

# MET600 THREE PHASE MEASURING DEVICE

FOR CT OR CT/VT  
CONNECTION  
(MULTIRANGE)



[www.mikroelektronika.net](http://www.mikroelektronika.net)



**MS MIKROELEKTRONIKA A.D.**

Banja Luka, Bosnia & Herzegovina | +387 51 389 030  
info@mikroelektronika.net | www.mikroelektronika.net

## MAIN FEATURES

**kWh** **kvarh** **kVAh** Active or active and reactive energy, apparent energy.

**△** Maximum power, integration period from 1 to 60 min.

**↔** Measurement of energy in one or two directions or absolute measurement. (+A, +R; -A, -R; |A|, |R|), optionally by quadrants (R1, R2, R3, R4).

**T(4)** Multi-tariff registration, internal tariff calendar or external management via tariff inputs/outputs.

**🕒** Internal real-time clock with DST (Daylight saving mode). Backup power source by Li-Ion battery, optional super capacitor.

**▲** Time profiles of measuring data recording (up to 6 channels).

**V** **A** Measurement of voltage, current and power factor.

**RS485** RS485 communication interface.

**🌐** For three phase 4-wire networks.

**⏏** Impulse output(s) (kWh or kWh + kvarh).

# MET600

THREE PHASE MEASURING DEVICE  
FOR CT OR CT/VT CONNECTION (MULTIRANGE)



MET600 is a measuring device for measuring active energy and power and alternating current of three phase system with 4 conductors (in Aron circuit with 3 conductors).



Communication modems supported:

- GSM/GPRS
- PLC (S-FSK, DCSK, G3)
- ETHERNET
- LoraWan



- LCD display with backlight.
- Labeling data by OBIS code: IEC 62056-61
- Programmable data collection and order on the display, manual and auto.

- Simplicity, speed and ease of connecting the meter to the network, indication of correct connection.
- Self-extinguishing polycarbonate housing.
- Compact design of meter according to DIN 43857.
- IP54 degree of protection against penetration of moisture and dust.
- High resistance to electromagnetic interference.
- Monitoring and registering violation of meter's work integrity (forceful opening, strong magnetic field action, wrong password access attempt, ...).
- DLMS communication protocol.
- Possibility of switching into a remote measurement and management system by installing one of the communication modules: GSM/GPRS, PLC (S-FSK, DCSK, G3), ETHERNET, LoraWan.

- Universal modem socket for single phase and three phase meters, plug in connection. The modem is mounted under the meter's connecting ports cover.
- Battery replacement without removal of the measuring seal
- Operating state indication for the meter and communication module.
- Relay outputs for remote and local load control.
- Optical output(s):  
Semi-indirect connect.: 10000 imp/kWh (kvarh),  
Indirect connection: 40000 imp/kWh (kvarh).
- LIST and SET buttons (ability to seal the SET button).

The meters correspond to European standards EN 50470-1 and EN 50470-3, as well as to international standards IEC 62052-11 and IEC 62053-21, and are designed and manufactured according to ISO 9001 standard. The active and reactive electrical power meters, in addition to the specified standards, meet the requirements of international standard IEC62053-23.

# FUNCTIONAL AND TECHNICAL DATA

This is a measuring device designed to work in extended voltage range (mutlirange voltage) of (3x57.7/100 - 230/400) V. After connecting the device to a power source, it decides whether to use CT or CT/VT connection. The decisive threshold is 115 V.

## Measurement and registration:

- Energy in one flow direction (taken).
- Energy in two flow directions (taken and handed over).
- Always in a positive direction (absolutely).
- Four-quadrant for reactive energy (optional).

## Accuracy/Calibration:

Thanks to long-term measurement stability, there is no need to re-calibrate the meters during utilisation period.

## Indicators:

**LED 1 (red):** kWh impulses.

**LED 2 (red):** kvarh impulses.

**Unsteady:** the current is higher than the starting current.

**Illuminating:** voltage connected, while the current is less than the starting current.

**Not illuminating:** no voltage is being applied to the meter.

## Communication:

Optical port (IEC 62056-21) for local programming and meter reading.

Additional communication port: RS485, M-Bus, HAN.

## Multi-tariff registration:

According to an internal real time counter or external transfer of tariffs. Programmable tariff number (1 ... 8 tariffs).

## 7-segment liquid crystal display:

- according to VDEW recommendations, 8 digits for data, 6 digits for EDIS identification code (DIN 43863-3) + a certain number of signal flags/ indicators; Indicators: direction/ quadrant of energy flow, presence of voltage, current, remote communication, measuring units, ...

- display mode: automatic, manual data display (using keys), auto-diagnostics;

- A programmable set of displayed data as well as their order;

Option: Present the data on the display when the meter is not under any voltage (battery mode).

## Real Time Counter:

- 32 kHz quartz crystal;

- Allows switching of tariffs by default, switching of seasons, transfer from winter to summer time, and vice versa, power period measurement and data measurement time profiles.

## Current clamps:

- Directly connected meters: Universal clamps for all types of conductors (Main connectors = 16 mm<sup>2</sup>; Auxiliary connecting clamps = 1.5 mm<sup>2</sup>);

**Housing:** Self-extinguishing UV stabilized polycarbonate.

**Degree of protection against dust and water:** IP 54.

Accuracy class (kWh)	C or B (according to EN 50470-3)
	respectively 1 (according to IEC 62053-21)
	0.2, 0.5 (according to IEC 62053-22)
(kvarh)	3 or 2 (according to IEC 62053-23)
Reference/ Nominal current I <sub>n</sub>	5 A
Max. current I <sub>max</sub>	6 A, 10 A
Min. current I <sub>min</sub>	0,01 I <sub>n</sub>
Starting current	0,001 I <sub>n</sub>
Nominal voltage U <sub>n</sub> :	
Semi-indirect link (CT connection)	3 x 230 V / 400 V
Indirect link (CT/VT connection):	
Three-system measuring	3 x 100 / √3 V / 100 V
Two-system measuring	3 x 100 V
Voltage range	0,8 U <sub>n</sub> 1,15 U <sub>n</sub>
Nominal frequency	50 Hz
Operating temperature range	-40°C +55°C (LCD: -25°C +55°C)
Extended temperature range	-40°C +70°C
Temperature of storage	-40°C +85°C
Relative humidity	≤ 95%
Encoder constant, A/R energy (optical output, LED red):	
Semi-indirect link	10000 imp/kWh (imp/kvarh)
Indirect link	40000 imp/kWh (imp/kvarh)
Encoder constant, A/R energy (el. outlet, galvanic. isolat., passive):	
Semi-indirect link	5000 imp/kWh (imp/kvarh)
Indirect link	20000 imp/kWh (imp/kvarh)
Display: Type	LCD
Number of characters for displaying the meas. sizes	8
Number of characters for displaying the OBIS tags	6
Optical port	IEC 62056-21
Accuracy of internal counter	≤±3 min/year. (IEC 62054-21)
Back-up power supply of counter	10 years (Li-battery)
Impulse output(s) characteristics	
Voltage	< 27 V EN 62052-11
Electricity	< 27 mA EN 62053-31
Tariff output(s)	Option for output relays
Own power consumption (with modem)	<4 VA
Own consumption of voltage branch (w/ modem)	< 3 W / 15 VA
Own consumption of tariff input	< 150mW
Dielectric strength	4 kV, 50 Hz, 1 min
Impact voltage	measuring circuits: 12 kV 1,2/50 µs auxiliary circuits: 6 kV 1,2/50 µs
Short circuit current	20 I <sub>max</sub>
Fast transients (burst)	
Measur. circuits without/ with load	4 kV (IEC 61000-4-4)
Auxiliary circuits	2 kV
Surge test	
Measur. circuits without/ with load	4 kV (IEC 61000-4-5)
Auxiliary circuits	2 kV
Electrostatic discharge	
Contact discharge	8 kV (IEC 61000-4-2)
Contactless discharge	15 kV
Resistance to el.mag. RF fields	80 MHz 2 GHz (IEC 61000-4-3)
Influence of radio interference	
Contact discharge	150 kHz 30 MHz (IEC 61000-4-3)
Contactless discharge	30 MHz 1 GHz (IEC 61000-4-6)
Vibrations (Vibration test)	(IEC 61000-4-27)
Shock test	(IEC 61000-4-11)
Flammability; Glow-wire flammability test	(IEC 61000-4-11)
Date of expiration	< 15 years
Dimensions	300 x 175 x 68 mm
Mass	< 1,3 kg

# METER DIMENSIONS

