



TrendMultipro Triple Play

Multiservice Test Platform for Converged Networks

ADSL2+ Pluggable Interface Module (PIM)

Relevant Standards

- ITU-T G.992.1 (ADSL G.dmt), Annexes A, B
- ITU G.992.2 (G. Lite)
- ANSI T1.413 i2
- ITU-T G.992.3 (ADSL2), Annex A, B, L (READSL)
- ITU-T G.992.5 (ADSL2+) Annex A, B

Interface, Dimensions & Weight

- RJ-11 connector
- 88 mm (w) x 203 mm (h) x 22 mm (d)
- Weight 300 g

DSL

- Upstream/downstream trained rate, attainable rate, noise margin, attenuation, output power, showtime drops
- Noise graph and bitmap graph
- Bin overlap, 20 dB line attenuator, power cutback, bit swap
- FEC, HEC, CRC, FecEs, ES, SES, LosEs, UnavEs
- Threshold of data rate, noise margin, attenuation and output power

ATM

- VCI/VPI (up to five)
- Auto detection of unmapped VC
- Errored, total, OAM, unmapped cells in Tx/Rx
- LLC, VC MUX, Bridged, Routed
- EoA, IPoA

IP

- Comprehensive IP statistics (IP, TCP, UDP, ICMP, ARP, IGMP on errors, fragments, requests, replies)
- DNS route configuration
- Dynamic & static IP address setting
- DHCP option 12, 43, 60, 61 and 121 support
- DSCP (DiffServ & ToS)

Results

- Event logging with time stamp

Test Mode

- CPE Terminal
- Bridged and Routed for Through mode

Gigabit Ethernet Pluggable Interface Module (PIM)

- See the Trend Multipro GbE PIM datasheet (Ref. 405608) for more information



VDSL2 Pluggable Interface Module (PIM)

Relevant Standards

- ITU-T G.993.2 (Annex A, B, C)
- Profiles 8a, 8b, 8c, 8d, 12a, 12b, 17a and 30a

Interface, Dimensions & Weight

- See "ADSL2+ Pluggable Interface Module (PIM)"

DSL

- Upstream/downstream trained/attainable rate, interleave delay, noise margin, attenuation, Impulse Noise Protection (INP), PSD, ATP
- Noise, gain and carrier graphs
- FEC & CRC errors
- Data stream counter & errors
- Threshold of data rate, min./max. SNR margin, max. interleave delay and min. INP

Ethernet

- Flow control
- Automatic detection of speed and duplex mode
- MAC address setup and min. frame size selection (64/68)
- Ethernet Statistics: Frames, Total, Pause, Error, Dropped, Overrun

VLAN

- VLAN ID, Tx priority, total frames, errored frames, max. bit/s
- Total and errored VLAN frames
- Unmapped VLAN info for each circuit: TPID, VLAN ID, Priority, CFI, Rx frames and time stamp

IP, Results and Test Mode

- See "ADSL2+ Pluggable Interface Module (PIM)"

Data

Test mode

- CPE (terminal) with xDSL PIM and 10/100 Mbit/s Ethernet in base unit
- Through mode (Bridged and routed mode)

Applications

- PPPoE, PPPoA
- F5/F4 OAM PING
- PING & Trace route
- HTTP with built-in Web browser
- HTTP download and upload speed
- FTP upload and download with throughput test
- DSL sync test

VoIP

Test Mode

- See "Data"

VoIP Call

- SIP signalling
- Status display
- Call history record (outgoing, answered, missed, rejected, cleared)
- DNS, SIP registration, SIP proxy, STUN and Proxy for NAT support
- SIP message capture and decode

QoS

- RTP loss, delay, jitter in Rx/Tx
- MOS (1-5), R factor based on G.107 E model
- Stream info (address and port number)
- Jitter, delay and degradation
- Threshold setup for RTP, MOS and R factor

Codec

- G.711 a/μ law
- G.726
- G.729

Auto Answer

- Echo audio
- Tone
- Playback recorded file

Video

Test Mode

- See "Data"
- Monitor mode (10/100Mb/s port only)

IGMP Latency (Channel zap)

- V2 and V3 support
- Join/leave and total latency measurement
- Up to 5 channels in one test
- Channel selection and off-line editing on a PC
- Automatic and manual stop

Video Player

- Video MPEG-2
- Audio MP3, MPEG-2 audio
- Source resolution
- Frame rate

Transport Stream (TS) Analysis

- Synch Loss, Synch Error, TS LOS, TS packet count
- PID map structure, PAT, PMT, PES
- Continuity Error count, Transport Error indication
- Interarrival jitter, PCR jitter
- Bandwidth use: audio, video, data and total
- Video MOS (optional)

QoE Measurement

- Channel Join latency
- TS continuity errors
- TS inter arrival jitter
- TS PCR jitter

Threshold

- IGMP join and total latency
- Continuity Error Count
- Inter arrival jitter
- PCR jitter

Test Results and Configuration

Results

- Save & recall, internal: >300 MB (total)
- Save & recall, external: USB and CF (depends on memory size used)
- Format: xml, html, pdf

Configuration

- Recall and save instrument configuration (internal and external memory)
- Recall measurement stacks
- Global configuration profile setup



General

Interfaces

- USB 2.0 type A x 2 (master); USB 2.0 type B (slave) x 1
- Compact Flash card reader Type I & II
- 10/100BASE-T auto full-duplex with MAC address statistics and VLAN setting
- 3.5 mm jack socket for microphone and headset
- RS-232 on 8 pin mini-DIN connector
- RJ-10 x 1 and RJ-11 x 1 for POTS (optional)

Built-In

- Speaker
- Microphone
- 7 LEDs: 1 x battery status, 1 x power status, 5 x PIM-dependent

Time/Date

- Time and date setting

File Manager

- Copying, editing and transferring files to/from internal and external memory devices (Internal, USB and CF)

Help and User Guide

- On-line context-sensitive help
- Quick user guide

Battery

- 7.4V 8.8AH Li-ion module with % capacity indication
- Auto power off mode
- Battery full/charging indicator (LED)
- Low battery warning indicator (LED)

AC Adapter

- 100-240V AC IN, 12V DC OUT, 48 Watt

Display

- 5.7" TFT LCD 1/4 VGA touchscreen
- Battery save mode

Operational Temperature

- -5 to 45 °C

Storage Temperature

- -25 to 70 °C

Dimensions

- 32 (w) x 302 (h) x 60 (d) mm

Weight

- 1800 g

EMC & Safety

- EN55022, EN55024, EN61000-3-2, EN61000-3-3
- EN60950-1, IEC 60950
- RoHS compliant