

# UEM40-2C R70

## 40A single phase energy meter with built-in communication

- For RS485 Modbus RTU communication
- Direct connection up to 40 A
- Up to 70°C operating temperature
- Fully bi-directional 4-quadrant measurements for all energies and powers
- 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 RS485 Modbus RTU built-in communication. 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. The COM port allows to manage the connected meter by a remote station and data is transmitted on a RS485 line. Moreover, a dedicated application for remote management is provided:

- *Modbus Master software* > for energy meter management by PC in RS485 Modbus 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.
- 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)

## » 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

### 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<sub>DC</sub> - 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

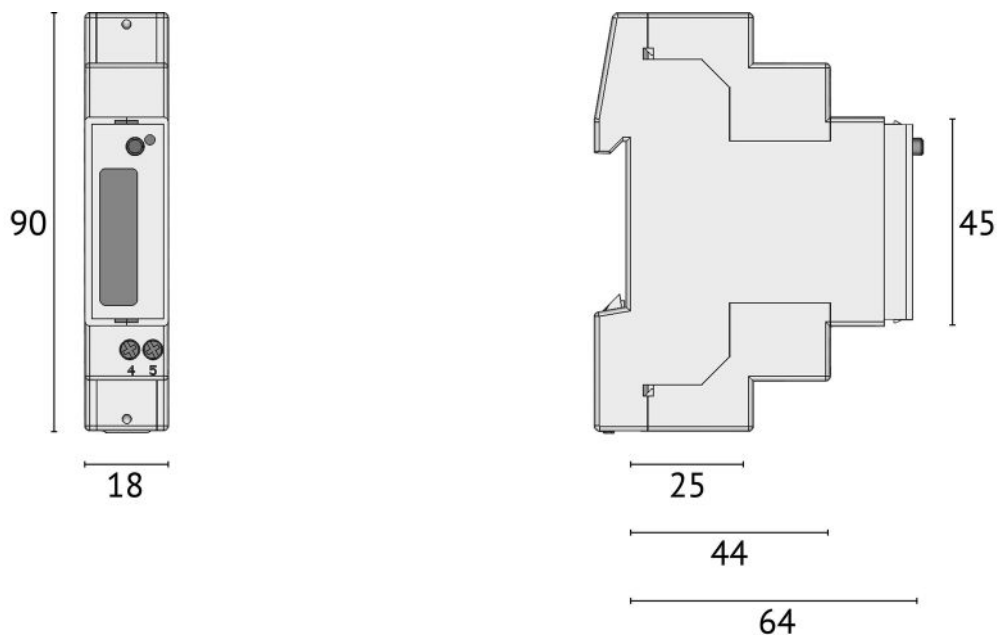
### Metrological LED

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

### Environmental conditions

- Operating temperature: -25°C ... +70°C
- Storage temperature: -40°C ... +75°C
- Humidity: 80% max without condensation
- Protection degree: IP51 frontal part - IP20 terminals

## » Technical drawing (mm)



## » Measurements

	SYMBOL	MEASURE UNIT, VALUE or STATUS	DISPLAY	COM 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) +/- (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	RS485 MODBUS	MID	MIDS	RESET
<b>UEM40-2C R70</b>					
1109.0019.0001	230V 50/60Hz	●	●		
1109.0020.0001	230V 50/60Hz	●		●	
1109.0021.0001	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) 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 provided.

NOTE: Subject to change without notice



Innovative Electronic Systems

Via P. Gobetti, 16/F - 28014 Maggiore (NO) - Italy - Tel.: +39 0322 89307

sales@algodue.it - [www.algodue.com](http://www.algodue.com)

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