

EQABP - electronic three phase electricity meter for active and reactive energy measurement (ver. standard, 2 interfaces)



Application

EQABP is a multi-tariff, four-quadrant electricity meter, designed for bi-directional direct and transformer measurements of electrical energy in 3 or 4-wire power network.

Measuring functions

- Measurement and registration of active and reactive energy in four tariffs in both directions
- Measurement and registration of total active, reactive and apparent energy in both directions: P+, P-, Q+, Q-, S+, S-
- Measurement and registration of losses U^2t and I^2t
- Measurement of active 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)
- Presentation on LCD display of one highest average active power in both directions
- 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, S, 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 in four canals P+, P-, Q+, Q- applying 15, 30 or 60 minutes integration period

- Registration of 26 880 profile periods. When the integration period is set for 15 minutes the load profile registration has capacity to store 280 days of data
- Signalling and registration of measurement voltage failures
- Signalling of opposite phase rotation
- Registration and storage of billing values from last 12 billing periods
- Registration and storage of so called „event log”

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, state of registers U^2t and I^2t , apparent energy registers for import and export.

Additional functions

EQABP meter can be supplied either from measuring voltage or external auxiliary voltage. Measured and registered values are presented on meter LCD display. Review of individual display screens can be done in automatic mode or using the sensor. There is possibility to equip the meter with the mechanical sequence switch, which is placed on the right side of meter housing. In automatic mode, sequence and display time of particular screens can be configured by the user. It can contain data from actual and previous billing period.

EQABP gives possibility of manual or automatic billing period reset. In manual mode, reset can be done by using torch pen or by optical interface using utility software (eg. SOLEN) installed on the portable computer. Communication between meter optical interface and computer is performed using optical head USB/OPTO or RS232/OPTO. In automatic mode, reset can be done up to five times in month in defined month days. This feature gives the possibility to use ten days billing period for selected customers.

The meter is equipped with automatic calendar function that enables automatic change over between winter and daylight time.

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

Communication interfaces

In standard configuration EQABP is equipped with optical interface (acc. to IEC 62056-21) and with current loop (CLO) or RS485 interface.

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.

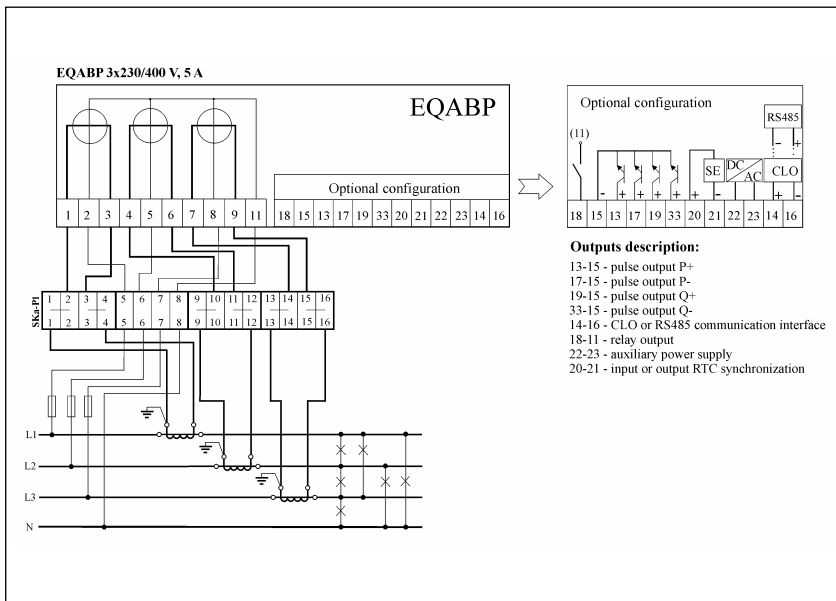
EQABP meter has got an approval certificate granted by Central Office of Measures **PLT 04 8**. EQABP fulfils requirements of European Directive 89/336/EWG and is given CE certificate.

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

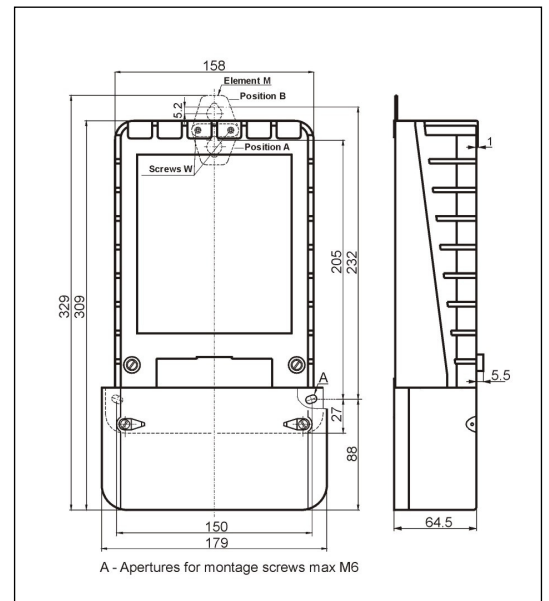
Basic technical data

Type	EQABP													
Measuring system	Direct				Transformer				Transformer					
Accuracy	P: 1 - IEC 62053-21 Q: 2 - IEC 62053-23				P: 1 - IEC 62053-22 Q: 2 - IEC 62053-23 and Q: 0,5 - ZN/LB/T/08/11				P: 1 - IEC 62053-21 Q: 2 - IEC 62053-23 and Q: 0,5 - ZN/LB/T/08/11					
Nominal voltage U_n	3 x 230/400 V AC								3 x 58/100 V AC					
Base current I_b	5 A				10 A									
Nominal current I_n					1 A	5 A	1 A	2 A	5 A	1 A	5 A	1 A	2 A	5 A
Maximum current I_{max}	60 A	100 A	60 A	100 A	2 A	10 A	1,2 A	2,4 A	6 A	2 A	10 A	1,2 A	2,4 A	6 A
Power consumption in voltage circuits	< 1,7 VA per phase				< 1,5 VA per phase				< 1,1 VA per phase					
Power consumption in voltage circuits, when meter supplied from auxiliary power supply	-				< 0,3 VA per phase				< 0,05 VA per phase					
Power consumption in current circuits	< 0,03 VA per phase													
Frequency	50 Hz													
Operational frequency range	49 – 51 Hz													
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	999999,9				99999,99				9999,999					
Auxiliary power supply (optional)	-				80 – 230 V AC, 120 – 320 V DC Power consumption of auxiliary power supply < 4 VA									
Communication interfaces	OPTICAL (acc. IEC 62056-21) and CLO or RS485													
Pulse output	Transoptor, open collector type, negative or positive pulse with duration time 50 ms $U_{nom}=24\text{ V DC}$ ($U_{max}=38\text{ V DC}$), $I_{nom}=10\text{ mA}$ ($I_{max}=20\text{ mA}$), Pulse output constant – according to order													
Synchronization input or output (optional)	Transoptor, negative or positive pulse with duration time 50 ms $U_{nom}=24\text{ V DC}$ ($U_{max}=38\text{ V DC}$), $I_{nom}=10\text{ mA}$ ($I_{max}=20\text{ mA}$)													
Relay output (optional)	Maximum load of relay contacts 30 VA, $U_{max}=280\text{ V AC}$ or 24 V DC													
Electromagnetic compatibility (acc. IEC 61000-4, 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 ~1,8 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.



Exemplary connection diagram



Note: Connection diagrams are available on our web site <http://www.pozyton.com.pl> in section "Dla projektantów".

When ordering give us following information: meter accuracy class, voltage and current of measurement system, tariff, demand values and load profile integration periods, the way of billing period reset, optional equipment (e.g. CLO or RS485, relay output, synchronization input, auxiliary power supply).