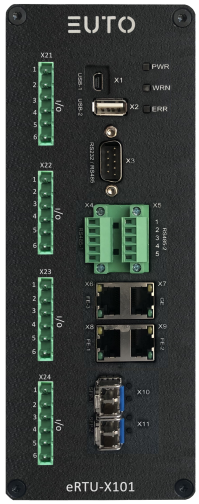
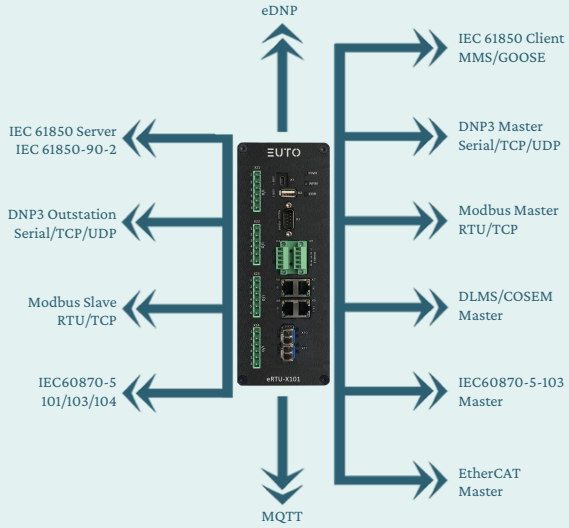
eRTU-X101
Technical Information



IEC 61850 compliant RTU/Gateway

Protocol gateway

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

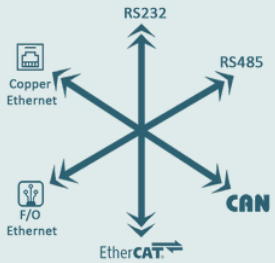


EtherCAT

Gateway to/from any protocol from/to EtherCAT master in order to control and monitor time critical applications integrated into the whole system.

Media conversion

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



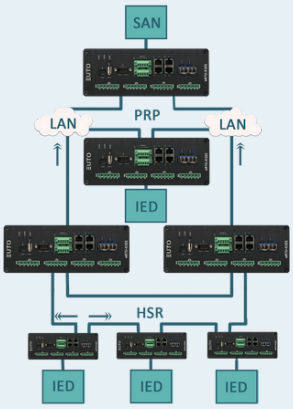
Automation

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

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.



Sequence of events

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

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.

Wireless Connection

3G/4G Modem or WiFi communication module can be integrated into the device which allows access to the complete data model via secure VPN connections.

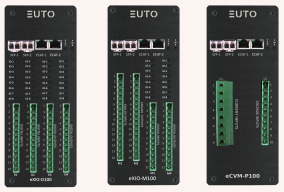
Modular design

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

- 3G/4G Modem or WiFi
- *8 digital inputs*
- *6 digital outputs*
- *1 analog input, 2 digital inputs, 3 digital outputs*

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*



EUTO Energy
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eRTU-X101
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	***:24-260 V AC/DC 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) 88x141x210 mm (width is 44 mm without I/O) DIN-RAIL, rack and wall-mounting options IP30*
Environmental	***:Operating temperature -25 ºC to +70 ºC with BBV2, -25 ºC to +55 ºC***

Modules

M8DV2
8 wide-range digital inputs
20-265V AC/DC

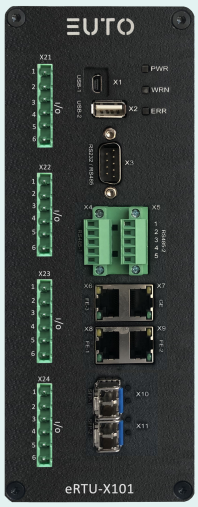
M6OV2
6 digital outputs
N/O 8A relay contacts

M1A3O2DV2
1 4-20mA analog input
3 digital relay outputs (8A N/O)
2 wide-range digital inputs

M4GV2
3G/4G Modem
WiFi

There are 2 slots to choose to integrate any combination of modules above.

BBV2
Internal Battery back-up
BBV2 module is placed on different slot completely covered in the enclosure and can be integrated or not optionally.



Interfaces

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

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*	**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***

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