

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



Application

sLAB is a single phase electricity meter designed for, bidirectional active and reactive energy measurements in direct measurement system. Housing of the meter has been designed for installation on standard TH-35 rail. Because of its metrological functionality and installation features, sLAB meter is recommended to be used in energy measurement system for commercial energy consumers, shopping centers, industrial measuring application and energy management systems with remote metering data acquisition.

Measuring functions

- Measurement and registration of active and reactive energy in four tariffs for import and export directions
- Measurement and registration of total active and reactive energy for import and export directions
- Measurement of active and reactive power in both directions applying 15, 30 or 60 minutes integration period
- Measurement and registration of three highest maximum demand values for import and export directions
- Measurement and registration of overconsumption of active power due to contractual power value
- Registration of number of exceedances with respect to predefined demand power value
- Measurement and registration of reactive energy surplus for the first measuring quadrant
- Measurement of instantaneous values: P, Q, I, U, f
- Measurement and presentation of current active and reactive average power values with time indication of integration period for import and export direction

- Registration of load profile in four channels P+, P-, Q+, Q- applying 15, 30 or 60 minutes integration period
- Registration of 33 600 mean power values. When the integration period is set to 15 minutes the load profile registration has capacity to store 350 days of measuring data
- Registration of measurement voltage failures
- Registration and storage of billing values for last 12 billing periods
- Automatic reset of billing period according to programmed time schedule
- Manual reset of billing period using software tool and optical head

When the billing period reset is made, meter stores in its memory following data: active and reactive energy tariff registers for import and export, maximum demand values, number of exceedances predefined demand power value, value of overconsumption of active power due to contractual demand power value, reactive energy surplus for the first measuring quadrant.

Communication interfaces

In a standard configuration sLAB is equipped with optical interface (acc. to EN 62056-21) with ability of locking via switch situated under the terminal box. sLAB depending of customer requirements can be optionally equipped with following interfaces: RS485 or current loop (CLO) or M-Bus interfaces.

Additional functions

sLAB 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. Overview of measured values on the LCD screens is performed automatically or manually using touch sensor.

The meter is equipped with galvanic separation between measuring, analog-digital and communication circuits.

Parameterization and configuration

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

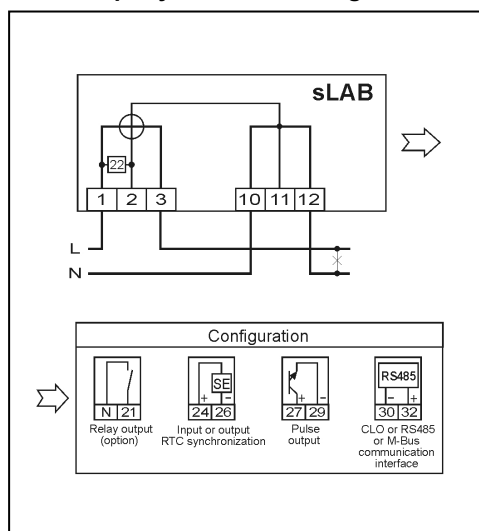
* **MID** - *Measuring Instruments Directive*

The meter has an EC - Type Examination Certificate number **TCM 221/14 - 5142** 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.

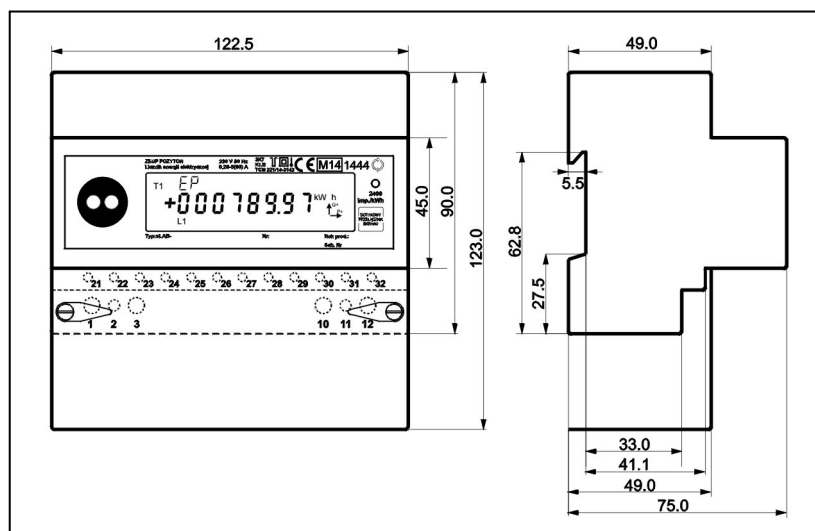
Basic technical data

Type		sLAB
Measuring system		Direct
Accuracy	active energy (P)	1 - EN 62053-21 B - EN 50470-3
	reactive energy (Q)	2 - EN 62053-23 1 - ZN/LB/T/08/11
Nominal voltage U_n		230 V
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		< 5,4 VA < 2,7 W
Power consumption in current circuits		< 0,02 VA
Tariffication		4
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
Meter constant		2 400 imp./kWh (kvarh)
Pulse output constant		2 400 imp./kWh (kvarh)
Communication interfaces		OPTICAL (acc. EN 62056-21), RS485 or CLO or M-Bus
Pulse output		Transistor, open collector type, negative pulse with duration time 50 ms $U_{nom}=24\text{ V DC}$, $U_{max}=38\text{ V DC}$, $I_{nom}=10\text{ mA}$, $I_{max}=20\text{ mA}$ Functionality: pulse output of active or reactive energy (configuration programmable)
Synchronization input or output		Transistor, negative or positive pulse with duration time 50 ms $U_{nom}=24\text{ V DC}$, $U_{max}=38\text{ V DC}$, $I_{nom}=10\text{ mA}$, $I_{max}=20\text{ mA}$
Remote time synchronization code		Active or inactive
Relay output (optional)		Maximum load of relay contacts 150 VA AC, 30 W DC $U_{max}=250\text{ V AC, 24 V DC}$
Electromagnetic compatibility (acc. EN 61000-4, 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		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: tariff, demand values and load profile integration periods, the way of billing period reset, optional equipment (e.g. CLO or RS485 or M-Bus, relay output, input synchronization) and status of remote time synchronization code.