![ALBEDO Telecom logo — in Test we Trust]

Net.Shark is a handheld tap capable of filtering, capturing and forwarding any Ethernet based protocol including PTP, NTP, GOOSE, SV or MMS, which are part of IEC-61850. It is a tap with unique characteristics, ideal for operations in electrical substations.

Datasheet

Net.Shark handheld tap for Utilities

Net.Shark is a handheld tap capable of filtering, capturing and forwarding any Ethernet based protocol including PTP, NTP, GOOSE, SV or MMS, which are part of IEC-61850. It is a tap with unique characteristics, ideal for field operations such as electrical substations, as it is a self-contained unit, with batteries, screen and keyboard, that can be connected to any point no matter how small, high or hidden.

1. Ports and Interfaces
- RJ-45 port for electrical connection 10/100/1000BASE-T for mirror ports.
- Optical and electrical SFPs ports operating at up to 1 Gb/s for line ports.
- SFP interfaces support: 10BASE-T, 100BASE-TX, 1000BASE-T, 100BASE-FX, 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX.

2. Operation Modes
- Tap & filter: Traffic is forwarded between line ports, traffic is selectively copied to the mirror ports or stored in an SD card
- Filter: Traffic is filtered and forwarded to the corresponding mirror port or stored in an SD card.

3. Formats and Protocols
- Ethernet frame: IEEE 802.3, IEEE 802.1Q, IEEE 802.1ad.
- IP packet: IPv4 (IETF RFC 791), IPv6 (IETF RFC 2460).
- Jumbo frames: up to 10 kB MTU (Maximum Transmission Unit).
- Throughput between measurement ports: 1 Gb/s or 1,500,000 frames/s in each direction.
- PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at) pass-through

4. Auto-negotiation
- Auto-negotiation and forced bit rate modes supported by mirror and line ports.
- Negotiation of bit rate. Allow 10 Mb/s, allow 100 Mb/s, allow 1000 Mb/s.

5. Configuration
- Configurable MTU size from 1518 bytes to 1000 bytes.
- Enable / disable traffic aggregation of both transmission directions to a single mirror port.

6. Filters
- Up to 16 fully configurable and independent filters for each test port.
- User-configurable filters defined by field contents on Ethernet, IP, UDP and TCP headers.

6.1 Generic Filters
- Agnostic filters defined by 16-bit masks and user defined offset.
- Pattern filter (one per port) to match alphanumeric words or expressions
- Length filters to match frames by their length

6.2 Ethernet Filters
- MAC address: source, destination.
- MAC address group: subset filtered by a mask.
- Ethertype field with selection mask.
- VID (Net.Shark) or C-VID and S-VID (Net.Hunter)
- VLAN priority or C-VLAN priority and S-VLAN priority.
- S-VLAN DEI.

6.3 IPv4 Filters
- Selection by IPv4 source or destination address or both. It is possible to select address sets by masks
- Selection by protocol encapsulated in the IP packet (TCP, UDP, Telnet, FTP, etc.).
- Selection by DSCP value.

6.4 IPv6 Filters
- Selection by IPv6 source or destination address (or both at the same time). It is possible to select address sets by using masks.
- Selection by IPv6 flow label.
- Selection based on the next header field value.
- Selection by DSCP value.

6.5 TCP / UDP Filters
- Selection by *TCP / UDP port*. Single value or a ranges

7. Results
- Auto-negotiation results including current bit rate, duplex mode, Ethernet interface.
- SFP presence, interface, vendor, and part number.
- Separate traffic statistics for each port.
- Separate statistics for transmit and receive directions.
- Frame counts: Ethernet, and IEEE 802.1Q (VLAN), control frames.
- Frame counts: unicast, multicast and broadcast.
- Error analysis: FCS errors, undersized frames, oversized frames, fragments, jabbers.
- Frame size counts: 64, 65-127, 128-255, 256-511, 512-1023, and 1024-1518 bytes.
- Byte counts: Port A (Tx / Rx) and Port B (Tx / Rx).
- Traffic counters follow RFC 2819.

7.1 Captures
- Capture format is PCAP or PCAP Next Generation.
- Hardware time stamping of captured data.(error< ±20 ns)
- Export filters: Based on date / time or previous capture filter settings.
- Phase synchronization of capture timestamps through NTP.
- Frame counters for each configured filter

8. Platform
8.1 Ergonomics
- Size 223 x 144 x 65 mm
- Weight: 1.0 kg (with rubber boot, one battery pack)
- 4.3 inch TFT colour screen (480 x 272 pixels)

8.2 Graphical User Interface
- GUI controlled by Touch-screen, Keyboard or Mouse
- Direct configuration and management in graphical mode
- User interface by touch-screen, keyboard and mouse
- Full remote control with VNC
- Configuration up/down through Internet, USB and SNMP
- Local management with CLI
- Full remote control: SNMP, SSH, VNC

8.3 Results
- Local storage in txt and pdf files
- File transfer to SD card and USB port
- File management through web interface and SNMP

8.4 Board
- 2 x USB ports
- 1 x RJ45 port
- 2 x LEDs
- Software upgrade through USB port

8.5 Batteries
- Li Ion Polymer
- Up to 22 hours of operation in E1 (with two packs)
- Up to 10 hours of operation in Ethernet (with two packs)

8.6 Operational Ranges
- IP rating: 54
- Operational range: -10ºC to +50ºC
- Storage range: -20ºC to +70ºC
- Operation humidity: 5% - 95%

❑