ENERCO

Energy Control and Optimisation

GUIDE
ENERCO

ELECTRO SOFT
Industrial innovation

ELECTRO SOFT

ENERCO
Energy Control and Optimisation
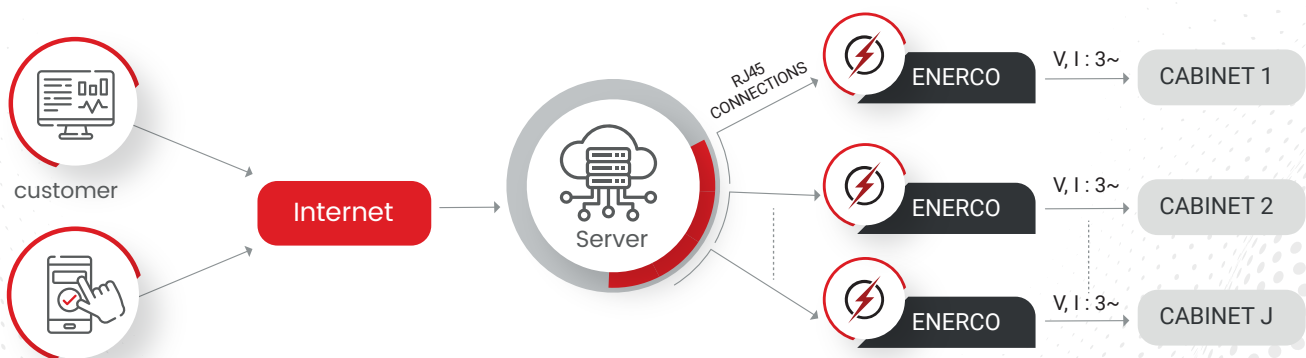
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PRESENTATION

ENERCO (Energy Control and Optimization) is a product developed by Electro-Soft, which is specialized in the design and development of innovative and high added value of embedded electronic systems. It ensures the follow-up of the consumption in industrial companies by analyzing and calculating the various electrical parameters governing each machine, namely : current, voltage, power and power quality (harmonics and cos φ).

ENERCO has been designed for the simultaneous measurement of electrical consumption at the machine level in electrical panels. It consists of units equipped with sensors for the acquisition of voltages and currents. Each unit can control up to two machines with consumption between 5A and 5000A per phase at 220/380V.

The acquired values are analyzed and processed then sent via an internet connection to be visualized on a web or mobile dashboard (Fig. 1). A multitude of energy monitoring options are available for each machine.

customer — Internet — Server — RJ45 CONNECTIONS — ENERCO — V, I : 3~ — CABINET 1 — ENERCO — V, I : 3~ — CABINET 2 — ENERCO — V, I : 3~ — CABINET J

» Figure 1. Architecture of the ENERCO installation

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SAFETY RECOMMENDATIONS

Any intervention on ENERCO must be carried out only by ElectroSoft's agents.

The safety of the user is guaranteed under normal and correct conditions of use.

The operation of ENERCO must comply with all the operating instructions given in this manual.

ENERCO is designed to be installed next to electrical panels or cabinets in which overvoltages are limited to a maximum of 3 kV.

ENERCO should not be used in the following situations:

- The ENERCO cabinet is open.

- Damage of the equipment is apparent.

- The inter-module connection wires and the system power supply are damaged.

- The sensors show traces of grease, moisture or dirt.

- The system is subjected to strong mechanical stress (shock, vibration...) or to high temperatures and strong magnetic fields.

- The nominal single phase voltage exceeds 250 Vac.

- The maximum line currents exceed those of the current sensors.

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TECHNICAL CHARACTERISTICS

- Simultaneous measurement of the power consumption of 8 machines/central of an electrical panel.
- Current measurement from 5A to 5000A per phase with a wide range of miniaturized sensors (Fig. 2) for dense electrical panels (current clamps) with an accuracy of 1% .
- Recording (in the cloud and/or on the local server) of energy consumption and all electrical parameters per configurable period from 10 seconds to 60 minutes.
- Internal storage in offline mode and automatic synchronization until the connection is restored.
- Operating autonomy up to one hour, in case of grid failure.
- User-friendly web interface and mobile application allowing real-time visualization and access to the measurement history in text, graph or table mode.
- Calculation of power (active, reactive and apparent), power factor, harmonic distortion rates, ….
- Data export (Excel, Csv.)
- Generation of reports for the energy balance and alarms.
- Generation of alarms in case of power factor decrease, abnormal consumption … etc.
- Recording of grid failures.

Variety of current sensors of ENERCO
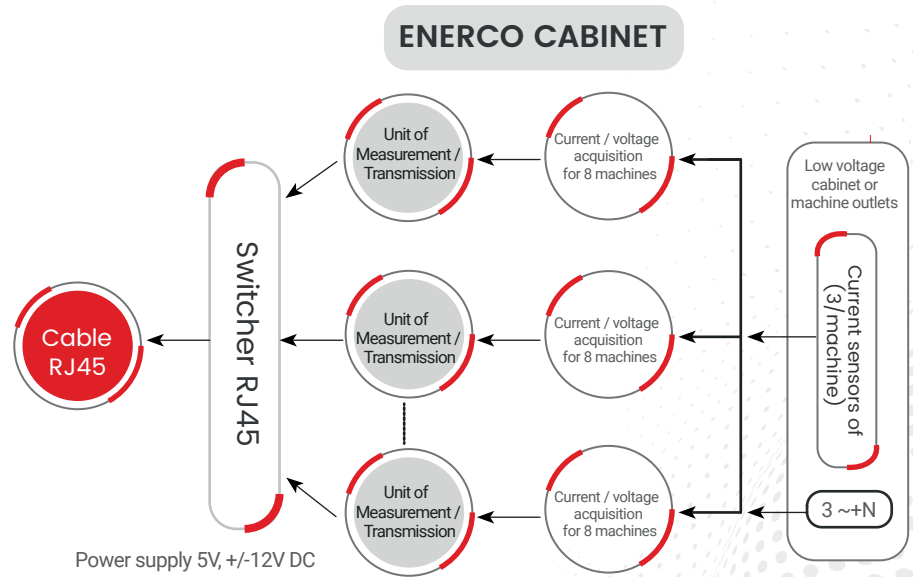
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INSTALLATION

4.1. Connect the 3 phases + Neutral to the input of the ENERCO switches.

4.2. Pin three current collectors on the lines of each machine, according to the rated current of the machine per phase (*).

4.3. Connect the outputs of the current sensors to the specified ENERCO inputs (*).

4.4. Connect the RJ45 plug of the Ethernet network.

4.5. Switch on the three-phase circuit breaker of the machine cabinet and then switch on the ENERCO switches.

4.6. Connect the inverter and switch it on (Fig. 3).

(*): According to the ElectroSoft reference established in the preliminary study.

Fig. 3. Connection of the ENERCO

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SERVICES AND WARRANTY

* The administration of the configuration of the machines identifiers and the adaptation of the company's ETHERNET network to ENERCO must be carried out exclusively by ElectroSoft experts.

* A training is provided to the company's engineers to introduce them to the method of configuration changes. The training covers:

  - Administration of machines: creation, deletion, modification, configuration
  - Network administration: IP addresses of central units, external address of the server port.
  - Setting up the local server
  - Handling of the dashboard pages
  - Interpretation of the results
  - Interventions in case of long failure

WARRANTY

The ENERCO system (control unit, sensors and wiring) is guaranteed for 1 year in parts and labor from its final delivery. The guarantee does not cover exceeding the conditions of use of the product.
After-sales service is provided by Electrosoft experts. A maintenance agreement must be signed between Electrosoft and the company.