

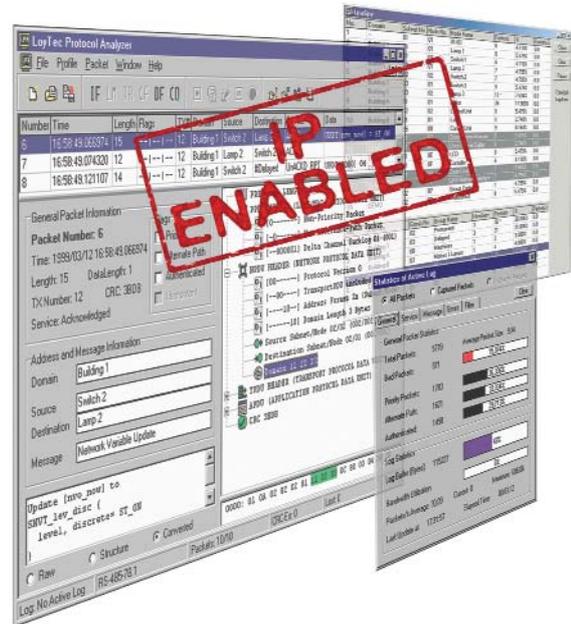
## Features

- ◆ Runs on Windows 2000/XP®
- ◆ LPA-SW runs on all NIC709 interfaces
- ◆ LPA-IP-SW runs on NIC-852 interface
- ◆ Supports the LOYTEC Multiplexed Network Interface Technology (MNI)
- ◆ LPA-IP-SW supports LonMark IP-852 on Ethernet
- ◆ Remote LPA function with LPA-IP and L-IP
- ◆ On-line packet monitoring
- ◆ High resolution packet time-stamping
- ◆ Comprehensive packet filter functions on each layer of the network protocol
- ◆ Packet interpretation down to bit-level
- ◆ Conversion of network addresses and variables into symbolic names
- ◆ Interpretation of SNVTs (Standard Network Variable Types), network management, and diagnostic messages
- ◆ LNS database interpretation
- ◆ Error tracking in packets with protocol errors
- ◆ Various forms of packet visualization
- ◆ Extensive packet statistics (short packets, CRC errors, packets/s, etc.)
- ◆ Packet simulation for test purposes
- ◆ Long-term packet recording capability
- ◆ Storing and exporting packet logs (e.g. to Excel spread-sheets)
- ◆ LPA Plug-In interface for application specific interpretation of user and application data
- ◆ LPA Server function for forwarding received packets to third party applications (LPA Clients) for further processing

## Description

The family of LOYTEC Protocol Analyzers (LPA) listens on EIA-709 or EIA-852 networks and displays all recorded packets on a PC screen. Thanks to its long-time recording capability even intermittent faults can be detected and recorded. The interpretation of an LNS® database allows displaying meaningful node names and network variable names. Together with L-IP Internet Routers or NIC709-IP network interfaces the LPA software can record packets even from remote network channels.

The intuitive and easy to use LPA-SW software runs on all LOYTEC NIC709 and the LPA-IP-SW runs on the NIC-852. Each LPA-SW or LPA-IP-SW license must be registered for one LOYTEC NIC.



## Remote LPA

For remote protocol analysis the LPA-SW can be registered for a NIC709-IP and the LPA-IP-SW can be registered for a NIC-852 to analyze the channel behind an L-IP or a NIC709-IP.

The PC running either the LPA-SW or the LPA-IP-SW is connected through its Ethernet port over the Intranet/Internet/VPN with the NIC709-IPs or the L-IP routers. Up to 8 channels can be analyzed concurrently using NIC709-IPs and up to 32 channels can be analyzed using L-IPs.

## LonMark IP-852 Channel

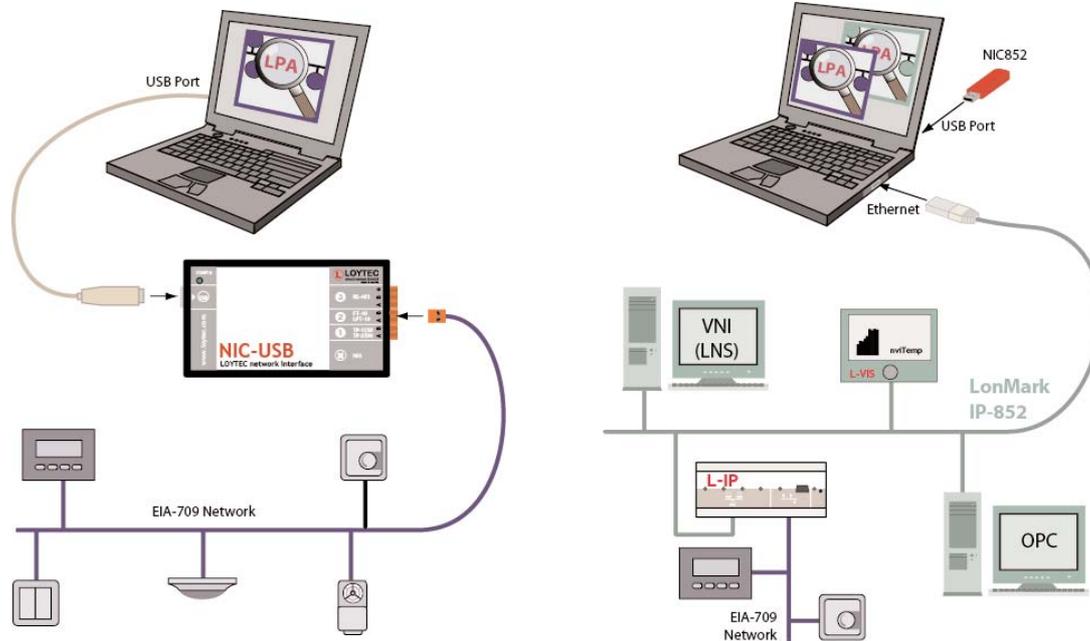
The LPA-IP-SW together with the LOYTEC NIC-852 allows analyzing an IP-852 Ethernet channel the same way as a traditional EIA-709 channel. Data packets on the IP-852 channel are displayed like standard EIA-709 packets.

## Order Information

Order Number	Configuration
LPA-SW	LPA Software
LPA-IP-SW	LPA-IP Software
LPA-USB	LPA-SW + NIC709-USB
LPA-IP	LPA-IP-SW + NIC852
LPA-SET-USB	LPA-USB + LPA-IP

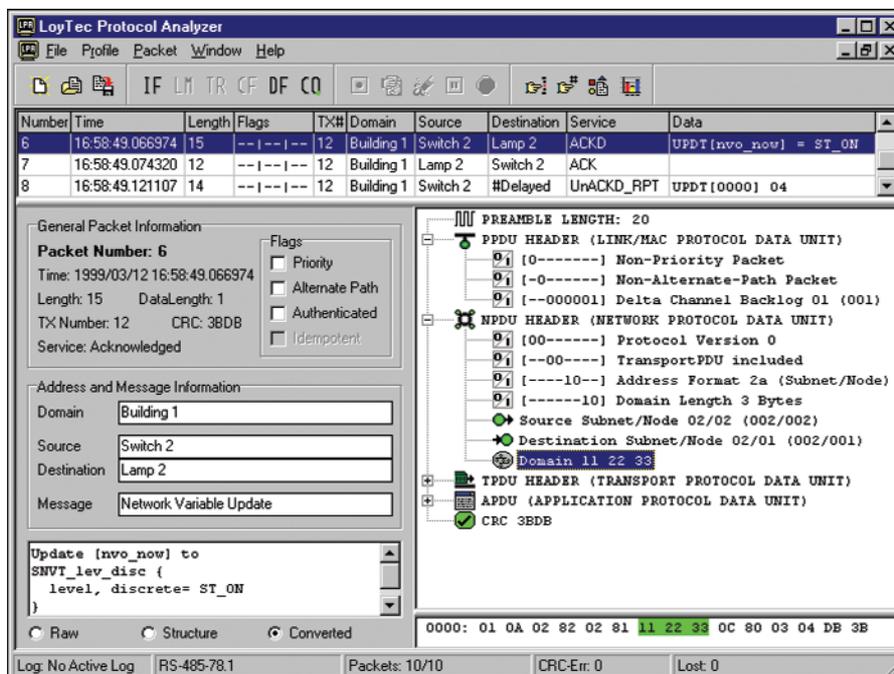
## LPA Interfaces

The LPA-SW software is used with a NIC709-USB interface, which connects the PC to the EIA-709 channel. This is shown in the left figure. The LPA-IP-SW is used with the NIC-852, which is connected with the PC's USB port. The IP-852 Ethernet channel is connected to the PC's Ethernet port in order to analyze the IP-852 channel and/or to analyze a remote EIA709 channel behind an L-IP router, as shown in the figure on the right side.



## LPA Packet Log Window

Log windows of the LPA present information on packets in various forms and on various levels.



Number	Time	Length	Flags	Tx#	Domain	Source	Destination	Service	Data
6	16:58:49.066974	15	-- -- --	12	Building 1	Switch 2	Lamp 2	ACKD	UPDT[invn_now] = ST_ON
7	16:58:49.074320	12	-- -- --	12	Building 1	Lamp 2	Switch 2	ACK	
8	16:58:49.121107	14	-- -- --	12	Building 1	Switch 2	#Delayed	UnACKD_RPT	UPDT[0000] 04

**General Packet Information**  
 Packet Number: 6  
 Time: 1999/03/12 16:58:49.066974  
 Length: 15 DataLength: 1  
 TX Number: 12 CRC: 3BDB  
 Service: Acknowledged

**Address and Message Information**  
 Domain: Building 1  
 Source: Switch 2  
 Destination: Lamp 2  
 Message: Network Variable Update

**Update [invn\_now] to**  
 SNVT\_lev\_disc {  
 level, discrete= ST\_ON  
 }

**Packet Structure:**  
 PREAMBLE LENGTH: 20  
 PDDU HEADER (LINK/MAC PROTOCOL DATA UNIT)  
 [0] [0-----] Non-Priority Packet  
 [0] [-0-----] Non-Alternate-Path Packet  
 [0] [--000001] Delta Channel Backlog 01 (001)  
 NPDU HEADER (NETWORK PROTOCOL DATA UNIT)  
 [0] [00-----] Protocol Version 0  
 [0] [--00----] TransportPDU included  
 [0] [----10--] Address Format 2a (Subnet/Node)  
 [0] [-----10] Domain Length 3 Bytes  
 Source Subnet/Node 02/02 (002/002)  
 Destination Subnet/Node 02/01 (002/001)  
 Domain 11 22 33  
 TPDU HEADER (TRANSPORT PROTOCOL DATA UNIT)  
 APPDU (APPLICATION PROTOCOL DATA UNIT)  
 CRC 3BDB

0000: 01 0A 02 82 02 81 11 22 33 0C 80 03 04 DB 3B

Log: No Active Log RS-485-78.1 Packets: 10/10 CRC-Err: 0 Lost: 0

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