

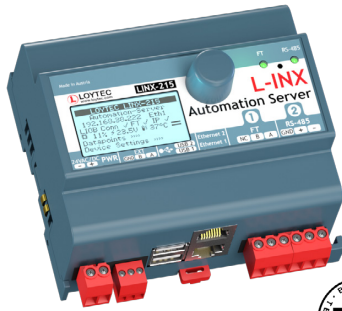
L-INX Automation Server

LINX-215

Datasheet #89047423



- ✓ BACnet
- ✓ Modbus
- ✓ CEA-709
- ✓ M-Bus
- ✓ KNX
- ✓ OPC



The L-INX Automation Servers LINX-215 are programmable automation stations with integrated graphical visualization for central automation tasks in BACnet networks, which can be programmed by L-STUDIO. They can integrate physical I/Os through L-IOB I/O Modules via LIOB-Connect, LIOB-FT, or LIOB-IP. Local operation and override is provided by the built-in jog dial and the backlit display (128x64 pixels). Device and data point information is shown on the display via symbols and in text format.

LonMark Systems can be integrated via IP-852 (Ethernet/IP) or TP/FT-10. In addition, the Automation Servers provides connectivity to concurrently integrate KNX, Modbus, and M-Bus and connect as a gateway data points of different technological origin. The Automaton Servers feature an integrated IP-852 router providing the complete feature set of corresponding L-IP devices.

BACnet can be integrated via BACnet/IP, BACnet/SC or BACnet MS/TP. In addition, the Automation Servers provide connectivity to concurrently integrate KNX, Modbus, and M-Bus and connect as a gateway data points of different technological origin. Optionally, mathematical objects can be applied within a connection to calculate the data point output values depending on the formula used. The Automation Servers feature a BACnet/SC router, BACnet/IP router including BBMD as well as Slave-Proxy functionality. LINX-215 is BTL certified as B-BC (BACnet Building Controller).

The gateway functionality allows data communication between all communication technologies available on the device. Different technology data points are mapped through Local Connections on the device. The mapping of different technology data points on distributed devices is supported by Global Connections. L-INX Automation Servers also support Smart Auto-Connect™ – the automatic generation of connections to substantially reduce engineering efforts and cost. All technology data points are automatically created as OPC XML-DA and OPC UA data points.

Each L-INX Automation Server is equipped with two Ethernet ports. It can either be configured to use the internal switch to interconnect the two ports or every port is configured to work in a separate IP network.

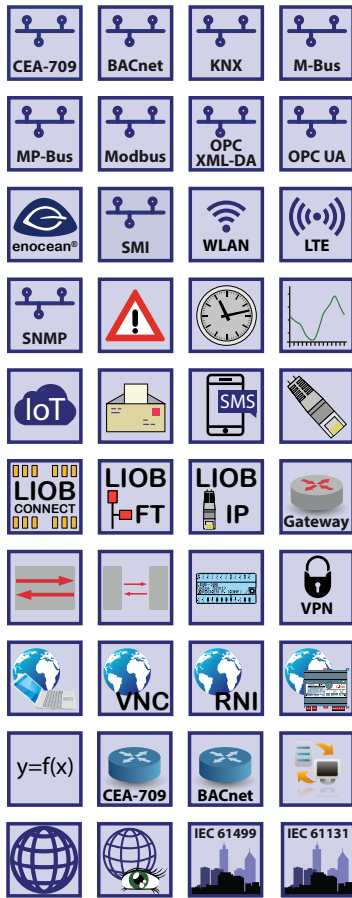
When the Ethernet ports are configured for two separate IP networks, one port can be connected for instance to a WAN (Wide Area Network) with enabled network security (HTTPS) while the second port can be configured to be connected to an insecure network (LAN) where the standard building automation protocols like BACnet/IP, LON/IP, or Modbus TCP are present. These devices also feature fire-wall functionality of course to isolate particular protocols or services between the ports. The built-in VPN function provides for simple VPN setup and secure access to remote sites. The LTE-800 interface enables wireless access to remote sites through a mobile carrier.

Using the internal switch, a daisy chained line topology of up to 20 devices can be built, which reduces costs for network installation. The IP switch also allows 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.

The L-INX devices provide fully featured AST™ functionality (Alarming, Scheduling, and Trending) and can be integrated perfectly into the L-WEB System.

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.



Features

- Programmable with L-STUDIO IEC 61131-3 and IEC 61499
- Room controller for up to 8 room segments
- Extension with physical inputs and outputs using L-IOB I/O Modules (LIOB-10x/11x, LIOB-15x, LIOB-45x and LIOB-55x)
- 128x64 graphic display with backlight
- Local and remote access to information about device status and data points
- Manual operation using the jog dial or VNC client
- Alarming, Scheduling, and Trending (AST™)
- Node.js support for easy IoT integration (e.g. Google calendar, MQTT, Alexa & friends, multimedia equipment,...)
- Event-driven e-mail notification
- Math objects to execute mathematical operations on data points
- Stores customized graphical pages
- Visualization of customized graphical pages through LWEB-900 (Building Management), LWEB-803 (Monitoring and Control), or LWEB-802 (Web Browser)
- Built-in OPC XML-DA and OPC UA server
- Dual Ethernet/IP interface
- Access to network statistics
- Compliant with ANSI/ASHRAE 135-2012 and ISO 16484-5:2012 standard
- Supports BACnet MS/TP, BACnet/IP and BACnet/SC
- BACnet Client Function (Write Property, Read Property, COV Subscription)
- BACnet Client Configuration with configuration tool (scan and EDE import)
- B-BC (BACnet Building Controller) functionality, BTL certified
- Integrated BACnet/IP to BACnet/SC and BACnet MS/TP Router including BBMD as well as Slave-Proxy functionality
- Compliant with CEA-709, CEA-852, and ISO/IEC 14908 Standard (LonMark System)
- Support TP/FT-10 or IP-852 (Ethernet/IP)
- Support of dynamically created or static NVs
- Support of user-defined NVs (UNVTs) and Configuration Properties (SCPTs, UCPTs)
- Remote Network Interface (RNI) with 2 MNI devices
- Integrated IP-852 to TP/FT-10 Router
- KNXnet/IP, connection to KNX TP1 through LKNX-300 Interface
- M-Bus Master according to EN 13757-3, connection via optional M-Bus Converter (L-MBUS20 or L-MBUS80)
- Modbus TCP and Modbus RTU/ASCII (Master or Slave)
- Gateway functions including Smart Auto-Connect™
- Integrated web server for device configuration and monitoring data points
- Configurable via Ethernet/IP or TP/FT-10
- Connection to EnOcean wireless devices via LENO-80x Interface
- Supports SMI (Standard Motor Interface) through LSMI-800
- Supports WLAN through LWLAN-800 Interface
- Supports MP-Bus through LMPBUS-804 Interface
- Supports LTE through LTE-800 Interface
- Supports RS-232 through LRS232-802 Interface
- Stores user-defined project documentation

Specifications

Dimensions (mm)	107 x 100 x 75 (L x W x H), DIM045	
Installation	DIN rail mounting following DIN 43880, top hat rail EN 50022	
Power supply	24 VDC / 24 V AC ±10 %, typ. 2.5 W	
Operating conditions	0 °C to 50 °C, 10–90 % RH, noncondensing, degree of protection: IP40, IP20 (terminals)	
Interfaces	2 x Ethernet (100Base-T): OPC XML-DA, OPC UA, LonMark IP-852, BACnet/IP, BACnet/SC LIOB-IP, KNXnet/IP, Modbus TCP (Master or Slave), HTTP, FTP, SSH, HTTPS, Firewall, VNC, SNMP 1 x LIOB-Connect 1 x RS-485 (ANSI TIA/EIA-485): BACnet MS/TP or Modbus RTU/ASCII (Master or Slave) 1 x FT	1 x EXT: M-Bus, Master EN 13757-3 (needs L-MBUS20 or L-MBUS80) or KNX TP1 (needs LKNX-300) or SMI (needs LSMI-800) 2 x USB-A: WLAN (needs LWLAN-800), EnOcean (needs LENO-80x), SMI (needs LSMI-804), LTE (needs LTE-800), MP-Bus (needs LMPBUS-804) RS-232 (needs LRS232-802)
L-IOB I/O Modules	Up to 8 L-IOB I/O Modules in any combination of type LIOB-10x/11x, LIOB-15x, LIOB-45x and LIOB-55x	
BACnet/IP Router	1	
CEA-709 Router	1	
Remote Network Interface	1 RNI with 2 MNI devices	
Program cycle time	Down to 10 ms	
Max. number of Rooms/Segments	8	

Runtime licenses

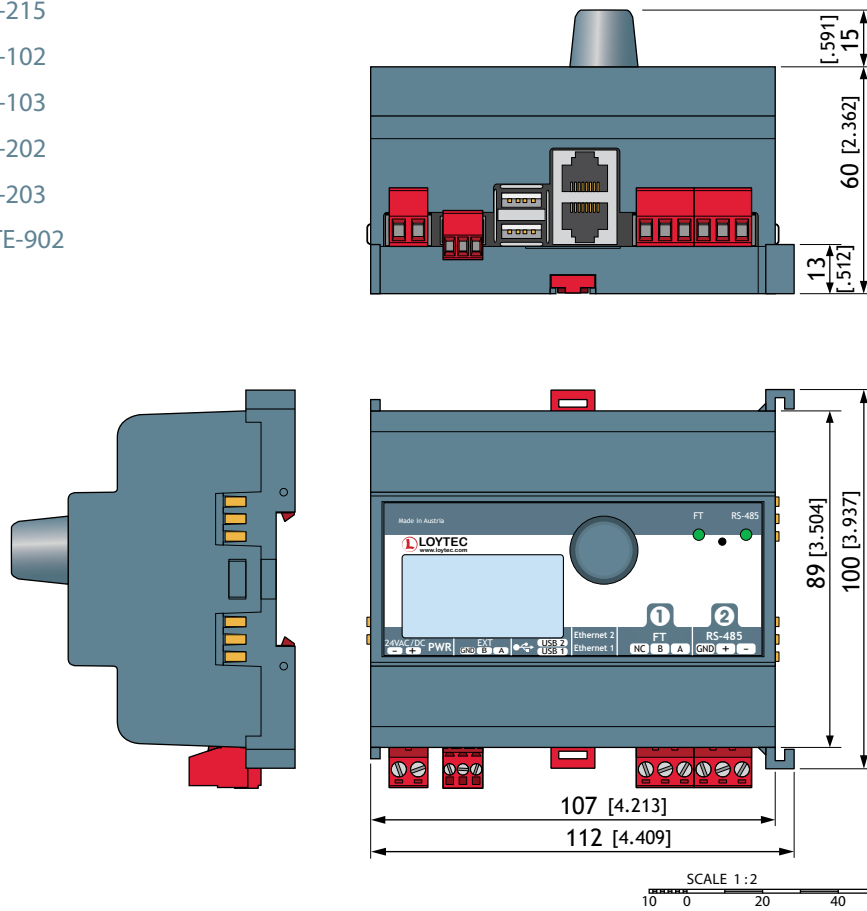
Type	LINX-215
Programming, Tools	L-STUDIO (IEC 61131-3 and IEC 61499 based), L-INX Configurator
License	L-STUDIO: included

LINX-215

Resource limits			
Total number of data points	10 000	Address table entries	1 000 (non-ECS mode: 15)
OPC data points	5 000	LonMark Calendars	1 (25 calendar patterns)
BACnet objects	750 (analog, binary, multi-state)	LonMark Schedulers	100
BACnet client mappings	750	LonMark Alarm Servers	1
BACnet calendar objects	25	Total trended data points	256
BACnet scheduler objects	100 (64 data points per object)	E-mail templates	100
BACnet notification classes	32	Math objects	100
Trend logs (BACnet or generic)	256 (13 000 000 entries, ≈ 200 MB)	Alarm logs	10
Network variables (NVs)	1 000	M-Bus data points	1 000
Alias NVs	1 000	Modbus data points	2 000
External NVs (polling)	1 000	MP-Bus devices (per channel)	16
KNXnet/IP com-objects	250	KNX TP1 com-objects	250
Connections (Local / Global)	1 000 / 250	L-IOB I/O Modules	8
Number of L-WEB clients	32 (simultaneously)	Number of EnOcean devices	25
SMI devices (per channel)	16	EnOcean data points	250
Order number	Product description		
LINX-215	BACnet Automation Server, B-BC, L-STUDIO programmable, built-in BACnet/IP and BACnet/SC to MS/TP Router, CEA-709 Automation Server, built-in IP-852 Router		
L-STUDIO	Development and integration platform for programmable LOYTEC controllers		
LIOB-100	LIOB-Connect I/O Module: 8 UI, 2 DI, 2 AO, 9 DO (5 x Relay 6 A, 4 x Triac 0.5 A)		
LIOB-101	LIOB-Connect I/O Module: 8 UI, 16 DI		
LIOB-102	LIOB-Connect I/O Module: 6 UI, 6 AO, 8 DO (8 x Relay 6 A)		
LIOB-103	LIOB-Connect I/O Module: 6 UI, 6 AO, 5 DO (5 x Relay 16 A)		
LIOB-110	LIOB-Connect I/O Module: 20 Universal I/O (IO)		
LIOB-112	LIOB-Connect I/O Module: 40 Universal I/O (12 optionally with 4-20 mA Current Output)		
LIOB-150	LIOB-FT I/O Module: 8 UI, 2 DI, 2 AO, 8 DO (4 x Relay 6 A, 4 x Triac 0.5 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 (8 x Relay 6 A)		
LIOB-153	LIOB-FT I/O Module: 6 UI, 6 AO, 5 DO (4 x Relay 16 A, 1 x Relay 6 A)		
LIOB-154	LIOB-FT I/O Module: 7 UI, 4 AO, 7 DO (5 x Relay 6 A, 2 x Triac 0.5 A), 1 Pressure Sensor		
LIOB-550	LIOB-BIP I/O Module: 8 UI, 2 DI, 2 AO, 8 DO (4 x Relay 6 A, 4 x Triac 0.5 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 (8 x 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, 4 AO, 7 DO (5 x Relay 6 A, 2 x Triac 0.5 A), 1 Pressure Sensor		
LPOW-2415A	LIOB-Connect power supply unit, 24 VDC, 15 W		
LPOW-2415B	Power supply unit with power connector 24 VDC, 15 W		
L-MBUS20	M-Bus level converter for 20 M-Bus devices		
L-MBUS80	M-Bus level converter for 80 M-Bus devices		
LKNX-300	KNX interface to connect KNX TP1 devices		
LENO-800	EnOcean Interface 868 MHz Europe		
LENO-801	EnOcean Interface 902 MHz USA/Canada		
LENO-802	EnOcean Interface 928 MHz Japan		
LWLAN-800	Wireless LAN Interface IEEE 802.11bgn		
LMPBUS-804	MP-Bus interface for 16 devices per channel, up to 4 channels		
LSMI-800	Standard Motor Interface for 16 motors via EXT port		
LSMI-804	Standard Motor Interface for 64 motors, 4 SMI channels via USB		
LTE-800	LTE Interface		
LRS232-802	USB to 2 x RS-232 Interface		

Dimensions of the devices in mm and [inch]

- DIM045** LINX-215
 LINX-102
 LINX-103
 LINX-202
 LINX-203
 LGATE-902



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.