



SINGLE PHASE AMR ELECTRONIC METER

MEM500...

Single phase meters are used for measuring active and reactive electric energy and power of alternating current in single phase system with 2 leads, nominal frequency 50 Hz.

Electric meter has the following functions:

- Real time clock with calendar function
- Measurement of imported and exported active energy and demand per tariff
- Measurement of imported and exported reactive energy and demand per tariff
- Measurement in four quadrants
- Measurement of instantaneous power, voltage, current, frequency and power factor per phase
- Load profile recording
- Log events recording
- Grid quality monitoring
- Logging and recording of metering integrity violation
- Billing data archiving based on predefined plan
- Display choice selection and data setting with LIST and SET key buttons
- Parameterizing and data reading locally on IR port
- Power monitoring and load control with modular load control switch (meter can be equipped with an external or integrated load control switch)
- Relay outputs
- DLMS communication protocol
- AMI functionality with modular GSM/GPRS communication modem
- AMI functionality with modular PLC communication modem
- AMI functionality with modular ZIGBEE communication modem
- AMI functionality with modular MBus communication modem
- AMI functionality with modular Wireless MBus communication modem
- Local device control and management through RS232/RS485
- Meter can be equipped with integrated RS232, RS485, ZIGBEE and MBus communication interface



Technical information

- Nominal voltage	230 V +15; -20 %	IEC 60038
- Nominal current	5 A, 10 A	IEC 62053-11
- Maximum current	40 A, 60 A, 80 A, 100 A, 120 A	
- Starting current	0.2% I _n	IEC 62053-11
- Nominal frequency	50 Hz	
- Accuracy Class		
	Active energy	1, 2
		0.5
	Reactive energy	2, 3
		IEC 62053-23
- Active energy metering constant (optical output)	1000 imp./kWh	
- Reactive energy metering constant (optical output)	1000 imp./kWh	
- Active energy metering constant (electrical output)	1000 imp./kWh	IEC 62053-31
- Reactive energy metering constant (electrical output)	1000 imp./kWh	IEC 62053-31
- Impulse generator		
	Voltage	< 27 V
	Current	< 27 mA
		IEC 62052-11
		IEC 62053-31
- Consumption in voltage circuit on nominal voltage	< 2 VA	
- Consumption in current circuit on nominal current	< 0.6 VA	
- Consumption on tariff input on nominal voltage	< 150 mW	

- Display	Type Display digit numbers for energy Display digit numbers for power Display digit numbers for OBIS Working modes	LCD 6+2 2+3 7 Automatic, manual and service	
- Tariff management	Internal tariff plan External tariff inputs and outputs Number of daily tariffs	2 (4)	
- Maximum pointer accuracy		class 1	
- Measuring period - variable (maximum pointer)		60/MP[min]=x, x is integer	
- Daily deviation of time base		0.5 s/24 h	IEC 62054-11
- Backup time		10 years with Li battery	
- Local interface		IC port	IEC 62056-21
- Communication protocol		DLMS/COSEM	IEC 62056-46
- Communication interface		RS232/RS485,GSM/GPRS,PLC, ZIGBEE,Mbus,Wireless Mbus	
- Operating temperature range		-30 °C to +60 °C	IEC 62052-11
- Limited temperature range		-35 °C to +70 °C	
- Storage temperature		-40 °C to +85 °C	IEC 62052-11
- Relative humidity		< 95 %	IEC 62052-11
- Consumption control		Load control switch 2 relay outputs 1 x 150 mA, 230 V 1 x 5 A, 230 V	
- Fast transient burst test Current and voltage circuits under / not under load Auxiliary circuits > 40 V		4 kV 2 kV	IEC 61000-4-4
- Fast transient surge test Current and voltage circuits Auxiliary circuits > 40 V		4 kV 1 kV	IEC 61000-4-5
- Isolation strength		4 kV, 50 Hz, 1 min	IEC 60060-1
- Impulse voltage test Current, voltage and auxiliary circuits		6 kV, 1.2/50 µs	IEC 60060-1
- Electostatic discharge Contact discharge Air discharge		8 kV 15 kV	IEC 61000-4-2
- Vibration test	Frequency Frequency < 60 Hz Frequency > 60 Hz Velocity Duration	10 – 50 Hz $h_{const} = 0.075 \text{ mm}$ $a_{const} = 10 \text{ m/s}^2$ 1 octave/min 10 cycles	EN 60068-2-6
-Shock test Three shocks in six directions		$a_{max} = 300 \text{ m/s}^2$ $t_i = 18 \text{ ms}$	IEC 60068-2-27
- Flammability - Glow-wire flammability test	Contact force of heating wire Duration Test temperature (terminal block) Test temperature (housing)	1 N 30 s 960 °C 650 °C	EN 60695-2-11
- Mass		< 1.2 kg	
- Dimensions	with long terminal cover with medium terminal cover with short terminal cover	240 x 130 x 90 mm 220 x 130 x 90 mm 190.7 x 130 x 90 mm	DIN 43857
- IP degree of protection		IP54	IEC 60529
- Maximal conductor cross section cable	$I_{max} = 40 \text{ A}$ and 60 A $I_{max} = 80 \text{ A}$, 100 A and 120 A	$S = 10 \text{ mm}^2$ $S = 25 \text{ mm}^2$	
- Load profile	<p>Load profile enables set measuring registers to be recorded in given period of time. One recorded information about load profile must contain time and date of recording (time stamp) and the status during which it was recorded. Number and character of registers recorded depends on the user's demands. Initially it is set to recording instantaneous average power in all quadrants every 15 minutes. Defined in this manner, profil can be recorded for 70 days. If the number of recorded registers is lower, it can be recorded for more days. For example, if only one measuring register is being recorded, then the total period of recording will be 150 days.</p>		

- Data of billing period

This profile enables archiving of all billing registers in given periods of time. One recorded data from the archive must contain time and date at which it was recorded (time stamp) and time of archiving. Default factory settings are: 12 billing periods per year, records are to be made every 1st of the month at 00:00:00. From measuring registers, those from table 9.2.1. are to be recorded. User can define and change which registers should be recorded, using MESMET software and communication channel, according to IEC 62056-46 and MESMET user manual.

- Event log

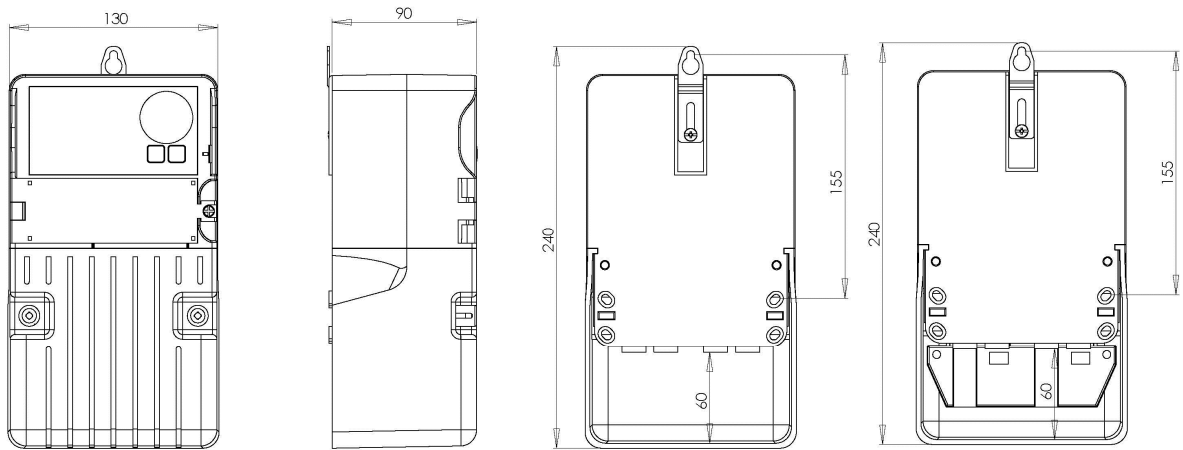
Event log enables recording of all events significant for the meter, such as: Cut off of power supply, power supply back on, load profile erasing, measuring integrity violation, etc. One recorded data from the event log must contain, together with the recorded event itself, time and date at which it was recorded (time stamp) and status at which the event took place. As an option it can also contain billing registers. Memory capacity for the event log allows recording of approximately 1000 events.

- Daily profile

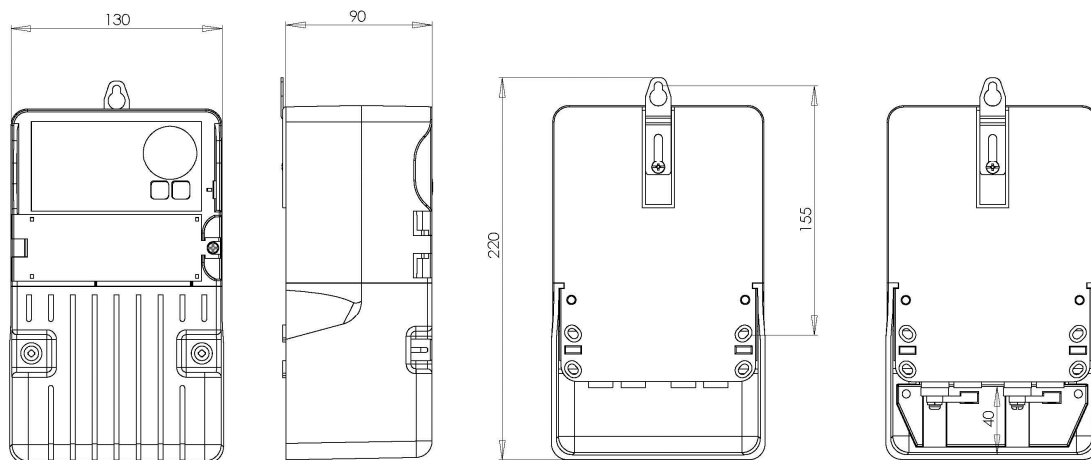
This profile enables every day archiving of all billing registers. This profile enables archiving data from registers which users want. User can define and change which registers should be recorded, using MESMET software and communication channel, according to IEC 62056-46 and MESMET user manual.

- Grid quality monitoring

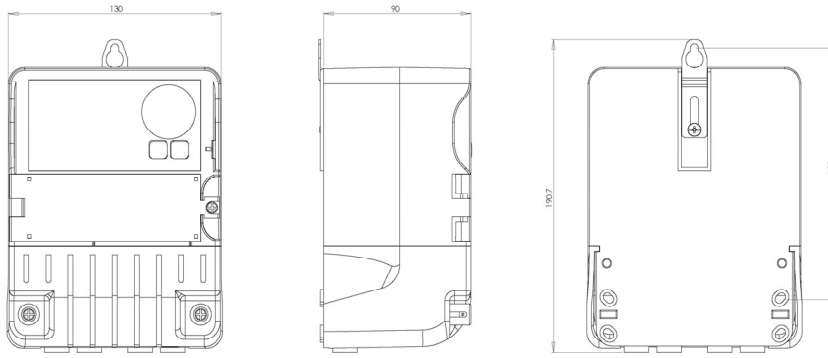
This profile enables recording of current's and voltage's minimal and maximal values above and below user defined thresholds per phase in period of one month. Current and voltage thresholds, channels and profile capacity are configurable and number of recordings is maximally 1000.



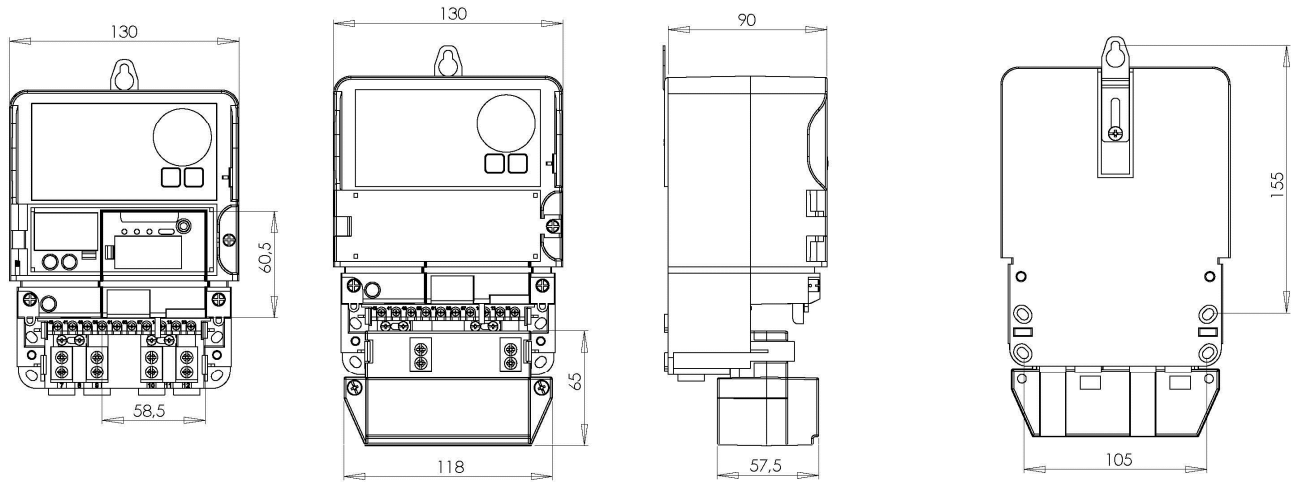
with long terminal cover



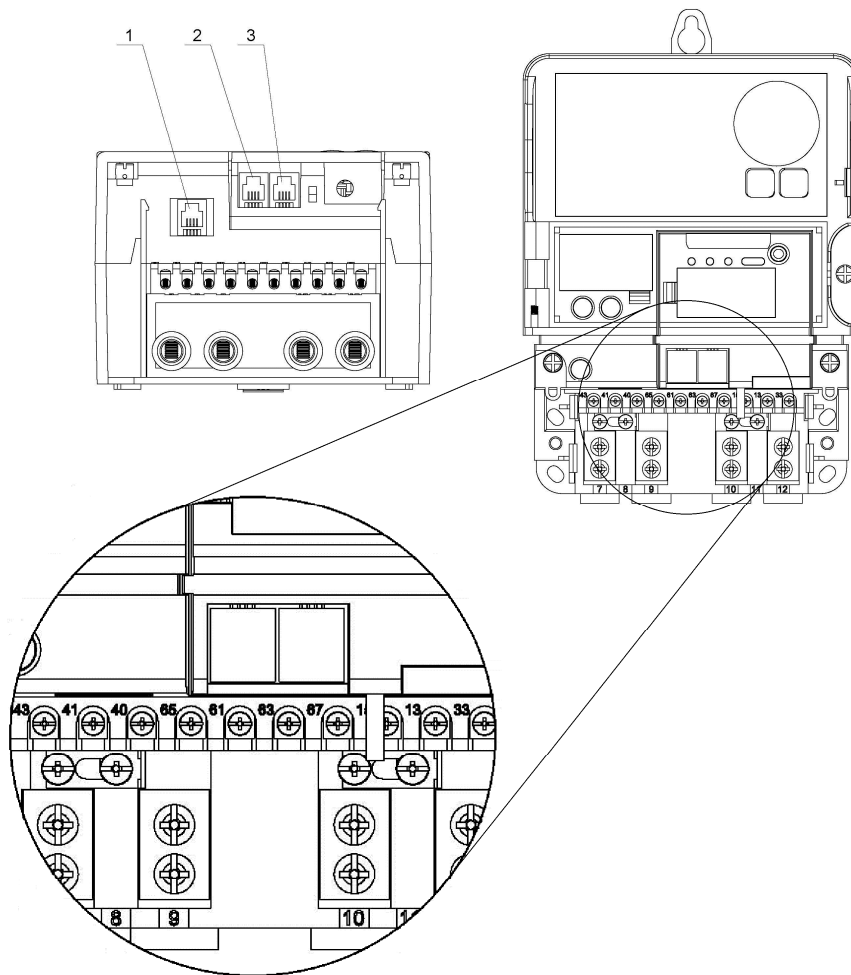
with medium terminal cover



with short terminal cover



with load control switch and communication modem



1 – RJ connector for load control switch

2, 3 – RJ connectors for RS485

43, 41, 40 – Impulse electrical outputs (impulse for active energy, impulse for reactive energy and impulse for measurement period)

65, 61, 63, 67 – Relay outputs 2 x 150 mA, 230 V or 1 x 5 A, 230 V and 1 x 150 mA, 230 V (External tariff outputs)

15, 13, 33 – External tariff inputs

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