

RelyUm[®] Industrial



4-port 1G Time-Sensitive Networking Switch

RELY-TSN4

Overview

Time-Sensitive Networking (TSN) allows to combine critical and best effort traffic in a unique deterministic and interoperable Ethernet network. This offers significant cost reductions in terms of equipment investment, maintenance, seamless integration and single vendor dependence reduction.

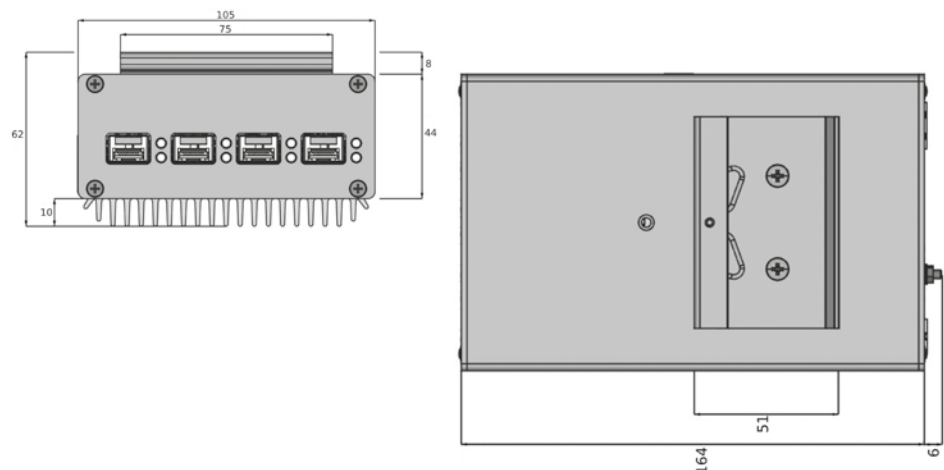
All these benefits have led to the fast expansion of TSN among critical networks and to the success of RELY-

TSN4, RelyUm first TSN switch. Based on SOC-E's TSN technology, this device benefits from a robust and field proven design used in the most demanding sectors (railway, aerospace, automotive, industrial automation, etc.).

Key Features

- **4x TSN 100/1000BASE-SFP** ports supporting a wide range of TSN standards.
- FPGA-based solution, powered by **SOC-E's in-house designed** technology, to be **easily upgraded** as TSN standards evolves.
- **"Zero-Packet Loss" redundancy** using TSN FRER for selected traffic combined with MSTP.
- Simplified management and monitoring via a user-friendly HTTPS web interface or SSH accessible CLI. **Compliant with Qcc for centralized configuration through YANG model configuration files.**
- Comprehensive **TSN Ecosystem** offering combined **with SOC-E's TSN Expertise**, to deploy a turnkey project.

Dimensions



Technical Specifications

Communication Interfaces

- 4x 100/1000BASE-SFP TSN Ethernet ports
- 1x 10/100/1000BASE-T(X) Ethernet Service port
- 1x USB type B Serial port

Layer 2 Features

- IEEE 802.3-2008 (Ethernet)
- Automatic MAC address learning and aging
- Static MAC Table
- Port-Based Virtual LANs (VLANs):
 - Logical segmentation of network for optimal use of bandwidth
 - IEEE 802.1Q for VLAN tagging (up to 4K VLAN groups)
 - IEEE 802.1p for Class of Service (CoS) / Quality of Service (QoS)
- IEEE 802.1AB for Link Layer Discovery Protocol (LLDP)
- Port rate limiting
- Storm control for flooded broadcast, multicast and unicast
- Layer 2 multicast filtering
- IGMP Snooping (up to 1024 multicast filters)
- Spanning Tree Protocol:
 - IEEE 802.1D (STP)
 - IEEE 802.1w (RSTP)
 - IEEE 802.1s (MSTP)

TSN Features

- IEEE 802.1AS - Timing and Synchronization
- IEEE 802.1Qav - Credit Based Shaper (CBS)
- IEEE 802.1Qbv - Time Aware Shaper (TAS)
- IEEE 802.1Qci - Per-Stream Filtering and Policing
- IEEE 802.1CB - Frame Replication and Elimination for Reliability (FRER)
- IEEE 802.1Qcc - Stream Reservation Protocol (SRP) Enhancements and Performance Improvements

Security

- IEEE 802.1X for port-based network access control
- MAC port binding & authentication for login security
- RADIUS authentication
- RBAC (Role Based Access Control)
- Selective ports disabling capability
- Unsecure protocols disabling capability
- Per port ingress and egress port mirroring
- HTTPS for web interface
- Secure Shell (SSH) Protocol v2 for command line interface
- Encryption/authentication & signature for firmware and bitstream

Configuration & Management

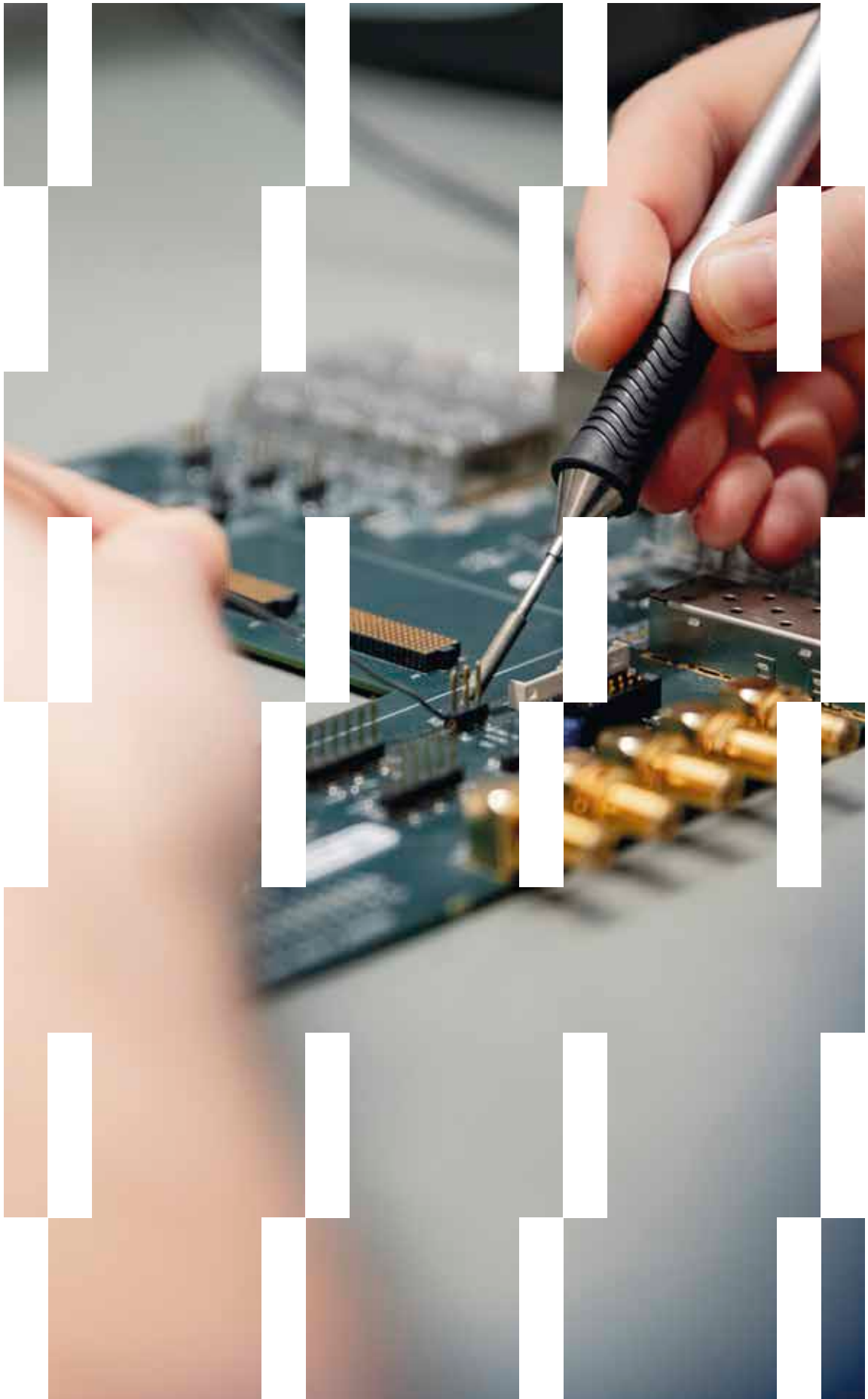
- HTTPS web interface
- SSHv2 command line interface (CLI)
- Netconf protocol (YANG model-based configuration) support
- Encrypted and digitally signed firmware/bitstream upgrades
- Saving and restoring configuration
- Internal status monitoring and logging
- Event notification through Syslog
- Statistics independent per port
- In-band management via any Ethernet switch port or out-of-band via Ethernet service port
- USB type B serial console

Processing	• Xilinx UltraScale+ MPSoC device: - 2x 64bit CPU ARM-Cortex-A53 - 2x 32bit CPU ARM-Cortex-R5F - 1x 16nm UltraScale+ FPGA	• 2GB DDR4 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) 62(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
TSN24.16	RELY-TSN4: 4-port Time-Sensitive Networking Switch
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.



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