# UEM80-2D ‹UEM80-2D R, UEM80-2D M, UEM80-2D E›

## 80A single phase energy meter with built-in communication

- UEM80-2D R for RS485 Modbus RTU/ASCII communication
- UEM80-2D M for M-Bus communication
- UEM80-2D E for Ethernet (Modbus TCP) communication
- Direct connection up to 80 A
- Fully bi-directional 4-quadrant measurements for all energies and powers
- Class B according to EN 50470-3 (MID)
- 8 MB for data recording and automatic/manual data transferring (only ETHERNET model)
- S0 output for energy pulse emission
- LCD display with 7 main digits
- Available with MID certification

## » General features

2 DIN modules energy meter for the energy measurement in industrial and civilian application, with the following built-in communication, according to the model: RS485 Modbus RTU/ASCII, M-Bus or Ethernet Modbus TCP. Available with MID certification suitable for billing.

Besides the energy, the meter can measure the main electrical parameters and makes them available on the built-in COM port. The LCD display shows the energies and the instantaneous powers. The COM port allows to manage the connected meter by a remote station. Data is transmitted on a RS485, M-Bus or Ethernet line according to the device model. Moreover, a dedicated application/interface for remote management is provided:

- *Modbus Master* > software for energy meter management by PC in RS485 Modbus or Ethernet network.
- *M-Bus Master* > software for energy meter management by PC in M-Bus network.
- *Web server* > built-in interface for energy meter management by PC in Ethernet network. Moreover, it allows to enable a data recording and a manual or automatic data transferring. In case of automatic transferring, data is sent to a remote server at the set time schedule.

The meter is built according to EN 50470-1 standard. The active energy is compliant to IEC/EN 62053-21 class 1, but for MID certified device it moreover fulfills class B requirements according to EN 50470-3. The accuracy of reactive energy is compliant to IEC/EN 62053-23 class 2.

Wide backlighted LCD display with clear graphic symbols comprehensible at a glance. Metrological LED on front panel and sealable terminal covers. The analysis of the MTBF values, the accurate selection of components and the reduction of the internal working temperatures together with strict production and control standards guarantee a product with an excellent quality and a long lasting reliability.

## » Applications

- Totalization of the electric energy in the industry for each single line or machine.
- Measurement of energy generated by renewable sources such as solar, eolic, etc.
- Accounting and billing of consumptions in camp sites, malls, residential areas, naval ports, etc.
- Totalization of the electric consumption in hotels, congress centers, exhibition fairs.
- Accounting of the consumptions in buildings with executive office services.
- Internal allocation of the consumptions in timeshare civilian and industrial buildings.
- Realization of energy monitoring systems.
- Remote survey of the consumptions and compute of the costs.

## » Benefits

- Remote management through a dedicated application/interface according to the device model (RS485 Modbus, M-Bus, Ethernet).
- Up to 7 instantaneous measurements, complete set of energy counters and partial counters. Moreover partial counters can be started, stopped or reset.
- Available MID according to Swiss market (MID S). Reactive energy is not shown on energy meter display.

## » Related products

- Modbus Master software (for Windows OS)
- M-Bus Master software (for Windows OS)

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## » Technical features

### Power supply
- Power supplied from the voltage circuit
- Nominal measurement voltage ±20%
- Max consumption: 7.5 VA - 0.5 W
- Nominal frequency: 50/60 Hz

### Voltage range & frequency
- 230 ... 240 V  50/60 Hz

### Current
- Starting current $I_{st}$: 20 mA
- Minimum current $I_{min}$: 250 mA
- Transitional current $I_{tr}$: 500 mA
- Reference current $I_{ref}$ ($I_b$): 5 A
- Maximum current $I_{max}$: 80 A

### RS485 Modbus communication
- Port: RS485
- Protocol: Modbus RTU/ASCII
- Communication speed: 300 ... 57600 bps

### M-Bus communication
- Port: wired (EN 1434-3)
- Protocol: M-Bus
- Communication speed: 300 ... 38400 bps
- Unit load: 1

### Ethernet communication
- Port: 10/100 Base T
- Protocol: HTTP, NTP, DHCP, Modbus TCP
- Communication speed: 10/100 Mbps
- 8 MB for data recording
- Web server

### Accuracy
- Active energy class 1 according to IEC/EN 62053-21 (NO MID)
- Active energy class B according to EN 50470-3 (MID)
- Reactive energy class 2 according to IEC/EN 62053-23

### S0 output (no ETHERNET model)
- Passive optoisolated
- Maximum values: 27 $V_{DC}$ - 27 mA
- Meter constant: 500 imp/kWh
  The measuring unit (imp/kWh, imp/kvarh, imp/kVAh) changes according to the assigned counter (kWh, kvarh, kVAh)
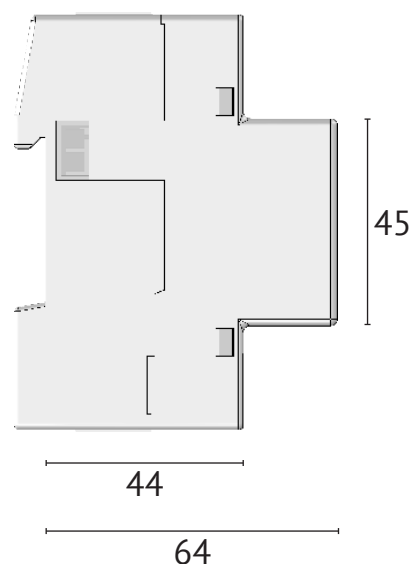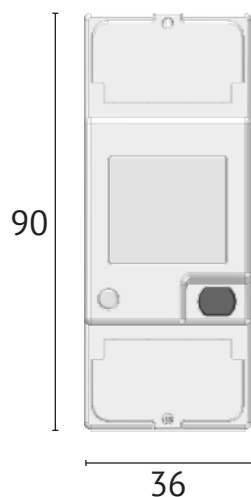- Pulse length: 50 ±2ms

### Metrological LED
- Meter constant: 1000 imp/kWh
- Pulse length: 10 ±2ms

### Environmental conditions
- Operating temperature: -25°C ... +55°C
- Storage temperature: -25°C ... +75°C
- Humidity: 80% max without condensation
- Protection degree: IP51 frontal part -IP20 terminals

## » Technical drawing (mm)



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# » Measurements

| | SYMBOL | MEASURE UNIT, VALUE or STATUS | DISPLAY | COM PORT |
|---|---|---|---|---|
| **INSTANTANEOUS VALUES** | | | | |
| Voltage | V | V | | ● |
| Current | I | A | | ■ |
| Power factor | PF | - | | ● |
| Apparent power | S | kVA | ■ | ■ |
| Active power | P | kW | ■ | ■ |
| Reactive power | Q | kvar | ■ | ■ |
| Frequency | f | Hz | | ● |
| Power direction | →← | - | ● | ● |
| **RECORDED DATA** | | | | |
| Active energy | | kWh | ■ | ■ |
| Inductive and capacitive reactive energy | | kvarh | ■❖ | ■ |
| Inductive and capacitive apparent energy | | kVAh | ■ | ■ |
| Resettable partial energy counters | | kWh, kvarh, kVAh | ■❖ | ■ |
| Energy balance | | kWh, kvarh, kVAh | ■❖ | ■ |

**In case of ETHERNET model, a recording at programmable rate (minimum 10 s) can be enabled with selectable parameters like instantaneous values and counters. Then, the recorded data can be transferred manually or automatically.**

| | SYMBOL | MEASURE UNIT, VALUE or STATUS | DISPLAY | COM PORT |
|---|---|---|---|---|
| **OTHER INFORMATION** | | | | |
| Undervoltage/overvoltage | VOL, VUL | ON/OFF | | ● |
| Undercurrent/overcurrent | IOL, IUL | ON/OFF | | ● |
| Frequency out of range | f$_{OUT}$ | ON/OFF | | ● |
| Partial counters | PAR | START/STOP | ● | ● |
| S0 output status (no ETHERNET model) | ⌐1⌐ | Active | ● | |

| **LEGEND:** | ● = Available | ■ = Bidirectional value | ❖ = varh not available for MID S meter |
|---|---|---|---|

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| ORDER CODE | VOLTAGE AND FREQUENCY INPUT | COMMUNICATION PORT | | | OPTIONS | | | |
|---|---|---|---|---|---|---|---|---|
| | Self-powered | RS485 MODBUS | M-BUS | ETHERNET | MID | MIDS | NONE | RESET |
| **UEM80-2D R** | | | | | | | | |
| 1107.0001.0001 | 230V...240V 50/60Hz | ● | | | ● | | | |
| 1107.0002.0001 | 230V...240V 50/60Hz | ● | | | | ● | | |
| 1107.0003.0001 | 230V...240V 50/60Hz | ● | | | | | ● | |
| 1107.0004.0001 | 230V...240V 50/60Hz | ● | | | | | | ● |
| **UEM80-2D M** | | | | | | | | |
| 1107.0005.0001 | 230V...240V 50/60Hz | | ● | | ● | | | |
| 1107.0006.0001 | 230V...240V 50/60Hz | | ● | | | ● | | |
| 1107.0007.0001 | 230V...240V 50/60Hz | | ● | | | | ● | |
| 1107.0008.0001 | 230V...240V 50/60Hz | | ● | | | | | ● |
| **UEM80-2D E** | | | | | | | | |
| 1107.0009.0001 | 230V...240V 50/60Hz | | | ● | ● | | | |
| 1107.0010.0001 | 230V...240V 50/60Hz | | | ● | | ● | | |
| 1107.0011.0001 | 230V...240V 50/60Hz | | | ● | | | ● | |
| 1107.0012.0001 | 230V...240V 50/60Hz | | | ● | | | | ● |

**LEGEND**
**MID:**       MID certified meter, with reset function only on partial counters.
**MID S:**     MID certified meter, with reset function only on partial counters, without reactive energy counters on display (only SWITZERLAND 🇨🇭 ).
**NONE:**      Meter without MID certification, with reset function only on partial counters.
**RESET:**     Meter without MID certification, with RESET function on ALL counters.
Softwares for meter remote management (MODBUS Master, M-BUS Master) downloadable for free at www.algodue.it, in the Client protected area.
A multilingual manual with English, German, Italian, French, Spanish is now provided.

NOTE: Subject to change without notice