



FEATURES

- Dual 2048 kbit/s interface (receiver with high impedance)
- Interface meets to ITU-T Rec.G.703 / G.704 / G.706 / I.431 / and ETSI ETS 300 011
- Dual Gigabit Ethernet interface
- Ethernet interface meets to IEEE 802.3 1000BASE-T, 1000BASE-TX, IEEE 10BASE-T
- Optical Ethernet interface meets to IEEE 802.3 1000 BASE-TX

Monitoring and analysis

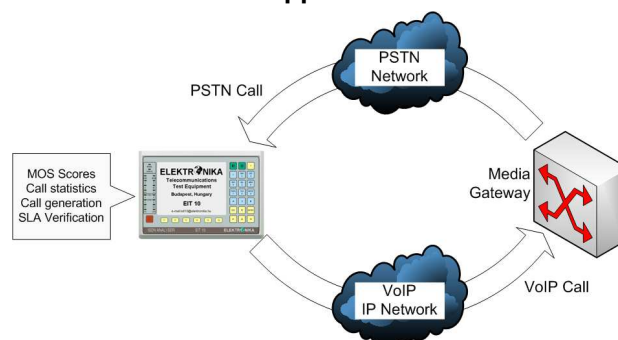
- Voice over IP (VoIP) applications based on H323, SIP and RTP/RTCP
- RFC 2544 performance benchmarking (symmetric & asymmetric modes)
- ISDN DSS1
QSIG, V5.1/V5.2, CAS, SS7
Call trace and statistics
- PC software for analysis of signalling data and control
- Voice channels monitoring through built in speaker
- External clock input
- 320 x 240 dot color LCD display
- LED indicators showing settings and status of line signal
- Selectable English or Russian languages
- Internal rechargeable battery-pack
- USB interface to connect to PC
- Optional PoE performance measurement (measurement & power generation)

APPLICATIONS

The users of a telecommunication network expect high **quality** and reliable services. The users qualify the services with the timeframe of the services, the billing errors, failed calls, random errors, response time, and with the quality of the transmission.

The subjective parameters measured by the users can be brought into connection with the objective technical parameters (**traffic, number of successful calls, bit-error ratio, jitter** etc.), that must be checked on the elements and among the elements of the telecommunication networks during the installation and operation to ensure the high quality.

The main fields of the application:



- Handheld analyzer to fully verify, monitor, and troubleshoot the signalling and services over PCM, and LAN networks
- multiple network voice quality test,
- supports PESQ algorithm, MOS scores,
- multiple-protocol message capture and filtering at different interfaces
- call tracing and call procedure analysis
- signalling and quality testing of PCM telephone exchanges and networks during the installation and maintenance,
- installation and maintenance testing of primary PCM interconnections (channels)
- **Interoperability analysis** of the interconnection of different type exchanges and networks
- Other digital signal processing tests.

MEASURING**Monitoring – protocols****Ethernet,**

Ethernet 2, IEEE 802.3, IEEE 802.1Q

TCP/IP

TCP/UDP, ARP/RARP, ICMP, DNS, DHCP

VoIP

- H.323 (H.225, H.235, H.245, H.450)
- SIP/SDP, SIPr, MGSP, MeGacO/H.248, MGCP
- RTP, RTCP, T.120
- T.38 (Fax over IP)

PCM

- EDSS1, QSIG, V5.1/V5.2, CAS,SS7

Emulation & testing – protocols**VoIP**

- SIP Bulk Call Generator, SIPr, MGCP
- RTP Traffic Generator

ISDN

- ETSI including traffic generation over Bearer Channels

SPECIFICATIONS**Network standards****E1 interface**Electrical characteristics.....ITU-T Rec. I.431/G.703
ETS 300 011

Input (PORT 1 and PORT 2)

Balanced 120 Ω or >2 k Ω
Connector..... RJ 45Mode..... 75 Ω , 120 Ω , high impedance

Receiver sensitivity >30 dB

CLK interfaceInput.....ITU-T Rec. G.703
Connector RJ 9**CLK interface**Selection by software A law, μ law**Dual Ethernet interface**

10 Mbps Ethernet..... IEEE802.3 10BaseT

100 Mbps Fast Ethernet..... IEEE802.3u 100BaseTX

1 Gbps Fast Ethernet..... IEEE802.3u 1000BaseT

PoE IEEE802.3af

Dual Ethernet Optical interface

1 Gbps IEEE802.3u 1000BaseX

Measurement interface, Ethernet

Media Access RJ 45 (Cat5) socket

Selectable modes Nway autonegotiation
1000Base-T 100Base-TX 10Base-T full/half duplex**Link ability test**

Partner state 10Mbps, 100Mbps, HD, FD

Link setup..... auto/10/100/1000 Mbps
auto/HD/FD/polarity**Monitor measurement**Statistics..... net load (bit/s), packets,
multicast, broadcasts, unicast, N-unicast,
frame-type, encapsulation (VLAN, Q-in-Q), IP,
frame size distribution, bandwidth,
utilization, frame-rate, frame loss ratio,
CRC errors, too long/too short frames,
receive error, delay, packet jitterInline mode..... Link configuration mismatch
Network configuration detection
Protocol error detection**Protocol measurements**Protocol monitoringMAC addresses
IP addresses in network
IP connection list
Protocol list/identificationActive scanning of IP/MAC addresses in the network
(ARP Scan)

Active scanning of IP addresses in any network (IP Scan)

Active scanning of ports of a given remote machine
(Port scan)

Trace route

Detailed protocol decoding of received packets

Protocol errors: duplicate IP address
DHCP server errors**Transmission test**Echo, collision, throughput, different traffic patterns, round
trip delay, latency, delay variation (jitter), frame loss rate,
ping test, port scan, trace route**Traffic simulation**

Address dest./source selectable

Frame-type Ethernet II, 802.3, VLAN, Q-in-Q

Selectable packet length (protocol: IP, UDP)

Traffic (MAC and IP) adjustable

Throughput 0 to 100% (traffic patterns)

RFC 2544 performance benchmarking (symmetric & asym-
metric)**Error simulation**

Generation of errored packets.....CRC error insert

Additional functionsDHCP client:..... capability to connect to a
DHCP server, and to obtain addresses

Loopback: return traffic; IP/MAC address swap

General specifications

Power supply internal rechargeable battery pack

Operation time approx. 8 hours

External charger..... mains adapter

Charging time less than 3 hours

Power down automatic after 10 minutes
with no key stroke

Display 320 x 240 color LCD

Serial interface USB 1.1

Ambient temperature range operating 0 to +50°C

Storage and transport -20 to +70°C

Dimensions 224 x 160 x 76 mm

Weight (including battery pack) approx. 1.9 kg

Ordering information**VOIP SIGNALLING ANALYSER EVA 10**416-000-000

Including:

- 1 pc Operating manual
- 1 pc CD with training program
- 1 pc Mains adapter
- 2 pcs Measuring cable (UTP Patch)
- 1 pc USB cable
- 1 pc Carrying case
- 2 pcs Measuring cable (8/8)
- 7 pcs Adapter (2pcs Y, 2pcs coax, 3pcs 8/8/banama)
- 1 pc Measuring cable (4/4)
- 1 pc Calibration Certificate

Options:

- SS7 protocolSW 416-510-000
- EDSS1, QSIG protocolsSW 416-520-000
- V5.1/V5.2 protocolsSW 416-530-000
- Analysis of CAS (R1.5, R2) systems.....SW 416-540-000
- Ethernet Optical measurements SW 416-550-000
- PC softwareSW 416-560-000
- Hardware for PoE.....423-900-000

