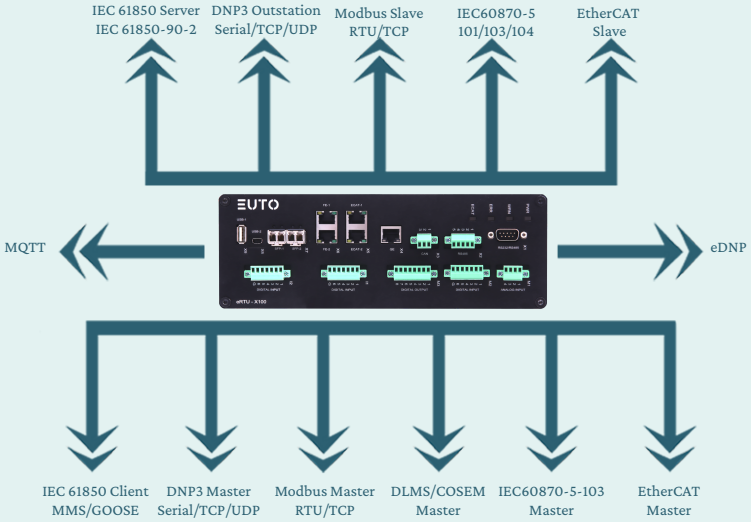
eRTU-X100
Technical Information

IEC 61850 compliant RTU/Gateway with Integrated **CAN** *and* **EtherCAT** *Slave*

Protocol gateway

Convert any protocol/s, one-to-one or multiple-to-multiple simultaneously



EtherCAT

Gateway to/from any protocol from/to EtherCAT

- **Slave** to supply critical data to the upper layer of the system
- **Master** in order to control and monitor time-critical applications integrated into the whole system.

Automation

IEC 61131-3 and LUA based logic programs can be run on the device with high execution times.

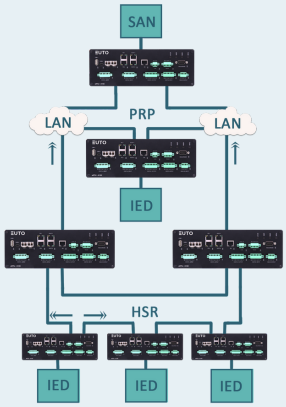
Sequence of events

Historical records with precise timestamps can be saved on non-volatile memory to allow analysis of critical events later.

Redundancy

HSR/PRP can be applied from configured F/O and copper ethernet ports to supply **zero recovery time** on networks faults.

Hardware level RSTP can also be available to provide recovery on regular ring networks.



Internal Battery Back-up

Back-up battery can be integrated optionally to keep the device open up to 2 hours while power cuts in order to avoid critical data loss.

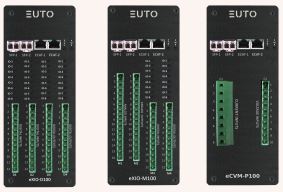
Modular design

There are 2 slots on the main board to integrate 3 different **on-board module** options:

- *12 digital inputs*
- *2 analog input, 6 digital inputs, 4 digital outputs*
- *Wide-range power supply*
- *Battery back-up*

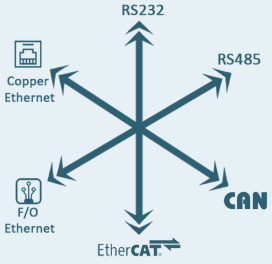
External analog/digital I/O and current/voltage measurement modules can be controlled in real-time from EtherCAT bus:

- *eXIO-D100*
- *eXIO-M100*
- *eCVM-P100*



Media conversion

Communication media between different stages of applications can be converted efficiently, one-to-one or multiple-to-multiple simultaneously



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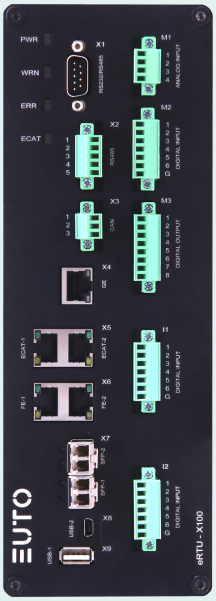
eRTU-X100
Specifications

Hardware Specifications

CPU features	*:1GHz Arm Cortex-A9 Processor, 1GB RAM*
Storage	***:4GB eMMC Flash, Optional SD CARD***
RTC	*:High accuracy real-time clock powered by external battery*
Power	***: 9-36 V DC or 18-75 V DC on main board Wide-range 24-265 V AC/DC with MWP 2 kVrms isolation power consumption <8 W***
Compliance	*:IEC 61850-3*
Battery back-up	***:3000 mAH Li-ion battery with smart battery management unit***
Mechanical	*:(WxDxH) 88x160x250.6 mm (width is 44 mm without module) DIN Rail, rack and wall-mounting options IP65*
Environmental	***:Operating temperature -25 ºC to +70 ºC with Battery Back-up, -25 ºC to +55 ºC***

Interfaces

RS232/RS485	*DB9*	1
RS485/RS422	*Terminal, Full/Half duplex*	1
CAN	*Terminal*	1
10/100/1000BaseTx	*RJ45*	1
EtherCAT Slave	*10/100BaseTx, RJ45*	2
10/100BaseTx	*RJ45*	3
10/100BaseFx	*Fiber optic, SFP Module*	2
USB	*USB-Mini, OTG, used for management*	1
USB	*A-type, device mode*	1



Modules

M12D
12 wide-range digital inputs
20-265V AC/DC

M2A4O6D
2 4-20mA analog input
4 digital relay outputs (8A N/O)
6 wide-range digital inputs

MWP
Wide-range power supply
Battery back-up feature can be placed on MWP module

There are 2 slots to choose to integrate any combination of M12D and M2A4O6D modules. MWP can be integrated without allocating those 2 slots on purpose.

Protocols

IEC 61850	*MMS Client / Server GOOSE Subscriber / Publisher IEC 61850-90-2 Substation - Control Center*	**DNP3**	***Master / Slave Serial, UDP, TCP***
Modbus	***TCP Server / Client RTU Master / Slave***	IEC 60870	*IEC 60870-5-101 Master / Slave IEC 60870-5-104 Client / Server IEC60870-5-103 Master / Slave IEC60870-5-102 Master*
EtherCAT	*Master / Slave*	**DLMS/Cosem**	***Master***
eDNP	***EUTO Custom Distributed Protocol***	MQTT	*Server / Client*

Management

Web GUI	*:Built-in configuration and monitoring interface, no installation needed, no-code*
CLI	***:For users to configure/manage devices in command-line***
Dual image	*:Multiple concurrent images for easy recovery and fail-safe upgrade*
SNMP	***:SNMP version 1, 2c and 3 with support for traps, user-based security models***
Firmware Upgrade	*:Upgrade from Web GUI, USB Stick and SFTP*

Networking & Security & Synchronization

Ethernet switch	*:(2) 10/100BaseTX and (2) 10/100BaseFX ports are drived by ethernet switch. L2 switching, STP (802.1) and RSTP (802.1w) protocols can be enabled in hardware level by configuration. Supports port-based VLAN and 802.1q tag-based VLAN.*
HSR/PRP	***:Redundant protocols can be enabled on copper and F/O ethernet ports by configuration Performs close to fast ethernet speed.***
Security	*:IEC 62351-3, IEC 62351-5 are supported. Connection via TLS/SSL, SSH and VPN*
Synchronization	***:NTP, PTP, IEC 60870-4-101/103/104, DNP3, DLMS Server and client***
FSoE	*:Safety over EtherCAT*

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