
# RELY-RB Time-aware Redbox Switch

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

## RELY-RB models

| RELY-RB | RELY-RB+ | RELY-RB+2 |
|---|---|---|
| 1x 10/100/1000Base-TX Ethernet copper port (Console/Service/Security)<br><br>4x SFP Cages for 10/100/1000Base-TX Ethernet copper or 100Base-FX/1000Base-X fiber | 1x 10/100/1000Base-TX Ethernet copper port (Console/Service/Security)<br><br>6x 10/100/1000Base-TX Ethernet copper port | 1x 10/100/1000Base-TX Ethernet copper port (Console/Service/Security)<br><br>6x 10/100/1000Base-TX Ethernet copper port<br><br>2x SFP Cages for 10/100/1000Base-TX Ethernet copper or 100Base-FX/1000Base-X fiber |


**RELY-RB**


**RELY-RB+**


**RELY-RB+2**

## Communication interfaces

- Multiple PTP Tri-speed Ethernet ports
- Zero-Packet-Loss redundancy modes:
  - » IEC 62439-3 v3 Clause 5 "High-availability Seamless Redundancy (HSR)"

    Modes: H, N, T, U, X, HSR-SAN, PRP-HSR, HSR-HSR
  - » EC 62439-3 v3 Clause 4 "Parallel Redundancy Protocol (PRP)"

    Modes: Duplicate discard, duplicate accept, transparent reception, PRP-HSR
- Optional modes:
  - » IEC 62439-2 Clause 5 "Media Redundancy Protocol (MRP)"
  - » "Device Level Ring (DLR)" for Ethernet IP
  - » RSTP IEEE802.1w
- VLAN support and Ethernet type based or IEEE 802.1P Traffic prioritization
- Cut-through and Store&Forward switching capability

## Synchronization

- IEEE 1588-2008 PTPv2. Optional IRIGb Master/Slave bridge
- Modes: Transparent Clock, Ordinary Clock, Boundary Clock
- Profiles: Default, Power, IEC 61850-9-3,AS
- IEEE 1588 Stateless Transparent Clock P2P mode to support
- IEEE 1588 PRP/HSR redundant networks merging

## Other interfaces (not available in all models)

- 1x RS485 port
- 2 x USB type A ports
- 1x HDMI output
- 1x Alarm output (potential-free relay 250VACmax.)
- 1x Pulse-Per-Second (PPS) SMA output

## Processing performance

- Xilinx Zynq FPGA with embedded dual-core ARM9 processor
- 1GB DDR3 RAM Memory
- Linux Operating System

## Security

- Optional support for IEC 62351-6 wire-speed cryptography
- Security infrastructure for IEC 62351-9 Key Exchange facilities
- AES 256, HMAC and RSA hardware engines for software and firmware encryption, authentication and signature
- Secure boot
- System Level audited security (OS & Applications)
- Integrated anti-tampering, accelerometers and power consumption measurement sensors to mitigate advanced security attacks
- Ethernet port isolated from switching infrastructure to implement security oriented services (NAT, Firewall, VPN, etc.)
- EEE 802.1X access control for port based and MAC based authentication, MAC-Port binding and authentication for login security
- Optional internal mirroring port with deep packet inspection capability
- Optional integrated SIEM agent for IDS and Syslogv5 TLS support for distributed SIEMs approach

## Rugged devices

- IEC 61850-3 / IEEE 1613
- Fanless design and full metal enclosure
- Redundant Power Supply: 6VDC to 36 VDC
- Optional PS: 48VDC / 125VDC
- Operating. temperature.: -40°C to +70°C
- Storage temperature.: -40°C to +85°C
- Optional mounting: DIN rail

## Configuration and management

- SNMPv3, SSH
- Web-based HTML5-GUI access/configuration
- Accessible through HTTP(S)
- Configuration profiles and Firmware updates
- Real-time network monitoring

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