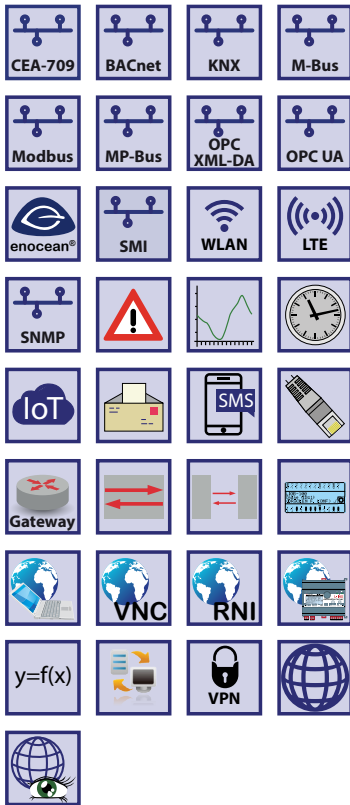
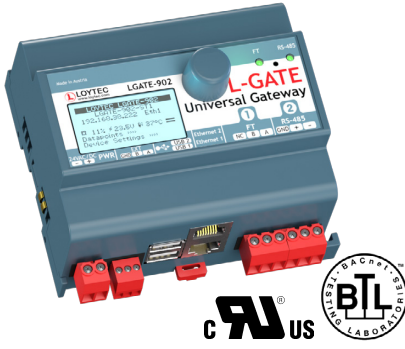


# L-GATE Gateway

## LGATE-902

Datasheet #89035823

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



The LGATE-902 Gateway is a powerful gateway that can host user specific graphical pages. The gateways provide connectivity functions to concurrently integrate CEA-709 (LonMark Systems), BACnet, KNX, Modbus, and M-Bus. Local operation and override is provided by the built-in jog dial and the backlit display (128x64 pixels). Device and data point information is provided by the web interface and shown on the display via symbols and in text format.

LonMark Systems can be integrated via IP-852 (Ethernet/IP) or TP/FT-10. LGATE-902 features an integrated Remote Network Interface (RNI) to access the TP/FT-10 channel on the device via Ethernet/IP. BACnet integration is supported through BACnet/IP (Ethernet/IP), BACnet/SC or BACnet MS/TP (RS-485). LGATE-902 is BACnet Building Controller (B-BC) BTL certified and can be configured to be a BBMD.

In addition, the gateway provides connectivity to KNXnet/IP and Modbus (RTU, TCP, Master or Slave). M-Bus and KNX TP1 device integration needs optional interface modules.

Through the built-in web server, all data points can be monitored and changed. 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. The gateway also support Smart Auto-Connect™ – the automatic generation of connections to substantially reduce engineering efforts and cost. Math objects allow to execute mathematical operations on data points. All technology data points are automatically created as OPC XML-DA and OPC UA data points.

The LGATE-902 Gateway 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.

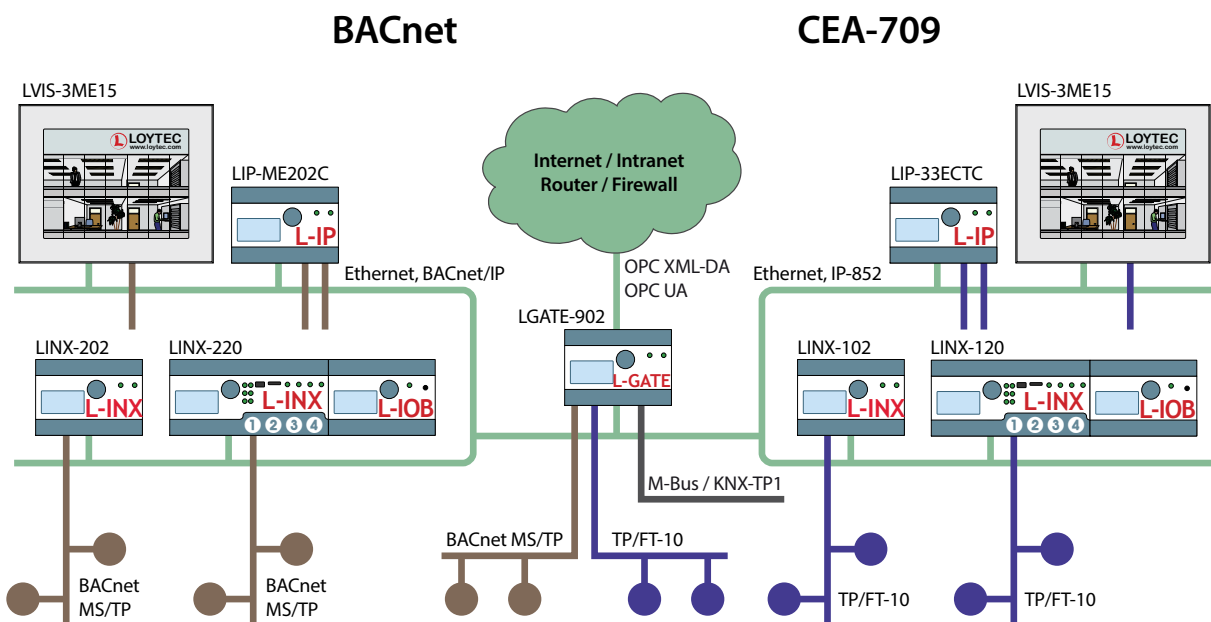
When the Ethernet ports are configured for two separate IP networks, one port can be connected for instance to a WAN (Wide Area Network) with enabled network security (HTTPS) while the second port can be configured to be connected to an insecure network (LAN) where the standard building automation protocols like BACnet/IP, LON/IP, or Modbus TCP are present. These devices also feature firewall 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-GATE 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

- Universal Gateway for BACnet, LonMark, KNX, Modbus, M-Bus, and EnOcean
- Compliant with ANSI/ASHRAE 135-2012 and ISO 16484-5:2012 standard
- B-BC (BACnet Building Controller) functionality, BTL certified
- Supports BBMD (BACnet Broadcast Management Device)
- Supports BACnet/IP, BACnet/SC or BACnet MS/TP
- BACnet Client Function (Write Property, Read Property, COV Subscription)
- BACnet Client Configuration with configuration tool (scan and EDE import)
- Compliant with CEA-709, CEA-852, and ISO/IEC 14908 Standard (LonMark System)
- Supports 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
- Direct connection to KNX/IP, KNX TP1 connection via LKNX-300 Interface
- M-Bus Master according to EN 13757-3, connection via M-Bus Level Converter (LMBUS-20 or LMBUS-80)
- Modbus TCP and Modbus RTU (Master or Slave)
- Automatic creation of Local Connections (Smart Auto-Connect™)
- Math objects to execute mathematical operations on data points
- Automatic mapping of network variables to BACnet objects in accordance with CEN/TS 15231:2005
- Alarming, Scheduling, and Trending (AST™)
- Node.js support for easy IoT integration (e.g. Google calendar, Alexa & friends, multimedia equipment,...)
- Event-driven e-mail notification
- Stores customized graphical pages
- Visualization of customized graphical pages through LWEB-900 and LWEB-802/803
- Built-in OPC XML-DA and OPC UA server
- Dual Ethernet/IP interface
- Access to network statistics
- Integrated web server for device configuration and monitoring data points
- Manual operation using the jog dial or VNC client
- Local and remote access to information about device status and data points
- 128x64 graphic display with backlight
- Configurable via Ethernet/IP or TP/FT-10
- Connection to EnOcean wireless devices via LENO-80x Interface
- Supports SMI (Standard Motor Interface) through LSMI-80x
- Supports WLAN through LWLAN-800 Interface
- Supports LTE through LTE-800 Interface
- Supports MP-Bus through LMPBUS-804 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 VAC $\pm$ 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):<br>OPC XML-DA, OPC UA,<br>LonMark IP-852**, BACnet/IP*, BACnet/SC*,<br>KNXnet/IP,<br>Modbus TCP (Master or Slave),<br>HTTP, FTP, SSH, HTTPS, Firewall, VNC, SNMP<br>2 x USB-A:<br>WLAN (needs LWLAN-800),<br>EnOcean (needs LENO-80x)<br>SMI (needs LSMI-804)<br>LTE (needs LTE-800)<br>MP-Bus (needs LMPBUS-804) | 1 x TP/FT-10** (LonMark system)<br>1 x RS-485 (ANSI TIA/EIA-485):<br>BACnet MS/TP*<br>or<br>Modbus RTU/ASCII (Master or Slave)<br>1 x EXT:<br>M-Bus, Master EN 13757-3<br>(needs L-MBUS20/80)<br>or<br>KNX TP1 (needs LKNX-300)<br>or<br>SMI (needs LSMI-800) |
|                          | * Either BACnet/IP or BACnet MS/TP<br>** Either LonMark IP-852 or TP/FT-10  |   |
| Tools                    | L-INX Configurator  |   |
| Remote Network Interface | 1 RNI with 2 MNI devices  |   |

## Resource limits

|                                 |  |                              |                     |
|---------------------------------|--|------------------------------|---------------------|
| Total number of data points     | 10 000                                     | LonMark Schedulers           | 100                 |
| OPC data points                 | 2 000                                      | LonMark Alarm Servers        | 1                   |
| BACnet objects                  | 2 000 (analog, binary, multi-state)        | E-mail templates             | 100                 |
| BACnet client mappings          | 750  | Math objects                 | 100                 |
| BACnet calendar objects         | 25   | Alarm logs                   | 10                  |
| BACnet scheduler objects        | 100 (64 data points per object)            | M-Bus data points            | 250                 |
| BACnet notification classes     | 32   | Modbus data points           | 250                 |
| Trendlogs (BACnet or generic)   | 256 (13 000 000 entries, $\approx$ 200 MB) | KNX TP1 data points          | 250                 |
| Total trended data points       | 256  | KNXnet/IP data points        | 250                 |
| CEA-709 network variables (NVs) | 1 000                                      | Connections (Local / Global) | 1 000 / 250         |
| CEA-709 Alias NVs               | 1 000                                      | Number of L-WEB clients      | 32 (simultaneously) |
| CEA-709 External NVs (polling)  | 1 000                                      | Number of EnOcean devices    | 25                  |
| CEA-709 address table entries   | 512 (non-ECS mode: 15)                     | EnOcean data points          | 250                 |
| LonMark Calendars               | 1 (25 calendar patterns)                   | SMI devices (per channel)    | 16                  |

## Order Number Product Description

|            |  |
|------------|--|
| LGATE-902  | Universal Gateway  |
| 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, Interface for up to 20 M-Bus devices    |
| L-MBUS80   | M-Bus Level Converter, Interface for up to 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                                    |