



EUTO Energy Elektronik San. ve Tic. Ltd. Şti.

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# About Us

Our company, which carries out research and development activities in the field of energy automation and smart grids and develops innovative products specific to the field with its own brand, is also involved in national and international joint projects with different companies in the same field.

We design software and hardware product designs for energy grid protection, measurement, control, automation and communication needs.

We design turnkey custom software and hardware products and solutions. We develop data analysis and visualization solutions with end-to-end energy monitoring and management platform and complete data transmission to the control center.

We offer embedded, real-time, PC and Web-based software design, development, integration and validation solutions.

# What Are We Doing?

Communication, data acquisition, data collection, monitoring, control and recording in electricity distribution and transmission networks

Ensuring communication and control of autonomous operations between the field and the center

Real-time, secure and uninterrupted communication in electrical distribution systems

Software solutions for smart grid protocols such as IEC 61850 MMS/GOOSE, IEC 60870-101/103/104, DNP3, DLMS, M-BUS, Modbus, IEC 62056-21

Later analysis with dates recorded with precise time stamps

Next-generation solutions for energy automation and smart grids



EURO  
Devices



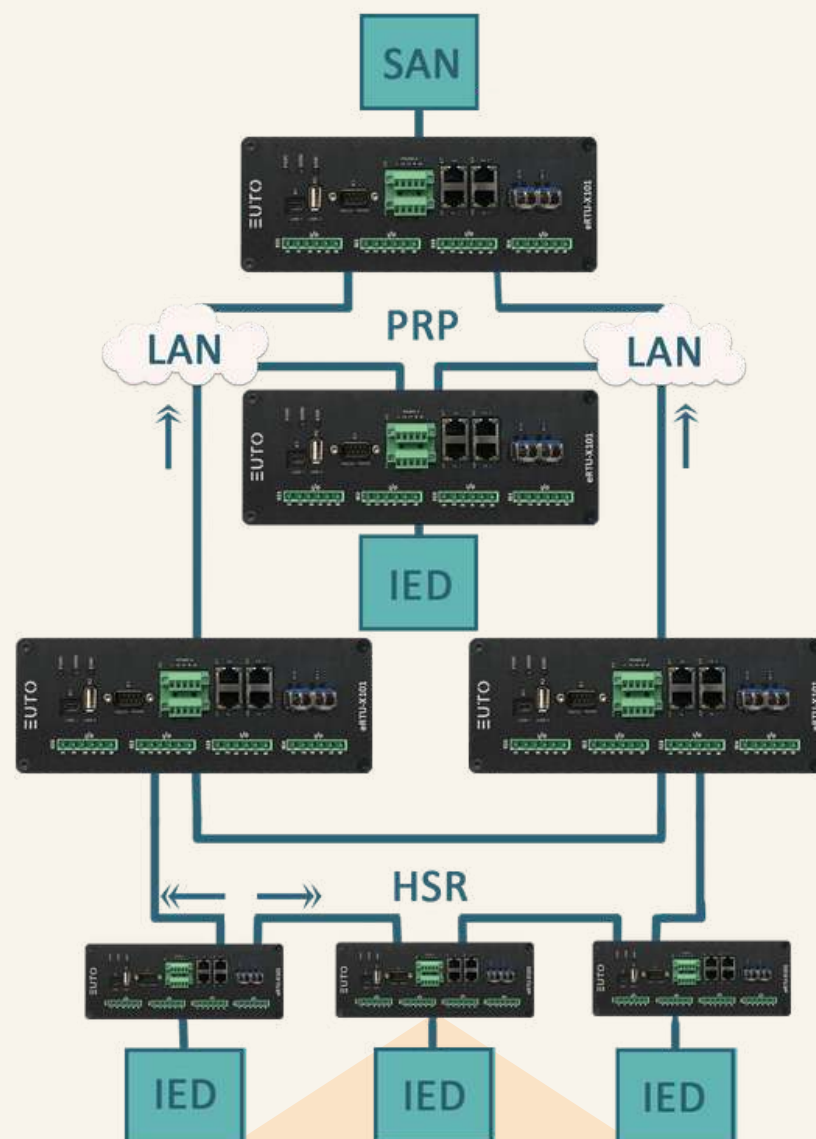
# eRTU-X100

IEC 61850 Compliant  
RTU/Gateway with  
Integrated CAN and  
EtherCAT Slave

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

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

- Historical records with precise timestamps can be saved to non-volatile memory to allow analysis of critical events at a later time.
- 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.
- Communication media between different stages of applications can be converted efficiently one-to-one or multiple-to-multiple simultaneously.
- IEC 61131-3 and LUA based logic programs can be run on the device with precise execution times.



HSR/PRP can be applied from configured fiber optic and copper ethernet ports to supply zero recovery time on network faults.

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

## 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.

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

- 12 Digital Inputs
- 2 Analog Inputs, 6 Digital Inputs, 4 Digital Inputs
- Wide-Range Power Supply
- Battery Back-Up

## CPU Features

1GHz Arm Cortex-A9 Processor, 1GB RAM

## Storage

4GB eMMC Flash, Optional SD Kart

## Compliance

IEC 61850-3

## Battery Back-Up

3000 mAH Li-ion Battery with Smart Battery Management Unit



Built-in configuration and monitoring interface, no installation needed, no-code



NTP, PTP, IEC 60870-4-101/103/104, DNP3, DLMS Server and Client



SNMP version 1, 2c and 3 with support for traps, user-based security models



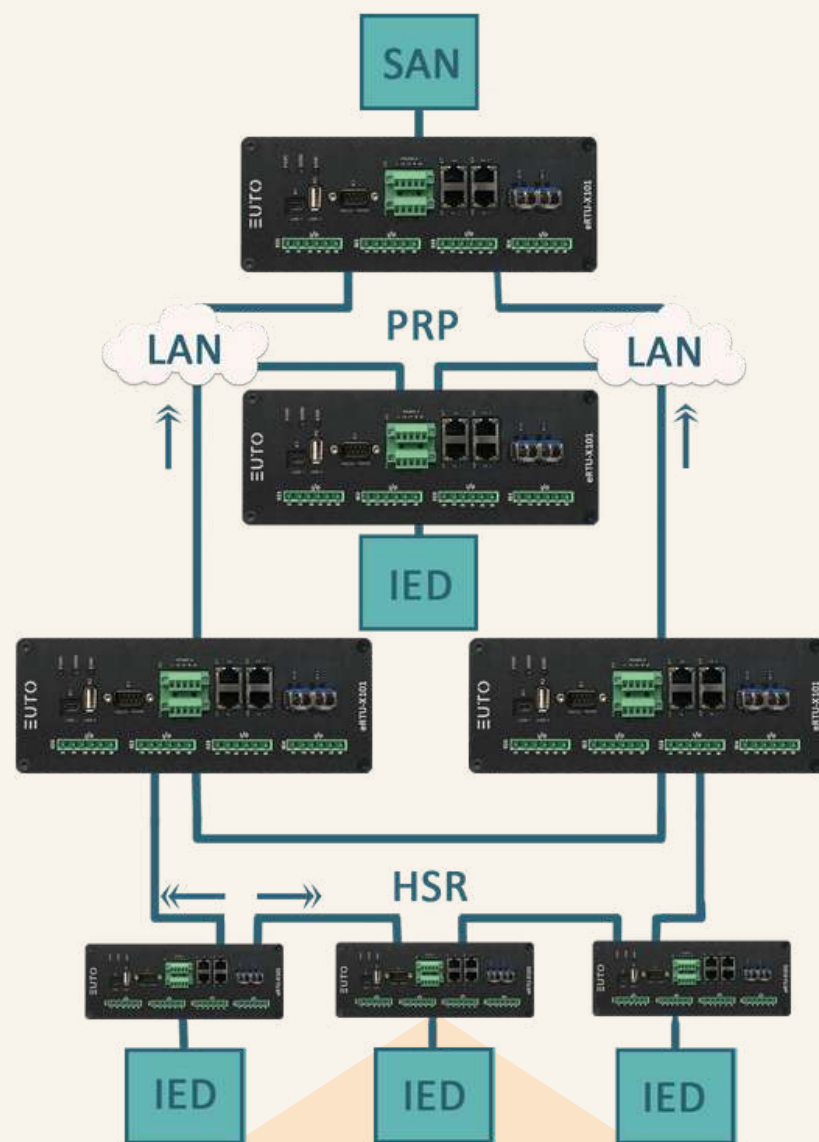


# eRTU-X101

IEC 61850 Compliant  
RTU / Gateway

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

IEC 61850	<i>MMS Client / Server</i> <i>GOOSE Subscriber / Publisher</i> <i>IEC 61850-90-2 Substation - Control Center</i>	<b>DNP3</b>	<i>Master / Slave</i> <i>Serial, UDP, TCP</i>
<b>Modbus</b>	<i>TCP Server / Client</i> <i>RTU Master / Slave</i>	IEC 60870	<i>IEC 60870-5-101 Master / Slave</i> <i>IEC 60870-5-104 Client / Server</i> <i>IEC60870-5-103 Master / Slave</i> <i>IEC60870-5-102 Master</i>
EtherCAT	<i>Master / Slave</i>	<b>DLMS/Cosem</b>	<i>Master</i>
eDNP	<i>EUTO Custom Distributed Protocol</i>	MQTT	<i>Server / Client</i>
- Historical records with precise timestamps can be saved to non-volatile memory to allow analysis of critical events at a later time.
- 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.
- Communication media between different stages of applications can be converted efficiently one-to-one or multiple-to-multiple simultaneously.
- IEC 61131-3 and LUA based logic programs can be run on the device with precise execution times.
- 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.



HSR/PRP can be applied from configured fiber optic and copper ethernet ports to supply zero recovery time on network faults.

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

## Gateway to/from Any Protocol/s from/to Any Other Protocol/s

It controls and monitors time-critical applications integrated into the whole system.

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

- 3G/4G Modem + Wifi Module
- 8 Digital Inputs
- 6 Digital Outputs
- 1 Analog Input + 2 Digital Inputs + 3 Digital Outputs

## CPU Features

1GHz Arm Cortex-A9 Processor, 1GB RAM

## Storage

4GB eMMC Flash, Optional SD Kart

## Compliance

IEC 61850-3

## Battery Back-Up

3000 mAH Li-ion Battery with Smart Battery Management Unit



Built-in configuration and monitoring interface, no installation needed, no-code

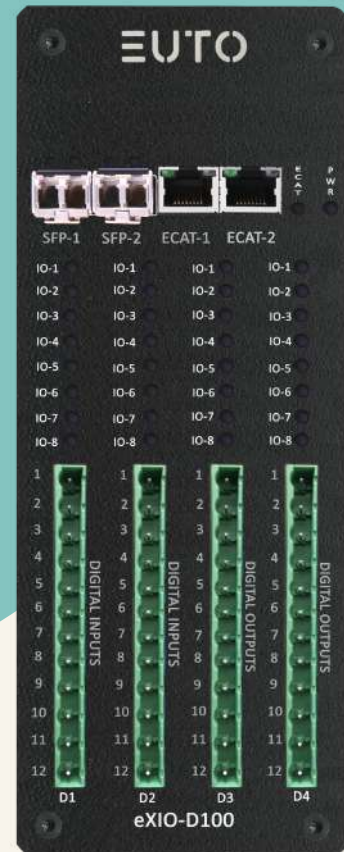


NTP, PTP, IEC 60870-4-101/103/104, DNP3, DLMS Server and Client



SNMP version 1, 2c and 3 with support for traps, user-based security models



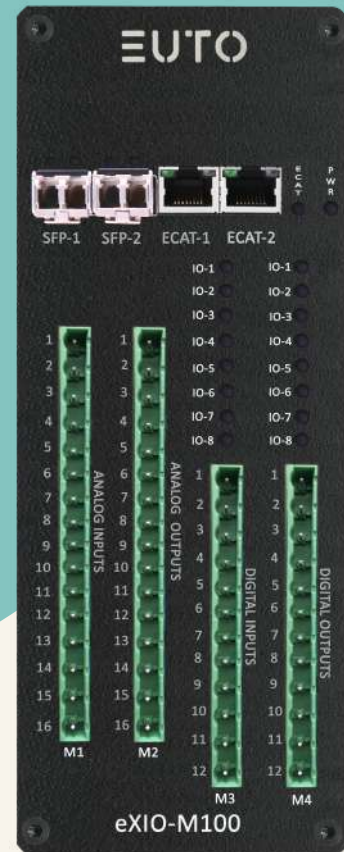


# eXIO-D100

## Modular Digital Input/Output Unit over EtherCAT Bus

There are 4 slots on the main board to integrate 2 different types of digital I/O boards. Up-to 32 digital inputs/outputs can be configured.

- Each input and output status shown with a single dedicated LED on the front side of the device. Power on/off state and state of EtherCAT protocol is shown on the front side of the device, too. Each RJ45 and SFP ports have link and activity LED indications.
- 24-265V AC/DC inputs are accepted in single hardware configuration.
- All configuration is done directly from EtherCAT master over the communication bus without physically access.
- 2 ports 10/100BaseTx copper ethernet supported for regular applications. 2 ports 10/100BaseFx fiber optic interface via SFP module connection supported for long distance communication or the environments with high EMI noise.
- 2 ports EtherCAT Slave connection for data exchange. All inputs and outputs are directly driven by dedicated EtherCAT Slave controller ASIC, which allows very high speed data exchange with the main controller units such as eRTU-X101.
- Thanks to EtherCAT protocol, I/Os can be accessed from the master unit in microseconds, even when hundreds of devices are connected on the bus.
- Wide range of network topologies can be supported according to the requirements of the application: Star, Bus, Line, Tree.



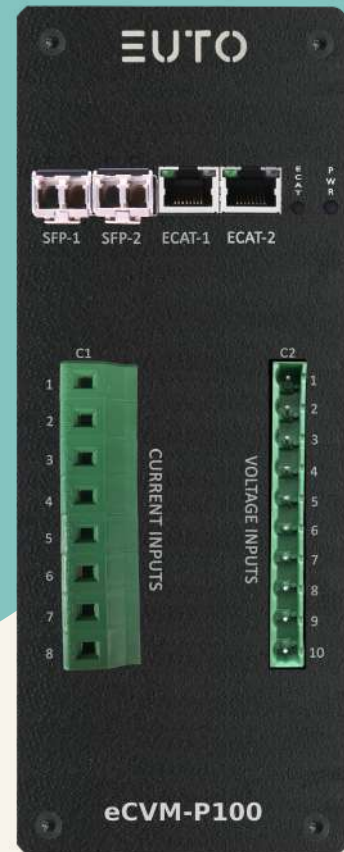
# eXIO-M100

## Modular Analog/Digital Input/Output Unit over EtherCAT Bus

There are 4 slots on the main board to integrate 4 different types of analog/digital I/O boards:

- Analog Input Board
- Analog Output Board
- Digital Input Board
- Digital Output Board

- Each input and output status shown with a single dedicated LED on the front side of the device. Power on/off state and state of EtherCAT protocol is shown on the front side of the device, too. Each RJ45 and SFP ports have link and activity LED indications.
- 24-265V AC/DC inputs are accepted in single hardware configuration.
- All configuration is done directly from EtherCAT master over the communication bus without physically access.
- 2 ports 10/100BaseTx copper ethernet supported for regular applications. 2 ports 10/100BaseFx fiber optic interface via SFP module connection supported for long distance communication or the environments with high EMI noise.
- 2 ports EtherCAT Slave connection for data exchange. All inputs and outputs are directly driven by dedicated EtherCAT Slave controller ASIC, which allows very high speed data exchange with the main controller units such as eRTU-X101.
- Thanks to EtherCAT protocol, I/Os can be accessed from the master unit in microseconds, even when hundreds of devices are connected on the bus.
- Wide range of network topologies can be supported according to the requirements of the application: Star, Bus, Line, Tree.



# eCVM-P100

## Current and Voltage Measurement Unit over EtherCAT Bus

There are 4 slots on the main board to integrate 2 different types of measurement boards:

- **Current Measurement Board**  
Consisting 4 isolated current inputs
- **Voltage Measurement Board**  
Consisting 5 isolated voltage inputs

- Power on/off state and state of EtherCAT protocol is shown on the front side of the device. Each RJ45 and SFP ports have link and activity LED indications.
- 24-265V AC/DC inputs are accepted in single hardware configuration.
- All configuration is done directly from EtherCAT master over the communication bus without physically access.
- 2 ports 10/100BaseTx copper ethernet supported for regular applications. 2 ports 10/100BaseFx fiber optic interface via SFP module connection supported for long distance communication or the environments with high EMI noise.
- 2 ports EtherCAT Slave connection for data exchange. All inputs and outputs are directly driven by dedicated EtherCAT Slave controller ASIC, which allows very high speed data exchange with the main controller units such as eRTU-X101.
- Thanks to EtherCAT protocol, I/Os can be accessed from the master unit in microseconds, even when hundreds of devices are connected on the bus.
- Wide range of network topologies can be supported according to the requirements of the application: Star, Bus, Line, Tree.





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Software



# EUTOPIA Industrial IoT Application Development Platform

- No-Code IoT Application Development Platform
- Real Time Monitoring and Control

It supports energy

automation standard protocols (IEC 61850, Modbus, DNP3, IEC 60870, DLMS, MQTT etc.).

Reading, visualization, analysis and application of field data related to energy and distribution operation

Compatible with EUTO RTU/Gateway product family.

Cloud-based software product for developing configuration-level IoT and SCADA automation applications no-code with standard protocol support.





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Solutions

# EUTO Micro-Grid

## Central Protection and Control System

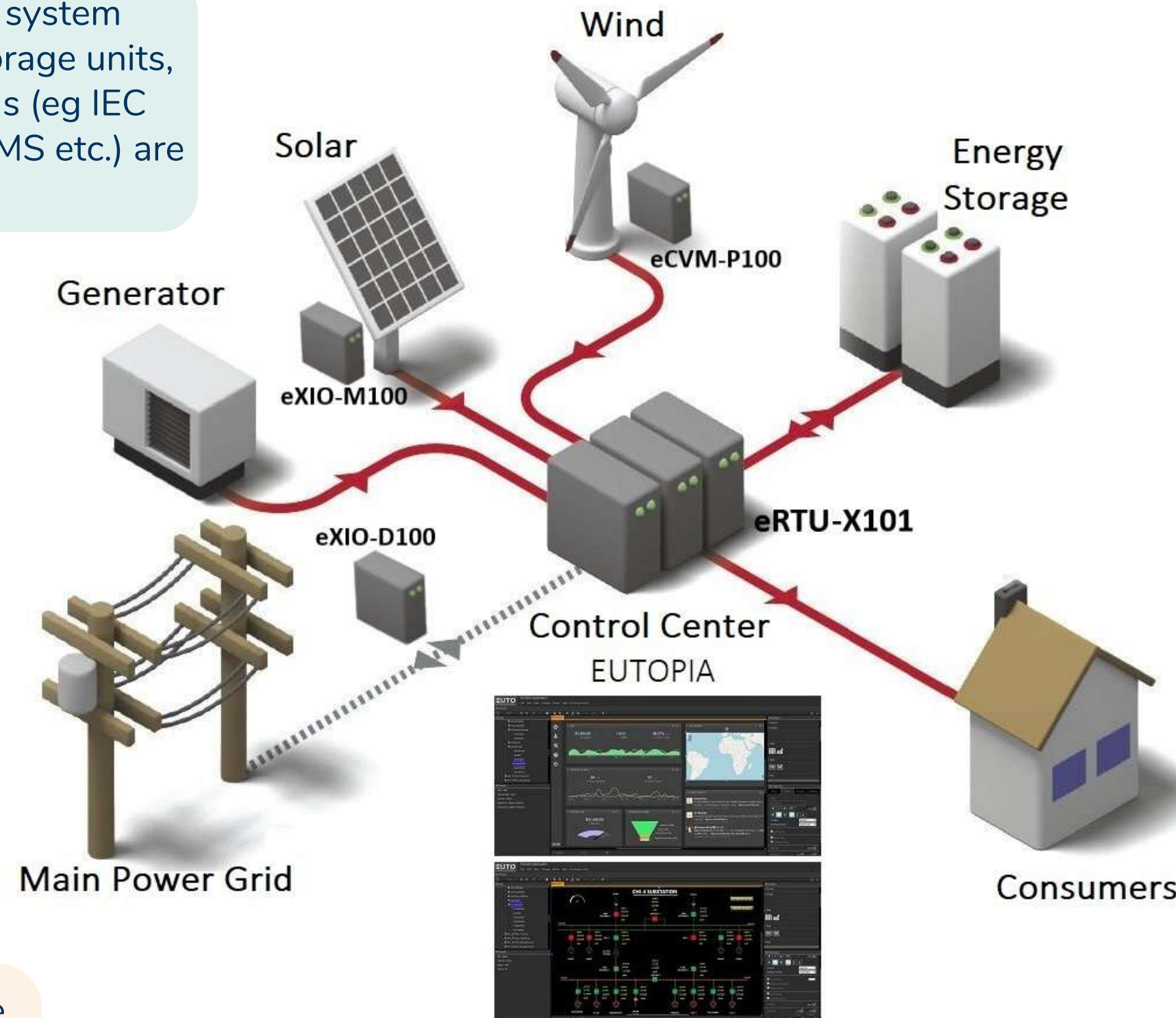
Direct communication is made with system components (Generator, GES, RES, Storage units, consumer units). All relevant protocols (eg IEC 61850, Modbus, DNP3, IEC 60870, DLMS etc.) are currently supported.

Redundant connection network diagrams are established against communication failures. Related communication protocols (HSR/PRP) are currently supported.

Our current hardware/software product range is capable of performing all data monitoring, control and automation operations in a micro-grid without the need for third-party software. All components of the system can be included in automation only by configuration.

Mains connection check is done.

All information about the energy in the system and its operation can be viewed from the center. SCADA and real-time monitoring screens can be created.



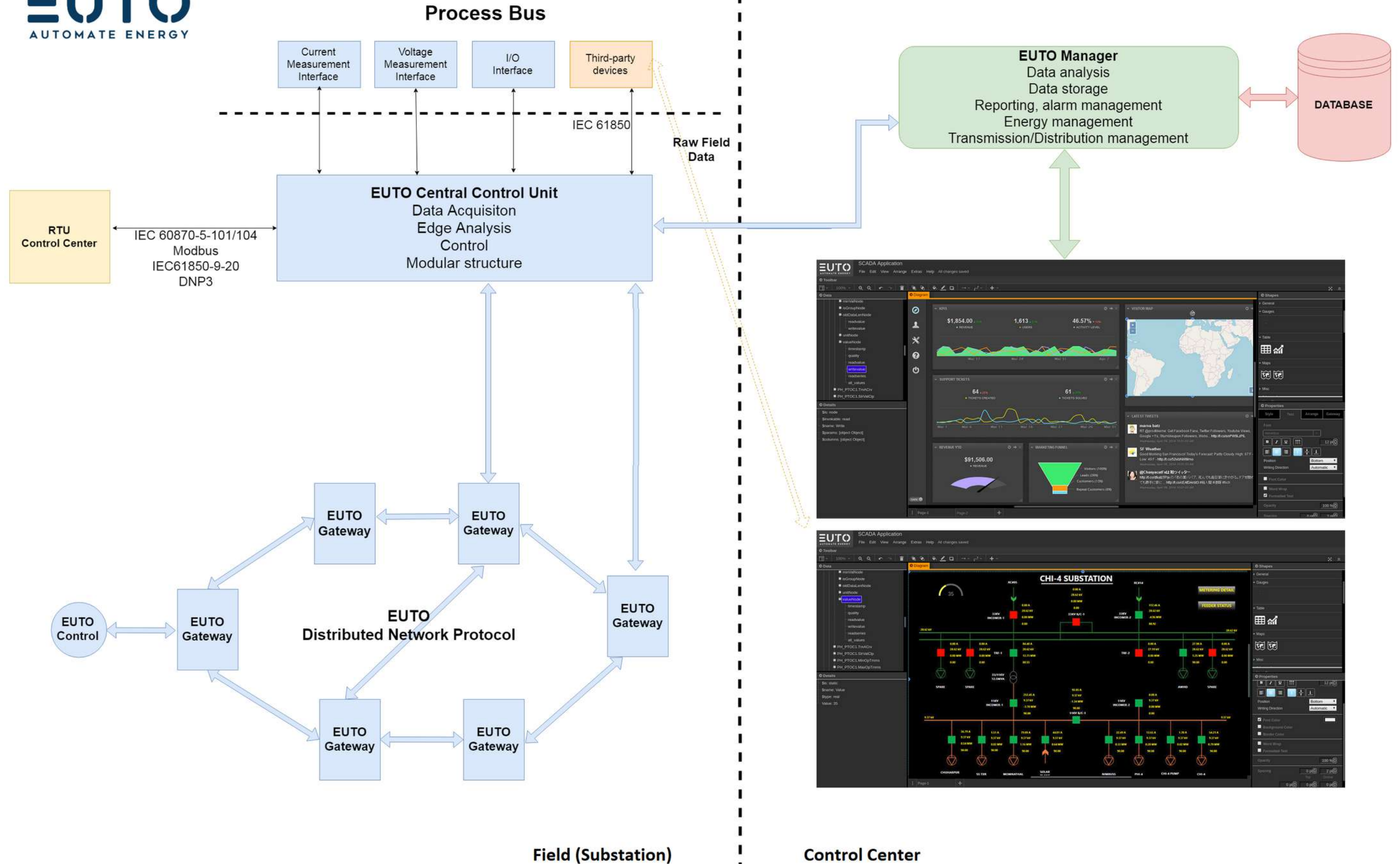
All of our products comply with the highest international standards and have certifications.

All system data is stored in the central control unit.

All communication in the system is encrypted. It can work without the need for an external network connection. Data security is provided with firewall and data diode (devices that allow one-way data flow) solutions at points where connection is required.

Manual and automation-oriented controls are made on system components.









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