





BM.21 - BM.22 - BM.31 - BM.32
Single Phase Active Electronic Electricity Meters
User Manual

BAYLAN ÖLÇÜ ALETLERİ SAN. VE TİC. A.S.

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IMPORTANT POINTS AND SAFETY

- Wiring the meter up to the network must be done by the person who has knowledge about both technical and safety warnings.
- The meter parts which are carrying voltage must not be touched for any reasons, electricity must be cut off while both wiring on and wiring off to the network.
- The outer surface of the meter must not be cleaned with cleaning agents containing abrasives.
- The suitability of the meter type to be installed should be checked by authorised personnel. Otherwise, your meter will be damaged due to incorrect meter selection and connection. The meters in this case are out of guarantee.
- Calibration and programming of the meter are done during manufacturing. Marketing is provided after each meter quality check. There is no maintenance or programming that the user can do.
- BAYLAN Electronic Electricity Meters are a superior technology product in compliance with world standards. All technical information and documents are in the company's own Intellectual properties and copyright's.

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TECHNICAL SPECIFICATIONS

Model Name	BM.21	BM.22	BM.31	BM.32	
Meter Type	1Phase, 2 Wire Import	1Phase, 2 Wire Import	1Phase, 2 Wire Import-Export	1Phase, 2 Wire Import-Export	
Accuracy Class	Active Class C	Active Class C Reactive Class 2	Active Class C	Active Class C Reactive Class 2	
Meter Constant	1000 imp/kWh	1000 imp/kWh 1000 imp/kVArh	1000 imp/kWh	1000 imp/kWh 1000 imp/kVArh	
Load Profile	4 Channel 180 Days (15 Min.)	17 Channel 180 Days (15 Min.)	5 Channel 180 Days (15 Min.)	29 Channel 180 Days (15 Min.)	
Connection Type		Dir	ect	, , , , , , , , , , , , , , , , , , , ,	
Nominal Voltage (Un)	230V				
Operating Voltage Range	[0,8Un, 1,15Un]				
Reference Frequency	50 Hz ±%5				
Starting Current (Ist)	20 mA				
Minimum Current (Imin)	0,15 A				
Transitional Current (Itr)	0,5 A				
Nominal Current (In)	5 A				
Maximum Current (Imax)	100 A				
IP Rating	IP54 (Outdoor)				
Protective Class	Two (2)				
Humidity Ratio	Max. %95				
Operating Temperature	-40 °C, +70 °C (3K7)				
Mechanical Environment Class	M1				
Electromagnetic Environment Class	E2				
Voltage Circuit Power Consumption	<1W, 2VA				
Current Circuit Power Consumption	< 4 VA				
Electrostatic Discharges	Contact discharge 8kV, air discharge 15kV				
Impulse Voltage	6 kV				
LCD Display	6+3, With Backlight				
Communication	Optical and RS485 (300-19200 Baud) (EN 62056-21)				
Battery Life	≥ 10 years / 4 years				
RTC Accuracy	< 0,5sec/day (EN 62054-21)				
Standard	EN 50470-1, EN 50470-3, EN 62053-23				

GENERAL FEATURES

- Eight different time zones can be set during the day and saved in one of four different tariffs. It is possible to create different time zones and different tariffs for 4 different day types (weekdays, saturday, sunday and public holidays).
- Automatic daylight save implementation.
- Tariff informations, meter date and time, daylight saving time can be changed by authorized personnel.
- If the top cover is opened, it records the opening date and time.
- If the terminal cover is opened, it records the first opening date for each month and the total number of openings in that month. The last 12 months are stored in memory.
- In the case of magnetic tampering, it records the start, end times and total magnetic tamper duration.
- The meter records the consumed energy for each tariff in the last 12 months, the maximum demand in the last 12 months and the date and time of the demand.
- The meter records the last 10 of voltage connection faults and current connection faults.
- The meter records the start and end dates of the last 99 of short and long power cuts.

- Programmable load profile period (1...60 min.).
- Programmable max. demand period (15-30-45-60 min.). With communication, it is possible to reset a demand once in a month. (Only the meters which capable of measuring reactive power.)

READING THE INFORMATION ON THE METER

- When the meter is powered, the main informations of the meter displayed sequentally with 5 second periods. By pressing the button, the next information can be switched quickly. If the button is pressed for 5 seconds, the meter screen switches to the sub menu. Waits for the button to be pressed again to display the next information. If the button is not pressed for 30 seconds or the button preesed for 5 seconds, meter display returns to the main menu.
- When during power cuts, it is necessary to press the button to see the information on the screen. Each press displays the next information.
- All the datas that the meter records and the datas which display on LCD can be read from the meter with the communication interfaces. When during power cuts, the button must be pressed to wake up the meter to read.



RTC Error

1 Low battery.

2 RTC battery low.

I L1 L2 L3 F H2KVA/FNKVVN

HzkVArhkWh Units



If the top cover is opened, it will flash on the screen and it will not be lost under any circumstances.

If the terminal cover is open, it will be displayed continuously on the screen. If it is flashing, it indicates that the terminal cover has already been switched on and off.

Blinks during magnetic intervention. Continuous display on the screen indicates that a magnetic interference has been made before.

T1 T2 T3 T4 Indicates the tariff slice.

TH The display shows which tariff consumption information is available.

It shows the energized phases and current directions.

Indicates that information about the demand is displayed.

LCD INFORMATION

Main menu				
Information	Obis code	Unit		
Date information	0.9.2	day:month:year		
Time information	0.9.1	hour:minute:second		
Total import energy consumption	1.8.0	kWh		
Import energy consumption in 1st Tariff	1.8.1	kWh		
Import energy consumption in 2nd Tariff	1.8.2	kWh		
Import energy consumption in 3rd Tariff	1.8.3	kWh		
Import energy consumption in 4th Tariff	1.8.4	kWh		
Total export energy consumption	2.8.0	kWh		
Export energy consumption in 1st Tariff *	2.8.1	kWh		
Export energy consumption in 2nd Tariff *	2.8.2	kWh		
Export energy consumption in 3rd Tariff *	2.8.3	kWh		
Export energy consumption in 4th Tariff *	2.8.4	kWh		
Ri Inductive Reactive Energy (+)**	5.8.0	kVARh		
Rc Capacitive Reactive Energy (-)***	6.8.0	kVARh		
Ri Inductive Reactive Energy (-)***	7.8.0	kVARh		
Rc Capacitive Reactive Energy (+)**	8.8.0	kVARh		

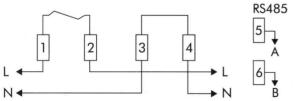
LCD INFORMATION

Main menu				
Information	Obis code	Unit		
Max. import demand information	1.6.0	kW		
Max. import demand date information	1.6.0	day:month:yea		
Max. import demand time information	1.6.0	hour:minute		
Max. export demand information	2.6.0	kW		
Max. export demand date information	2.6.0	day:month:yea		
Max. export demand time information	2.6.0	hour:minute		
Sub Menu				
Serial no	0.0.0			
Program version	0.2.0			
Main software verification code		1		
Measurement software verification code				
Top cover opening date	96.70	day:month:year		
Top cover opening time	96.70	hour:minute		
Terminal cover opening date	96.71	day:month:year		
Terminal cover opening time	96.71	hour:minute		
Past Month Tariff Total Import Energy	1.8.0*1	kWh		
Past Month Tariff 1 Import Energy	1.8.1*1	kWh		
Past Month Tariff 2 Import Energy	1.8.2*1	kWh		
Past Month Tariff 3 Import Energy	1.8.3*1	kWh		
Past Month Tariff 4 Import Energy	1.8.4*1	kWh		
Past Month Tariff Total Export Energy*	2.8.0*1	kWh		
Past Month Tariff 1 Export Energy*	2.8.1*1	kWh		
Past Month Tariff 2 Export Energy*	2.8.2*1	kWh		
Past Month Tariff 3 Export Energy*	2.8.3*1	kWh		
Past Month Tariff 4 Export Energy*	2.8.4*1	kWh		
Past Month Maximum Import Demand	1.6.0*1	kW		
Past Month Maximum Import Demand Date	1.6.0*1	day:month:year		
Past Month Maximum Import Demand Time	1.6.0*1	hour:minute		
Past Month Maximum Export Demand*	2.6.0*1	kW		
Past Month Maximum Export Demand Date*	2.6.0*1	day:month:year		
Past Month Maximum Export Demand Time*	2.6.0*1	hour:minute		
Instant voltage	32.7.0	V		
Instant current	31.7.0	A		
Instant frequency	14.7.0	Hz		
Cosφ**	33.7.0			
Instant import active power	21.7.0	kW		
Instant export active power*	22.7.0	kW		
Instant import reactive power**	23.7.0	kVAr		
Instant export reactive power***	24.7.0	kVAr		

- Meters which capable of measuring import and export active power.
- Meters which capable of measuring import reactive power.
- *** Meters which capable of measuring import and export reactive power.

WIRING DIAGRAM

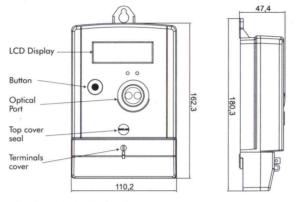
The inner diameter of the phase and neutral bushes of the is 6,6 mm.



INSTALLATION INSTRUCTION:

1. Energy must be cut off when assembling and disassembling the meter.

- 2. Phase connection and neutral connection must be done according to the connections diagram. (When making connections, it is necessary to make sure that the ends of the cables are properly opened, the screws in the connection terminals are tight enough so that they do not damage the conductors, and there is no faulty connection).
- 3. Make sure that the meter terminal cover closes without tension.
- 4. Meter starts working only when installed and energized, thus the screen starts displaying informations
- 5. If lock symbol 2 appears on the display, the terminal cover is not installed correctly.



WARRANTY CONDITIONS

- 1) Warranty period starts after delivery date of the product, and valid for 5 years.
- 2) Products and all spare parts are under the guarantee of our company.
- 3) In case the meter is defective, the consumer shall be deemed to have the right to inspect the goods within the scope of Article 11 of the Act on the Protection of Consumer No 6502;
- a- Withdraw the contract
- b- Request reduction from sales price
- c- Request free repair
- d- Right to request that the sold product be replaced with a indefective duplicate.
- 4) If the consumer chooses the right of free repair from these rights; the manufacturer must bear the cost of labour, the cost of replacing parts without any charge to the make repair. The consumer can also use the free repair right against the manufacturer. The seller and producer are jointly responsible for using this right of the consumer.
- 5) In case the customer uses the right for free repair;
- * Another failure during warranty period
- * Exceeding the target time to get repair;
- * If repairs are not possible, by a report by an authorized service station, dealer, manufacturer or importer. Consumer may request to replace the meter with the one which freed from defects, discount the price regarding the defect ratio or refund the meter price from the seller. The seller can not refuse the consumer's request. If this request is not fulfilled, the seller and producer are jointly liable.
- 6) The repair period of the goods can not exceed 20 business days. This period starts from the delivery date of the goods to the authorized service station on the date of notification to the authorized service station or vendor within the warranty period, and to the authorized service station if the goods are out of guarantee period. If the malfunction can not be fixed within 10 working days, until the completion of the repair of the goods, has to allocate another product with similar characteristics to the use of customer. In case of malfunction within the warranty period, the period of repair will be added to the warranty period.
- 7) Defects arising from unauthorized use of the goods are not covered by the guarantee.
- 8) The consumer may apply to the Consumer Arbitration court or the Consumer Court where the settlement is located or where the consumer transaction is made during the disputes that may arise in connection with the exercise of the rights arising from the guarantee.
- 9) In case of Warranty Certificate is not issued by the seller, the consumer may apply to the General Directorate of Protection of the Consumer and the Market Surveillance of the Ministry of Customs and

NOTICE

This guarantee which is provided by Baylan Ölçü Aletleri San. ve Tic. A.Ş. does not cover the remedies hat may arise from normal or unintended use of the device as well as,

- Damages and failures due to misusage,
- 2- Damages and failures occurring, after delivery to the user, during transportation, loading and
- 3- Failure to make the installation according to the installation and operating instructions and faulty
- 4- Products for which the warranty label is torn or seals are broken,
- 5- Fire, lightning, flood and earthquake (natural disasters), malfunctions and damages due to mproper environment and accidents,
- 5- In the event of unauthorized intervention of the device for reparing,
- 7- In case of the warranty label is damaged.

The repair cost is charged to customer. The warranty is valid only for the product failure within warranty period specified below. Warranty is invalid; when the original serial number on the device is removed, destroyed or tampered with, or warranty certificate is damaged

COMPLIANCE WITH THE WEEE DIRECTIVE AND DISPOSING OF THE WASTE PRODUCT:

This product complies with EU WEEE Directive (2012/19/EU) This product is made from recycled and reusable high quality parts and materials. For this reason, do not dispose the product/battery with household or other waste at the end of its service life. Take it to a collection point for recycling of electrical and electronic equipment. Ask these local points to local management in your area. Help by recycling used products to conserve environment and natural resources.



PACKAGE INFORMATION: Packaging materials of the product are manufactured from recyclable materials in accordance with National Environment Regulations. Do not dispose of the packaging materials together with the domestic or other wastes. Take them to the packaging material collection points designated by the local authorities.









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