brennenstuhl®

# Wattage and current meter

## PM 231 E GB 3655

**EN Operating instructions**

**IMPORTANT NOTICE**

**Read these operating instructions and keep them for future reference.**
**Observe and follow the safety instructions.**
**Do not connect any device with more than 13 A.**
**The plug must always be fully inserted into the socket of the energy meter.**

**⚠ WARNING**

**Do not plug two or more measuring devices together!**

| The following pictograms are used in these Operating instructions / on the device: | |
|---|---|
| | Read the Operating instructions! |
| | Only for use in dry rooms! |
| | Observe warning and safety instructions! |
| | Dispose of the device in an environmentally friendly manner! |

### 1. INTRODUCTION

Read these operating instructions carefully and completely. It is an essential part of your new energy meter and contains important information on operation and care. Observe all safety instructions when using this product. If you have any questions about the use of this product, please contact your specialist dealer or our customer service. Keep these operating instructions in a safe place and also pass them on if you ever pass the device on.

### 2. INTENDED USE

The device is intended for measuring the energy consumption of electrical appliances and for calculating the electricity or operating costs. Any other use or modification of the device is considered improper and involves a considerable risk of accidents.
The manufacturer accepts no liability for damage resulting from improper use. The device is not intended for commercial use.

### 3. SCOPE OF DELIVERY

Immediately after unpacking, check the scope of delivery of your energy meter for completeness. Also make sure that the measuring device itself is in order.
1 x Wattage and current meter
1 x Operating instructions

### 4. TECHNICAL DATA

| | |
|---|---|
| Product: | Wattage and current meter PM 231 E GB 3655 |
| Protection class: | IP20 |
| Nominal voltage: | 240 V~ 50 Hz |
| Max. Load: | 3120 W (240 V~ 13 A) |
| Measuring range voltage: | 190 - 276 V AC |
| Measurement accuracy voltage: | +/- 1 % |
| Measuring range current: | 0.01 -13 A |
| Measurement accuracy current: | +/- 1 % or +/- 0.01 A |
| Measuring range power: | 0.2 - 3120 W |
| Measurement accuracy power: | +/- 1 % or +/- 0.2 W |
| Total area energy consumption: | 0 – 9999.9 kWh |
| Measuring range frequency: | 45 - 65 Hz |
| Accuracy clock: | +/- 1 minute per month |
| Power consumption: | < 0.5 W |
| Operating temperature: | -10 °C to +40 °C |
| Batteries: | 3x 1.5 V LR44/AG13 button cells |
| Battery life: | approx. 3 months without mains voltage |

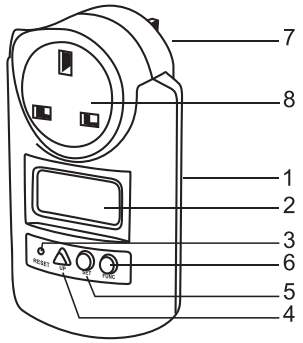
Application: This product is intended for indoor use only. The socket outlet has a protective contact.

### 5. OPERATING INSTRUCTIONS

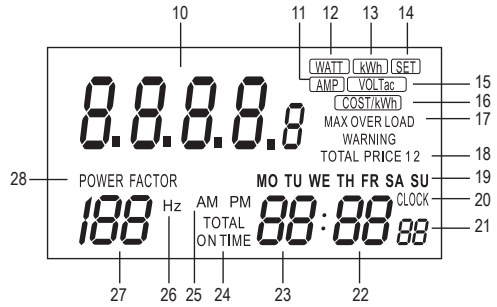
#### 5.1 ⚠ Safety instructions for this device

- Read all safety and operating instructions before operating the energy meter.
- **CAUTION!** Do not ingest battery, risk of burns from hazardous substances.
- This product contains button cells. If a button cell is swallowed, severe internal burns can occur within just 2 hours and result in death.
- Keep the safety and operating instructions for future reference.
- Pay close attention to all warnings on the product and in the operating instructions.
- Follow all operating instructions.
- Use the energy meter only in dry indoor areas. Do not install it in wet areas such as bathrooms, laundry rooms or outdoors.
- Do not expose the energy meter to extreme temperature or pressure fluctuations, shocks or direct sunlight.
- Make sure that no foreign objects or liquids enter the device.
- Only connect the maximum permissible load to the socket.
- Never leave connected heaters unattended.
- When not in use for a long period of time, unplug the energy meter from the wall outlet and store it in a cool place out of reach of children.
- Do not continue to use the device if the energy meter or the integrated socket is damaged, unplug the device from the socket and from the device.
- Repairs may only be carried out by an authorized customer service.
- The energy meter is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children must be supervised to ensure that they do not play with the energy meter.
- Use the energy cost meter only in buildings aligned to installation class II (CAT II) according to IEC 664. The maximum voltage peak must not exceed 2.500 V~. The main power supply for residential buildings normally belongs to installation class II.

#### 5.2 Front view




**Display**




#### 5.3 Controls, functions and display

| | | |
|---|---|---|
| 1 | Battery compartment | The battery compartment is located on the back of the device. |
| 2 | Display | All values of set parameters and measurements are displayed here. |
| 3 | RESET key | Briefly press with a suitable object (e.g. pen) to delete all data in the memory, including time and programming. |
| 4 | UP key | Set time, price and price programs together with SET setting key. |
| 5 | SET key | Set time, price and price programs together with UP key. |
| 6 | FUNC function key | Switch display mode. |
| 7 | Mains plug | Connection to AC 230 V 50 Hz socket. |
| 8 | Power socket | Connect your device here. |

10 Display units for consumption values.
11 Display AMP.
12 Display WATT.
13 Display kWh.
14 Display SET.
15 Display VOLTac.
16 Display COST/kWh.
17 Display MAX OVERLOAD WARNING.
18 Display PRICE 1 and 2, TOTAL PRICE 1 and 2.
19 Display day of the week MO, TU, WE, TH, FR, SA, SU.
20 Display CLOCK.
21 Display seconds (TOTAL ON TIME → minutes).
22 Display minutes (TOTAL ON TIME → hours 0-99).
23 Display hours (TOTAL ON TIME → hours >100).
24 Display TOTAL ON TIME.
25 Display AM, PM.
26 Display Hz.
27 Display value, power factor (%).
28 Display POWER FACTOR.

### 5.4 Commissioning

The product is equipped with a backup battery.
The 3 x LR44/AG13 button cells are already in the battery compartment. Open the battery compartment and **remove the insulating strip**. Then briefly press the reset button.
All settings can now be made conveniently without having to plug the product into the socket.

#### 5.4.1 Set time

Press FUNC (6) until CLOCK (20) is shown at the bottom right of the display.
Press SET (5) once, the day of the week (19) flashes.
Press UP (4) to set the day of the week (19) to MO, TU, WE, TH, FR, SA or SU.
Press SET (5) again to confirm the day of the week, now the hours (23) are flashing.
Press UP (4) to set the hours (23) of the time.
Press SET (5) again to confirm the hours, now the minutes (22) are blinking.
Press UP (4) to set the minutes (22) of the time and press SET (5) to confirm the time.

#### 5.4.2 Display and set costs/kWh/ display measurement functions

**Show cost/kWh**
When the VOLTAGE / AMP / WATT information is displayed, you can press and hold the FUNC key (6) for at least 1 second to display the cost/kWh (16). If two prices have already been entered, you can then display both alternately by briefly pressing the FUNC key (6).

**Set cost/kWh (price 1)**
If you want to set the cost/kWh, press the SET key (5) after the cost/kWh for price 1 (18) is shown in the display until the first digit flashes. Set the correct value for the first digit with the UP key (4). Then press SET (5) again so that the second digit flashes and set the correct value with UP (4). Repeat this procedure for the third and fourth digit.
Now press SET (5) again so that the decimal point flashes and move it to the correct position with UP (4).
After pressing SET (5) again, the display of the time (- : - -) flashes behind ON TIME (24) for the entered price 1 (18).
If you do not need a second price, the setting procedure for price 1 is terminated by finally pressing SET (5).
If you want to enter a second price (e.g. day/night rate), you must first set a start time for price 1. To do this, set the weekday for the start time point for price 1 (18) by pressing UP (4) while the time behind ON TIME (24) is flashing (see previous section). Then press SET (5) until the hour display flashes and set it to the start time by pressing UP (4). Repeat this procedure for the minute display. Press SET (5) finally to end the setting procedure for price 1.

**Set cost/kWh (price 2)**
The setting procedure for the cost/kWh of price 2 works the same as for price 1.
However, make sure that price 2 (18) is shown in the display at the beginning.
By briefly pressing FUNC (6), the display can be changed to price 2 (18) if necessary before you start the setting procedure with SET (5).

**Display measurement functions**
If you press FUNC (6) briefly, you can display the following information in sequence:
VOLTAGE, AMP, WATT - kWh - TOTAL PRICE (10, 18).
By pressing the FUNC function key (6) you can display the current consumption of the connected device in the value field (10) of the display, AMP (11) is displayed for the units as well as the POWER FACTOR (27, 28).
Press FUNC (6) again to display the wattage of the connected device in the value field (10) of the display, WATT (12) is displayed for the units as well as the POWER FACTOR (27, 28).
Press FUNC (6) again to display the consumption of the connected device in the value field (10) of the display, kWh (13) is displayed for the units as well as the POWER FACTOR (27, 28).
Press FUNC (6) again to display the total price as TOTAL PRICE (10, 18) and the total ON TIME as TOTAL ON TIME (21-24) of the connected device in hours and minutes.
Press FUNC (6) again to display the mains voltage as VOLTac. (15) and the frequency in Hz (26, 27).
If the total load is exceeded, MAX OVERLOAD WARNING (17) flashes in the display (2).

**Delete measured values**
Press and hold FUNC (6) for at least 1 second while kWh or TOTAL PRICE is displayed. The measured values for consumption (kWh), total price (TOTAL PRICE) and total on-time (TOTAL ON TIME) are deleted.

#### 5.4.3 Measurement

Insert the mains plug (7) of the energy meter into a 230 V 50 Hz socket. The display (2) lights up and shows the time (20, 21, 22, 23), day of the week (19), mains voltage (10, 15) and frequency (26, 27).
Now connect your device and switch it on. The energy meter starts measuring the consumption.

#### 5.4.4 Reset key

Briefly press the RESET key with a suitable object (e.g. pen) to delete all data in the memory, including the time and all programs. For a few seconds, all parameters light up in the display (2).

#### 5.4.5 Replace batteries

The energy meter is supplied from the factory with 3 x 1.5 V LR44/AG13 button cells in the battery compartment. To replace the batteries, proceed as follows:
The battery compartment is located on the back of the instrument. Using a flat screwdriver, carefully lift the cover cap of the battery compartment. Remove the empty batteries and replace them with new ones.
Pay attention to the polarity (+/-) as printed on the inside of the cover cap (flat side (+) left). Carefully replace the cover. Be careful not to bend the contacts when closing the battery compartment.
The battery compartment must be closed before use.
During extended periods of non-use, remove the batteries from the energy meter to prevent leakage.
Leaking batteries can cause electric shock and damage to the energy meter.
Replace batteries only when the energy meter is disconnected from the power supply.
Replace batteries only with batteries of the same type.
Do not mix new and empty batteries. Do not dispose of batteries with household waste. Dispose of batteries at the appropriate collection points.

### 6. MAINTENANCE AND CARE

This product is maintenance-free. Do not open or disassemble the product. Before cleaning, disconnect the energy meter from the power outlet and from the connected device. Clean the device housing only with a soft cloth.

### 7. DISPOSAL

**Dispose of electric appliances in an environmentally friendly manner!**
**Electric appliances must not be disposed of in household waste!**
The European Directive 2012/19/EU on Waste Electrical and Electronic Equipment rules that used electric appliances should be collected separately and recycled in an environmentally friendly manner.
For possibilities of disposal of the used appliance, please contact your local or municipal administration.

**Batteries and accumulators must not be disposed of in the household waste!**
As a consumer, you are legally obliged to hand in all batteries and accumulators at a collection point in your community/urban district or in the trade, so that they can be disposed of in an environmentally friendly manner, otherwise there are possible risks to the environment and human health.

### 8. CE EU DECLARATION OF CONFORMITY

The EU declaration of conformity is deposited with the manufacturer.

### UKCA UK DECLARATION OF CONFORMITY

The UK declaration of conformity is deposited with the manufacturer.

### 9. MANUFACTURER

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For more information, please visit Service/ FAQ on our website www.brennenstuhl.com

Subject to technical changes.

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