Enerdis®

Chauvin Arnoux Group

Multi-Protocol Communication
Simple Implementation
MID Certification

Ethernet
Modbus
M-Bus

Ulys
Energy Meters

MID CERTIFIED
ULYS
Measuring Energy Performance

2 pulse outputs as standard features assignable to P, Q or S

Simple to program and use with 2 navigation keys

4-quadrant metering

Voltage presence indicators L1 L2 L3

Energy balance
between energy consumed and energy produced

Indication of connection errors

Compact
- 2 modules (single-phase)
- 4 modules (three-phase)

Class 1 accuracy or MID Class B

Tariff-change input as a standard feature (2 tariffs)

Multiple measurements V, U, I, P, Q, S, PF, F, total energy index and partial index

The Range

<table>
<thead>
<tr>
<th>METERS</th>
<th>Model</th>
<th>Connection</th>
<th>Type of network</th>
<th>Type of current input</th>
<th>Dimensions</th>
<th>MID certification</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULYS MD80</td>
<td>Single-phase</td>
<td>230…240 Vac 50/60 Hz</td>
<td>80 A</td>
<td>2 modules</td>
<td>-</td>
<td>P01331010</td>
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<tr>
<td>ULYS MD80-M</td>
<td>Single-phase</td>
<td>230…240 Vac 50/60 Hz</td>
<td>80 A</td>
<td>2 modules</td>
<td>Yes</td>
<td>P01331011</td>
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<tr>
<td>ULYS TDA80</td>
<td>Three-phase, 3 or 4 wires</td>
<td>230/400…240/415 Vac 50/60 Hz</td>
<td>80 A</td>
<td>4 modules</td>
<td>-</td>
<td>P01331012</td>
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<tr>
<td>ULYS TDA80-3M</td>
<td>Three-phase, 3</td>
<td>230/400…240/415 Vac 50/60 Hz</td>
<td>80 A</td>
<td>4 modules</td>
<td>Yes</td>
<td>P01331013</td>
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<tr>
<td>ULYS TDA80-4M</td>
<td>Three-phase 4 wires</td>
<td>230/400…240/415 Vac 50/60 Hz</td>
<td>80 A</td>
<td>4 modules</td>
<td>Yes</td>
<td>P01331014</td>
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<tr>
<td>ULYS TTA</td>
<td>Three-phase, 3 or 4 wires</td>
<td>230/400…240/415 Vac 50/60 Hz</td>
<td>Isolated 1 or 5 A CT</td>
<td>4 modules</td>
<td>-</td>
<td>P01331015</td>
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<tr>
<td>ULYS TTA-3M</td>
<td>Three-phase, 3</td>
<td>230/400…240/415 Vac 50/60 Hz</td>
<td>Isolated 1 or 5 A CT</td>
<td>4 modules</td>
<td>Yes</td>
<td>P01331016</td>
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<tr>
<td>ULYS TTA-4M</td>
<td>Three-phase 4 wires</td>
<td>230/400…240/415 Vac 50/60 Hz</td>
<td>Isolated 1 or 5 A CT</td>
<td>4 modules</td>
<td>Yes</td>
<td>P01331017</td>
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<table>
<thead>
<tr>
<th>COMMUNICATION MODULES</th>
<th>Reference</th>
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<tbody>
<tr>
<td>ULYSCOM Modbus RS485</td>
<td>P01331030</td>
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<tr>
<td>ULYSCOM M-bus</td>
<td>P01331031</td>
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<tr>
<td>ULYSCOM ETHERNET Modbus TCP</td>
<td>P01331032</td>
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</table>

Single-phase meters offer the same functions as three-phase meters

Compact
- 2 modules (single-phase)
- 4 modules (three-phase)

Multiple measurements V, U, I, P, Q, S, PF, F, total energy index and partial index

2 pulse outputs as standard features assignable to P, Q or S

Simple to program and use with 2 navigation keys

4-quadrant metering

Voltage presence indicators L1 L2 L3

Energy balance
between energy consumed and energy produced

Indication of connection errors

Compact
- 2 modules (single-phase)
- 4 modules (three-phase)
**Measurements**

A single-phase meter measures the same quantities as a three-phase meter.

<table>
<thead>
<tr>
<th>Instantaneous values</th>
<th>Direct reading on screen</th>
<th>Via communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2, V3, 3V</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>U12, U23, U31</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Ui, Si, Si, 3Si</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>FP1, FP2, FP3, 3FP</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>S1, S2, S1, S2</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>P1, P2, P3, 3P</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Q1, Q2, Q3, 3Q</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Frequency</td>
<td>●</td>
<td>●</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Recorded values</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Active energy, receiver and generator (L1, L2, L3 and total)*</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Reactive energy (L1, L2, L3, total)*</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Apparent energy (L1, L2, L3 and total)*</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Resettable partial energy meter (kWh, kVArh, kVAh)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>4-quadrant energy balance (kWh, kVArh, kVAh)</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

* tariff 1 or tariff 2

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**Communication**

- **ULYSCOM Modbus** enables the meters to be interfaced directly with the Enerdis energy management software E.online® or with a CTM / TBM programmable logic controller.

- **ULYSCOM M-Bus** is delivered with the free M-Bus MASTER software to configure and read the quantities measured by the energy meter.

- **ULYSCOM Ethernet** can be used to read measurements directly via integrated web pages and to view an overview of consumption covering several weeks with a simple web browser. It is also possible to export into Excel the consumption data and the quantities measured by the meters over a period of several weeks.

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**MID Directive**

Established in 2006 by the European Measuring Instrument Directive (2004/22/CE), MID certification of a meter is mandatory if energy is rebilled.
Technical Specifications

Electrical Specifications

**Single-phase type**
- **Current input**
  - Rated current: (5) 80 A
  - Istart: 20 mA
- **Voltage input**
  - Measurement range: 0 to 9,999,999.9 kWh
  - Consumption: 7.5 VA max
  - Rated voltage: 230...240 Vac (+/- 20 %)
  - Frequency: 50/60 Hz

**Direct three-phase type**
- **Current input**
  - Rated current: (5) 80 A
  - Istart: 20 mA
- **Voltage input**
  - Measurement range: 0 to 9,999,999.9 kWh
  - Consumption: 7.5 VA max
  - Rated voltage: 3 x 230/400 Vac...3 x 240/415 Vac (+/-20 %)
  - Frequency: 50/60 Hz

**Three-phase type with 1 or 5 A isolated inputs**
- **Current input**
  - Rated current: 5 A
  - Istart: 2 mA
  - Max CT ratio: 10,000
- **Voltage input**
  - Measurement range: 0 to 9,999,999.9 kWh
  - Consumption: 7.5 VA max / phase
  - Rated voltage: 3 x 230/400 Vac...3 x 240/415 Vac (+/-20 %)
  - Frequency: 50/60 Hz

**Tariff-change input**
- T1: No voltage
- T2: 80 Vac/Vdc to 276 Vac/dc max

**Pulse outputs**
- Number: 2 assign able to Ea, Eq or Es
- Type: Optically isolated, 250 Vac/dc
- Duration: 50 ms

**Dimensions**

**Mechanical Specifications**

**Operating temperature:** - 25 °C to + 55 °C

**Connection of power circuit:**
- Single-phase and direct three-phase – screw-on terminal strip for 6 mm² wires
- Connection of power circuit: screw-on terminal strip for 35 mm² wires

**Protection rating:** IP51 on front panel

**Connections**

- Three-phase TDA80 (-4M)
- Three-phase TDA80 (-3M)
- Single-phase TDA80

**Environmental**
- Operating temperature: - 25 °C to + 55 °C
- Storage temperature: - 25 °C to + 75 °C
- Relative humidity: max 80% without condensation

**Other Energy Meters**

<table>
<thead>
<tr>
<th>Model</th>
<th>Connection</th>
<th>Inputs</th>
<th>Size</th>
<th>Communication</th>
<th>Accuracy class</th>
<th>MID</th>
<th>Ref.</th>
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</thead>
<tbody>
<tr>
<td>MEMO3</td>
<td>Single-phase</td>
<td>32 A</td>
<td>1 Module</td>
<td>Pulse output</td>
<td>1</td>
<td>-</td>
<td>MDAN/01NA</td>
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<tr>
<td>MEMO4</td>
<td>Single-phase</td>
<td>32 A</td>
<td>1 Module</td>
<td>Pulse output</td>
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<td>P01370740</td>
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<tr>
<td>ULYS MD65</td>
<td>Single-phase</td>
<td>65 A</td>
<td>2 Modules</td>
<td>Pulse output</td>
<td>1</td>
<td>-</td>
<td>P01319092</td>
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<tr>
<td>ULYS ETAR</td>
<td>3-phase, 3/4 wires</td>
<td>TP+TC 1 ou 5A</td>
<td>7 Modules</td>
<td>Pulse output</td>
<td>1</td>
<td>CEAI1001A</td>
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**Current Transformers**

<table>
<thead>
<tr>
<th>Model</th>
<th>TCR 21</th>
<th>TCR 21</th>
<th>TCR 21</th>
<th>TCR 31</th>
<th>TCR 31</th>
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<th>TCR 51</th>
<th>TCR 51</th>
<th>TCR 61</th>
<th>TCR 61</th>
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<tbody>
<tr>
<td>Primary</td>
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<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
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<tr>
<td>Secondary</td>
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<td>10</td>
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<td>10</td>
<td>10</td>
<td>10</td>
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<td>Current</td>
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<td>C.C.</td>
<td>C.C.</td>
<td>C.C.</td>
<td>C.C.</td>
<td>C.C.</td>
<td>C.C.</td>
<td>C.C.</td>
<td>C.C.</td>
<td>C.C.</td>
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<tr>
<td>Accuracy</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 3 %</td>
</tr>
</tbody>
</table>

**Conversions to 2 DIN modules**

**MID**
- 2 DIN modules

**Tariff inputs & 50 pulse outputs Single-phase**

**METEOR**
- Single-phase
- 3/4 wires
- 30 DIN modules
- Communication: 2 wires, half-duplex
- Connection: RJ45