RelyUm® Industrial

Time-Sensitive Networking Traffic Recorder

RELY-TSN-REC

Overview

Time-Sensitive Networking has come out as the definite solution for covering the needs of sectors such as automotive, aerospace, railway, industrial automation, etc.

However, due to the complexity of TSN networks, it is essential to be able to analyse the network communications at the frame level for protocol validation, performance analysis, conformance 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, SOC-E has developed RELY-TSN-REC, a device that can inspect, timestamp, and record regular Ethernet and Time-Sensitive Networking traffic, using the same IEEE 802.1AS timing reference as the other equipment in the network under analysis.

Key Features

- Sustained **Ethernet capture and record** (PCAP format) in both conventional Ethernet networks and Time-Sensitive networks.

- Synchronized using **IEEE 802.1AS** through a separated synchronization port.

- Up to **256GB SSD** of local data storage.

- Data format (PCAP) compatible with popular network monitoring tools like **Wireshark**.

- **Simplified management and monitoring** via a user-friendly HTTPS web interface or SSH accessible CLI.

- Built for High Reliability & 24/7 Operation.

Technical Specifications

Communication Interfaces	• 2x 100/1000BASE-SFP Recorder Ethernet ports • 1x 100/1000BASE-SFP Synchronization Ethernet port (IEEE 802.1AS GM, Modbus /MQTT, etc.)	• 1x 10/100/1000BASE-T(X) Ethernet Service port • 1 x PPS output (MCX connector)

Network Recording	• High data rate, large capacity streaming network recording system
	• Remote access to captured traffic in PCAP format and event logs
	• Capture triggering based on:
	  - Modbus/S7/MQTT variable values
	  - Pattern recognition within a packet
		- Date / hour
		  - Link status
		• Capture filtering based on the standard filtering format used in the sector
		• 256GB SSD of local data storage
		• Simultaneous read/write data operation supported

Synchronization	• IEEE 802.1AS - Timing and Synchronization	
Security	• RBAC (Role Based Access Control) • Selective ports disabling capability • Unsecure protocols disabling capability • HTTPS for web interface	• Secure Shell (SSH) Protocol v2 for command line interface • Encryption/authentication & signature for firmware and bitstream

Configuration & Management

- HTTPS web interface
- SSHv2 command line interface (CLI)
- SNMP V1/V2c/V3 protocol support
- SNMP V3 encrypted authentication and access security
- Encrypted and digitally signed firmware/bitstream upgrades
- Saving and restoring configuration
- Internal status monitoring and logging
- Out-of-band management via Ethernet service port or synchronization port

Processing

- Xilinx Zynq-7000 SoC device:
  - 2x 32bit CPU ARM-Cortex-A9
  - 1x 28nm Programmable FPGA
- 1GB DDR3 RAM memory
- 16GB eMMC Flash memory
- 256Mb QSPI Flash memory

Physical & Electrical Characteristics

- Fanless design and full metal enclosure
- Dimensions (mm):
  105 (W) | 164 (D) | 74.6(H)
- Weight: 1kg
- Power input: 9VDC to 30VDC
- Operating temperature: -40℃ to +70℃
- Storage temperature: -40℃ to +85℃
- Optional mounting: DIN rail

Warranty

- 2 years

Certifications

- UNE-EN 61326-1:2013
- UNE-EN 61326-2-1:2013
- IEC 61850-3:2013

Ordering Code

Ordering code	Model and description
TSN25.12	RELY-TSN-REC: Time-Sensitive Networking Traffic Recorder
Accessories	
A-SFP-CU-02.01	COPPER SFP (10/100/1000): Copper tri-speed RJ45 SFP Module
A-SFP-FO-MM-01.01	FIBRE SFP (100) – 1310/MM/LC: Multimode Fibre Optic LC Connector 1310nm 100Mbps SFP Module
A-SFP-FO-SM-01.01	FIBRE SFP (100) – 1310/SM/LC: Singlemode Fibre Optic LC Connector 1310nm 100Mbps SFP Module
A-SFP-FO-MM-02.01	FIBRE SFP (1000) – 850/MM/LC: Multimode Fibre Optic LC Connector 850nm 1000Mbps SFP Module
A-SFP-FO-MM-02.02	FIBRE SFP (1000) – 1310/MM/LC: Multimode Fibre Optic LC Connector 1310nm 1000Mbps SFP Module

To know more about other available references, please contact your sales representative.

Dimensions
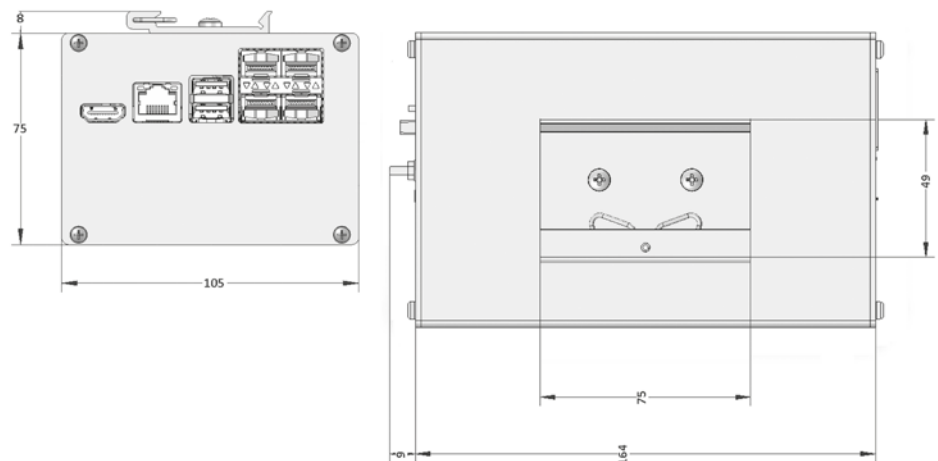
RelyUm®
By

RELY-TSN-REC

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