EAP - three phase electricity meter for active energy measurement

Application

EAP – is the programmable, three phase electricity meter, designed for active energy measurement in direct and transformer measuring systems.

Measuring function

The meter is equipped with a real time clock (RTC), enabling a multi – tariff energy measurement and automatic change-over between winter and daylight time. All the metering data that is necessary to make proper settlement of energy consumption can be read directly from the LCD display. The meter allows for an overview of billing data (energy and maximum demand registers) for the last 12 months. Billing period upon the user requirements may be reset automatically (on the specific day of the month) or manually by utility worker. The meter enables load profile registration applying 15, 30 or 60 minutes integration period. When the integration period is set for 15 minutes, the load profile registration has capacity to store 560 days of data. All measured values are registered and stored in a non–volatile memory EEPROM & Flash that doesn't require battery supply. Upon the customer requirements the billing period can be reset manually or automatically at the specific day of the month, according to tariff regulations.

Advantages

The EAP gives its user the possibility of providing precise energy measurement for a reliable billing. The meter has been designed with high durability housing with shatterproof cover. The housing guarantees perfect readability even after many years of service under the toughest conditions. The EAP meter utilizes a standard lithium battery. The battery is factory installed and it doesn't require any replacement over the service life of the meter. The EAP meter may be optionally equipped with antifraud device that protects the meter against tampering. If the meter is tempered with (i.e. the cover is opened) the data is registered and stored in the memory with a time stamp. To ensure wide range of application for various tariff requirements, the configuration software SOLEN may be supplied. Using this software, running on Windows based PC, tariff structures can be programmed into the meters by utility workers.

Measuring data presentation

The meter is equipped with a specially designed LCD. The default LCD screen of the meter shows the current tariff energy register value [kWh] and a momentary power value [kW]. In a manual mode LCD screen are scrolled by sensor on the front panel of meter. When measuring data presentation is set to automatic mode, predefined sequence of screens is scrolled automatically on the LCD. Voltage measuring indicators L1, L2, L3 are shown on the LCD as well.

Read out of measuring data

Optionally EAP meter can be provided with following interfaces: standard optical interface RS232 on the front panel of the meter, RS485 or CLO (current loop output) interface. EAP is equipped with OC (open collector) type pulse output available under the cover of terminal blocks. Pulse output represents energy that is measured by the meter. The bi-directional optical communications port RS232 allows downloading tariff program or local read out of measuring data. This communication interface allows the meter to be used in various data reading systems with a wide range of transmission platforms. Meter's configuration and parameterisation is to be done by tool software SOLEN. The Software can also be used for measuring data presentation.

EAP meter has got an approval certificate granted by Central Office of Measures **RP T 99 191**.
This meter fulfils requirements of European Directive 89/336/EWG and is given CE certificate.

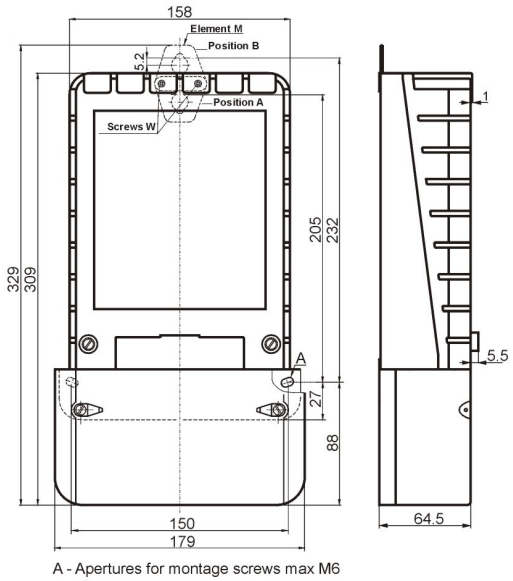
ALL FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE ACCORDING TO PRODUCTS IMPROVEMENTS.

Basic technical data

Type	**EAP**				
Measuring system	Direct			Transformer	Transformer
Accuracy	**1** (acc. IEC 62053-21)				
Nominal voltage U_n	**3 x 230/400 V AC**				**3 x 58/100 V AC**
Base current I_b	**10 A**	**5 A**	**20 A**		
Nominal current I_n				**5 A**	
Maximum current I_{max}	**60 A**	**100 A**		**6 A**	
Starting current	**< 40 mA**	**< 20 mA**	**< 80 mA**	**< 10 mA**	**< 10 mA**
Power consumption in voltage circuits	< **5 VA** and < **2 W** / phase				< **1 VA** and < **1 W** / phase
Power consumption in current circuits	**< 0,05 VA** / phase				
Frequency	**50 Hz**				
Tariffication	**4 tariffs**				
RTC (real time clock) battery supply	Lithium battery, life time - 10 years				
Display	**LCD** display, **23x79** mm, digits height - **8 mm**				
Counter capacity	**999999,9**			**99999,99**	**9999,999**
Meter constant	**600 imp. / kWh**	**400 imp. / kWh**	**300 imp. / kWh**	**3 000 imp. / kWh**	**10 000 imp. / kWh or 30 000 imp / kWh**
Pulse output constant	**600 imp. / kWh**	**400 imp. / kWh**	**300 imp. / kWh**	**3 000 imp. / kWh**	**10 000 imp. / kWh or 30 000 imp / kWh**
Communication interfaces	**OPTICAL** (acc. to IEC 62056-21) Option: **CLO** or **RS485** interface available under the cover of terminal block				
Pulse output	Transoptor, open collector type, 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)**				
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)**				
Relay output (optional)	Maximum load of relay contacts **30 VA, U_{max}= 280 V AC** or **24 V DC**				
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 51**				
Operating temperature range	**- 30 °C ... + 60 °C**				
Maximum operating temperature range	**- 34 °C ... + 60 °C**				
Storage temperature range	**- 40 °C ... + 70 °C**				
Weight	**~1,8 kg**	**~2,0 kg**		**~1,63 kg**	**~1,58 kg**

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

Dimensions



A - Apertures for montage screws max M6

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