RelyUm® Industrial

Time-Sensitive Networking Testing Tool

RELY-TSN-LAB

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. In the process of evolving their networks to these new standards, system architects need to validate the correct performance of the TSN mechanisms before being applied in the field applications.

RELY-TSN-LAB is a new concept of intelligent device that integrates IEEE 802.1AS sub-microsecond synchronization to analyse the behaviour of a TSN network under certain stress conditions. The device can simulate surges conditions and other interferences in the network by forcing FCS (CRC) errors in selected frames. In addition, it allows to measure the bandwidth and latency of a pre-defined set of traffic transmitted on the network.

Key Features

- Latency measurement in TSN networks with accuracy in the range of the nanosecond.
- Synchronized using **IEEE 802.1AS** through a separated synchronization port.
- **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

- 4x 100/1000BASE-SFP Regular Ethernet ports
- 1x 10/100/1000BASE-T(X) Ethernet Service port
- 1 x PPS output (MCX connector)

Testing Tool Features

- Frame filtering by:
  - Destination MAC address
  - Source MAC address
  - VLAN ID
  - VLAN priority
  - Custom pattern
- Configurable error injection
- Bandwidth metering
- Latency metering

Synchronization

- IEEE 802.1AS - Timing and Synchronization
- Hardware (FPGA) timestamping

Security

- RBAC (Role Based Access Control)
- Selective ports 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)
- Saving and restoring configuration
- Internal status monitoring and logging
- Statistics independent per port
- Out-of-band management via Ethernet service 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) | 44(H)
- Weight: 1kg
- Power input: 9VDC to 30VDC
- Operating temperature: -40°C to +70°C
- Storage temperature: -40°C to +85°C
- Optional mounting: DIN rail

Warranty

- 2 years

Certifications

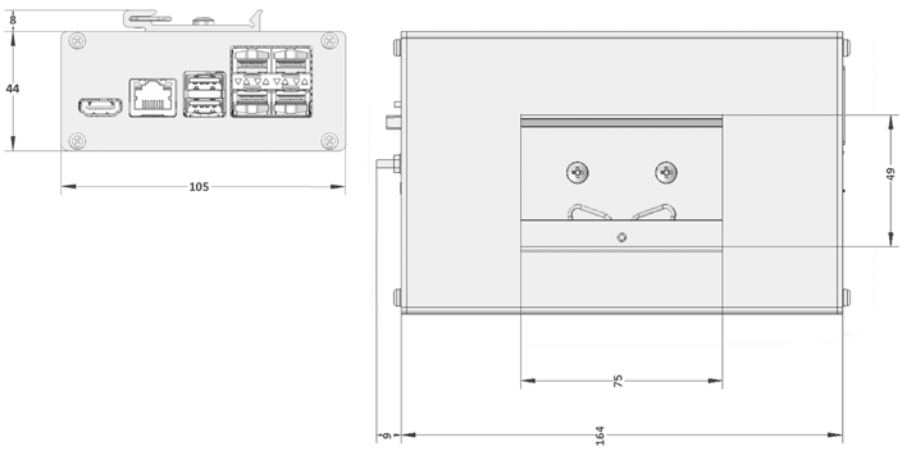
- UNE-EN 61326-1:2013
- UNE-EN 61326-2-1:2013

Ordering Code

Ordering code	Model and description
TSN22.09	RELY-TSN-LAB: Time-Sensitive Networking Testing Tool
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

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SOC-E®

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