Pm90 powermeter

1.Quick start

1) set system time

2) connect to appliance

3) check the power data

4) Manually turn on/off switch

2.Advanced setting

1) Turn on/off the back light

2) Currency select

3) Set local power tarrif

4) Set GHG(Green House Gas) coefficient

5) Countdown setting

6) Overload setting

3.Check the data

1) Value button

2) Display button

4.History data

1) Check data from graphic

2) Read accurate data

5.Battery replacement

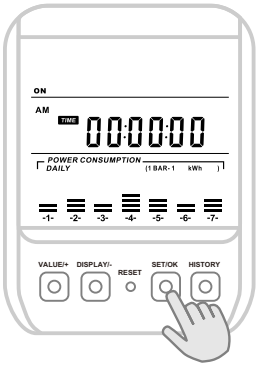
6.Safe use

7.Specs and maintanence

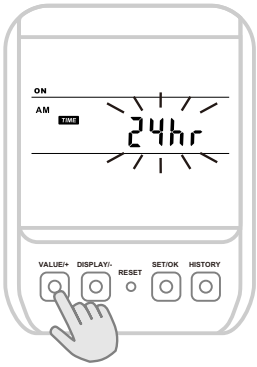
8.Toubleshootings

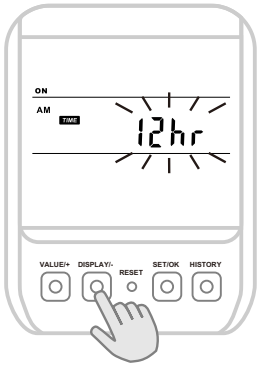
❶ Quick Start

1. Set system time

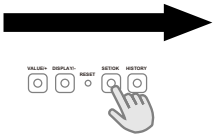


Press and hold button SET for 3 sec.

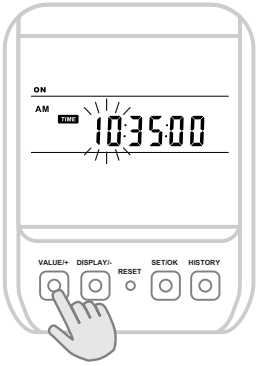




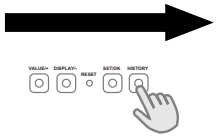
Press +/- button to switch time system(12hr and 24hr)



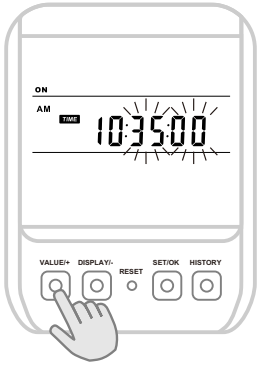
Press OK to NEXT menu



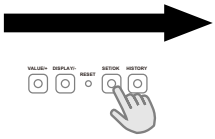
Press +/- button to set hour



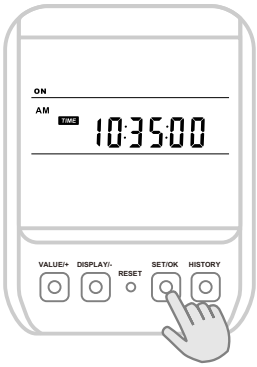
Press HISTORY to cycle choose Hour/Minute/Seconds



Press +/- button to set minute and seconds



Press OK to NEXT menu

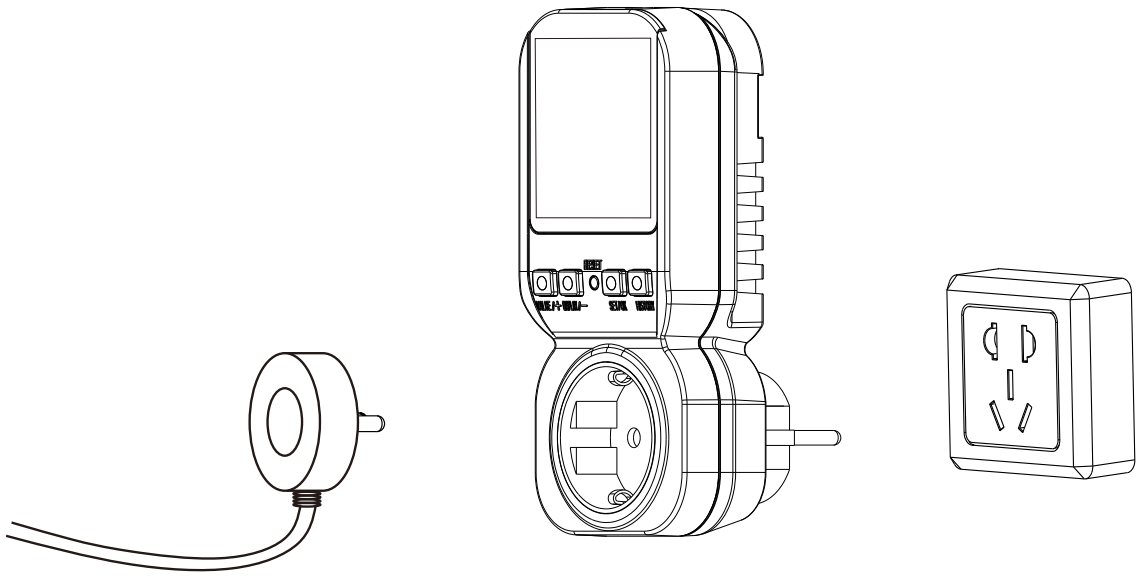


Press OK 10 times to quite setting mode

Finished Quick setting , ready to use !

❶ Quick Start

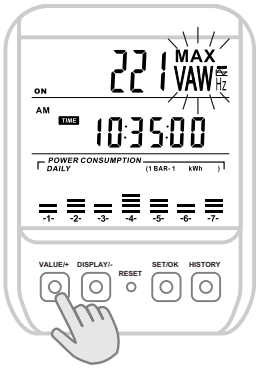
2. Plug Pm90 into outlet, connect appliance to Pm90



connect appliance to Pm90

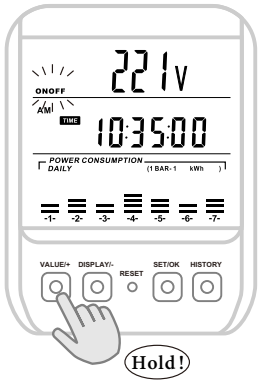
Plug the Pm90 into outlet

3. Check the on-going data on PM90



Briefly press VALUE button to cycle switch the data displayed Votage/Current/Wattage/ Max Current/Max Wattage Frequency/Cos phi

4. Switch on/off the output

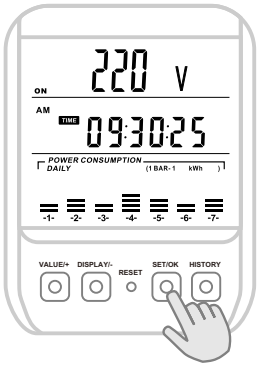


Press and hold VALUE button for 3 seconds to turn ON / OFF the switch

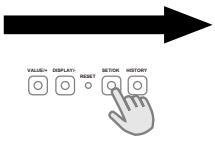
❷ Advanced setting

1. Turn on/off back light

the button cell is designed to maintain the RTC(Real-Time-Clock) chipset inside the Pm90 Please note that back light consumes much more energy than RTC chipset itself, so we set a switch to turn off the back light if back light is not necessary during cell power supply. Please be advised that turning off the back light will expand battery life sharply.

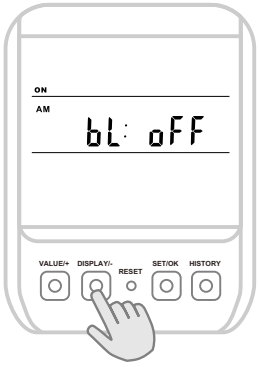


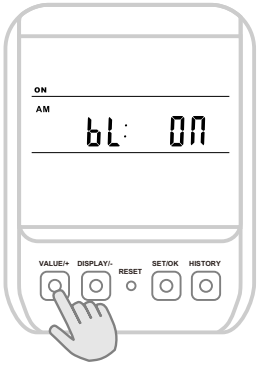
Press and hold the set button enter setting mode

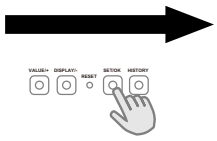


Press OK to NEXT menu

TIME SETTING
(refer to ❶ Quick set)







Press OK to NEXT menu

Press +/- button to switch the BL(backlight) on / off status *

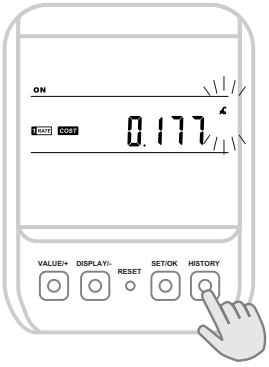
* it's highly recommended not to turn on the back light, if it's not very necessary, Leave the power energy to maintain the RTC power supply.

❷ Advanced setting

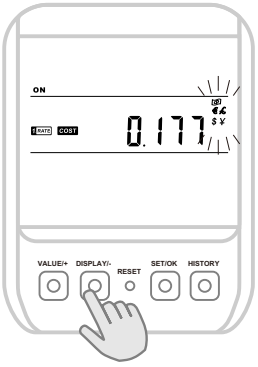
2. Currency select

Pm90 provide you different currency unit for power cost calculation

€ £ $ ¥



in RATE1 menu, press history button 5 times



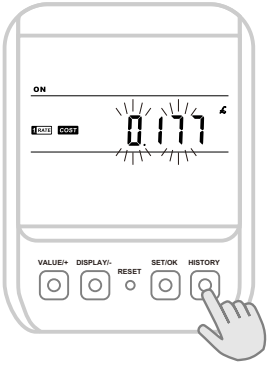
Press +/- buttons to select your local currency symbol

* NOTE: the currency symbol is selectable only under RATE1 menu

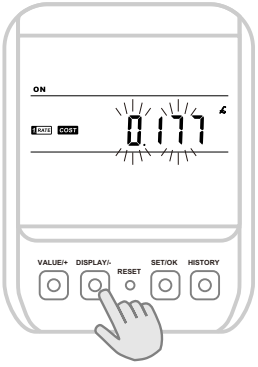
3. Set local power tarrif

You can use Pm90 easily to know your spend on the appliance just with a simple setting. under this menu you will be allow to set 2 different power rates base on different time period e.g. the power tariff in your area follows the table below, do the setting as following steps

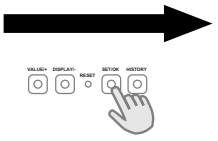
Tariff 1	Day	8:00~18:00	0.177 ponds/kwh
Tariff 2	Night	18:00~8:00	0.127 ponds/kwh



Set RATE 1 value
Press HISTORY button to switch between the 4 digits

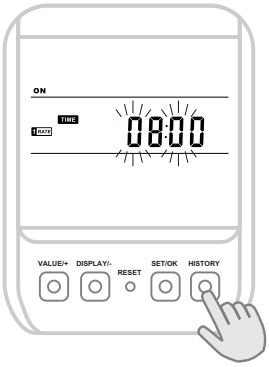


Press +/- buttons to change the value from 0~9, after correctly enter your tariff, press OK to advance.

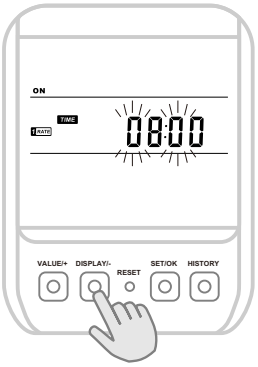


Press OK, advance to tariff 1 time setting

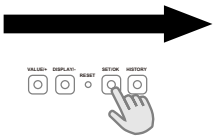
❷ Advanced setting



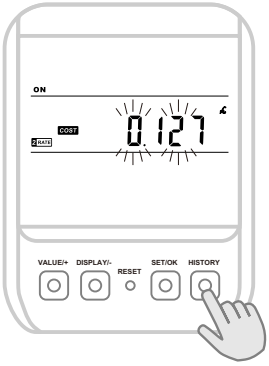
Set tariff 1 time
Press HISTORY button to switch between the 4 digits



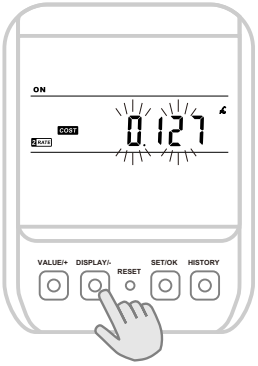
Press +/- buttons to change the value from 0~9, after correctly enter tariff time, press OK to advance.



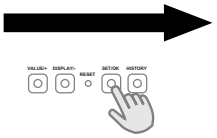
Press OK, advance to tariff 2 setting



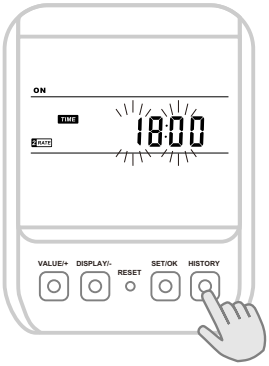
Set RATE 2 value
Press HISTORY button to switch between the 4 digits



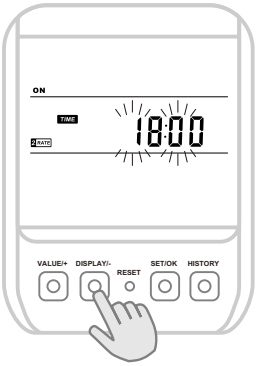
Press +/- buttons to change the value from 0~9, after correctly enter your tariff, press OK to advance.



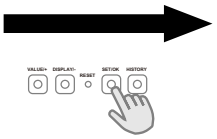
Press OK, advance to tariff 2 time setting



Set tariff 2 time
Press HISTORY button to switch between the 4 digits



Press +/- buttons to change the value from 0~9, after correctly enter tariff time, press OK to advance to next menu.



Press OK, enter next menu

❷ Advanced setting

Congrats!

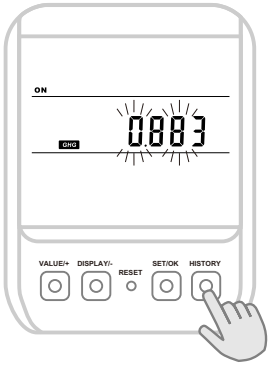
you finished the power tariff setting, the appliance power spend will precisely calculate base on the data you entered.

4. Set GHG(Green House Gas) coefficient

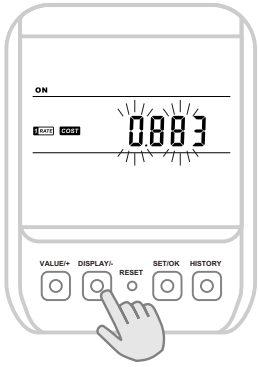
Pm90 can provide you the co^2 emission value by calculating base on the power consumption of the appliance.

Enter the carbon emission factor in the following process in setting menu

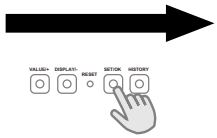
* the carbon emission factor vary in different area, typically value: 0.883 $kgco^2$/Kwh



Press HISTORY button to switch between the 4 digits



Press +/- buttons to change the value from 0~9.



Press OK, advance to next menu

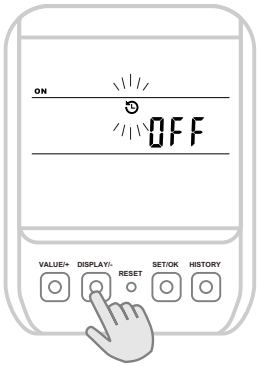
❷ Advanced setting

5. Countdown setting

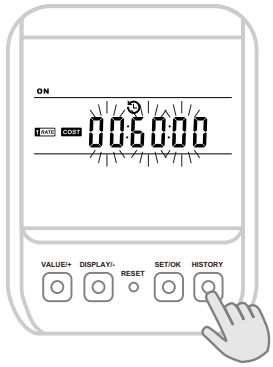
In Pm90 you can set a count down base on time, power, and spend !

- *Time count down*: set a count down time to switch off the appliance
- *Power consumption count down*: set a target power consumption to switch off the appliance
- *Spend count down*: set a target spend to switch off the appliance

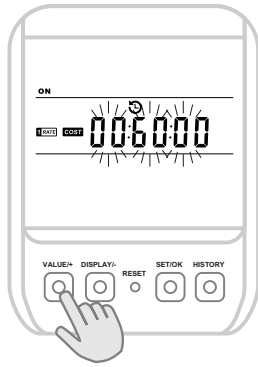
time count down



If the time countdown runs out of never set before, it shows OFF on display, press +/- to initiate it

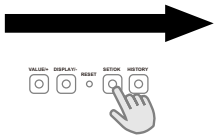


Press HISTORY button to switch between the 6 digits

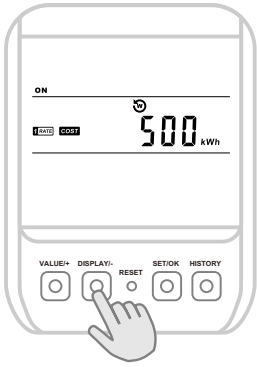


Press +/- buttons to change the value from 0~9, after correctly enter , press OK to advance.

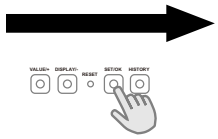
Power count down



Press OK, advance to next menu

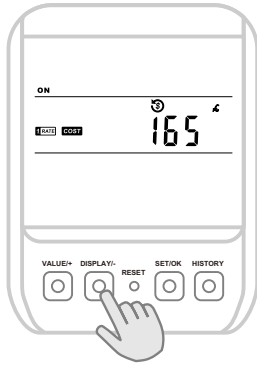


do the same operation as time count down, set the power countdown

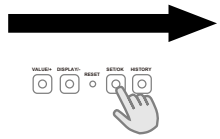


Press OK, advance to next menu

Spend count down



do the same operation as time count down, set the spend countdown

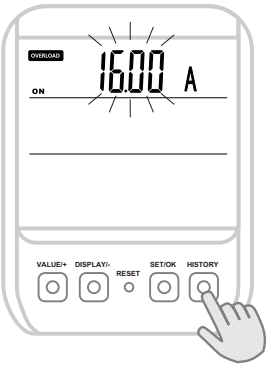


Press OK, advance to next menu

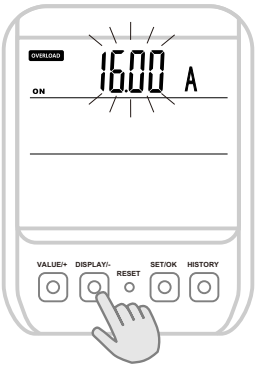
❷ Advanced setting

6. Overload setting

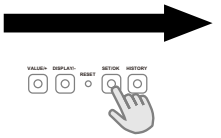
Press +/- to choose the OVERLOAD mode, in Ampere or Watts



Press HISTORY button to switch between the 4 digits



Press +/- buttons to change the value from 0~9, after correctly enter , press OK to advance.



Press OK, advance to next menu

NOTE:

1)once the overload is triggered, the beeper inside will beep for alarm, and switch will be turned off.

2)the adjusting range for Pm90 on Ampere is 0~16A , if you the value to be 0, means no overload alarm and switch protection process

3)you can set both current and wattage overload alarm, the alarm and switch will trigger the first arrived overload

Congrats !

you finished all the advanced setting !

now get protections on your appliance.

❸ Check the data

1. Value button

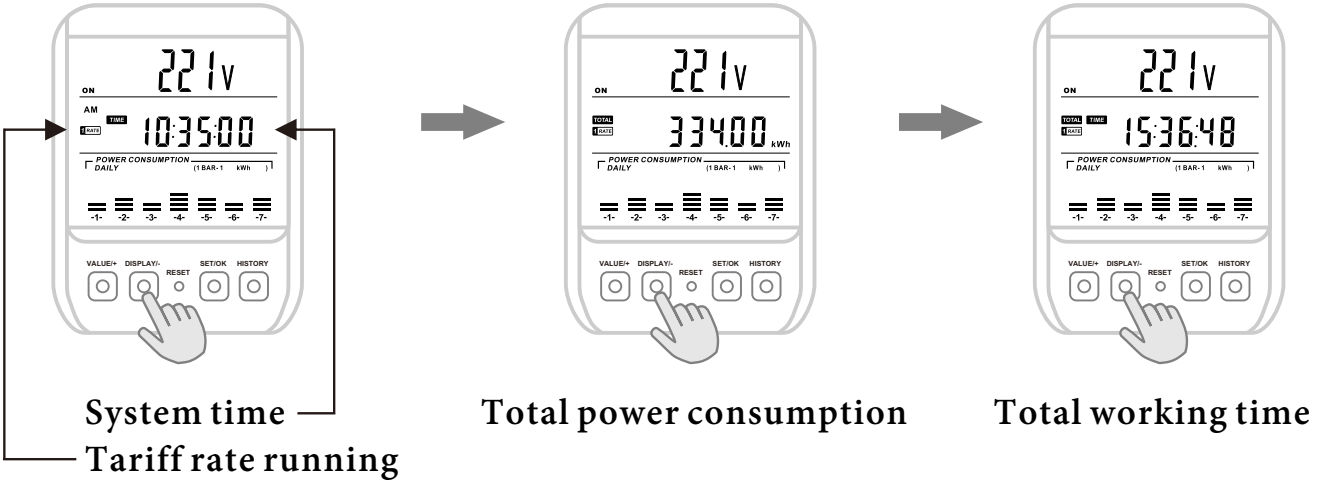
- Voltage ····· On-going volt
- Current ····· On-going current
- Wattage ····· On-going power
- Max Current ····· Peak current
- Max Wattage ····· Peak power
- Frequency ····· AC frequency
- Cos phi ····· Power factor

Display

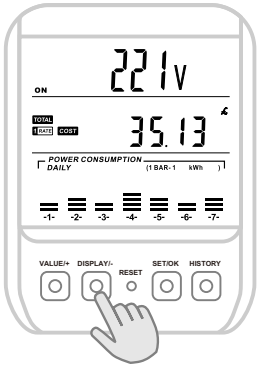
Briefly press VALUE button to cycle switch the data displayed on top area

2. Display button

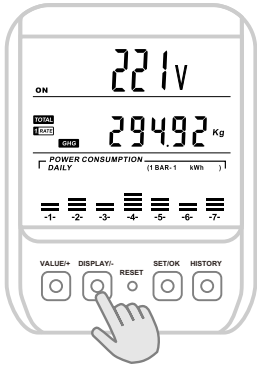
Briefly press DISPLAY button to check the system data on middle area



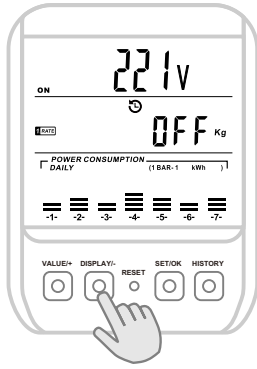
❸ Check the data



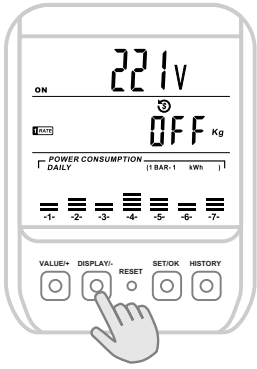
Total spend



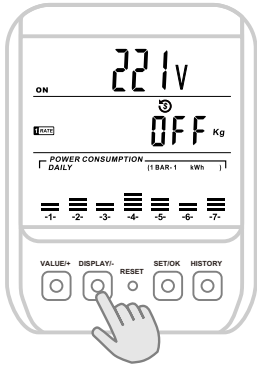
Total carbon emission



Time countdown



Power countdown



Spend countdown

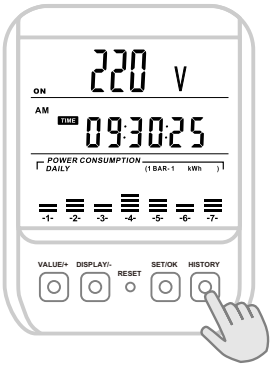
back to first screen

Congrats!

Now you know how to check out all data collected by PM90.

❹ History data

1. Check daily and monthly data in graphic



- DAILY — POWER CONSUMPTION DAILY (1 BAR- 1 kWh) — latest 7 days history power data
- MONTHLY — POWER CONSUMPTION MONTHLY (1 BAR- 1 kWh) — latest 7 month history power data
- DAILY DIF. — POWER CONSUMPTION DAILY DIF. (1 BAR- 1 kWh) — latest 7 data of power differences in adjacent days
- MONTHLY DIF. — POWER CONSUMPTION MONTHLY DIF. (1 BAR- 1 kWh) — latest 7 data of power differences in adjacent months

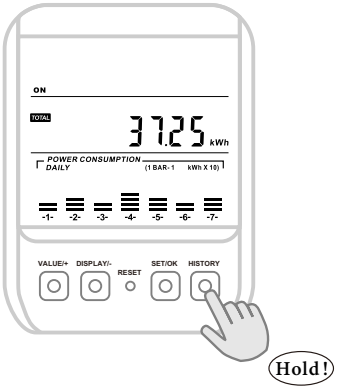
In the front page press HISTORY button to cycle the data displayed

The number of bar stands for the power value. e.g. 2 bars = 2 watts

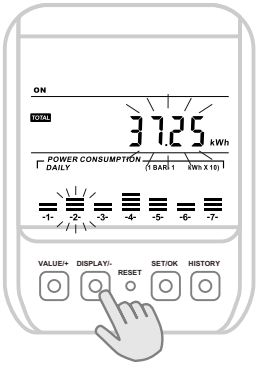
The value of the bar can be different depend on what unit value it shows up on right corner, it could be any combinations please notice that when you read the data

(1 BAR- 1523 kWh X 10)

2. Check accurate power data of each day/month



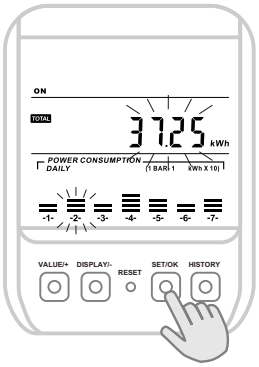
Press and hold HISTORY button to enter accurate data reading mode, you will read the exact power data of each day/week.



Press +/- buttons to switch in 7 posts the choose post , and data will be flashing, from here you can read the accurate data of each day/month.

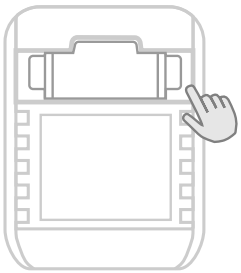
Note.: just daily/monthly data available in this mode

❹ History data

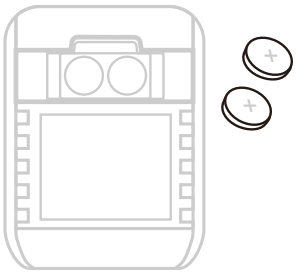


Press OK to to quit the history data mode and return to main menu.

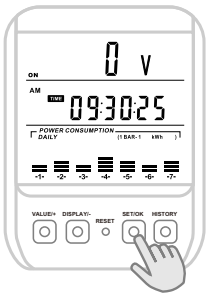
❺ Batteries Replacement



1. Remove the cover from battery compartment, which located at back of PM90.



2. Replace with fresh 2*Lr44 battery, and put back the cover.



3. Press any buttons to test the display see if segment show up on display to conclude whether batteries are well placed.

ATTN:

1) Please be advised that taking out the battery will erase the system time that you set before, but the setting information you did before and history data recorded will be memorized, it's different with reset button which will erase all the data including the setting, please replace batteries with this notice.

2) Batteries are designed to maintain the system time of this device, if the battery is used to support back light of device, they will run out very easy, we strongly recommand you to turn off the back light during battery power supply.

and please be advised, turning off the back light in BL menu will only turn off the back light during battery power supply(you unplug the device from outlet), it doesn't stop the back light lighten up when the device is plugged on socket.

❻ Safe use

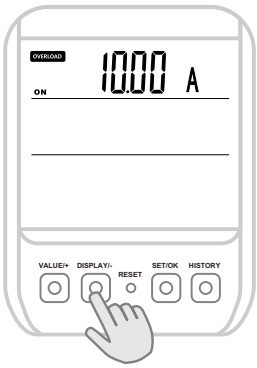
NOTICE!

Please be aware that this device place a role as a bridge between household outlet and appliance, so the appliance is connected directly to outlet in some meaning. so the appliance wattage limitation should follow what outlet allow!

This device is designed to load 3680W(230V16A current) in maximum, but sometimes your household outlets are only designed for 2300 watts(230V10A), under this case, if you plug appliance load with 3000W output, the current draw is under Pm90, so it can pass the Pm90 freely but will cause the outlet overload. It's VERY DANGEROUS ignoring the outlet socket overload power.

Take TWO actions to prevent that!

1. Make sure to check the outlet overload power before plug the appliance on through Pm90.
2. Make an overload setting once you choose the plug, for example your target outlet is 10A overload current. Plug the Pm90 to the outlet, and Do the overload setting on Pm90. please refer to ❷－6 overload setting



Check your outlet overload current
Set overload current on Pm90 base on outlet

❼ Spec and maintenance

Specification table

Input/output power	230V~50Hz
Maximum power load	3680Watts
Voltage range:	190V~270V
Current range	0~16A
Current accuracy	0.1A
Power display range	0~3680 Watts
Power accuracy	0.1Watts
Standby current draw	50uA
GHG range	0~999,999 kg
History data	latest 7 days/Month
Working Temperature	10-50℃

Maintenance

Don't leave the batteries out of power in the device,
Frequently check them and replace in time.

❽ Trouble shooting

Question	Answer
Back light not on in battery supply	Turn on back light switch in menu
When I press buttons, can't wake up the display	Check whether the batteries run out
The appliance is plugged on Pm90, but there's no power output	Check on the display on ON/OFF icon, see whether the switch is turned off.
Why the beep is on	If you set either 3 of the count down functions, the beeper will be on for a while once program finish.
	You appliance load trigger the target.
How long the battery last?	1) If Pm90 is plugged on socket, there's 0 current draw from battery.
	2) If Pm90 off the outlet, and back light is config to be off, will last 120 days (*)with no operation on buttons

✶ Battery life is based on how often you operate the device, the 120 days is a theory number measure and calculated. the result may vary in using.

NOTE:
For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

! WARING：changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.