RelyUm® Industrial

IEC 61850 Substation Testing Tool

RELY-TEST

Overview

RELY-TEST is a state-of-the-art solution for automated testing in digital substations, adhering to IEC 61850 standards. This hardware device connects with various IEDs, facilitating seamless automated validation at substation and process bus levels.

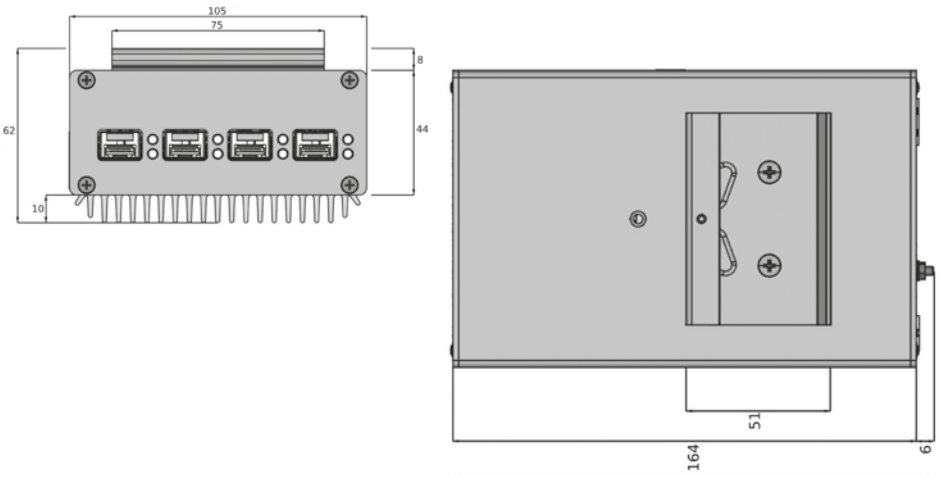
It is versatile, supporting tasks such as software updates, maintenance, commissioning, and fault/restoration services. Following the IEC 61850-10 standard, RELY-TEST leverages substation communication protocols, offering adaptable, dependable, and resource-efficient remote testing processes.

By adopting RELY-TEST, users save time, effort and engineering costs, streamlining processes and improving safety by operating remotely, without the need to travel to the substation.

Key Features

- Compliant with **IEC 61850-10 and IEC 61850-6**.
- Simultaneous publishing of **24 Sampled Values streams**.
- Support for **HSR/PRP "Zero-Packet Loss"** redundancy and **NTP/PTP sub-microsecond** synchronization.
- **Simplified management and monitoring** via a user-friendly HTTPS web interface or SSH accessible CLI.
- **Advanced security means** for secure remote operation.
- Built for High Reliability & **24/7 operation**.

Dimensions



Technical Specifications

Communication Interfaces

- 2x 100/1000BASE-SFP 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)
- 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 802.1D (STP)
  - IEEE 802.1w (RSTP)
  - IEEE 802.1s (MSTP)

Testing Capabilities

- Test type definition:
  - Test template creation based on Javascript with custom functions for Smart Grids
  - Test template file import/export
- Test management:
  - Test customization to specific IEDs in a substation
  - Test execution (continuous or debugging mode) and results reporting
- Traffic generation (configurable up to 100% of line speed) to test network performance under congestion conditions

IEC 61850 Features

- MMS client
- Signal emulation:
  - 24 Sampled Values streams simultaneous publishing
  - GOOSE message publishing
- MMS reports and GOOSE messages subscription
- System configuration based on IEC 61850-6:
  - SCL file (.SCD/.CID) import to define the substation configuration
  - SCL file edition to customize the substation configuration

Synchronization

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

Security

- RBAC (Role Based Access Control)
- Selective ports disabling capability
- Unsecure protocols 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)
- Encrypted and digitally signed firmware/bitstream upgrades
- Saving and restoring configuration
- Internal status monitoring and logging
- Event notification through Syslog
- Statistics independent per 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

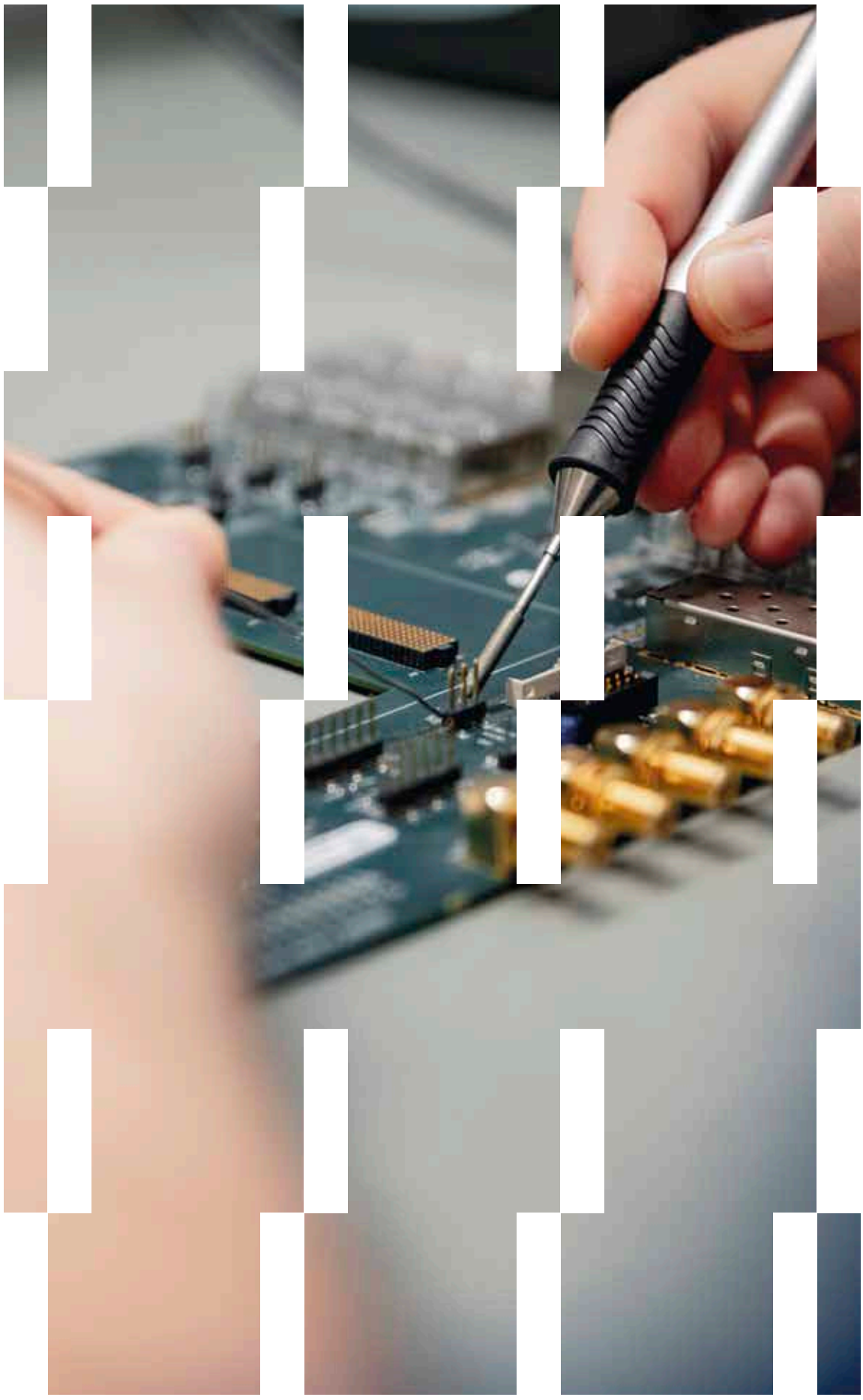
Certifications

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

Ordering Code

Ordering code	Model and description
RB33.16	RELY-TEST: IEC 61850 Substation 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.



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By

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SOC-E®

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