# RELY-REC Time-aware Network Recorder

In critical systems, it is essential being able to analyze the network communications at frame level for testing and forensic purposes.

Furthermore, the validity of this analysis will be constrained by the capability of the infrastructure to correlate the frames with a common time reference.

For that purpose, Relyum has developed RELY-REC, a device that is able to inspect, timestamp and record regular Ethernet and high-availability Ethernet traffic, using the same PTP timing reference than the network under analysis.

As an example, due to the critical nature of communications in Electric sector, RELY-REC is an all-in-one solution specifically designed to analyze the traffic in the modern IEC 61850 Digital Substations where the use of combined HSR, PRP and PTP has generated a new challenge for the operators.

This device is synchronized with a IEEE 1588-2008 PTPv2 infrastructure, that may be the same shared by the other equipment of the substation.

# Specifications
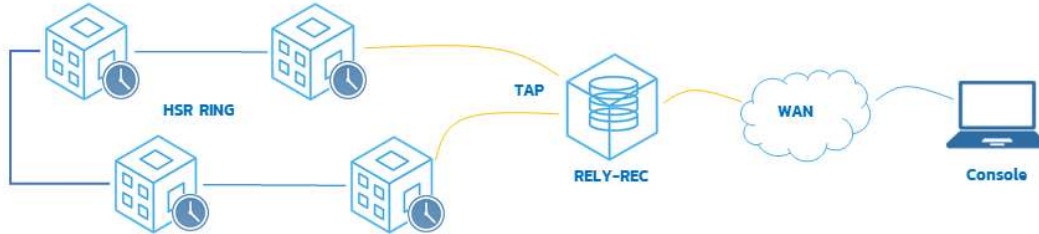


## Communications

- 2 x SFP cages for 10/100/1000Base-TX Ethernet copper or 100Base-FX/1000Base-X fibre for TAP or Port Mirroring connection

- 1 x SFP cages for 10/100/1000Base-TX Ethernet copper or 100Base-FX/1000Base-X fibre for expansion connection (alternative PTP Source, Modbus/S7/MQTT connections, etc.)

- 1 x 10/100/1000Base-TX Ethernet copper port for Console management and for non-stop remote access to recorded data

- IEC 62439-3 v3 Clause 5 "High-availability Seamless Redundancy (HSR)"

- IEC 62439-3 v3 Clause 4 "Parallel Redundancy Protocol (PRP)"

## Synchronization

- IEEE 1588-2008 PTPv2
- Operation modes: Transparent Clock, Ordinary Clock
- Profiles: Default, Power, IEC 61850-9-3, AS
- Optional PTP sources for timestamping reference:
- Dedicated port for external PTP Master
- NTP configurable
- Internal reference

## Other interfaces

- 1 x RS485 port
- 2 x USB type A ports
- 1 x Pulse-Per-Second (PPS) SMA output
- 1 x Sensor expansion module (optional)

## Processing capabilities

- Simultaneous read/write data operation supported
- Industrial temperature grade high capacity SSD disk
- Remote access to Log Data Files configurable and standard format (PCAP)
- Triggering based on:
  » Direct I/O Signals and Modbus/S7/MQTT variables
  » Packet monitor
  » IEC 61850: SMV events, GOOSE messages events, PTP events
- Filtering:
  » Based on standard filtering format used in the sector

## Rugged devices

- Fan-less design
- Full metal enclosure
- Redundant Power Supply: 6VDC to 30 VDC
- Operating temperature: -40°C to +70°C
- Storage temperature: -40°C to +85°C
- Optional mounting: DIN rail

## Configuration and Management

- Dedicated Ethernet service port
- SNMPv3, SSH
- Web-based HTML5-GUI access/configuration:
- Accessible through HTTP(S)
- Configuration profiles and Firmware updates
- Real-time network monitoring

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