Single-phase, three-phase, connected directly or via CT

Integrated communication: Ethernet, M-Bus, Modbus

Metering, submetering, energy monitoring, rebilling

Complete solution for implementing a metering plan
Measuring to assess, allocate

Energy efficiency is not just a project for society, it is also a crucial economic challenge in the context of an action plan to control and reduce energy consumption. The incentives developed by politicians worldwide cover all sectors of the economy and all types of activities.

The new regulations and certifications for installations, implemented at national level to encourage savings and reduce impact on the environment, combine to fulfil the current requirements for optimization of installations’ energy consumption.

Assess consumption per usage
Fulfil the requirement for energy auditing established by 2012/27/UE
Optimize consumption per square metre in a shop
Reduce the electricity consumption of the production lines
Link a usage to its cost
Set up an Energy Performance Contract (EPC)
Certify an office building as HQE
Obtain ISO 50001 certification

Implementing a metering plan

While taking into account the constraints
To measure and meter at the level of the subfeeders, you need to take a number of major structural elements into account:
- Integration in an existing architecture or not
- The available communication protocols
- The types of loads connected to the electrical network
- The way the data are made available (locally or remotely)
At all levels of the installation

Because of the complexity of the installations and equipment connected, increasingly demanding measurements are necessary, including both downstream and upstream of the electrical distribution circuit.

By means of an energy management system

The energy, climate and process data are collected via an automatic remote data-retrieval unit from the meters, sensors, power monitors, etc., connected to a communication network or equipped with pulses. The E.online®2 software completes the system to monitor, control and manage all the types of consumption.

E.onl"e®2

MID meters

Mandatory for active energy rebilling on the basis of consumption calculations by index differences.

Enerdis’s active energy meters are MID-certified. Their references end in «-M», e.g. MEMO4-M.

Energy intelligence expert

The French manufacturer Enerdis has been active on the metering and measurement market for more than 20 years. A precursor in terms of energy management, its offering of industrial-grade products and systems covers the entire range of measurement requirements, whatever your sector of activity.

Nuclear, petrochemicals, rail transport, industry: for sectors with very severe environmental constraints, the Enerdis® offering includes solutions for all the most critical standard requirements. At the heart of the measurement professions, Enerdis plays a major role in implementing energy management and control systems.
Functions

- From active energy metering to recording of all the electrical activity on a feeder (4 quadrants, alarms)
- Measurement of single-phase and three-phase loads
- Direct connection up to 80 A or CT connection
- Dual tariff, energy index via the pulse output
- Energy rebilling. All the Enerdis® meters are available in MID versions

Multi-protocol communication

Guaranteed interoperability via a wide variety of communication protocols, including Modbus RS485, M-bus and Ethernet.

The meters from Enerdis® offer full communication features:
- in an integrated way (Ulys TT, TD80, Memo4)
- associated with communication modules (Ulys MD80, TDA80, TTA) for product replacement

Active energy monitoring

Complete or simplified recording of

For a supervised submetering project

Linking a network of ULYS TT/TD80 or MEMO4 Modbus meters with an ELOG web-box data logger or a PLC

Interfacing with all the existing architectures

ELOG Web-box data logger

Collection, recording and processing of metering data
Installation

- **Compact size**
  - 1 module: single-phase with integrated communication
  - 4 modules: three-phase with integrated communication

- **Wiring simplified** by separation of the power terminals and the ancillary connections

- **Implementation facilitated** by a clear, functional startup guide

- **Error-free startup** thanks to display of the instantaneous current/voltages on the screen: detection of the phase sequence and verification loop for programming of the CT ratios

---

**Essential tools for metering**

MEMO3, MD65, ULYS TDA80 and ULYS TTA: 4 meters to view on site all the energy data on each electrical feeder

**For advanced processing**

The ULYS TD80/TT Ethernet meters store details of all the activity on an electrical feeder independently:

- Integrated web pages
- Alarms
- Recording of the electrical quantities
- Transmission of the data to an ftp server
- Time synchronization
Choose the right meter...

## SINGLE-PHASE NETWORK

<table>
<thead>
<tr>
<th>Without communication</th>
<th>With communication</th>
<th>With integrated communication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upstream circuit-breaker rating</strong></td>
<td><strong>≤ 32 A</strong></td>
<td><strong>&gt; 32 A</strong></td>
</tr>
<tr>
<td><strong>Model</strong></td>
<td>MEMO3</td>
<td>MEMO4-M</td>
</tr>
<tr>
<td><strong>Rating</strong></td>
<td>32 A</td>
<td>45 A</td>
</tr>
<tr>
<td><strong>MID certification</strong></td>
<td>MEMO3-M</td>
<td>MEMO4-M</td>
</tr>
<tr>
<td><strong>Accuracy class</strong></td>
<td>IEC class 1 / MID class B</td>
<td>IEC class 1 / MID class B</td>
</tr>
<tr>
<td><strong>Installation</strong></td>
<td>Format DIN modules</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Input voltage</td>
<td>230 Vac</td>
</tr>
<tr>
<td></td>
<td>Inputs</td>
<td>Direct, 32 A</td>
</tr>
<tr>
<td></td>
<td>on CT</td>
<td>-</td>
</tr>
<tr>
<td><strong>Metering and energy management</strong></td>
<td>Total energy</td>
<td>Display, total kWh</td>
</tr>
<tr>
<td></td>
<td>Via communication</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Tariff</td>
<td>1</td>
</tr>
<tr>
<td><strong>Multiple measurements</strong></td>
<td>Electrical parameters</td>
<td>Display, inst, V, I, P, Q, S, F, FP</td>
</tr>
<tr>
<td></td>
<td>Via communication</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Lead and trend curves</td>
<td>-</td>
</tr>
<tr>
<td><strong>Inputs / outputs</strong></td>
<td>Pulse output(s)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Tariff change input</td>
<td>-</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>RS485 Modbus</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ethernet Modbus</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>M-bus</td>
<td>-</td>
</tr>
<tr>
<td><strong>Metrology</strong></td>
<td>V/U/I</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>P/Q/S</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eact</td>
<td>IEC class 1 / MID class B</td>
</tr>
<tr>
<td></td>
<td>Exact</td>
<td>-</td>
</tr>
</tbody>
</table>

### To order

| MEMO3: MEMN 003 NA | MEMO4-M: P01330751 | ULYS MD65: P01330920 | MEMO4 Modbus: P01331015 |

### Communication modules (for ULYS MD80 / TDA80 / TTA)

<table>
<thead>
<tr>
<th>Model</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULYSCOM MODBUS RS485</td>
<td>P01331030</td>
</tr>
<tr>
<td>ULYSOM M-BUS</td>
<td>P01331031</td>
</tr>
<tr>
<td>ULYSCOM ETHERNET M-BUS TCP</td>
<td>P01331032</td>
</tr>
</tbody>
</table>

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**Don't forget**

**Current transformers offering**

- TC CLIP 100 A/1 A
- TC CLIP 250 A/1 A
- TC CLIP 400 A/1 A
- TC CLIP 100 A/1 or 5 A
- TC CLIP 250 A/1 A or 5 A
- TC CLIP 400 A/1 A or 5 A
- ...
### THREE-PHASE NETWORK

<table>
<thead>
<tr>
<th>Without integrated communication</th>
<th>With integrated communication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>80 A</strong></td>
<td><strong>80 A</strong></td>
</tr>
<tr>
<td>ULYS TDA80</td>
<td>ULYS TTA</td>
</tr>
<tr>
<td>ULYS TDA80-M</td>
<td>ULYS TTA-M</td>
</tr>
<tr>
<td><strong>80 A</strong></td>
<td><strong>On CT (1-5 A)</strong></td>
</tr>
<tr>
<td>ULYS TDA80-M</td>
<td>ULYS TTA-M</td>
</tr>
<tr>
<td><strong>80 A</strong></td>
<td><strong>On TC</strong></td>
</tr>
<tr>
<td>ULYS TDB80</td>
<td>ULYS TT</td>
</tr>
<tr>
<td>ULYS TDB80-M</td>
<td>ULYS TT-M</td>
</tr>
<tr>
<td><strong>80 A</strong></td>
<td><strong>On TC</strong></td>
</tr>
<tr>
<td>ULYS TDB80-M</td>
<td>ULYS TT-M</td>
</tr>
<tr>
<td><strong>80 A</strong></td>
<td><strong>On CT (1-5 A)</strong></td>
</tr>
<tr>
<td>ULYS TDB80-M</td>
<td>ULYS TT-M</td>
</tr>
</tbody>
</table>

**Upstream circuit-breaker rating**
- ≤ 32 A
- > 32 A ≤ 45 A
- > 45 A 80 A
- On TC 80 A

**Model**
- MEMO3
- MEMO3-M
- MEMO4-M
- ULYS MD65
- ULYS MD65-M
- MEMO4 Modbus
- ULYS MD80
- ULYS MD80-M
- ULYS TDA80
- ULYS TDA80-M
- ULYS TTA
- ULYS TTA-M
- ULYS TD80
- ULYS TD80-M
- ULYS TT
- ULYS TT-M

**Rating**
- 32 A
- 45 A
- 65 A
- 45 A
- 80 A
- 80 A on CT (1-5 A)

**MID certification**
- MEMO3-M
- MEMO4-M
- ULYS MD65-M
- MEMO4-Modbus
- ULYS MD80-M
- ULYS TDA80-M
- ULYS TTA-M
- ULYS TD80-M
- ULYS TT-M

**Accuracy class**
- IEC class 1 / MID class B
- IEC class 1 / MID class B
- IEC class 1 / MID class B
- IEC class 1 / MID class B
- IEC class 1 / MID class B

**Installation**
- Format DIN modules
- Format DIN modules
- Format DIN modules
- Format DIN modules

**Input voltage**
- 230 Vac
- 230 Vac / 400 Vac
- 230 Vac / 400 Vac

**Inputs**
- Direct
- Direct
- Direct
- Direct

**Energy management**
- Total energy
- Display total kWh
- kWh, kVArh, total & partial kVAh
- kWh, kVArh, total & partial kVAh
- kWh, kVArh, total & partial kVAh
- kWh, kVArh, total & partial kVAh
- kWh, kVArh, total & partial kVAh
- kWh, kVArh, total & partial kVAh
- kWh, kVArh, total & partial kVAh

**Via communication**
- -
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM

**Tariff**
- 1
- 2
- 1
- 2
- 1
- 2
- 1 (except Ethernet model)
- 1 (except Ethernet model)

**Multiple measurements**
- Electrical parameters
- Display inst, V, I, P, Q, S, F, FP
- Display inst, V, I, P, Q, S, F, FP
- Display inst, V, I, P, Q, S, F, FP, ∑P, ∑Q, ∑S
- Display inst, V, U, I, P, Q, S, F, FP
- Display inst, V, U, I, P, Q, S, F, FP, ∑P, ∑Q, ∑S
- Display inst, V, U, I, P, Q, S, F, FP, ∑P, ∑Q, ∑S
- Display inst, V, U, I, P, Q, S, F, FP, ∑P, ∑Q, ∑S

**Load and trend curves**
- -
- Via ULYSCOM ETHERNET
- Via ULYSCOM ETHERNET
- Via ULYSCOM ETHERNET
- Via ULYSCOM ETHERNET
- Via ULYSCOM ETHERNET
- Via ULYSCOM ETHERNET
- Via ULYSCOM ETHERNET

**Pulse output(s)**
- 1
- 2
- 1
- 2
- 1
- 2
- 1
- 2

**Tariff change input**
- -
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM

**Communication**
- RS485 Modbus
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM

**Ethernet Modbus**
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM

**M-bus**
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM
- Via ULYSCOM

**Metrology**
- V/U/I
- 0.5 %
- 0.5 %
- P/Q/S
- 1 %
- 1 %

**Quick identification of MID "-M" meters**
- To order
- MEMO3: MEMO 003 NA
- MEMO4-M: P01330751
- MEMO4 Modbus: P01330752
- ULYS MD65: P01330920
- ULYS MD80: P01331010
- ULYS MD80-M: P01331011
- ULYS TDA80: P01331012
- ULYS TTA: P01331015
- ULYS TDB80 Modbus: P01331036
- ULYS TDB80 Modbus: P01331036
- ULYS TD80 Modbus: P01331035
- ULYS TT Modbus: P01331035
- ULYS TD80 M-bus: P01331043
- ULYS TT M-bus: P01331043
- ULYS TD80 Ethernet: P01331038
- ULYS TT Ethernet: P01331039
- ULYS TD80 Ethernet: P01331038
- ULYS TT Ethernet: P01331039
From electrical measurement to energy performance management

Drawing on long experience in energy monitoring of applications, Enerdis® develops products and services for easy control of all types of energy consumption, particularly in the context of an ISO 50001 approach.

Current transformers
Compact, economical, rugged range for non-intrusive measurement installations.

Remote data retrieval and recording of energy data
Web-box data logger ELOG
Automatic remote data retrieval, recording and storage of the energy, climate and process data. Processing may be performed locally or by means of an energy information system, whatever the manufacturer of the equipment.

Comprehensive monitoring of LV/HV power quality
ENERIUM® power monitors
Measurement, recording and analysis of all the electrical quantities.

Energy monitoring system
E.online® 2 software
Control, monitoring, management and supervision of multi-energy, multi-site and multi-user energy data. Generation of financial and energy reports in accordance with the ISO 50001 standard.

THE ENERDIS APPLICATIONS TEAM
To assist you:
- in choosing the solutions to implement
- by commissioning installations
- by training the users on site or at our premises

Please do not hesitate to contact us