RelyUm® Industrial

20-port 1G/10G
Time-Sensitive Networking Switch

RELY-10TSN20

Overview

Time-Sensitive Networking (TSN) seamlessly integrates critical and everyday traffic in a deterministic Ethernet network, offering significant cost savings and reducing dependence on a single vendor.

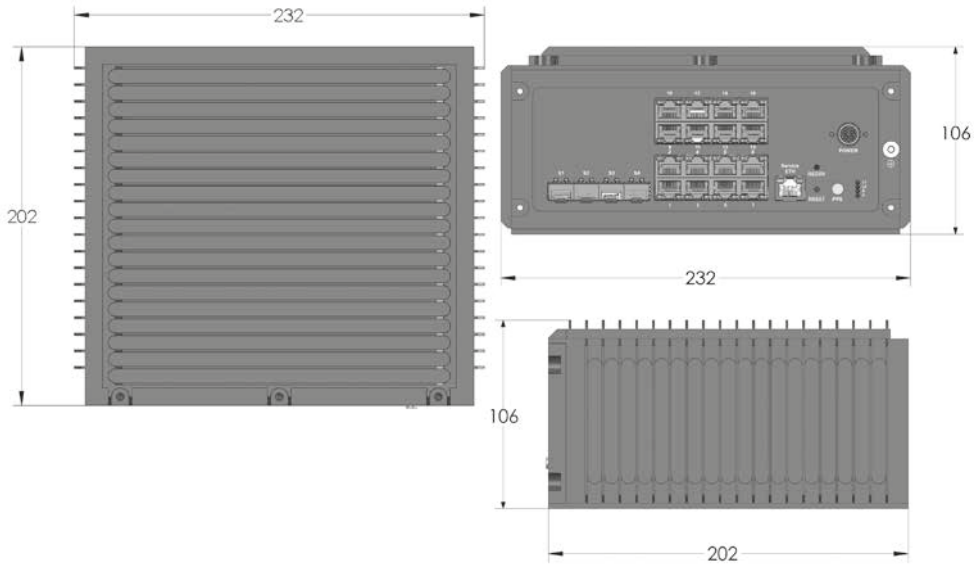
Built on the company's proven TSN technology, RELY-10TSN20 is the most complete TSN switch from Relyum Industrial product range offering TSN capabilities in all its 20 ports. It supports up to 4x 10GBASE-SFP TSN multimedia ports and 16x 10/100/1000Mbps TSN copper ports in a single device, supporting a broad range of TSN standards for versatility.

Build versatile, high-performance networks with our 20-port TSN switch, designed to seamlessly support both 10G and 1G infrastructures. Its multifunctional port configuration enables efficient bandwidth management and seamless integration across diverse network environments. Designed for dynamic environments, this switch ensures low latency, precise time synchronization, and reliable connectivity for a wide range of applications.

Key Features

- **4x 10GBASE-SFP TSN** ports and **16x 10/100/1000BASE-T TSN** ports, supporting a **wide range of TSN standards**.
- FPGA-based solution, powered with **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 10GBASE-SFP TSN Ethernet ports
- 16x 10/100/1000BASE-T(X) TSN Ethernet ports
- 1x 10/100/1000BASE-T(X) Ethernet Service port
- 1 x PPS output (SMA connector)

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*

* Supported in 4x 10G ports and 2* 1G ports

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 including 10G 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

Processing

- Xilinx UltraScale+ MPSoC device:
  - 4x 64bit CPU ARM-Cortex-A53
  - 2x 32bit CPU ARM-Cortex-R5F
  - 1x GPU ARM-Mali 400MHz
  - 1x 16nm UltraScale+ FPGA
- 4GB DDR4 RAM memory
- 32GB eMMC Flash memory
- 512Mb QSPI Flash memory

Physical & Electrical Characteristics

- Fanless design and full metal enclosure
- Dimensions (mm): 232(W) | 202(D) | 106(H)
- Weight: 2.62kg
- Power Input: 5VDC @ 10A
- Included power supply voltage range 100-240VAC
- Power consumption: 15-25W
- Operating temperature:
  - Power adapter: 0°C to +40°C
  - Equipment: - 40°C to +55°C
- Storage temperature:
  - Power adapter: -20°C to +80°C
  - Equipment: -40°C to +85°C
- Optional mounting over coldplate

MTBF (only equipment)

- 370,000 hours GB@25
- MTTR = 0.5 hour

Warranty

- 2 years

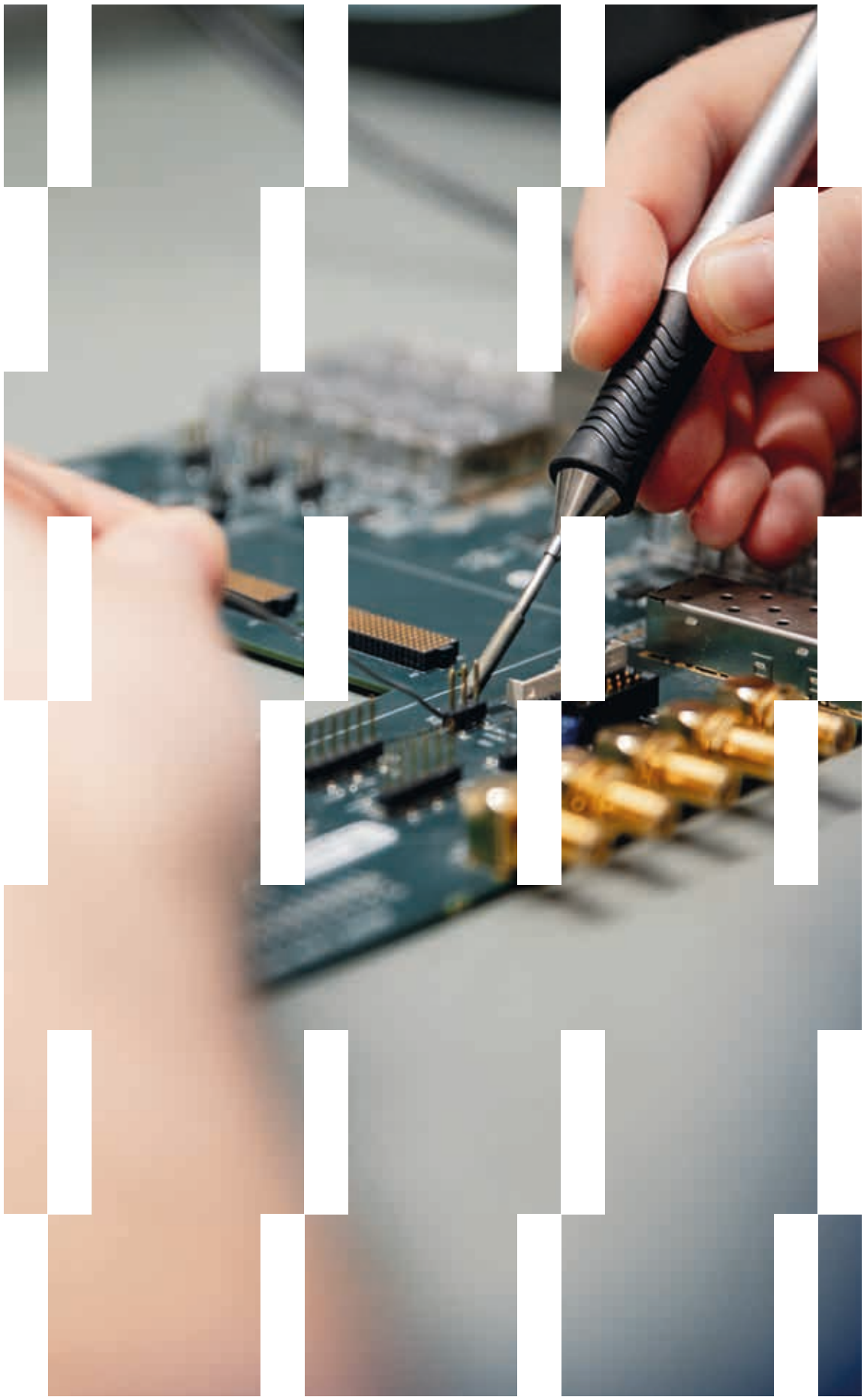
Certifications

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

Ordering Code

Ordering code	Model and description
TSN38.06	RELY-10TSN20: 20-port 1G/10G Time-Sensitive Networking Switch
Accessories	
SFP-CU-02	COPPER SFP (10G)
SFP-FO-06	FFIBER SFP (10G-SR) – 850/MM/LC
SFP-FO-07	FIBER SFP (10G-LR) – 1310/SM/LC

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



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By

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SOC-E®

www.soc-e.com
info@soc-e.com

Calle Islas Canarias 19, piso -1
48015 Bilbao (Spain)