



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



Application

EABM is a three phase electricity meter, designed for active and four quadrant reactive electric energy measurement in direct and transformer connected measuring systems. The meter is equipped with an internal real time clock (RTC), enabling a multi – tariff energy measurement. EABM 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 a transmission module for remote billing data readout. EABM 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)
- 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
- Measurement and registration of total reactive energy: Q1, Q2, Q3, Q4
- Measurement and registration of losses U^2t and I^2t
- 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
- Signalling and registration of events like: opening the terminal block cover, acting to the meter with strong magnetic field
- Registration of voltage failures
- Signalling of incorrect phase sequence
- 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-3 or GT-3 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 EABM is equipped with 3 communication interfaces:

- 1) OPTICAL interface, according to EN 62056-21, designed for parametrization 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) RS485 or CLO (current loop) interface
- 3) OPTICAL interface used for operating with communication modules

Additional functions

In standard configuration EABM is equipped with a battery supply system that enables readout of metering data billing values from LCD display in case of voltage failure. EABM 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. EABM is equipped with a switch that is used for locking of remote configuration. The switch is available under the cover of terminal block. All necessary billing data is registered in a non-volatile memory (Flash and FRAM), which doesn't require battery supply.

Parametrization 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*

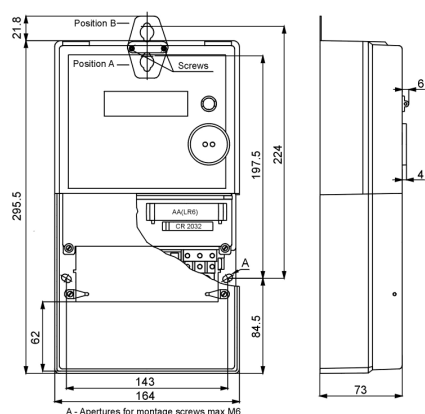
The meter has an EC - Type Examination Certificate number **TCM 221/10 - 4731** and is the subject to conformity assessment according to EU MID Directive and can be submitted to secondary legalization.

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

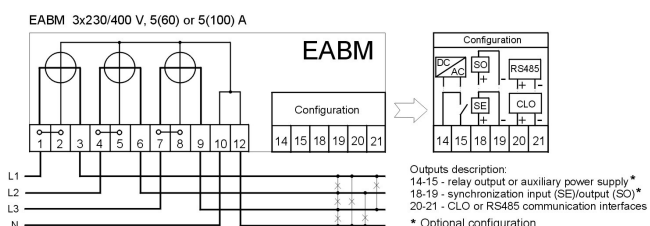
Basic technical data

Type		EABM					
Accuracy	active energy (P)	2 - EN 62053-21 A - EN 50470-3			1 - EN 62053-21 B - EN 50470-3		
	reactive energy (Q)	1 - EN 62053-24			0,5 S - EN 62053-24		
		0,5 - ZN/LB/T/08/11					
Nominal voltage U_n		3x230/400 V AC			3x57,7/100 V AC		
Reference current I_{ref}		5 A			5 A		
Maximum current I_{max}		60 A	100 A	6 A	10 A	6 A	10 A
Starting current I_{st} / Minimum current I_{min}		20 mA / 150 mA			5 mA / 50 mA		
Transitional current I_{tr}		500 mA			250 mA		
Frequency		50 Hz					
Power consumption in voltage circuits		< 1,8 VA < 1 W per phase			< 1,8 VA < 1 W per phase		
Power consumption in voltage circuits, when meter supplied from auxiliary power supply		< 1,5 VA < 0,8 W per phase			< 1,5 VA < 0,8 W per phase		
Power consumption in current circuits		< 0,01 VA per phase			< 0,03 VA per phase		
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					
Synchronization input or output (optional)		Transoptor, negative or positive pulse with duration time 50 ms $U_{nom} = 24 V DC$, $U_{max} = 38 V DC$, $I_{nom} = 10 mA$, $I_{max} = 20 mA$					
Remote time synchronization code		Active or inactive					
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					
Counter capacity		999999,99		99999,999		9999,9999	
Meter constant		800 imp. / kWh (kvarh)		4 000 imp. / kWh (kvarh)		10 000 imp. / kWh (kvarh)	
Auxiliary power supply (optional)		80 – 230 V AC, 120 – 320 V DC Power consumption of auxiliary power supply < 4,5 VA					
Communication interfaces		Two external: OPTICAL (acc. EN 62056-21) and RS485 or CLO Internal: OPTICAL designed for operating with communication and functional extension modules					
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, 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		~ 2,2 kg			~ 1,7 kg		
Notes		EU - 001531039-0001					

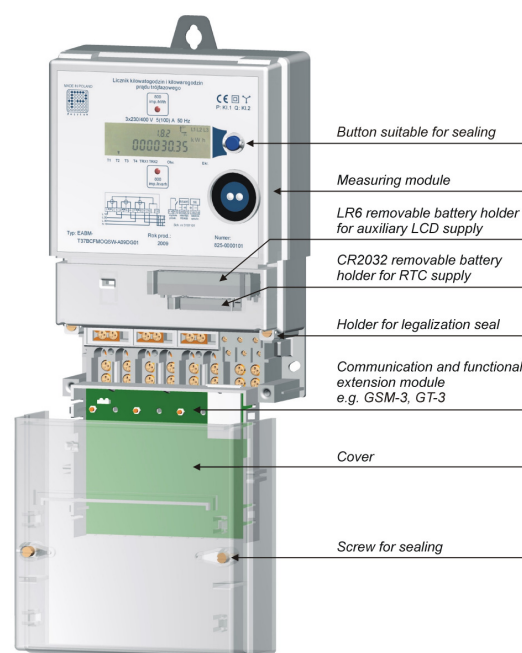
Construction of the meter assures resistance against influence of external magnetic fields caused by magnets with induction up to 150 mT, when measure is carry out at 30 mm distance from its surface.



Dimensions



Connection diagram for EABM meter, 3x230/400 V, 5(60) or 5(100) A



EABM meter construction