



sEAB - three phase electricity meter for active and reactive energy measurement designed for installation on the standard rail (TH-35), (MID* certificate)



Application

sEAB is a multi-tariff, electricity meter, designed for bi-directional direct and transformer measurements of active and reactive energy in 3 or 4-wire power network.

Meter housing is designed for installation on standard TH-35 rail.

According to metrological, functional and installation features, sEAB meter is recommended for commercial energy consumers, shopping centers, industrial measuring application and management systems with remote metering data acquisition.

Measuring functions

- Measurement and registration of active and reactive energy in four tariffs in both directions: P+, P-, Q+, Q-
- Measurement of active and reactive power in both directions applying 15, 30 or 60 minutes integration period
- Measurement and registration of three highest average active powers in both directions (so called maximum demand values)
- Measurement and registration of active power overconsumption due to contractual power value
- Number of contractual power value exceeded is also to be registered in the meter
- Measurement and registration of reactive energy excess for the first measurement quadrant
- Measurement of instantaneous values: P, Q, I, U, f
- Measurement and presentation of actual active and reactive growing average powers with period minute indication for import and export direction
- Registration of load profile (P+, P-, Q+, Q) and total energy registers values (EP+, EP-, EQ+, EQ-) applying 15, 30 or 60 minutes integration period. In a special version the meter registers of profiles in a 1 minute integration period.

- In a standard version of meter registration of 13440 mean power values. When the integration period is set to 15 minutes the load profile registration has capacity to store 140 days of measuring data
- Signalling and registration of measurement voltage failures
- Signalling of opposite phase rotation
- Registration and storage of billing values from last 12 billing periods
- Automatic billing period reset according to programmed schedule
- Manual billing period reset using utility software and optical head

When billing period reset was made, meter stores in its memory following data: active and reactive energy registers in tariffs for import and export, maximum demand values, number of contractual power value exceeded, active power overconsumption due to contractual power value, value of reactive energy excess in the first measurement quadrant.

Communication interfaces

In a standard configuration sEAB is equipped with optical interface (acc. to EN 62056-21). Optionally the meter can be equipped with one of the following interfaces: RS485 (acc. EN 62056-21 or Modbus-RTU), current loop (CLO) or M-Bus. Specification of available interfaces and load profile registration capabilities depending on the meter's version is specified in the user manual.

Additional functions

sEAB meter is equipped with real time clock and automatic calendar function that enables automatic change over between winter and daylight time. All measured values are registered and stored in non-volatile memories FRAM and Flash which do not require additional battery. Review of individual display screens can be done in automatic mode or manually: touch sensor or sequence light switch. The meter is equipped with galvanic separation between measuring, analog-digital and communication circuits.

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.

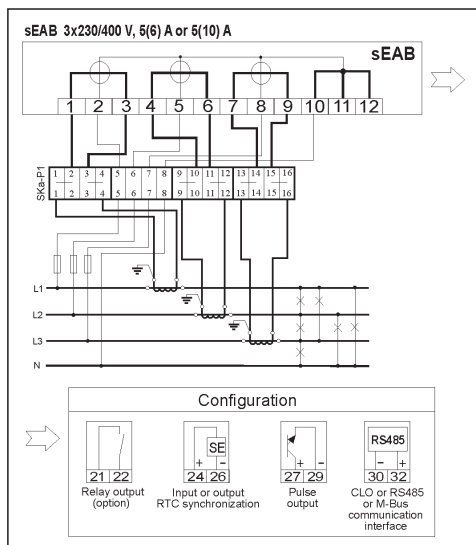
* **MID - Measuring Instruments Directive**

The meter has an EU - Type Examination Certificate number **TCM 221/12 - 4925** 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.

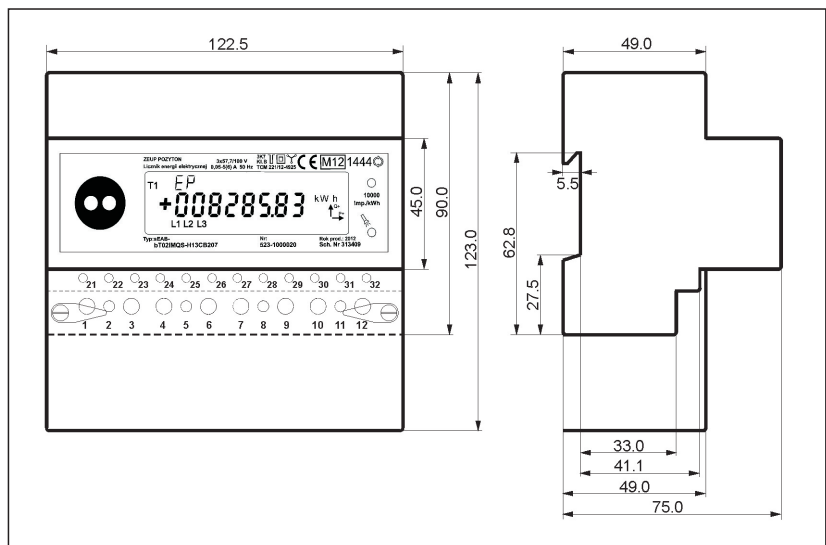
Basic technical data

Type	sEAB			
Measuring system	Direct	Transformer		Transformer
Accuracy	active energy (P)	1 - EN 62053-21 B - EN 50470-3		
	reactive energy (Q)	1 - EN 62053-24 and ZN/LB/T/08/11		
Nominal voltage U_n	3 x 230/400 V		3 x 57,7/100 V	3 x 100 V
Reference current I_{ref}	5 A	5 A	5 A	5 A
Maximum current I_{max}	60 A	6 A	10 A	6 A 10 A
Starting current I_{st} / Minimum current I_{min}	20 mA / 250 mA		10 mA / 50 mA	
Transitional current I_{tr}	500 mA		250 mA	
Frequency	50 Hz			
Power consumption in voltage circuits	< 1,8 VA < 0,9 W per phase		< 0,9 VA < 0,6 W per phase	< 1,8 VA < 1 W per phase
Power consumption in current circuits	< 0,02 VA per phase			
Tariffication	4 tariffs			
RTC (real time clock) battery supply	Lithium battery: 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)	
Pulse output constant	800 imp./kWh (kvarh)	4 000 imp./kWh (kvarh)	10 000 imp./kWh (kvarh)	
Communication interfaces	OPTICAL (acc. EN 62056-21), Rs485 (acc. EN 62056-21 or Modbus-RTU) or CLO or M-Bus			
Pulse output	Transoptor, open collector type, negative pulse with duration time 50 ms $U_{nom}=24$ V DC, $U_{max}=38$ V DC, $I_{nom}=10$ mA, $I_{max}=20$ mA Functionality: pulse output of active or reactive energy (configuration programmable)			
Synchronization input or output	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			
Relay output (optional)	Maximum load of relay contacts 150 VA AC, 30 W DC $U_{max}=250$ V AC, 24 V DC			
Electromagnetic compatibility	acc. EN 61000-4 and EN 50470-1			
Housing	ABS, Protection Class: II, IP 51			
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	~0,6 kg			

Exemplary connection diagram



Dimensions



When ordering give us following information: voltage and current of measurement system, tariff, demand values and load profile integration periods, the way of billing period reset, optional equipment (e.g. RS485 (acc. EN 62056-21 or Modbus-RTU) or CLO or M-Bus, relay output, input synchronization) and status of remote time synchronization code.