



**E**.online2<sup>®</sup>



Software  
Products  
Services



# Energy Information System

# Measurement



## An Essential Function for Any Management System

This is a crucial part of any initiative to optimize consumption and improve energy efficiency, as it enables users to:

- **take advantage of a reference framework** to draw up precise **energy diagnostics** and identify potential savings,
- **monitor the progress of the energy-saving initiatives over time** and detect any abnormal drift of the performance indicators,
- set up a **continuous verification process** in the context of an energy optimization policy and define **corrective action** if necessary.

## Measurement: what for?

- ① To ensure fair allocation of energy costs: by tenant, boat owner, department, industrial cost centre, etc.
- ② To comply with the standards, regulations or certifications: RT2012, ISO 14001, ISO 50001, HQE Operation, etc.
- ③ To steer a policy for optimization and sustainable reduction of energy consumption:
  - ◆ allocation of consumption by utility, usage, type, building, process, etc.
  - ◆ calculation of energy performance ratios and indices
  - ◆ technical and economical analysis (tariff contracts) of consumption
  - ◆ identification of deviations
- ④ Energy Performance Contract (EPC) management: contractual measuring tool agreed between the parties involved (client, facility management)

Measurement helps to raise **awareness among** the people concerned, highlight **energy-saving** behaviour and immediately identify any drift or abnormal consumption.

Experience has shown that these initial steps can achieve consumption **savings of 7 to 15 %**.

## Regulations

The recent regulations on controlling and optimizing energy consumption and performance recommend the implementation of a **measurement plan** specially adapted to meet the objectives.



➤ **HQE\* OPERATION certification** (SMEx operational management system)

- Target 4: energy management (measurement, follow-up, analysis, monitoring and optimization)
- Target 5: water management (measurement, follow-up, analysis, monitoring and optimization)
- Target 7: availability of means for monitoring energy consumption

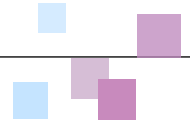


➤ **EN50001 certification** (energy management systems)

- Implementation of a system to measure, analyze, monitor and optimize consumption
- Detailed energy analyses and reports

\* HQE is a French public label awarded for «high environmental quality»

# An Overview of your Energy Use



## Energy Supervision

E.online 2® software provides each user with functions for **monitoring consumption in real time**, printing out **energy dashboards** and distributing **information and alerts**.

E.online 2® takes full advantage of the high performance offered by the metering, measurement and data collection products from the ENERDIS® brand.

Generic drivers ensure interoperability with products from other brands.



CCT



ENERIUM 210

## Data acquisition

The **ELOG web-box data logger** is a **communicating data centralizer**. It continuously stores the data from any product connected to an RS485 ModBus or Ethernet ModBus TCP network. It can be configured and operated directly via web pages.

The CCT and ENERIUM 210 pulse concentrators and **data collectors continuously** store the information from meters (pulse output) or from temperature and flow-rate sensors (0-20 mA / 4-20 mA signals). The data can be retrieved remotely from these units, which are equipped as standard with an RS485 ModBus or Ethernet ModBus TCP output.



ELOG

## Metering

The modular meters in the ULYS and MEMO 3 ranges for single-phase and three-phase electrical networks are used as **submeters** for consumption allocation or as **tariff meters** for fair rebilling of energy costs on private networks (MID certification). Their standard features include pulse outputs and there are options for Modbus, M-Bus or Ethernet Modbus TCP communication with built-in web server (depending on the model).



MEMO3-M

ULYSCOM



ULYS

## Measurement

ENERIUM® power monitors include **functions for consumption measurement, real-time electrical network monitoring and electrical power quality analysis**. They can be equipped with pulse, alarm and/or analogue inputs/outputs.

Usually installed at the headend of electrical distribution networks and general low-voltage switchboards, they communicate via an RS485 output (Modbus protocol) or Ethernet output (Modbus TCP protocol).



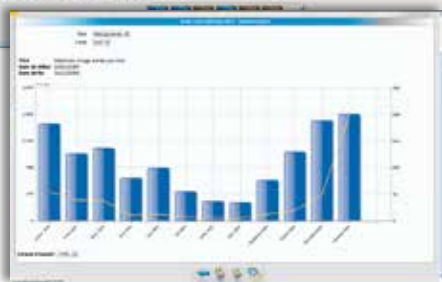
ENERIUM

# E.online2® Our Software

Serving energy efficiency

## Monitor, analyse and supervise consumption and energy performance

Used from a **web browser**, the E.online 2® software offers immediate, global monitoring of all the essential data and adapts the energy information to suit each user. **Automatic email distribution of the energy reports** and alarms facilitates regular analysis of the energy data and helps to identify any abnormal drift in consumption as soon as it occurs.



### Dashboards

- **Summarized overview** of the essential data
- **List of the alarms detected (alarms log)**
- **Direct access to up-to-date energy reporting**
- **Trends of the real-time and historical graphs**

### Real-time monitoring

- **Instantaneous display** of all the quantities measured
- **Instantaneous detection of communication faults** every time there is a remote data retrieval
- **Real-time aggregation** of all the data retrieved remotely
- **Recording sessions** on the quantities measured

### Technical and financial energy analyses

- **Multi-energy dashboards**
- **Allocation of consumption:**
  - by usage (lighting, air-conditioning, heating, auxiliary, etc.)
  - by utility (electricity, water, gas, etc.)
  - by entity (company, service, production unit, etc.)
- **Calculation of energy and economic performance indices** (kWh/m² or €/m²/year, kWh or €/manufactured item, kWh/degree days, eq TCO<sub>2</sub>, etc.)
- **Valuation of the consumption according to the energy tariff contracts**
- **Automatic, targeted email distribution of the analyses and reports**
- **Zoom in / Zoom out function** in the graphs

### Alarms

- **Setting of thresholds** that match the consumption and energy performance indices
- **Distribution of alerts by email**
- **Alarms log with descriptions of the events**



# A Modular, Upgradable System Approach

## Data Distribution & Processing

Dashboards

Real-time monitoring

Energy mapping



Analysis of drift

**E-online2<sup>®</sup>**

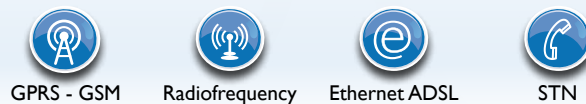


Energy reporting

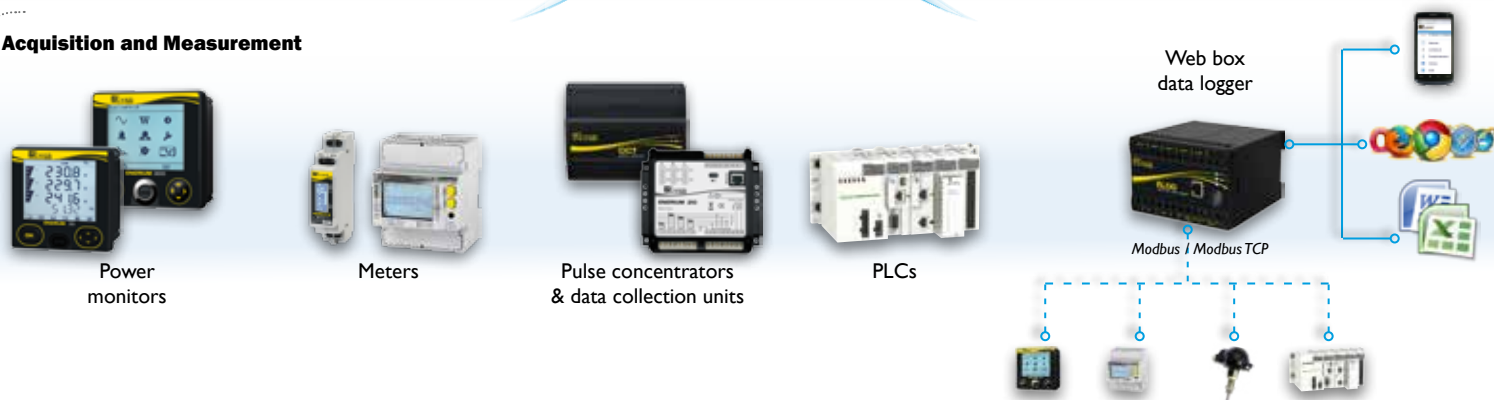
## Centralization - Supervision



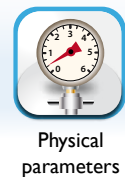
## Transmissions



## Acquisition and Measurement



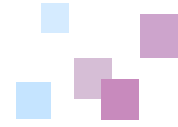
## Type of Energy and Utilities



# Our Equipment

## Operating

### Current Transformers



#### TCR

*For standard industrial installations*

- Mounting on cable or busbar
- Primary rating from 5 to 5,000 A
- Accuracy class 0.5 or 1
- Double secondary
- 1 or 5 A secondary

#### TCRO

*For existing installations up to 5,000 A*

- Split core for mounting on cable or busbar
- Primary rating from 100 to 5,000 A
- Accuracy class 0.5 or 1
- Double secondary
- 1 or 5 A secondary



#### TC CLIP

*Specially for renovation up to 600 A*

- Split core for mounting on cable
- Primary rating: 100, 250, 400 or 600 A
- Class 1
- Short-circuit integrated
- 1 A secondary

#### RENOV ENERGY

*A solution for renovating, modernizing and adding metering points in existing installations or in cramped conditions.*

- TC CLIP transformers used with Enerium® 30 and Enerium®50 power monitors and with ULYS TTA meters.



### Web-box data logger



*ELOG is a unit for remote retrieval, recording and storage of energy, climate and process data from communicating pulse-output devices on RS485 ModBus and Ethernet ModBusTCP networks. The integrated web pages provide quick, intuitive access to the product's programming and allow supervision of the stored data (via a web browser, smartphone, tablet, PC, Excel spreadsheet, etc.).*

- 1 Ethernet ModBusTCP port
- 2 RS485 ModBus ports
- 5 pulse inputs
- 50 trend curves
- DIN-rail mounting (7 modules)
- Web pages – built-in web server
- SD card for storage: 8 GB
- Http, smtp, ftp and JSON/REST protocols
- Database access via Web Services
- Log of recordings covering 3 months

### Pulse Receivers & Data Collector

*These provide continuous real-time recording of the information from meters and sensors (temperature, pressure, flow-rate, etc.). The instantaneous values and data history can be accessed directly via the RS485, ModBus and Ethernet ModBusTCP digital outputs.*



CCT

#### CCT

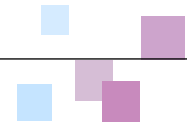
- 8 pulse inputs
- Time interval for calculated values: 1 to 60 minutes
- Memory depth per channel: 4,032 values (28 days with 10-minute interval)
- Communication: RS485 Modbus

#### ENERIUM® 210

- 8 pulse and/or analogue inputs
- Time interval for calculated values: 1 to 60 minutes
- Memory depth per channel: 5,040 values (35 days with 10-minute interval)
- Communication: RS485 Modbus or Ethernet (Modbus TCP)



ENERIUM 210



## Energy Meters for Single-Phase or Three-Phase Networks

### MEMO 3

*Compact single-phase meters ideal for applications in the tertiary sector: marinas, rented accommodation, outdoor accommodation, etc.*



- Compact: 1 DIN module
- Current: 32 A
- Complies with the measuring

**Pulse output as a standard feature**

**Class 1 according to IEC 62053-21 (Memo 3)**

**Class B according to EN 50470-3 (Memo 3-M)**

**Sealable on phase/neutral terminals**

**Mounting on DIN rail**

### ULYS

*Three-phase and single-phase meters ideal for industrial and tertiary applications.*



- Compact: 2 (single-phase) or 4 DIN modules (three-phase) 6 DIN modules (medium-voltage three-phase)
- Direct 65/80 A single-phase connection
- Direct 80 A three-phase connection or on 1 A or 5 A CT
- RS485 Modbus/M-Bus/Ethernet Modbus TCP communication
- Recording of energy indices every 10 or 15 minutes over a 3-year period (using ULYSCOM Ethernet)
- Direct reading of measurements by means of integrated web pages on a PC, smartphone or tablet (Android and iPhone)
- Sealable terminal covers

**Class 1 according to IEC 62053-21 (single-phase and three-phase)**

**Class B (single-phase and three-phase) according to EN 50470-3 (MID)**

**2 pulse outputs (Ea, Eq, Es)**

## Power Monitors

### ENERIUM®

*Enerium® power monitors are useful for active monitoring and sizing of electrical installations, follow-up and optimization of energy consumption and power quality analysis.*

- Measurement of all the electrical quantities (V, U, I, P, Q, S, FP, THD, Harmonics, etc.)
- Storage of 35-day consumption profiles (10-minute time interval)\*
- Trend curves function\* (cyclic, on threshold overrun, time/date-stamped)
- EN50160 quality functions
- One RS485 Modbus or Ethernet Modbus TCP digital
- Up to 8 inputs/outputs (pulse, analogue, alarm)\*



They are equipped\* with inputs/outputs:

- **pulse** for managing the utility meters and calculating consumption profiles
- **analogue** for continuously recording the signals from sensors (temperature, pressure, flow rate, etc.)
- **on-off** for separation and time/date-stamping of status changes or alarms.

**Connection to 1 A or 5 A current transformer / 552 Vac max. (permanent ph-ph)**

**Energy measurements on all 4 quadrants according to IEC 62053-22 and IEC 62053-23**

**Class 0.2s available as an option\* according to IEC 60557-12**

**Graphic representation of the Fresnel diagram, harmonics and load-factor gauges\***

\* depending on the versions and options

# Our Skills & Experience

## Serving your need



ENERDIS proposes a global solution (products, communication, processing software and service) suitable for the most demanding sectors of activity (tertiary, industrial and local government).

### PRIOR TO THE PROJECT

- Help in defining the technical specifications of the solution (metering plan, instrumentation, communication architecture, IT resources, etc.),
- Site surveys,
- Collaboration with the actors in the project.

### DURING INSTALLATION

- Verification of the connections and confirmation that the products and communications solutions operate correctly,
- Implementation of the E.online 2® software on the owner's IT resources.

### AT THE END OF THE PROJECT

- User training for the E.online 2® solution.

### CONTINUOUS OR ON REQUEST

- Additional expert training,
- Remote intervention, upgrading,
- Maintenance contract (installation monitoring),
- Data hosting.

## For further information...



**Case studies**  
to optimize the energy  
efficiency of your installations.

**Detailed product brochures** to help  
you choose the right equipment.



**Two web sites** focusing on  
the Enerium® power monitors,  
[www.enerium.enerdis.com](http://www.enerium.enerdis.com)  
and energy meters,  
[www.compteur-electrique.enerdis.com](http://www.compteur-electrique.enerdis.com)

**The Active Energy Efficiency guide**  
to learn about and understand  
the energy optimization approach  
and the main functions of a  
Measurement and Verification Plan.



Your distributor

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