

RelyUm[®] Industrial



4-port HSR/PRP/PTP Redbox Switch

RELY-RB

Overview

Critical systems demand time-aware high-availability networking. Moreover, the complexity of the modern network infrastructures in these premises overcomes the traditional concept of “managed” device.

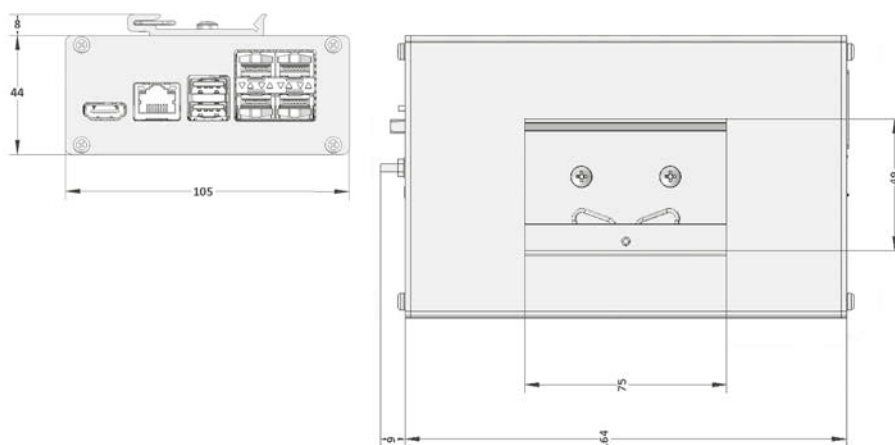
RELY-RB is a new concept of intelligent device that integrates advanced field-proven technology for “Zero-

Packet Loss” redundant Ethernet, sub-microsecond synchronization and cybersecurity. This device is able to merge the whole LAN with redundant networks, to interconnect PRP and HSR networks and to extend HSR rings via QuadBox operation.

Key Features

- Full in-house design (SOC-E IP Cores) based on a **reconfigurable platform, upgradable and customizable**.
- Support for **HSR/PRP** “Zero-Packet Loss” redundancy and **NTP/PTP** sub-microsecond synchronization.
- Support for **QuadBox operation** modes: HSR-HSR, HSR-PRP.
- **Simplified management and monitoring** via a user-friendly HTTPS web interface or SSH accessible CLI.

Dimensions



Technical Specifications

Communication Interfaces

- 2x 100/1000BASE-SFP HSR/PRP Ethernet ports
- 2x 100/1000BASE-SFP Regular Ethernet ports (Redbox interlink)
- 1x 10/100/1000BASE-T(X) Ethernet Service port
- 1 x PPS output (MCX 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)
- Switching port mask for forwarding
- Port rate limiting
- Storm control for flooded broadcast, multicast and unicast
- Layer 2 multicast filtering
- Zero-Recovery Time redundancy:
- High-availability Seamless Redundancy (HSR) - IEC 62439-3 Clause 5
 - Supported modes: H, N, U, HSR-SAN, PRP-HSR, HSR-HSR
 - Cut-through operation for the HSR ring to minimize the latency in the ring
- Parallel Redundancy Protocol (PRP) - IEC 62439-3 Clause 4
 - Supported modes: Duplicate discard, duplicate accept, transparent reception, PRP-HSR
 - Store & Forward for PRP and Ethernet operation
- Spanning Tree Protocol:
 - IEEE 802.1w (RSTP)

Synchronization

- IEEE 1588-2008 v2 (PTPv2)
- IEEE 1588 Stateless Transparent Clock (TC)
- IEEE 1588 Ordinary Clock (Master-Slave)
- NTP (Server/Client)

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 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)
- 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
- Graphic representation of HSR/PRP network status
- Statistics independent per port
- In-band management via any Ethernet switch port or out-of-band 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):
 - RELY-RB 12VDC: 105(W) | 164(D) | 44(H)
 - RELY-RB 48VDC & 125VDC: 105 (W) | 164 (D) | 74.6(H)
- Weight: 1kg
- Power input:
 - RELY-RB 12VDC: 9VDC to 30VDC
 - RELY-RB 48VDC: 36VDC to 75VDC
 - RELY-RB 125VDC: 36VDC to 150VDC
- Operating temperature: -40°C to +70°C
- Storage temperature: -40°C to +85°C
- Optional mounting: DIN rail

Warranty

- 2 years

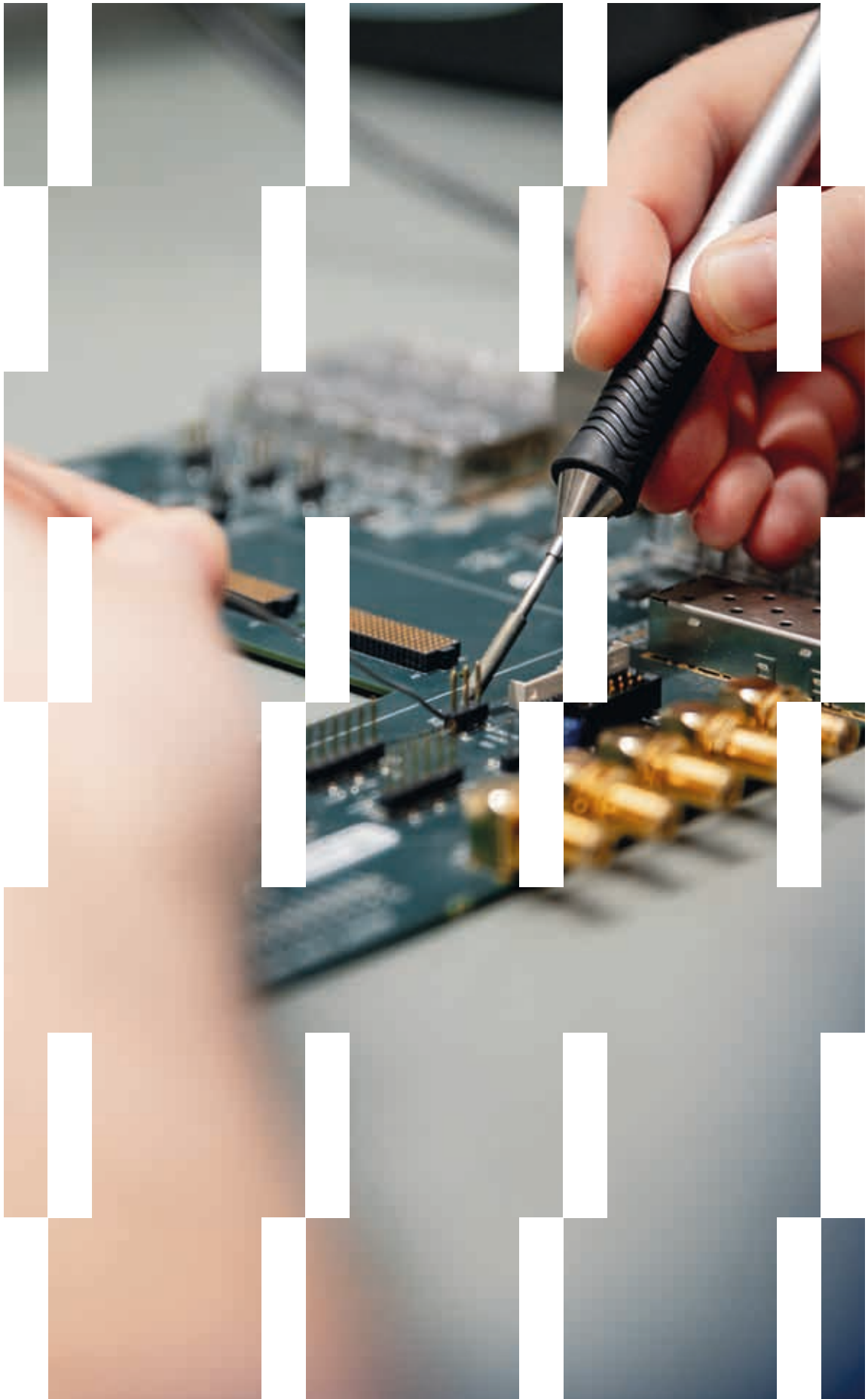
Certifications

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

Ordering Code

Ordering code	Model and description
RB12.09	RELY-RB: 4-port HSR/PRP/PTP Redbox Switch
RB12.10	RELY-RB (125VDC): 4-port HSR/PRP/PTP Redbox Switch - 125VDC power supply
RB12.11	RELY-RB (48VDC): 4-port HSR/PRP/PTP Redbox Switch - 48VDC power supply
Accessories	
SFP-CU-01	COPPER SFP (10/100/1000)
SFP-FO-01	FIBER SFP (100) – MM/LC
SFP-FO-02	FIBER SFP (100) – SM/LC
SFP-FO-04	FIBER SFP (1000) – 850/MM/LC

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



RelyUm[®] By

RELY-RB

4-port HSR/PRP/PTP Redbox Switch

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