https://www.albedotelecom.com/src/lib/PS-Portfolio.pdf

TELECOM & POWER solutions



Corporate Presentation – Feb 2025



ALBEDO: a global player of telecom appliances





Net.Time Ω time solution for any industry



Net.Time Ω is a modular 4-port PTP/NTP/PRP network clock supporting telecom and power profiles to meet the timing requirements of any industries especially utilities, data centres, broadcast, transportation and air traffic control. The result is a reliable fault-tolerant solution to power failures, network outages or reference loss.

Net.Time Ω simplifies migration to PTP without abandoning investments in NTP, IRIG-B, MHz or BITS, becuawe facilitating the integration, interaction and translation of all signals, profiles and protocols.



Net.Time Ω is **modular**



Net.Time ϕ a Power Utility clock



Net.Time simplifies the transition to PTP providing seamless translation between all the protocols installed in the Substations including NTP, PTP, SyncE, ToD or IRIG-B to PTP and viceversa. Equipped with a Rubidium or OCXO oscillator, Net.Time supports the widest variety of time references and distribution signals in order to simplify the synchronization of new and legacy appliances.

- NTP / PTP telecom profile
- PRP native (DAN-P clock)
- OCXO / Rubidium oscillators
- GNSS, SyncE, ToD, PPS, ToD, T1/E1, BITS, MHz, Mb/s
- Configurable as Master, Boundary or Slave
- Applications: Power Substations, Railways



Net.Time T a Telecom clock



Net.Time Tau is a boundary clock ideal to assure the delivery of quality time, phase and frequency across a network of base stations or micro cells. It accepts a wide variety of time refs and offers the widest range of timing signals to facilitate the integration of networks.

- 1 Gb/s Ethernet
- NTP / PTP telecom profile
- OCXO / Rubidium oscillators
- GNSS, SyncE, ToD, PPS, ToD, T1/E1, BITS, MHz, Mb/s
- Configurable as Master, Boundary or Slave
- Applications: 5G timing, Ethernet/IP back-haul



xGenius: Transmission & Synchronization



ALBEDO xGenius is a multi-technology tester equipped with 8' screen and all the features you need to install and maintain telecom networks based on 10Gigabit Ethernet, Gigabit Ethernet, 1000/100/10BASE-T, SyncE, T1, E1 and PTP.

- Built-in Rubidium, OCXO, GNSS receiver
- PTP master/slave emulation, NTP server emulation
- Wander T1, E1, PTP, SyncE
- 1PPS measurement
- TE max |TE|, Constant and dynamic TE components
- Y.1564 (e-SAM) FTD, 2-way FDV, FDV, 2-way FTD, FLR SES, PEU and PEA
- Captures any Ethernet protocol and save it in PCAP



Zeus: first IEC-61850 tester



Zeus provides deep insights to design, install, maintain and engineer the Smart Grid and more particularly Power Substations. The unit is able to test Ethernet/IP, PTP, NTP, GbE, IRIG-B, T1/E1, G703, C37.94, GOOSE, SV and MMS protocols. One-way-delay tests, assisted by GPS, is possible at all interfaces, and it has a set of programmable filters to capture live data traffic at wire-speed.

- IEC 61850 migration
- Teleprotection
- Serial Communications
- PTP Clock emulation
- IRIG-B support
- GOOSE, MMS, SV capture and analysis
- PRP testing



Ether. Genius: 6-in-1 tester @ 1Gb/s



Field tester to verify Ethernet/IP up to 1Gb/s supporting Sync-E/PTP protocols with multiple optical/electrical interfaces for GbE/PDH/T1/E1/E0/C37.94 and Datacom as well. Operation modes include Performance and Quality tests at all interfaces and the ability to emulate PTP/SyncE, while featuring well on Frequency/Phase and PDV metrics. It is indeed the smallest test set with a built-in Rubidium clock GPS disciplined.Ports: 2T1/E1 +2GBE+DTE/DCE

- SyncE MTIE/TDEV measurement
- Wander analysis / generation
- PTP master / slave, support decoding
- T1/E1 test Jitter/Wander, Pulse
- One-way delay test (GPS accuracy)
- Datacom with Standard cables
- DTE+DCE for all operation modes



AT.2048 & AT.One





The AT-2048 is an excellent tester for network operators, contractors and enterprise users that have to manage fixed and mobile networks that are using E1 and Datacom backhaul circuits

- Non-stop tester 24h on batteries
- 2 x port BNC and 2 x port RJ45
- Extra rugged but lightweight
- Monitor and Pass Through modes
- Jitter / Wander tests (with all masks)
- Pulse Mask
- Cisco Data Cables
- 2xUSB & RJ45Ports
- VNC remote control



Net.Shark & Net.Hunter – hand-held taps





Both capture, forward & save packets in real time without generating jitter, delays or loss. Net.Hunter is a stream-to-disk device that can capture packets without disturbing live traffic

- Power Utilities to capture GOOSE, SV, MMS, PTP, NTP protocols
- Non-stop packet tap 24/7/365
- Filter/Capture/Tap at full duplex GbE
- Storage size: 512 GB disk
- NTP Synchronised
- Wireshark friendly
- No MAC or IP: Undetectable
- Monitor and Pass Through modes
- Captures CRC errored frames
- 16+16 Programmable Filters



Net.Storm: compact WAN emulator





Generates those perturbances typical of Metro Ethernet / IP networks ideal for IEC 61850 simulations and acceptance Tests of PTP, NTP and SyncE:

- Impairments
 - Packet Delay / Packer Jitter
 - Packet Loss
 - Frame Duplication
 - Errored Frames
- Switch Simulation
 - Bandwidth Policing
 - Bandwidth Shaping
- 16+16 Programmable Filters
 - MAC / IPv4 / TCP / UDP Selection
- Wirespeed operation nsec accuracy



GPON Doctor





GPONDoctor is a family of XGS-PON / GPON analysers that capture upstream and downstream bit level data and interprets PLOAM and OMCI level control information. It can also (a) extract user traffic at the Ethernet layer, (b) measure optical power, (c) detect and report line faults. Aimed at troubleshooting, certification and interoperability analysis, it is an excellent solution for operators, installers and manufacturers. Features:

- Gigabit Ethernet Capture/Management Port: QinQ VLAN Transparent/Stripping configurable
- WiFi 802.11ac interface, both for sniffing and IP management purposes
- IP Services Real-Time Extraction port: 1000Base-T External network protocol analyser plugin
- USB 3.0 to easy transfer data, traces and report



GPON Doctor models

GPON Doctor 4k7

- Downstream: SFP single mode 1490nm @2,5Gbps
- Upstream: SFP single mode 1310nm @1,25Gbps
- RJ45 interface for traffic extraction

GPON Doctor 9k7

- Down: SFP single mode 1578nm @10Gbps
- Ups: SFP single mode 1270nm @10Gbps
- RJ45 interface for traffic extraction

GPON Doctor 10k7

- 1: DS XGSPON: SFP single mode 1578nm @10Gbps
- 2: US XGSPON: SFP single mode 1270nm @10Gbps
- 3: Reserved for future use
- 4: DS GPON: SFP single mode 1490nm @2,5Gbps
- 5: US GPON: SFP single mode 1310nm @1,25Gbps





OLTe the smart OLT



Fully configurable can emulate any commercial OLT using different templates to replicate Optical Line Terminations and the execution of advanced functionalities:

- It involves receiving and reporting events, messages and alarms in response to OMCI messages
- Programable with scripts or manually at the OMCI level to configure entities in each ONT.
- Generation of PLOAM messages at GTC level: Enable and Configure the GEM OMCC port and pass- word authentication tests.

OLT-e manages traffic in GEM frames, carrying 10Gbp/s (or 4 x 1Gbps) traffic.



ALBEDO Markets



ALBEDO customers (2024)







Utilities (61%)

Telcos (24%)

Military (15%)



Albedo International



ALBEDO International

- 750 Clients in 5 continents
- 120 Distributors & partners
- 80 Countries covered
- 10 Area Managers

Sales Distribution (2024)



World Customers (some)





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the Path to Excellence