

### Features

- Routes packets between CEA-709 and IP networks (10/100 Mbit/s Ethernet)
- LIP-3ECTB supports one TP/FT-10 channel, LIP-1ECTB supports one TP/XF-1250 channel, LIP-33ECTB supports two TP/FT-10 channels, LIP-333ECTB supports four TP/FT-10 channels
- Compliant with CEA-709.1-B, CEA-709.1-C, CEA-852-B, ISO/IEC 14908 standard (LONMARK Systems)
- Tunneling of CEA-709 packets through IP (Ethernet) networks
- Configured Router Mode support
- Smart Switch Mode support
- Easy installation, Auto-NAT, Roaming, DHCP
- Built-in CEA-852 configuration server for up to 256 members (recommended 100)
- Remote LPA support with LPA-IP
- Built in web server for the device and IP-852 channel configuration
- MD5 authentication
- SNTP support for time synchronization
- Built-in communication test
- Supports firmware update through serial port, Ethernet or CEA-709 channel
- Network diagnostic LEDs
- CEA-709 status and activity LED
- Ethernet link and activity LED
- CEA-852 status and operating mode LED
- Remote monitoring of the supply voltage and device temperature
- DIN-rail mountable



After installation, the L-IP is ready to route packets between the CEA-709 network and the IP network. Thus, all CEA-709 networks connected to L-IPs can exchange data over the CEA-852 channel. If connected to untrusted networks, such as the Internet, all CEA-852 packets can be authenticated by an MD5 checksum and time stamps.

Besides its primary router operation, the L-IP is a powerful network diagnostics device. Its simple and intuitive user interface provides an immediate overview over the network status.

Both the CEA-852 channel and CEA-709 network can be observed with 6 status LEDs. For troubleshooting, the L-IP supports the remote LPA (LOYTEC Protocol Analyzer) functionality so that the network can be analyzed from any PC connected to the Internet.

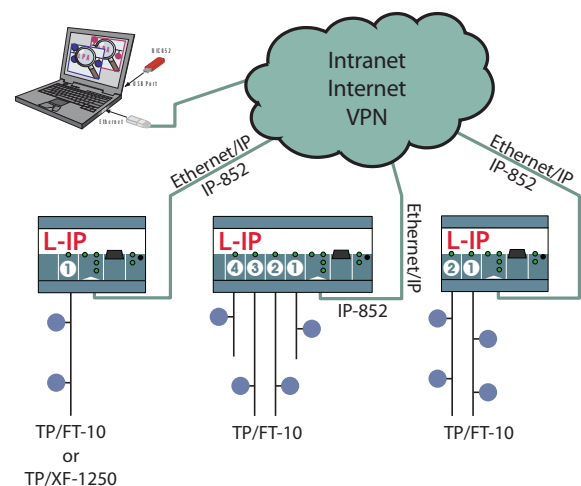
With the L-Switch<sup>XP</sup> and the L-IP, setting up a wide area network infrastructure becomes an easy task.

### Description

The L-IP fills the gap between CEA-709 installations and IP networks. It can tunnel CEA-709 packets back and forth through an arbitrary IP-based network, such as LAN, an Intranet, or even the Internet. The L-IP connects to the IP network via an Ethernet channel. Available CEA-709 transceivers include TP/FT-10 and TP/XF-1250.

The installation of an L-IP router requires little effort. The IP configuration can either be obtained via DHCP or entered manually. The user only needs to provide the IP address of an CEA-852 configuration server. If operated behind a router with network address translation (NAT or masquerading), the L-IP supports Auto-NAT to work with dynamic public IP addresses.

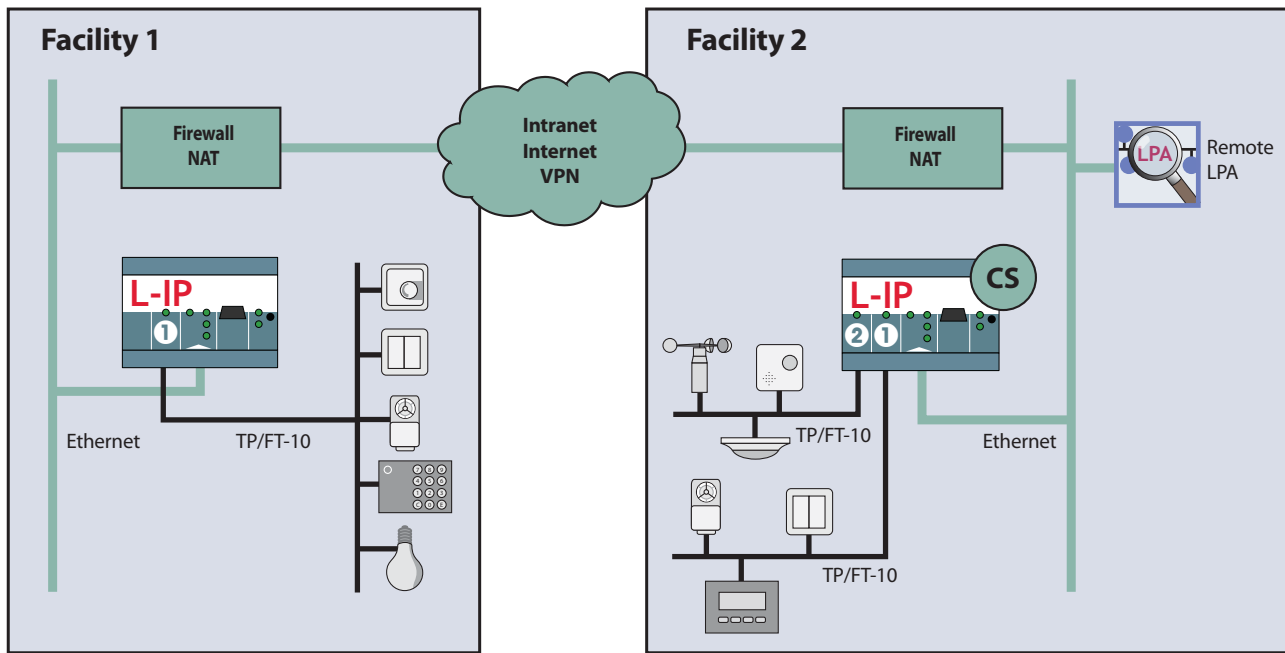
When using the built-in CEA-852 configuration server, the user can edit and backup the IP channel configuration through the built-in web server. The configuration is stored persistently and the device operates completely standalone.



Flat network architectures based on an IP Backbone are specified for best performance and a better maintainability of CEA-709 networks. To meet these requirements, LOYTEC offers a range of IP-Router supporting up to four twisted pair channel.

A rather complex example for an L-IP deployment is shown below. In this scenario, the CEA-709 networks of two geographically separated facilities have to be connected. At both locations, the CEA-709 networks are connected to the company's IP network with an L-IP router. The L-IP (labeled CS) acts as a configuration server in addition to its routing functionality. Typically, company branches are connected via firewalls with network address translation like cable or DSL routers which is supported by the L-IPs.

After installation and configuration, the CEA-709 networks are connected and can start to exchange data. Since in Smart Switch Mode the L-IPs can learn the network topology automatically, no further configuration is needed. For network troubleshooting, the maintenance staff can remotely analyze the network of facility 1 with a Remote LPA protocol analyzer running on any PC attached to the LAN in facility 2.



**Specifications**

Type	LIP-3ECTB	LIP-1ECTB	LIP-33ECTB	LIP-3333ECTB
Dimensions (mm)	107 x 100 x 60 (L x W x H)			159 x 100 x 60 (L x W x H)
Power supply	12-35 VDC / 12-24 VAC ±10 %, typ. 3 W			
Interfaces	1 x Ethernet (100Base-T) LONMARK IP-852, HTTP, FTP			
	1 x TP/FT-10	1 x TP/XF-1250	2 x TP/FT-10	4 x TP/FT-10
Tools	Configuration via Web browser or Console (EIA-232)			
Resource limits				
Configuration Server	CEA-852 configuration server for up to 256 members on the IP channel			

**Order number**

**Configuration**

LIP-3ECTB	CEA-709/IP-852 Router, 1 x TP/FT-10, 1 x Ethernet Port (IP-852)
LIP-1ECTB	CEA-709/IP-852 Router, 1 x TP/XF-1250, 1 x Ethernet Port (IP-852)
LIP-33ECTB	CEA-709/IP-852 Router, 2 x TP/FT-10, 1 x Ethernet Port (IP-852)
LIP-3333ECTB	CEA-709/IP-852 Router, 4 x TP/FT-10, 1 x Ethernet Port (IP-852)

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