EQABP - electronic three phase electricity meter for active and reactive energy measurement (ver. OBIS, 3 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 total reactive energy in four measurement quadrants: Q1, Q2, Q3, Q4
- Measurement and registration of losses U^2t and I^2t
- Measurement and registration of reactive energy excess for the first measurement quadrant
- Measurement of active power in both directions applying 1, 15, 30 or 60 minutes integration period
- Measurement and registration of 10 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
- Registration of exceeded active power values, evaluated on the base of the 10 maximum demands due to contractual power value
- Measurement and presentation of actual active and reactive growing average powers with period minute indication for import and export direction
- Measurement of instantaneous values: P, Q, S, I, U, f, tgφ
- Registration of load profile: P+, P-, Q+, Q- and total energy register states: EP+, EP-, EQ+, EQ- applying 1, 15, 30 or 60 minutes integration period
- Registration of 35 790 profile periods. When the integration period is set for 15 minutes the load profile registration has capacity to store 372 days of data
- Signalling and registration of measurement voltage failures
- Signalling of opposite phase rotation
- Identification of tariff programmed into the meter
- Data presentation in OBIS standard according to IEC 62056-61
- Registration and storage of billing values from last 12 billing periods
- Registration and storage of so called „event log”

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. 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.
EQABP meter can be equipped with relay output, which is used to control external devices. Relay function is to be configured due to customer requirement e.g. signaling of power overconsumption referring to contractual power value.
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 designated for programming and local data readouts.
Under the terminal block cover, depending on ordered meter configuration, meter EQABP can be equipped with two independent communication interfaces RS485 and CLO (current loop). It gives two independent ways of cummunication for readout systems.

Parametrization and configuration

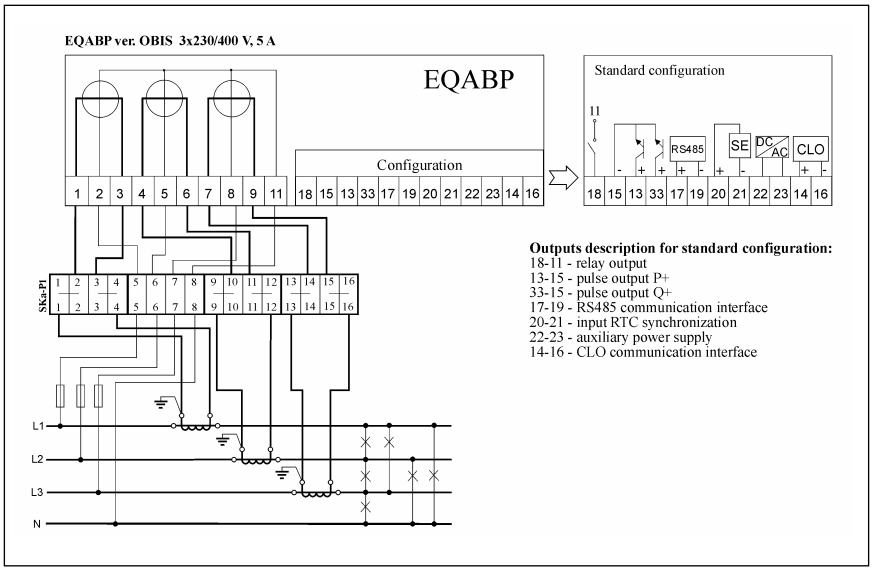
All operations in connection with downloading of tariffs parameters, tariff structure and the way the billing period is to be reset, as well as display operating modes are to be performed using specially designed software tool SOLEN.

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.

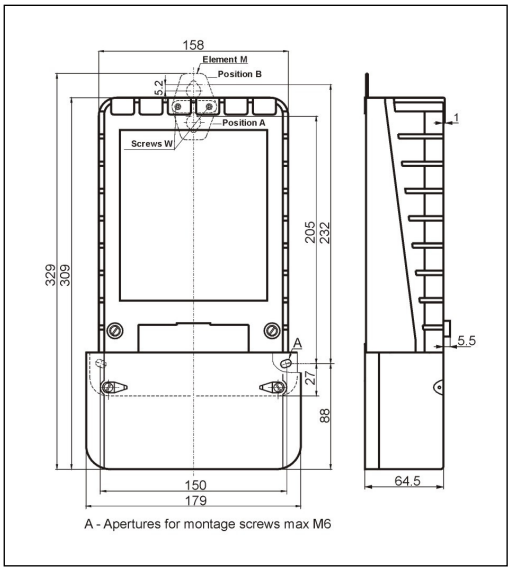
Basic technical data

Type	**EQABP**														
Measuring system	Direct				Transformer					Transformer					
Accuracy	**P: 1** - IEC 62053-21 **Q: 2** - IEC 62053-23				**P: 1** - IEC 62053-21 **Q: 2** - IEC 62053-23		**P: 0,2** - IEC 62053-22 **Q: 2** - IEC 62053-23 and **Q: 0,5** - ZN/LB/T/08/11 **P: 0,5** - IEC 62053-22 **Q: 2** - IEC 62053-23 and **Q: 1** - ZN/LB/T/08/11			**P: 1** - IEC 62053-21 **Q: 2** - IEC 62053-23		**P: 0,2** - IEC 62053-22 **Q: 2** - IEC 62053-23 and **Q: 0,5** - ZN/LB/T/08/11 **P: 0,5** - IEC 62053-22 **Q: 2** - IEC 62053-23 and **Q: 1** - 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				**< 2 VA** per phase										
Power consumption in voltage circuits, when meter supplied from auxiliary power supply	**< 0,7 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**														
Counter capacity	**999999,99**				**99999,999**					**9999,9999**					
Auxiliary power supply	**80 – 230 V AC, 120 – 320 V DC** Power consumption of auxiliary power supply **< 9 VA**														
Communication interfaces	**Standard equipment: OPTICAL** (acc. IEC 62056-21) and **CLO** or **RS485** **Optional: CLO or RS485**														
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)** Pulse output constant – according to order														
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)**														
Relay output	Maximum load of relay contacts **30 VA**, **U_{max}= 280 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



Dimensions

Note: Conection diagrams and available meter configurations 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).

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