EL820
PEP-Box® Terminal
Elevation Product Family

ELEVATION

Description

The EL820 PEP-Box® Terminal 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-multipoint satellite IP network and primarily targeted for VSAT acceleration and corporate networking. The EL820 PEP-Box® Terminal 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 web surfing performance. Moreover valuable satellite capacity is not used in the most efficient way or not even fully.

The ideal solution to overcome such drawbacks is the EL820 PEP-Box® Terminal. The EL820 integrates a traffic enhancement technology that accelerates any TCP based transmissions over high latency networks. At the same time the EL820 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 EL820 PEP-Box® Terminal 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 EL820 PEP-Box® Terminal 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 EL820 can be either equipped with an embedded DVB-S2 CCM (Constant Coding and Modulation) demodulator or with an external demodulator.

The EL820 PEP-Box® Terminal integrates seamlessly into any existing or planned infrastructure and is available with Ethernet or optionally with a DVB-S reception interface.

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 plug-and-play solution – no additional hardware or software needed at the end user's PC
- Desktop size form factor
- Supports any kind of PC users e.g. Linux, Windows and MacOS
- Transparent to 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

- VSAT Networks
- Corporate Networking
- Distance Education

Related Products

EL840 PEP-Box® Server
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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Specifications – EL820(R7)

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
- SOCKS4/5 and HTTP proxy interface
- Operates in L3 routing mode (in-path or on-a-stick)
- Supports asymmetric routing between EL820 PEP-Box® Terminal and EL840 PEP-Box® Server
- Linux OS based, built-in CPU watchdog and RAM-usage monitoring

Physical/Hardware
- Width: 29.5 cm , height: 5.5 cm, depth: 24 cm, weight: 2.4 kg
- Mini desktop size, stand included
- VIA C7 class CPU with DiskOnChip
- Power supply: external 12 V adapter,100/240 VAC, 50/60 Hz, 50 W
- Operational temperature: 0 - 40 °C
- Operation humidity: 10 - 90 %, non-condensing
- CE, FCC-Class B, UL label

Interfaces

Monitoring Only
- 2 x PS/2 and 2 x USB for keyboard/mouse
- 1 x VGA

Input/Output
- 2 x LAN: auto switching 10/100 Base-T Ethernet interface, RJ-45
- 1 x DVB-S2 demodulator (replaces 2nd LAN interface), F type female (optional)

Configuration/Monitoring
- SSH Access
- Web based GUI

Demodulator** (Optional)

Single L-Band Input
- Single L-Band Input
- Frequency range: 950 – 2'150 MHz
- Signal level: -25 - -65 dBm
- Nominal Input impedance: 70 Ohm
- LNA noise figure: 10 dB
- Noise figure at maximum gain: 10 dB

LNB Power and Control
- Voltage: 13 and 18 V (vertical and horizontal selection)
- Band/antenna selection: 22 kHz and DiSEqC
- Maximum current: 400 mA

Performance
- Modulation/coding: QPSK 1/2, 2/3, 3/4, 5/6 and 7/8 in DVB-S;
  QPSK 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9 and 9/10, 8PSK 3/5, 2/3, 3/4, 5/6, 8/9 and 9/10 in DVB-S2
- Symbol rates: 2 – 45 MSps for DVB-S; 10 – 30 MSps for DVB-S2
- Roll off: 0.20 and 0.35 for DVB-S; 0.20, 0.25 and 0.35 for DVB-S2
- Pilots: on and off in DVB-S2

Data Handling
- Multi Protocol Encapsulation (MPE)
- Unicast/multicast filtering
- 8 configurable PID filters
- 32 configurable multicast addresses

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 TCP)
- Fills the available data pipe up to the configured maximum throughput
- Control traffic reduction through session multiplexing, packet aggregation and combined NACK/ACK technology (compared to SCPS-TP average bandwidth 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
- 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 (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 and POP3 e-mail prefetching

Traffic Policing (Optional)
- Real-time adaptable traffic policy changes without service interruption and without packet dropping
- Three-tier rule support, 60 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

EL820 PEP-Box® Terminal		Order n°
Default configuration		
End user Authentication and accounting, TCP acceleration and session aggregation, on the fly compression. Compact hardware platform 1.5/0.5 Mbit/s Rx/Tx,100 TCP connections		EL820
Configuration options Category	Max. 1 option per category	
Performance	1.5/0.5 Mbit/s Rx/Tx, 100 TCP connect.	Default
	1.5/0.5 Mbit/s Rx/Tx, 100 TCP con. Adv.*	TA-08
	1.5/0.5 Mbit/s Rx/Tx,100 TCP con. Prem.*	TA-09
	3/1 Mbit/s Rx/Tx, 250 TCP connect.*	TA-10
	3/1 Mbit/s Rx/Tx, 250 TCP con. Adv.*	TA-11
	3/1 Mbit/s Rx/Tx, 250 TCP con. Prem.*	TA-12
	6/1.5 Mbit/s Rx/Tx, 500 TCP connect.*	TA-13
	6/1.5 Mbit/s Rx/Tx,500 TCP con. Adv.*	TA-14
	6/1.5 Mbit/s Rx/Tx, 500 TCP con. Prem.*	TA-15
Additional options Category	Max. 1 option per category	
DVB-S2 Demod	950 - 2150 MHz, QPSK-8PSK, 10-30 MSps	AU-01
Services Category		
Assistance	Care Pack Basic	GA-06
	Care Pack Extended	GA-07

* Upgradable via license key

** The internal demodulator option AU-01 does not support DVB-S2 in VCM or ACM mode

Other configurations and options are available on request.
Contact your sales representative for details (sales@newtec.eu).

EL820 PEP-Box® Terminal Configuration Options: