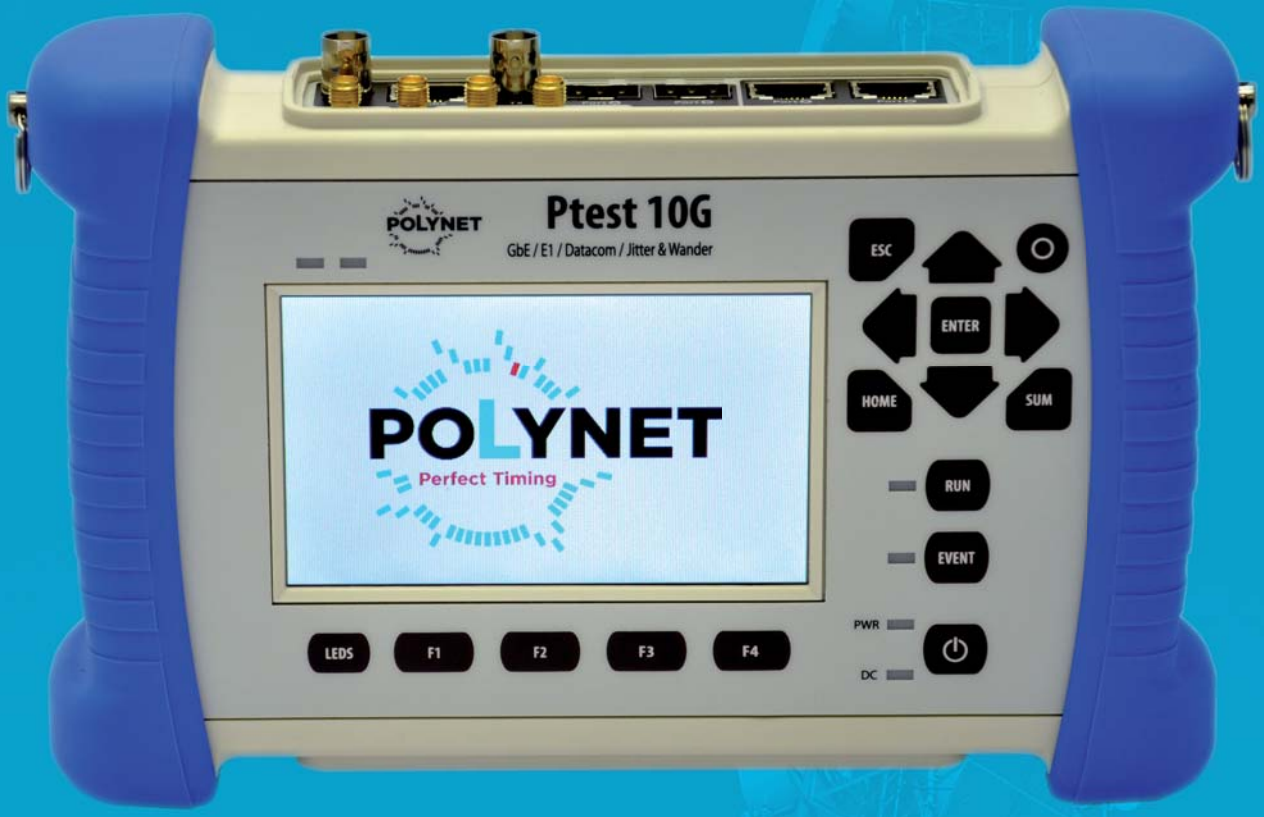
PolyNet Ptest 10G Synchronization Analyzer



Key Features:

- Built-in Rubidium, OCXO, GPS/GLONASS clock
- PPT master/slave emulation
- Wander T1, E1, PTP, SyncE
- 1PPS mesurement
- TE max |TE|, Constant and dynamic TE components
- ESMC / SSM full support
- Y.1564 (e-SAM) FTD, 2-way FDV, FDV, 2-way FTD, FLR SES, PEU and PEA
- Y.1731 QoS statistics
- (A)Symm Y.1564, RFC-2544
- Wander analisys /generation
- Multistreams tests
- MPLS support
- Scan MAC/IP/VLAN/Q-in-Q
- T1, E1, Jitter & Pulse mask
- VNC, LAN or Wi.Fi control
- C37.94 BER, Delay, Defects
- One-way & round trip delay

Benefits:

- Quality hold-over
- All-in-one solution
- No modules = no problems
- 100% hardware included
- Field tester extra rugged
- Up to 22h. on batteries
- GUI by touchscreen, mouse
- Best price - Top featured

PolyNet Telecommunications Consulting and Contractor Ltd.
H-1037 Budapest, Montevideo u. 3/B | Phone/Fax: +36 1 250 7726 | www.polynet.eu | Email: info@polynet.eu
Hungary

SyncE and PTP Testing

Synchronous Ethernet	• Clock Ref.: built-in Rubidium and GPS, OCXO, internal (<2.0 ppm); external (10 MHz, 2048/1544 Mb/s, 2048/1544 MHz, 1 pps) • Line Analysis: frequency (MHz), offset (ppm), drift (ppm/s) [clause 10]; Offset Generation ±125 ppm (0.001 ppm) as per ITU-T O.174 • Wander generation [ITU-T O.174 section 8.4] and MTIE / TDEV measurement [ITU-T O.172 clause 10] • SyncE Generation / Decoding ESMC and SSM [ITU-T G.8264]
PTP / IEEE 1588(v2)	• Precision Time Protocol (PTP): Master & Grandmaster id., Priority 1-2, Class, Accuracy, Variance, Time source • PTP over UDP encapsulation, PTP Generation / Analysis / Emulation; hardware-assisted Decoding; End-point and Through modes • Counts: Sync Inter Arrival Delay (IAD) Avg/Curr; Packet Total Delay (PTD): Std Dev/Range; Packet Delay Variation (PDV): Cur/Max/Avg • TE and max.|TE|measurement on PTP. Constant and dynamic TE components. Frequenc offset master vs. local clock (ppm)

E1, T1 and Datacom testing

Interfaces	• Port A: Unbalanced (BNC) 75 Ω and balanced (RJ-45) 120 Ω; Balanced (Bantam) 100 Ω and balanced (RJ-48) 100 Ω • Port B: Balanced (RJ-45) 120 Ω Balanced (Bantam) 100 Ω (AT-1544 only) and balanced (RJ-48) 100 Ω • Port C: Unbalanced (BNC) 75 Ω Analogue voice frequency audio port • Additional balanced secondary T1, E1 port 0 to -6dB, nominal and PMP -20dB • Bit Rate: 1.544 / 2.048 Mbit/s ± 3ppm. Codes: HDB3 / AMI • 4 x SMA: Clock Source: Internal Timing: 1.544MHz, 2.048 MHz ± 25000 ppm; External Timing; Recovery from Rx Timing (Loop Timing)
BERT	• Unframed: FAS / FAS+CRC4. PCM30: FAS+CAS / FAS+CRC • Standard, non-standard PRBS, and user patterns. Transmit Error Rate • Force Single Error: Bit, Frame, CRC, and BPV (Bipolar Violation); Alarms, Errors Count; G.826, G.821, and M.2100
Datacom	• Smart Serial 26p DTE / DCE ports. DTE, DCE emulation and monitor • V.11/X.24, V.24/V.28, V.24/V.35, V.24/V.11 (V.36/RS449), EIA530 and EIA-530A. Codirectional according G.703 • Rate: 50, 60 bit/s, 1.2, 2.4, 4.8, 8, 9.6, 16, 19.2, 32, 48, 72, 128, 144, 192, 1544 kbit/ Nx56 kbit/s; Nx64 kbit/s, up to 10 Mbit/s

PolyNet Telecommunications Consulting and Contractor Ltd.
H-1037 Budapest, Montevideo u. 3/B | Phone/Fax: +36 1 250 7726 | www.polynet.eu | Email: info@polynet.eu
Hungary

E1, T1 and Datacom testing

Jitter & Wander	• Overpass O.172: Jitter level, • Wander Generation and Measurem tolerance, transfer and Events (TIE, MTIE, TDEV). Wander results from 20 to 100 000s ent detection. 100% digital based generation and analyzer
Pulse Mask	• Pulse mask compliance: ANSI T1.102-1999, ITU-T G.703; PASS / FAIL function with Persi Graphic Display scope • Nominal 2.37V for Coaxial Pair 75 Ohm, Nominal 3.00V for Symmetrical Pair 120 Ohm
C37.94	• Test Rate: N x 64 kbit/s; Frame/Unframed BER; ITU-T G.821: ES, SES, UAS, DM. Results with pass / fail indications • Frequency (Hz), Deviation (ppm), Max deviation; Round Trip Delay (ms), One-way Delay synchornized with GPS • Defects: LOC, AIS, LOF, RDI, LSS, All 0, All 1; Anomalies: FAS, TSE, Slip. Optical Power Meter

Ethernet Testing

Interfaces	• SFP / SFP+ : 10GBASE-SR, 10GBASE-LR, 10GBASE-ER, 10GBA SE-SW, 10GBASE-LW, 10GBASE-EW, 1000BASE-T, 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX, 1000BAS E-BX, 100BASE-FX, 100BASE-TX, 10BASE-T WAN Interface Sublayer (WIS), 2xRJ-45; PoE detection/ transparency • Autonegotiation: Bit rate at 10, 100, 1000 and 10000 Mbit/s, Disable autonegotiation and direct set up • EtherType II (DIX v.2), IEEE 802.3, IEEE 802.1Q, IEEE 802.1ad; IEEE 802.2–LLC1, IEEE 802.3–SNAP; IPv4 (RFC791), IPv6 RFC2460)
Generation (8 streams)	Traffic generation and analysis features up to 10 Gb/s, equivalent to 15 millions of frames, if frame size is set to 64 bytes. • MAC address: Source / Destination, Default / User defined, Single / Range • VLAN: Single VLAN support, Q-in-Q stacking, VID, DEI, S-VLAN, C-VLAN, and Priority codepoint • Type / Length: Generation/Analysis, Jumbo frames with MTU up to 10 kB • Bandwidth Profile: Constant, in bit/s and frames/s, Periodic Burst, in high/low traffic, Ramp, in high/low traffic, Poisson • Loopback: L1to L4 layers, filtering conditions, broadcast and ICMP frames control • Layer 1 BER: HF, LF, MF, Long/Short continuous random, PRBS 231-1, A-seed, B-seed, mixed-frequency • Layer 2-4: PRBS 211-1, PRBS 215-1, PRBS 220-1, PRBS 223-1, PRBS 231-1 along with their inverted versions, user (32 bits) • SLA payload; All zeros; Insertion of TSE: single, rate, random • RTD and VF tone generation

PolyNet Telecommunications Consulting and Contractor Ltd.
H-1037 Budapest, Montevideo u. 3/B | Phone/Fax: +36 1 250 7726 | www.polynet.eu | Email: info@polynet.eu
Hungary

Ethernet Testing

Filters for Statistics (up to 8 simultaneously)	• Ethernet Selection: MAC address, Type/Length, C-VID, S-VID, CoS and Priority with selection mask • IPv4 and IPv6 Selection: address, protocol, DSCP, Flow (v6): single value or range. UDP Selection: port: single value or range
Traffic Statistics	• Top 16 talkers: Sour/Dest MAC / IPv4 / IPv6 addresses, VID (VLAN), C-VID (Q_in_Q), S-VID (MPLS) • Ethernet Frame Counts (RFC 2819): VLAN, Q-in-Q, Priority, Control, Pause, BPDUs • Tx/Rx Uni-Multi-Broadcast, Errors, Undersized, Oversized, Fragments, Jabbers, Runts, (Late) Collisions, Sizes, MPLS stack length • Bandwidth Statistics: (in bit/s, frame/s, %) Rate, Max, Min, Aver, Occupancy, Unicast, Multicast, Broadcast • IPv4 & IPv6 counts: (in bit/s, frame/s, %) Unicast, Multicast, Broadcast, Errors, TCP, UDP, ICMP
Results	• Twisted Cable: MDI/MDI-X status, Open, Cable Length Test, Short, Polarities, Pair Skew. PoE: voltage and current • SFP: Presence current interface, Vendor, Part number, Optical power (over compatible SFP) • Frame Delay (FTD) Y.1563: Min/Max/Med/Mean; Delay Variation (FDV) RFC1889: Peak; Jitter Curr/Max/Min/Mean • Frame Loss (FLR) Y.1563, Duplicated: Out-of-Order packets (RFC 5236) • Availability: SES and Y.1563 PEU; BER: Count, seconds with errors, Pattern losses, pattern loss seconds
RFC-2544 & Y.1564	• RFC 2544: Throughput, Latency, Frame Loss, Back-to-back, Recovery • eSAM: test up to 8 non-color or 4 color aware services. Configuration: CIR, EIR, max. throughput for each service • Tests (CIR, EIR and policing) with FTD, FDV, FLR and availability • Performance test with FTD, FDV, FLR and availability results for all services
ICMP	• RFC 792: IP ping / Traceroute, Generation of ICMP echo request: Dest. IP address, Packet length, Generation interval • Analysis of ICMP echo reply: Round trip time, Lost packets, Time-To-Live Exceeded, Port unreachable

Ergonomics

Hand-held Instrument	• Touchscreen 480x272 TFT, Soft LEDS, 223x144x65mm, IP-54; 1 kg, Mouse, USB, Ethernet ports; SNMP, VNC support • Rechargeable Batteries continuous working up to 24 hs; Operating 0ºC ~ 50º C Storage -20ºC ~ 70ºC;

PolyNet Telecommunications Consulting and Contractor Ltd.
H-1037 Budapest, Montevideo u. 3/B | Phone/Fax: +36 1 250 7726 | www.polynet.eu | Email: info@polynet.eu
Hungary