



LABM ver. 4Q - single phase electricity meter for active and reactive energy measurement, (MID* certificate)



Application

LABM is a single phase electricity meter, designed for active and four quadrant reactive electric energy measurement in direct connected measuring systems. The meter is equipped with an internal real time clock (RTC), enabling a multi – tariff energy measurement. LABM is based on a module construction that enables reconfiguration to suit many different applications according to customer's requirements.

The meter may be equipped with power switch and transmission module for remote billing data readout. LABM fulfills requirements according to EN 62056-61 standard and OBIS standard in case of local remote data readout, as well as the presentation of measuring results on LCD screen.

Measuring functions

- Measurement and registration of active energy in four tariffs (export, import). Tariff structure is to be defined with 15-minutes step
- Measurement and registration of total active energy (export, import)
- Measurement and registration of reactive energy in four tariffs and in four quadrants: Q1, Q2, Q3, Q4. Tariff structure is to be defined with 15-minutes step
- Measurement and registration of total reactive energy: Q1, Q2, Q3, Q4
- Load profile registration for active and reactive four quadrants energy, applying 15, 30 or 60 minutes integration period. When the integration period is set to 15 minutes the load profiles covers 96 days (optionally 224 days)
- Measuring and registration of profile of energy registers EP+, EP-, EQ1, EQ2, EQ3, EQ4 applying 15, 30 or 60 minutes measuring period
- Measurement and registration of the 10 highest values of maximum demand for active energy (export, import)
- Measurement and registration of active power (P+) overconsumption due to contractual power value
- Number of contractual power value exceeded is also to be registered in the meter

- Measurement and registration of exceeded active power values P+, evaluated on the base of the 10 maximum demands due to contractual power value
- Automatic reset of billing period
- Manual reset of billing period (via optical interface or with the push button on meter front panel)
- Energy registers and maximum demand values are stored for 31 billing periods
- Registration of meter controlling functions
- LCD screen scrolling using push button placed on the front panel of the meter
- LCD automatic screen sequence freely defined by the user

Controlling functions

- Measuring and presentation of instantaneous voltage, current, power and frequency
- Signaling and registration of events like: opening the terminal block cover, acting to the meter with strong magnetic field
- Registration of voltage failures
- Identification of tariff programmed into the meter
- Relay output for controlling external devices (option)
- Remote readout of billing data using PSTN/GSM/GPRS. Available when meter equipped with GSM-1, GSM-1/485, GT-1 or GT-1/485 communication, module that gives possibility of:
 - Individual metering data readout using mobile phone
 - Remote metering data acquisition by SOLEN or SKADEN or "Automatyczny Inkasent" systems

Communication interfaces

In standard configuration LABM is equipped with 2 communication interfaces:

- 1) OPTICAL interface, according to EN 62056-21, designed for parameterization and configuration of the meter and for local measuring data readout in case of billing and diagnostic needs (with possibility of locking of the switch that is available under terminal cover)
- 2) OPTICAL interface, for connection with communication module (the communication module may be installed under the terminal cover) or RS485.

Additional functions

In standard configuration LABM is equipped with a battery supply system that enables readout of metering data billing values from LCD display in case of voltage failure. LABM is equipped with an exchangeable battery for supplying of internal real time clock (RTC). Both batteries located under the cover of terminal block can be easily replaced, with no need to break the legalization seals.

LABM is equipped with a switch that is used for locking of remote configuration. The switch is available under the cover of terminal block. LABM is equipped with the power switch, allowing switch on/off power supply of the energy consumer (option). The control of the power switch is to be performed via the smart communication module. All necessary billing data is registered in a non-volatile memory (Flash and FRAM), which doesn't require battery 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.

* **MID** - *Measuring Instruments Directive*

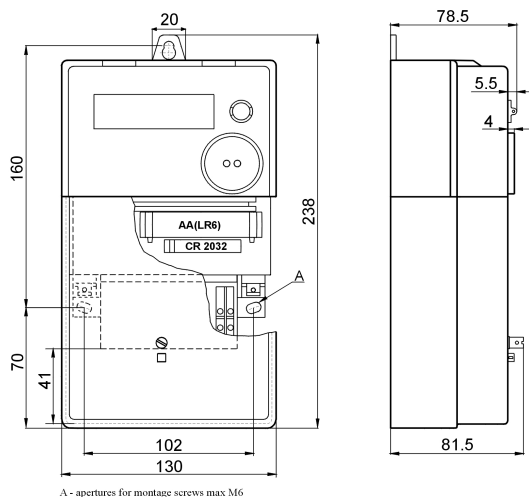
The meter has an EC - Type Examination Certificate number **TCM 221/14 - 5136** and is the subject to conformity assessment according to EU MID Directive and can be submitted to secondary legalization.

ALL FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE ACCORDING TO PRODUCTS IMPROVEMENTS.

Basic technical data

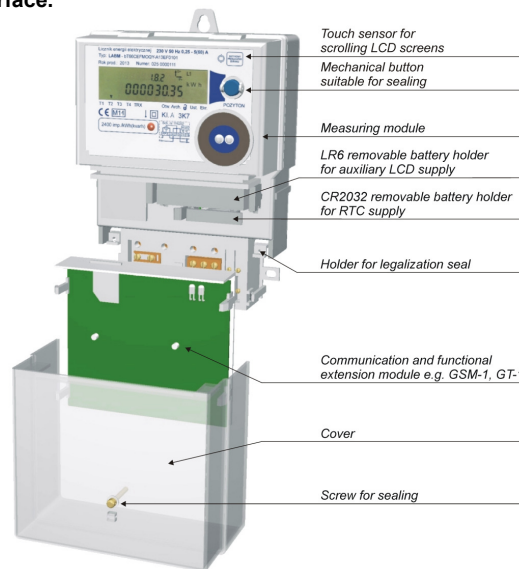
Type		LABM
Accuracy	active energy (P)	2 or 1 - EN 62053-21 A or B - EN 50470-3
	reactive energy (Q)	1 - EN 62053-24 and ZN/LB/T/08/11
Nominal voltage U_n		230 V AC
Reference current I_{ref}		5 A
Maximum current I_{max}		60 A
Starting current I_{st} / Minimum current I_{min}		20 mA / 250 mA
Transitional current I_{tr}		500 mA
Frequency		50 Hz
Power consumption in voltage circuits		< 16,2 VA <1,2 W (standard) < 16,2 VA < 2,3 W (with RS485)
Power consumption in current circuits		< 0,05 VA
Battery supply (for reading out the display without voltage supply)		Battery type: LR6 (AA), $U_n = 1,5 V$
Load profile registration		Integration period 15, 30 or 60 minutes
Energy profile		Energy registers stored with resolution 15, 30 or 60 minutes
Relay output (optional)		Maximum load of relay contacts 30 VA, $U_{max} = 280 V AC$ or $24 V DC$
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, type CR2032, 10 years of life time
Display		LCD display, 23x79 mm, height of digits 8 mm, back lighted (option)
Counter capacity		999999,99 (option: 9999999,9 or 99999,999)
Meter constant		2 400 imp. / kWh (kvarh)
Communication interfaces		External: OPTICAL (acc. EN 62056-21) (designated for local data readout) Internal: OPTICAL (designed for operating with communication and functional extension modules) or RS485
Remote time synchronization code		Active or inactive
Electromagnetic compatibility (acc. EN 61000-4 and EN 50470-1)		Repetitive electrical fast transients – 4 kV; Surges caused by overvoltages - 4 kV; Static electricity discharges – 8 kV; Voltage failures and interruptions
Housing		Polycarbonate PC, ABS, Protection Class: II, IP 54
Specified operating range (EN 60721-3-3 Table 1)		- 40 °C ... + 70 °C (class 3K7) – LCD - 35 °C ... + 70 °C
Limit range of operation (EN 60721-3-3 Table 1)		- 40 °C ... + 70 °C (class 3K7) – LCD - 35 °C ... + 70 °C
Limit range for storage (EN 60721-3-1 Table 1)		- 40 °C ... + 70 °C (class 1K5)
Limit range for transportation (EN 60721-3-2 Table 1)		- 40 °C ... + 70 °C (class 2K4)
Weight		~ 0,89 kg (standard) ~ 0,96 kg (with RS485)
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.



A - apertures for montage screws max M6

Dimensions



LABM meter construction

