

# EL830

## PEP-Box® Gateway

### Elevation Product Family

#### Description

The EL830 PEP-Box® Gateway is a Performance Enhancing Proxy (PEP) appliance that combines a number of advanced traffic enhancement and shaping functionalities for the end points of point-to-point and point-to-multipoint satellite IP network, such as IP trunking networks. The EL830 PEP-Box® Gateway is to be used in conjunction with the EL840 PEP-Box® Server at the other end of the transmission link.

TCP and HTTP, the most widely used protocols in the Internet, show very poor performance when being used over high latency and lossy networks, such as satellite networks. As a result users experience slow download speed and surfing performance. Moreover valuable satellite capacity is not used in the most efficient way.

The ideal solution to overcome such drawbacks is the PEP-Box® Gateway EL830. The EL830 integrates a traffic enhancement technology that accelerates any TCP based transmissions over high latency networks. At the same time the EL830 Gateway greatly reduces the TCP data traffic on both forward and return link by means of data compression as well as TCP packet aggregation and session multiplexing. This is achieved by using ETCP (Enhanced TCP) instead of TCP over the satellite link.

The EL830 PEP Box can also be used in conjunction with the EL860 VCM/ACM shaper and encapsulator, in networks where the transmission bandwidth is varying dynamically. Thanks to the Cross Layer Optimization capability, the EL830 dynamically adjust its performance according to the changing bandwidth availability. As a result, zero packet loss transmission can be ensured.

The EL830 comes with two additional option packages: The first option package is called Advanced and performs the acceleration of popular protocols such as HTTP, FTP, POP3 and SMB (CIFS). The HTTP prefetching technology enhances the web surfing experience to an extent that the download time for a web site can be reduced by more than 70 %, so the user has the impression of surfing via regular DSL or Cable based Internet connections. On top of that, the Advanced option package of the EL830 PEP-Box® Gateway can secure any data traffic exchanged via the network by building up an encrypted VPN between the hub and the remote sites.

The second option package is called Premium and regroups all the features of the default and Advance versions in addition to a network policing engine. This engine allows the distribution of the overall available bandwidth among services and end-users according to configurable criteria, e.g. prioritization of VoIP traffic.

The Elevation PEP-Box® appliances are based on TelliNet and TelliShape of the Tellitec® IP software product family.

#### Key Features

- Superior TCP acceleration and advanced security functionalities
- HTTP, FTP, POP3 and SMB (CIFS) acceleration
- Traffic aggregation, multiplexing and compression
- Traffic classification and policing
- Traffic congestion and packet-loss avoidance
- Out-of-the-box solution – no additional hardware or software needed at the end-user's PC
- Transparent to other applications

#### Main Advantages

- Reduces bandwidth costs and increases revenues
- Speeds up time-to-market
- Minimizes customer support efforts
- Boosts service performance
- Ensures high network security and end user privacy
- Seamless integration into existing infrastructure
- High versatility and flexibility
- Easy to integrate and to use

#### Applications

- SCPC Links
- IP Backbones
- IP Trunking
- Private Networks

#### Related Products

EL840 PEP-Box® Server  
 EL860 CCM/VCM/ACM Shaper and Encapsulator  
 EL170 Satellite IP Modulator  
 EL178 High Speed IP Modulator  
 EL470 Satellite IP Modem  
 EL478 High Speed IP Modem  
 TL100 TelliNet Server Software  
 TL200 TelliShape Server Software



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## General

### System Architecture

- Distributed Performance Enhancing Proxy (dPEP) architecture (RFC 3135)
- Acting as a node in a point-to-point or star network
- Based on IP tunneling technology
- SOCKS4 proxy interface
- HTTP proxy interface
- Operates in L3 routing mode (in-path or on-a-stick)
- Supports asymmetric routing between the EL830 PEP-Box® Gateway and the EL840 PEP-Box® Server
- Linux OS based
- Built-in CPU watchdog and RAM-usage monitoring

### Physical/Hardware

- 1RU, width: 19", depth: 60 cm, weight: 11,5 kg
- Rack mountable, rack mount kit included
- Intel Xeon server class CPU
- 80 GByte hard disk drive (for OS and accounting data), 2nd disk drive for RAID-1 (optional)
- DVD-ROM (for software updates)
- Power supply: 100/240 VAC, 50/60 Hz, 315 W
- Operational temperature: 10 - 35 °C
- Operation humidity: 20 - 90 %, non-condensing
- CE label

## Interfaces

### Monitoring Only

- 2 x PS/2 for keyboard/mouse
- 4 x USB e.g. for keyboard/mouse
- 1 x VGA

### Input/Output

- 2 x LAN: auto switching 10/100/1'000 Base-T Ethernet interface, RJ-45
- 1 x additional LAN (optional)

### Configuration/Monitoring

- SSH Access
- Web based GUI

## Functionalities

### Authentication and Accounting

- Gateway to server authentication
- Supports server side traffic accounting
- Traffic accounting (optional, in Premium configuration only)

### TCP Acceleration

- Used transport protocol: ETCP (Enhanced Transmission Control Protocol)
- Fills the available data pipe up to the configured maximum throughput
- Control traffic reduction through session multiplexing and combined NACK/ACK technology (compared to SCPS-TP average bandwidth utilization savings: 80 - 95 % of volume and packets on return channel)
- Packet loss and delay based three-tier congestion control technology
- SYN ACK spoofing for HTTP traffic
- Dynamic RTT based window size adaptations
- Fast start algorithm
- Packet aggregation
- Configurable MTU
- Tolerates dynamically changing network conditions, packet loss, packet reordering and large data queues

### Data Compression

- Supports on-the-fly TCP payload compression
- Average compression savings: 25 - 40 %
- Deflate compression algorithm (RFC 1951)
- Selective compression based on URL extension and/or MIME type

### VPN Support and Security (Optional)

- Transparent interception of traffic
- On-the-fly Blowfish encryption
- Available key length: 56 bits (default) up to 448 bits (optional)
- Hides original end-point information (IP, port, etc.)
- Automatic encryption key negotiating according to Diffie-Hellman algorithm (RFC 2631)
- Re-keying on basis of ETCP sessions

### Application Acceleration (Optional)

- Server-to-gateway HTTP prefetching with support for embedded HTML
- Server-side JavaScript and CSS objects prefetching
- Built-in web cache

- SMB (CIFS) read-ahead technology
- POP3 e-mail prefetching

### Traffic Policing (Optional)

- Real-time adaptable traffic policy changes without service interruption and without packet dropping
- Three-tier rule support, 200 shaping rules configurable
- Shaping IPv4 unicast and multicast traffic
- Supports Peak Information Rate (PIR) policies and equal or weighted bandwidth distribution
- Up to ten configurable traffic priority classes
- Bandwidth is distributed equally or according to a configured weighting factor
- Supports IP ToS (Type of Service) transparency or IP ToS injection, classification and shaping of accelerated and encrypted ETCP traffic

### Traffic Classification (Optional)

- Source and/or destination IP address, IP address range or IP subnet
- Protocol type (TCP, UDP, ICMP, RTP, ESP, AH, GRE, ETCP)
- Source/destination port or port range (TCP or UDP)
- IPv4 ToS values

## Server Side Component

- EL840 PEP-Box® Server with valid license key

## Ordering Information

| EL830 PEP-Box® Gateway  |  | Order n° |
|---|--|----------|
| <b>Default configuration</b>  |  |          |
| End user Authentication and accounting, TCP acceleration and session aggregation, on the fly compression. Rack mount hardware platform.<br>5/1.5 Mbit/s Rx/Tx, 5000 TCP connections |  | EL830    |
| <b>Configuration options</b>  |  |          |
| Category <span style="float: right;">Max. 1 option per category</span>  |  |          |
| Performance   | 5/1.5 Mbit/s Rx/Tx, 5000 TCP connect.                  | Default  |
|   | 5/1.5 Mbit/s Rx/Tx, 5000 TCP con. Adv.*                | TA-17    |
|   | 5/1.5 Mbit/s Rx/Tx, 5000 TCP con. Prem.*               | TA-18    |
|   | 10/2.5 Mbit/s Rx/Tx, 10000 TCP connect.*               | TA-19    |
|   | 10/2.5 Mbit/s Rx/Tx, 10000 TCP con. Adv.*              | TA-20    |
|   | 10/2.5 Mbit/s Rx/Tx, 10000 TCP con. Prem.*             | TA-21    |
|   | 25/6.5 Mbit/s Rx/Tx, 25000 TCP connect.*               | TA-22    |
|   | 25/6.5 Mbit/s Rx/Tx, 25000 TCP con. Adv.*              | TA-23    |
|   | 25/6.5 Mbit/s Rx/Tx, 25000 TCP con. Prem.*             | TA-24    |
|   | 5/5 Mbit/s Rx/Tx, 5000 TCP connect.                    | TA-51    |
|   | 5/5 Mbit/s Rx/Tx, 5000 TCP con. Adv.*                  | TA-52    |
|   | 5/5 Mbit/s Rx/Tx, 5000 TCP con. Prem.*                 | TA-53    |
|   | 10/10 Mbit/s Rx/Tx, 10000 TCP connect.*                | TA-54    |
|   | 10/10 Mbit/s Rx/Tx, 10000 TCP con. Adv.*               | TA-55    |
|   | 10/10 Mbit/s Rx/Tx, 10000 TCP con. Prem.*              | TA-56    |
|   | 25/25 Mbit/s Rx/Tx, 25000 TCP connect.*                | TA-57    |
| 25/25 Mbit/s Rx/Tx, 25000 TCP con. Adv.*  | TA-58  |          |
| 25/25 Mbit/s Rx/Tx, 25000 TCP con. Prem.*   | TA-59  |          |
| <b>Additional options</b>   |  |          |
| Category <span style="float: right;">Max. 1 option per category</span>  |  |          |
| LAN Extension   | One additional 10/100/1000 BaseT Interfaces, RJ-45     | AP-01    |
| RAID-1 Redundancy   | Harddisk Redundancy (additional HDD + RAID Controller) | AS-01    |
| <b>Services</b>   |  |          |
| Category  |  |          |
| Assistance  | Care Pack Basic  | GA-06    |
|   | Care Pack Extended                                     | GA-07    |

### EL830 PEP-Box® Gateway Configuration Options:

|   |          |
|---|----------|
| Authentication and Accounting<br>TCP Acceleration<br>Data Compression | DEFAULT  |
| Security<br>VPN Support<br>Application Acceleration                   | ADVANCED |
| Traffic Policing<br>Traffic Classification                            | PREMIUM  |

\*Upgradable via license key  
Other configurations and options are available on request.  
Contact your sales representative for details (sales@newtec.eu).  
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