



From SIMPLE

- Accuracy class 1 or 2
- Active energy measurement
- Single-tariff
- Optical communication interface
- Data storage in non-volatile memory

To MULTIFUNCTIONAL

- Accuracy class 1
- Active & Reactive energy, Maximum Demand measurement
- Multi-tariff, up to 4 tariffs
- Optical and electrical communication interfaces [AMR compatible]
- Data storage in non-volatile memory
- Load Profiles
- Internal real-time clock with Li-ion battery or Super-Cap backup
- Extended anti-tamper features
- Events logbook
- Relay output

EMS

for residential, commercial and industrial metering

The versatile and reliable three-phase electronic electricity meter EMS provides a wide range of modifications: from simple to multifunctional. The meter can be customized for use in almost any area: residential, commercial or industrial. The EMS meter measures either active or active and reactive electrical energy and is approved in accordance with IEC 62052-11, IEC 62053-21 and IEC 62053-23. Upon request the meter can be provided with maximum demand registration, instantaneous value measurement, load profile recording. Also, there is a possibility to connect the meter to an AMR system.

Measuring

The meter operates in three-phase electricity networks and measures:

- Active energy [bi-directional or unidirectional] with accuracy class 1 or 2 [IEC 62053-21] or
- Active energy [unidirectional] with accuracy class 1 [IEC 62053-21] and Reactive energy [import-export] with accuracy class 2 [IEC 62053-23]
- Maximum Demand with date & time in meters with internal clock
- [Optional] Load profiles
- [Optional] Instantaneous values [A, V, kW, kVAr] of each phase

Tariff module

The EMS meter can be single-tariff or multi-tariff. The multi-tariff modification of the EMS meter has an internal real-time clock with Li-ion or Super-Cap backup and complex tariff structure [Time-Of-Use].



● Number of energy tariffs	Up to 4 tariffs
● Number of seasons	Up to 12-tariff seasons
● Number of week profiles	Up to 10-week profiles
● Number of day profiles	Up to 16-day profiles
● Special days	Up to 365 permanent and 16 movable days
● Number of maximum demand tariffs	Up to 4 tariffs



Data storage

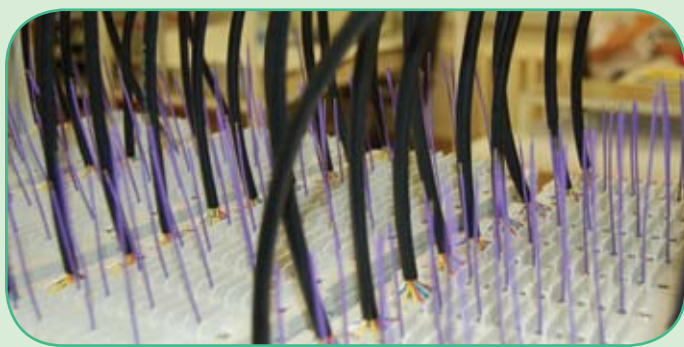
The EMS meter has non-volatile memory which allows to store metering data without the influence of power outages. Capacity of stored data:

● Total energy	from installation date;
● Monthly energy	of last 16 months;
● Daily maximum demand values	up to 480 days;
● Monthly maximum demand values	of last 12 months;
● Events logbook records	up to 32 records of each event type;
● [Optional] Load profiles	up to 3 channels.

Load Profiles [Optional]

To help utilities and customers to meet deregulated market needs, the EMS meter can have load profiles:

● Load profiles capacity	up to 252 days with integration period 60 minutes;
● Programmable integration period	5, 10, 15, 20, 30 or 60 min.



Communications

The meter has optical communication interface in accordance with IEC62056-21. Optical communication interface allows the user to read data and to program the meter in the field or in the workshop.

The EMS meter has electrical communication interface [20 mA current loop or RS485] with protocol in accordance with IEC 62056-21 or IEC 62056-31, allowing connection of meters to an AMR system through external GSM/GPRS, RF, PSTN, and LAN controllers.

Outputs

- Up to 3 electric pulse outputs [SO]
- Up to 2 LED test outputs
- [Optional] Relay, normally open contacts are connected:
 - When specified energy tariff is valid;
 - For two programmed periods during the 24-hour interval [periods are set in 15 minutes step].

Security features

Hardware protection allows only authorized persons to access the meter:

- Two seals on main cover;
- Two seals on terminal cover;
- [Optional] Optical communication interface sealing.

Software protection allows only authorized persons to program the meter with software for meter programming and data reading:

- Meters programming feature is password protected; if incorrect password is entered four times a day, the communication interfaces will be locked for 24 hours. During that period communication is impossible.

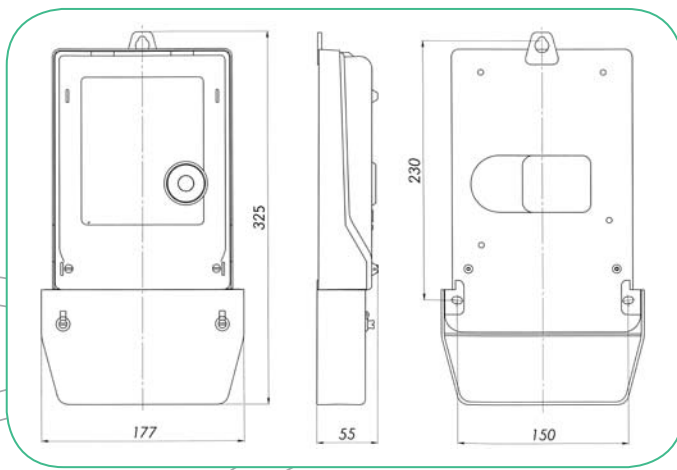
The meter with internal clock has Events logbook, registering the following events:

● Power outages	last 32 events with date & time
● Phase sequence change	last 10 events with date & time
● Missing of any phase voltage	last 10 events with date & time
● Meter programming	last event with date & time
● Magnetic field influence	last event with date & time
● Reverse current flow	last event with date & time
● [Optional] Main cover openings	last event with date & time
● [Optional] Cover openings	last event with date & time

Display

The EMS meter is equipped with LCD [liquid crystal display]. LCD contains 8 digits with programmable decimal point: 8-5 for whole numbers and 0-3 digits for decimal numbers. LCD displays majority of data accumulated in meter and parameterization constants. Features:

- Cyclic [automatic] and static [manual] data scroll;
- Data indication on LCD during power outages;
- Reverse current flow indication;
- Energy direction, load quadrant, phase sequence indicator;
- Li-ion battery [Super-Cap] status indication;
- Menu control by pushbutton or [optional] light signals.



Technical specifications

Ratings

● System	Three-phase 4-wire or 3-wire
● Accuracy class:	
• For active energy	Class 1 or 2
• For reactive energy	Class 2
● Reference voltage, V:	
• 4-wire networks	3x220/380; 3x230/400; 3x57.7/100; 3x63.5/110; 3x69.2/120
• 3-wire networks	3x100; 3x110; 3x120; 3x220; 3x230
● Reference [maximum] current, A:	
• Direct connected	5[60]; 5[80]; 10[60]; 10[100];
• CT operated	5[6.25]; 5[10];
● Current threshold	0.4% I_b [0.2% I_n , if CT operated]
● Reference Frequency, Hz	50 or 60
● Meter constant, imp/kWh [imp/kVArh]	500 or 1000 [direct], 5000 or 10000 [transformer]
● Power consumption per phase:	
• In voltage circuit	< 0.5W < 1.0 VA
• In current circuit	< 0.05 VA [< 0.5 VA if CT operated]
● Temperature ranges:	
• Meter operating	-40°C to +60°C
• Meter storage	-40°C to +70°C

Internal real-time clock

● Accuracy	< 0.5 s/24h [T = 23°C]
● Backup power supply of the clock	Li-ion battery or Super Cap
● Operation duration using only backup:	
• Li-ion battery	> 16 years
• Super-Cap	> 7 days

Case & Dimensions

● Case	UV stabilized polycarbonate
● Insulation	Protective class II
● Dimensions, mm	325 x 177 x 55
● Weight, kg	< 1.5



ELGAMA-ELEKTRONIKA
 Visorių st. 2, 08300 Vilnius, Lithuania
 Phone: +370 5 2375009, Fax +370 5 2375020
 E-mail: marketing@elgama.lt,
 www.elgama.eu

