

LAP-A1/485 - electronic single phase electricity meter



- Log registering up to 320 events (with the date and time stamp) comprising: programming the meter, setting the date and time, acting to the meter with strong magnetic field, voltage failure
- Automatic reset of billing period
- Manual reset of billing period can be performed by PC software (via optical interface) and/or by push button
- Energy registers and maximum demand values are stored for 31 billing periods
- Screen scrolling by push button placed on meter front panel
- Possibility of defining by the user the sequence of LCD screens

Controlling functions

- Measuring and presentation of the values of instantaneous voltage, current, active power and frequency
- Signalling energy flow direction
- Signalling and registration of events like: opening the terminal block cover, acting to the meter with strong magnetic field
- Voltage failure registration
- Registration of programming events in range of setting the time and programming the Time-of-Use rates
- Identification of tariff programmed into the meter
- Connecting/disconnecting the power supply of residential energy customer by the power switch module. Controlling the switch is done by an intelligent communication module (option)
- Remote readout of billing data using PSTN/GSM/GPRS. Available when meter equipped with GSM-1/485 or GT-1/485 communication, module that gives possibility of:
 - Individual metering data readout using mobile phone
 - Remote metering data to readout and common meter controlling by SHOOK G or SOLEN, SKADEN systems
- Checking of RTC battery level

Communication interfaces

LAP-A1/485 is equipped with 2 communication interfaces:

- 1) OPTICAL interface, according to IEC 62056-21, designed for parametrization and configuration of the meter and for local measuring data readout in case of billing and diagnostic needs
- 2) RS485 (located under the cover of terminal block)

Additional functions

The meter is equipped with battery system that is used for supplying of RTC and allowing metering data readout. Optionally the meter can be produced with RTC battery that can be replaced on site. This battery can be replaced with no need the seal to be broken. All values necessary for billing are registered in Flash memory, which does not need batter supply.

Parameterization and configuration

All operations in connection with downloading of tariffs parameters, tariff structure and the way the billing period is to be reset, as well as display operating modes are to be performed using specially designed software tool SOLEN.

Application

LAP-A1/485 is an electronic single phase electricity meter, designed for active energy measure in direct measurement systems. Since their functionality meter is considered for smart metering systems. It is equipped with the real time clock (RTC) that gives the possibility to use the meter for Time-of-Use (TOU) rates customers. The unique feature of meter is the modular construction that enables reconfiguration to suit many different applications suitable to customer's requirements. Thanks to up-to-date technical solutions used in meter construction, it can be equipped with Power switch and transmission modules for remote billing data readout. Exchangeable transmission modules and their transmission facilities assure the use of LAP-A1/485 meter among customers who expect remote billing data readout as well as TPA customers (free choice of energy supplier).

The meter fulfills requirements according to IEC 62056-61 norm and OBIS standard in case of local remote data readout, as well as the presentation of measuring results on LCD screen.

Basic functions

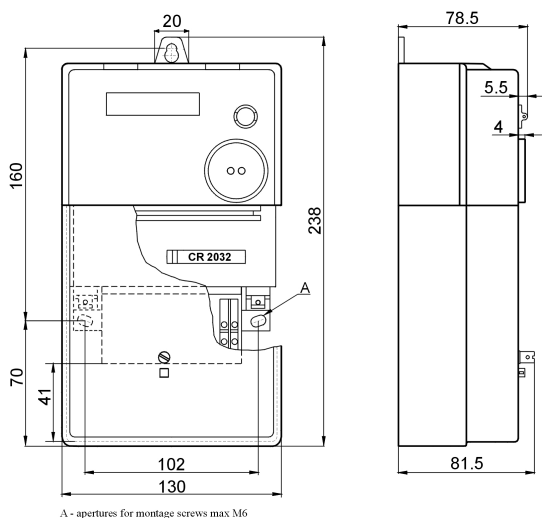
- Measurement and registration of energy in four tariffs. The tariffs can be set with 15 minutes resolution
- Measurement of maximum demand values registered applying 15 minutes integration period with the use of calculating algorithm applied in contemporary tariffs
- Registration of load profile applying 15 minutes integration period
- Registration of total energy register profile, measured in 15 minutes integration period
- Registration of load profile covering 280 days of measuring data (26 880 15-minute mean power values). Optionally the load profile registration can be extended up to 560 days

LAP-A1 meter has got an approval certificate granted by Central Office of Measures **PLT 067**. Meter fulfils requirements of European Directive 89/336/EEG and is given CE certificate.
 ALL FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE ACCORDING TO PRODUCTS IMPROVEMENTS.

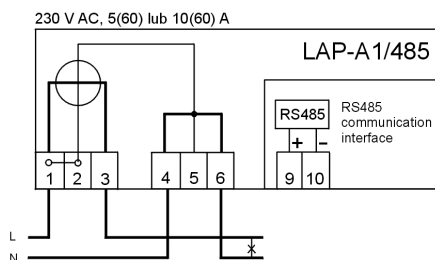
Technical data

Type	LAP-A1/485	
Accuracy	1 (acc. IEC 62053-21)	
Nominal voltage U_n	230 V AC	
Base current I_b	5 A	10 A
Maximum current I_{max}	60 A	
Starting current	< 20 mA	< 40 mA
Frequency	50 Hz	
Power consumption in voltage circuits	< 4 VA <1,5 W	
Power consumption in current circuits	< 0,05 VA	
Load profile registration	Integration period 15 minutes	
Energy counter registration	Energy registers stored with resolution 15 minutes	
Power switch (optional)	U = 230 V, I_{max} = 100 A	
Tariffication	4 tariffs	
RTC clock stability	Better than $\pm 0,5$ s / 24 h	
RTC (real time clock) battery supply	Lithium battery 3,6 V (Option: lithium battery type CR2032)	
Display	LCD display, 14x59 mm, height of digits 7 mm	
Counter capacity	999999,99 (option: 9999999,9 or 99999,999)	
Meter constant	2 400 imp. / kWh	
Communication interfaces	OPTICAL (acc. IEC 62056-21) (designated for local data readouts) RS485	
Electromagnetic compatibility (acc. IEC 61000-4 and IEC 62052-11)	Repetitive electrical fast transients – 4 kV; Surges caused by overvoltages - 4 kV; Static electricity discharges – 8 kV; Voltage failures and interruptions	
Housing	Polycarbonate PC, Protection Class: II, IP 54	
Operating temperature range	- 30 °C ... + 60 °C	
Maximum operating temperature range	- 34 °C ... + 60 °C	
Storage temperature range	- 40 °C ... + 70 °C	
Weight	~ 0,8 kg	
Dimensions	238 x 130 x 81,5 mm or 214 x 130 x 81,5 mm [height x width x depth]	
Notes	EU - 001531039-0001	

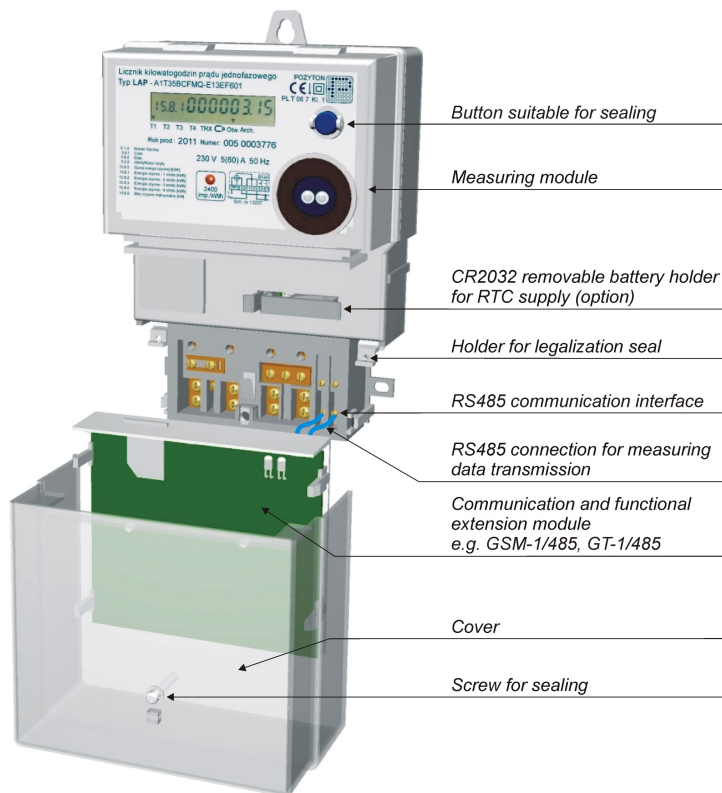
Construction of the meter assures resistance against influence of external magnetic fields caused by magnets with induction up to 150 mT, when measure is carry out at 30 mm distance from its surface.



Dimensions



Connection diagrams



LAP-A1/485 meter construction