

# UEC40 <UEC40-2C>

# UEM40 <UEM40-2C R, UEM40-2C M>

## 40A single phase 2 wire energy meter

- Direct connection up to 40 A
- Fully bi-directional 4-quadrant measurements for all energies and powers
- UEC40-2C for a simple energy meter without built-in communication
- UEM40-2C R for RS485 Modbus RTU communication
- UEM40-2C M for M-Bus communication
- High reliability
- 1 DIN module compact size
- Quick installation
- S0 output for energy pulse emission
- LCD display with 7 main digits
- Available with MID certification



### » General features

1 DIN module energy meter for the energy measurement in industrial and civilian application, with the possibility to have a built-in communication, according to the model: RS485 Modbus RTU or M-Bus. Available with MID certification suitable for billing.

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

- *Modbus Master software* > for energy meter management by PC in RS485 Modbus network.
- *M-Bus Master software* > for energy meter management by PC in M-Bus network.

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 the reactive energy is compliant to IEC/EN 62053-23 class 2.

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

- Up to 7 instantaneous measurements, complete set of energy counters and partial counters. Moreover partial counters can be started, stopped or reset.
- Remote management through dedicated application according to the device model (RS485 Modbus, M-Bus).
- 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)

## » Technical features

### Power supply

- Power supplied from the voltage circuit
- Nominal measurement voltage  $\pm 20\%$
- Max consumption: 1.5 VA - 1 W
- Nominal frequency: 50/60 Hz

### Voltage & frequency

- Nominal values: 230 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  $I_{max}$ : 40 A

### RS485 Modbus communication

- Port: RS485
- Protocol: Modbus RTU
- Communication speed: 2400, 4800, 9600, 19200, 38400 bps
- Unit load: 1/8

### M-Bus communication

- Port: wired (EN 1434-3)
- Protocol: M-Bus
- Communication speed: 300, 2400, 9600 bps
- Unit load: 1

### 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

- Passive optoisolated
- Maximum values:  $27 V_{DC}$  - 27 mA
- Meter constant: 1000 imp/kWh  
The measuring unit (imp/kWh, imp/kvarh, imp/kVAh) changes according to the assigned counter (kWh, kvarh, kVAh)
- Pulse length:  $100 \pm 0.5$  ms

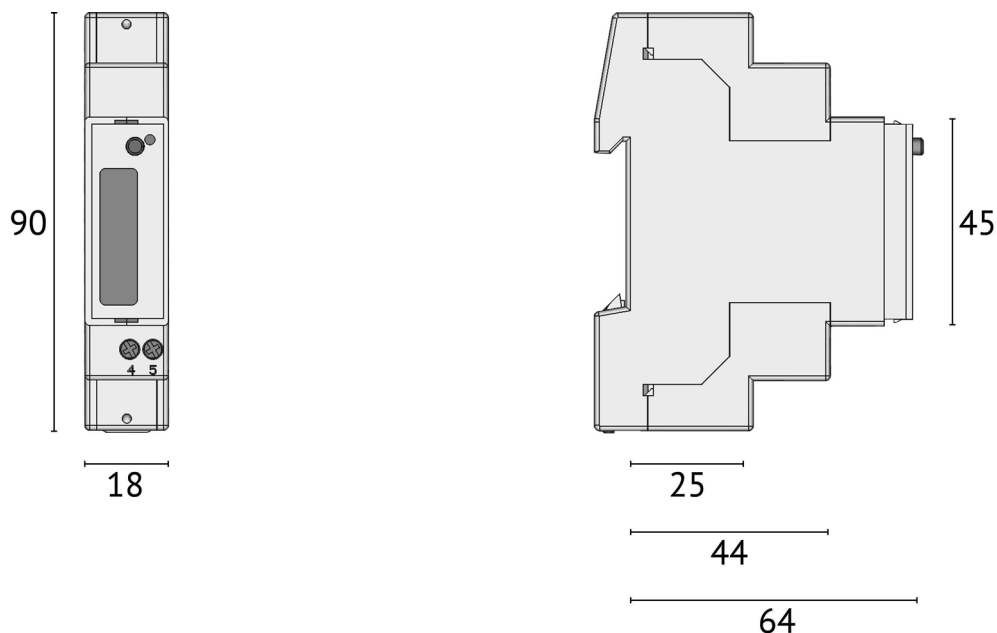
### Metrological LED

- Meter constant: 5000 imp/kWh
- Pulse length:  $4 \pm 0.1$  ms

### Environmental conditions

- Operating temperature:  $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$
- Storage temperature:  $-40^{\circ}\text{C} \dots +75^{\circ}\text{C}$
- Humidity: 80% max without condensation
- Protection degree: IP51 frontal part - IP20 terminals

## » Technical drawing (mm)




## » Measurements

|   | SYMBOL                    | MEASURE UNIT,<br>VALUE or STATUS | DISPLAY | COM<br>PORT |
|---|---------------------------|----------------------------------|---------|-------------|
| <b>INSTANTANEOUS VALUES</b>   |                           |                                  |         |             |
| Voltage   | V                         | V                                | ●       | ●           |
| Current   | I                         | A                                | ■       | ■           |
| Power factor  | PF                        | -                                | ■       | ■           |
| Active power  | P                         | kW                               | ■       | ■           |
| Apparent power  | S                         | kVA                              | ■       | ■           |
| Reactive power  | Q                         | kvar                             | ■       | ■           |
| Frequency   | f                         | Hz                               | ●       | ●           |
| Power direction   | ↔ (display)<br>+/- (port) | -                                | ●       | ●           |
| <b>RECORDED DATA</b>  |                           |                                  |         |             |
| Active energy   |                           | kWh                              | ■       | ■           |
| Inductive and capacitive apparent energy  |                           | kVAh                             | ■       | ■           |
| Inductive and capacitive reactive energy  |                           | kvarh                            | ■❖      | ■           |
| Resettable energy counters (only NO MID package)  |                           | kWh, kVAh, kvarh                 | ■❖      | ■           |
| Resettable partial energy counters  |                           | kWh, kVAh, kvarh                 | ■❖      | ■           |
| <b>OTHER INFORMATION</b>  |                           |                                  |         |             |
| Partial counter status  | ⏏ / ⏏                     | Start / Stop                     | ●       | ●           |
| S0 output status  | ●                         | Active                           | ●       |             |
| <b>LEGEND:</b> ● = Available      ■ = Bidirectional value      ❖ = varh not available for MID S meter |                           |                                  |         |             |

| ORDER CODE        | VOLTAGE AND FREQUENCY INPUT | COMMUNICATION PORT |      |              | OPTIONS |     |       |
|-------------------|-----------------------------|--------------------|------|--------------|---------|-----|-------|
|                   |                             | Self-powered       | NONE | RS485 MODBUS | M-BUS   | MID | MID S |
| <b>UEC40-2C</b>   |                             |                    |      |              |         |     |       |
| 1110.0001.0001    | 230V 50/60Hz                | ●                  |      |              |         | ●   |       |
| 1110.0002.0001    | 230V 50/60Hz                | ●                  |      |              |         |     | ●     |
| 1110.0003.0001    | 230V 50/60Hz                | ●                  |      |              |         |     | ●     |
| <b>UEM40-2C R</b> |                             |                    |      |              |         |     |       |
| 1109.0001.0001    | 230V 50/60Hz                |                    | ●    |              |         | ●   |       |
| 1109.0002.0001    | 230V 50/60Hz                |                    | ●    |              |         |     | ●     |
| 1109.0003.0001    | 230V 50/60Hz                |                    | ●    |              |         |     | ●     |
| <b>UEM40-2C M</b> |                             |                    |      |              |         |     |       |
| 1109.0004.0001    | 230V 50/60Hz                |                    |      |              | ●       | ●   |       |
| 1109.0005.0001    | 230V 50/60Hz                |                    |      |              | ●       |     | ●     |
| 1109.0006.0001    | 230V 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 ).  
**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](http://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



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