RELY-61850 Time-aware Multiprotocol Hub

RELY-61850 platform meets the needs of critical applications, in terms of reliability, availability and security, combining sensor data acquisition, computing and networking in the same device.

RELY-61850 gateway simplifies connectivity at the Edge by implementing a flexible multi-vendor input switchboard, that enables conversion between the different protocols from the Electric Sector.

RELYUM devices embed multi-core programmable SoC architectures enabling on the field upgrades of hardware and software processing modules, offering powerful computing means at Edge level.

Time-aware networking and high-availability operation for Gigabit Ethernet fiber optic or copper rings is fully implemented in a FPGA technology, based on IEEE1588, IEC 61850-9-3 and IEC 62439-3 standards, to support the most rigorous requirements.

On top of this, RELY-61850 follows cybersecurity by design concept in the development of all its products. This implies introducing security mechanisms, from the device up to the application layer, to guarantee an integral protection of the customers facilities.

Communication interfaces

- 4 x SFP cages for 10/100/1000Base-TX Ethernet copper or 100Base-FX/1000Base-X fiber to support heterogeneous networking protocols

- 1 x 10/100/1000Base-TX Ethernet copper port

- Zero-Packet-Loss redundancy modes:

  » IEC 62439-3 v3 Clause 5 "High-availability Seamless Redundancy (HSR)"

  » IEC 62439-3 v3 Clause 4 "Parallel Redundancy Protocol (PRP)"

- Optional Redundancy modes:

  » IEC 62439-2 Clause 5 "Media Redundancy Protocol (MRP)"

  » "Device Livel Ring (DLR)" for Ethernet IP

  » RSTP IEEE802.1w

- VLAN support

- Ethernet type based or IEEE 802.1P Traffic prioritization

- Cut-through and Store&Forward switching capability

Synchronization

- IEEE 1588-2008 PTPv2

- Operation modes: Transparent Clock, Ordinary Clock, Boundary Clock

- Profiles: Default, Power, IEC 61850-9-3, AS

- Optional IRIGb Master/Slave bridge

Other interfaces

- 1 x RS485 port

- 2 x USB type A ports

- 1 x HDMI output

- 1 x Alarm output (potential-free relay output 250VAC max.)

- 1 x Pulse-Per-Second (PPS) SMA output

Supported protocols

- IEC 61850

- IEC 60870-5-101/103/104

- DNP 3.0

- Modbus Client/Server

- IEC 61131

Rugged device

- IEC 61850-3 / IEEE 1613

- Fanless design with full metal enclosure

- Redundant Power Supply: 6VDC to 30 VDC (optional up to 48VDC)

- Operating temperature: -40°C to +70°C

- Storage temperature: -40°C to +85°C

- Optional mounting: DIN rail

Security features

- Secure boot

- Support of software and firmware encryption, authentication and signature

- System Level audited security (OS & Applications)

- Security sensors to mitigate advanced attacks

- Ethernet port isolated from switching infrastructure to implement security oriented services (Firewall, NAT, VPN, etc.)

- Support for internal Mirroring Port with deep packet inspection capability

- IEEE 802.1X access control for port based and MAC based authentication, MAC-Port binding and authentication for login security

- Optional SIEM agent for IDS

Optional pluggable modules

- Sensor module:

  » 3 Digital inputs: Up to 3, 0-24 V

  » 1 Analog input: 0/4-20mA

  » 1 Potential-free relay output 250 VAC max

  » Temperature sensor interfaces: 1 three-wire RTD (PT100) and 1 thermocouple Type K

  » 1 Integrated electronic piezoelectric (IEPE) accelerometer input

- High Speed Data Acquisition module

- Data Logger module

- Wireless module: 802.11 b/g/n and Bluetooth