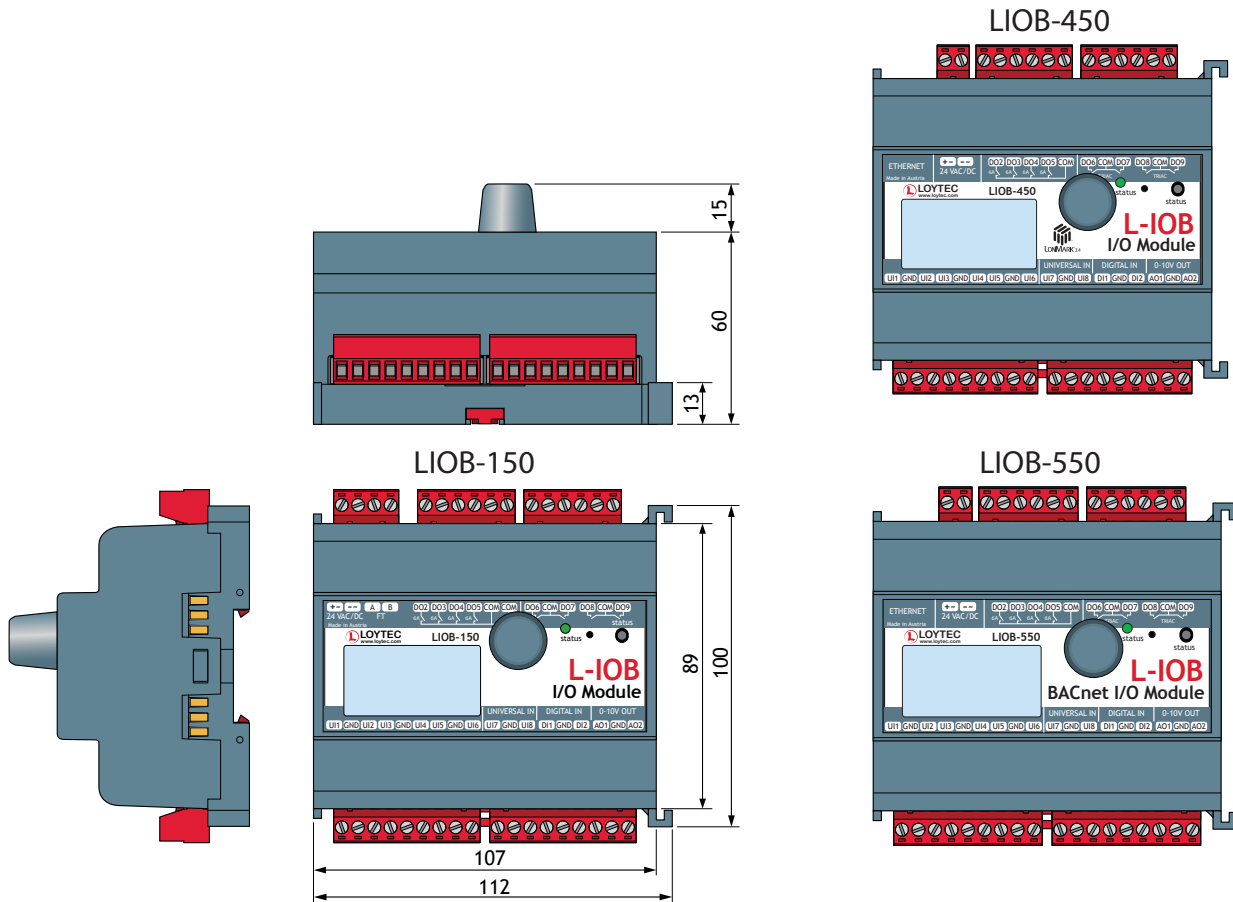
- Relay Output
  - Switching capacity:  
6 A, 250 VAC resp. 30 VDC  
16 A, 250 VAC resp. 30 VDC
- TRIAC Output
  - Switching capacity: 1 A, 24 to 230 VAC

### 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/O Module in combination with L-INX Automation Server and L-POW Power Supply



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
Environmental Protection	IP 40 (enclosure); IP 20 (screw terminals)
Power supply	24 VDC / 24 VAC $\pm$ 10 %, provided by L-INX, L-ROC, or L-POW through LIOB-Connect or by connecting an external power supply on the top left terminals.
Manual Control Level	128x64 display, white backlight. Access to device information, manual mode, override values, and parameterization of I/Os

Specification LIOB-FT I/O Module (LIOB-15x)					
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	512				
Types	LIOB-150	LIOB-151	LIOB-152	LIOB-153	LIOB-154
Power Consumption	1.7 W 2.6 W (all relays on)	1.7 W	1.7 W 2.7 W (all relays on)	1.7 W 2.5 W (all relays on)	1.7 W 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 Triac: 1 A @ 24–230 VAC		Relay: 6 A	Relay: 16 A and 6 A	Relay: 6 A Triac: 1 A @ 24–230 VAC
Differential Pressure Sensor	-	-	-	-	0–500 Pa

Specification LIOB-IP852 I/O Module (LIOB-45x)					
Installation	Connected to LonMark IP-852 via Ethernet, DIN rail mounting (EN 50 022)				
Interface	1 x Ethernet (100Base-T) - IP-852 (LonMARK® System)				
Address Table Entries	512				
Types	LIOB-450	LIOB-451	LIOB-452	LIOB-453	LIOB-454
Power Consumption	1.7 W 2.6 W (all relays on)	1.7 W	1.7 W 2.7 W (all relays on)	1.7 W 2.5 W (all relays on)	1.7 W 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 Triac: 1 A @ 24–230 VAC		Relay: 6 A	Relay: 16 A and 6 A	Relay: 6 A Triac: 1 A @ 24–230 VAC
Differential Pressure Sensor	-	-	-	-	0–500 Pa

Specification LIOB-BIP I/O Module (LIOB-55x)					
Installation	Connected to BACnet/IP via Ethernet, DIN rail mounting (EN 50 022)				
Interface	1 x Ethernet (100Base-T) - OPC XML-DA - BACnet/IP				
BACnet Server Objects	200				
Types	LIOB-550	LIOB-551	LIOB-552	LIOB-553	LIOB-554
Power Consumption	1.7 W 2.6 W (all relays on)	1.7 W	1.7 W 2.7 W (all relays on)	1.7 W 2.5 W (all relays on)	1.7 W 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 Triac: 1 A @ 24–230 VAC		Relay: 6 A	Relay: 16 A and 6 A	Relay: 6 A Triac: 1 A @ 24–230 VAC
Differential Pressure Sensor	-	-	-	-	0–500 Pa

Order number	Configuration
LIOB-150	LIOB-FT I/O Module: 8 UI, 2 DI, 2 AO, 8 DO (4 x Triac, 4 x Relay 6 A)
LIOB-151	LIOB-FT I/O Module: 8 UI, 12 DI
LIOB-152	LIOB-FT I/O Module: 6 UI, 6 AO, 8 DO (Relay 6 A)
LIOB-153	LIOB-FT I/O Module: 6 UI, 6 AO, 5 DO (2 x Triac, 4 x Relay 16 A)
LIOB-154	LIOB-FT I/O Module: 7 UI, 6 AO, 5 DO (5 x Relay 16 A, 1 x Relay 6 A), 1 Pressure Sensor
LIOB-450	LIOB-IP-852 I/O Module: 8 UI, 2 DI, 2 AO, 8 DO (4 x Triac, 4 x Relay 6 A)
LIOB-451	LIOB-IP-852 I/O Module: 8 UI, 12 DI
LIOB-452	LIOB-IP-852 I/O Module: 6 UI, 6 AO, 8 DO (Relay 6 A)
LIOB-453	LIOB-IP-852 I/O Module: 6 UI, 6 AO, 5 DO (4 x Relay 16 A, 1 x Relay 6 A)
LIOB-454	LIOB-IP-852 I/O Module: 7 UI, 6 AO, 5 DO (5 x Relay 16 A, 1 x Relay 6 A), 1 Pressure Sensor
LIOB-550	LIOB-BIP I/O Module: 8 UI, 2 DI, 2 AO, 8 DO (4 x Triac, 4 x Relay 6 A)
LIOB-551	LIOB-BIP I/O Module: 8 UI, 12 DI
LIOB-552	LIOB-BIP I/O Module: 6 UI, 6 AO, 8 DO (Relay 6 A)
LIOB-553	LIOB-BIP I/O Module: 6 UI, 6 AO, 5 DO (4 x Relay 16 A, 1 x Relay 6 A)
LIOB-554	LIOB-BIP I/O Module: 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