



# Remote Meter

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## USER MANUAL



MT91



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## 1. Safety Instructions

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- Thanks for selecting the MT series; please read this manual carefully before using the product.
- Please keep this manual for future reference.
- When you receive the product, check whether there is any damage that occurred in transportation. Contact the transportation company or our company in time for any problem.
- Please read this manual and safety information carefully before installing it.
- Keep the product away from rain, exposure, severe dust, vibration, corrosion, and intense electromagnetic interference.
- Please avoid water, and other liquids enter into the product.
- There are no user-serviceable parts inside the product. Do not disassemble or attempt to repair it.

## 2. Overview

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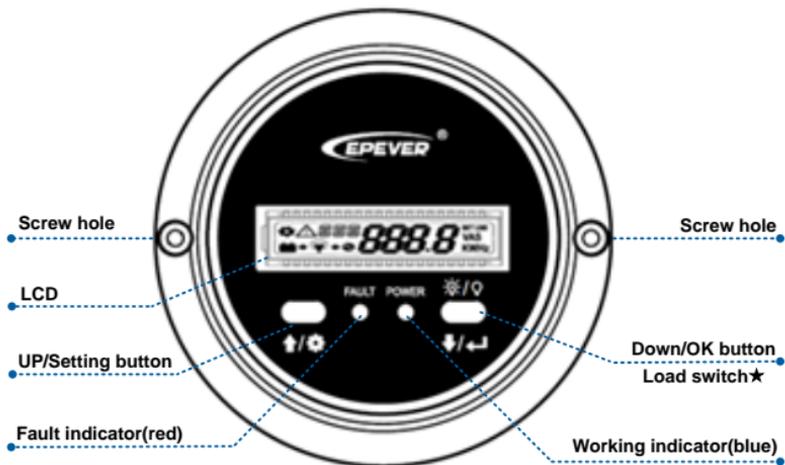
MT91 is a new generation of remote meters specially designed for the EPEVER inverters. It displays the real-time parameter of the inverter on one screen. Supporting parameter configuration by the button operations, which makes the product suitable for different requirements.

### Features

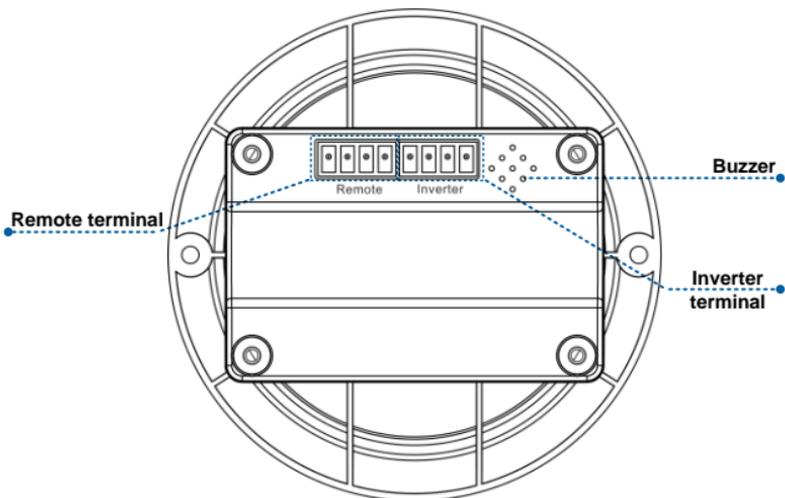
- Dual interface design, friendly connection with the EPEVER inverter and other optional modules
- LCD screen, real-time dynamic display of system data
- Visually error codes, timely notification of warnings and faults
- Load ON/OFF button to control the load output directly
- Simple installation and friendly operation interface

### 3. Appearance

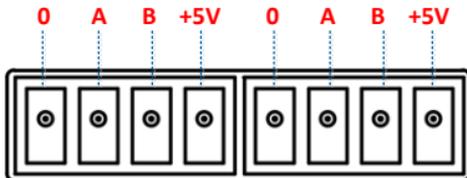
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★In the real-time interface, long press  for 2 seconds to turn off the load(default on); long-press it again for 2 seconds to turn on the load.



- Definition of the inverter terminal/remote terminal:



- **Connect the MT91 with an inverter:**

Connect the MT91's "inverter terminal" and the inverter's RJ45 port through an RS485 communication cable (included accessory, model: CC-RJ45-3.81-100U. The cable length can be customized according to customers' actual requirement.)

- **Connect the MT91 with an auxiliary module**

Connect the "remote terminal" of the MT91 and the auxiliary modules such as the Bluetooth module/wireless module/BMS through an adapter cable.

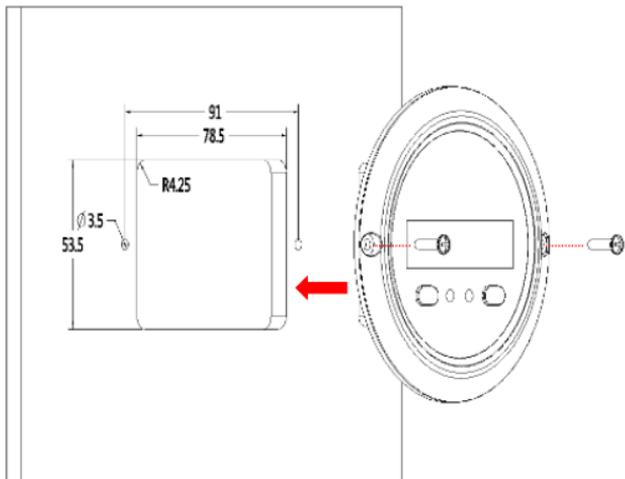
## 4. Installation Instructions

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Surface mounting installation is recommended.

**Step 1:** Locate based on the installation size (91mm) and drill two screw holes (no smaller than 77x52mm).

**Step 2:** Use two PWM3\*10 screws to fix the remote meter.



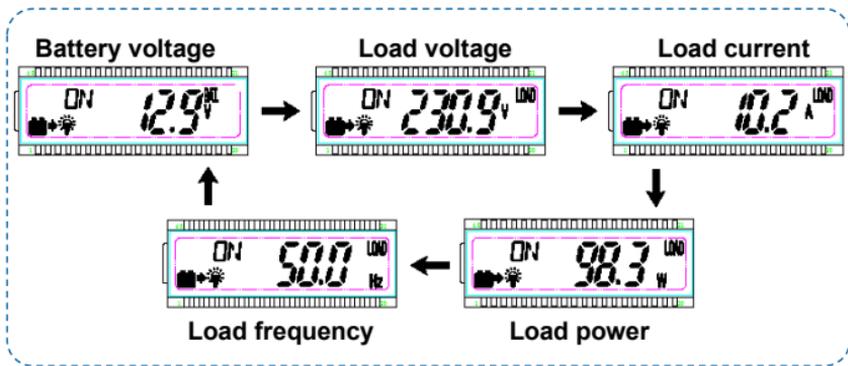
## 5. Button Instruction

Button	Operation	Instruction
	Click	Move up
	Press for 2s	<ul style="list-style-type: none"> <li>In the real-time interface (that is, the default interface after the device is powered on), press it for 2s to enter the setting interface.</li> <li>In the setting interface, press it for 2s to enter the specific parameter configuration interface.</li> </ul>
	Click	Move down
	Press for 2s	<ul style="list-style-type: none"> <li>In the real-time interface, press it for 2s to turn on/off the load output (default on, press it for 2s to turn off the load output).</li> <li>In the setting interface, press it for 2s to confirm the parameter configuration.</li> </ul>
 + 	Click	In the setting interface, click them to exit the parameter configuration interface.
	Press for 2s	In the real-time interface, press them for 2s to clear the faults.

A long beep for parameter confirming and short beeps for other button operations.

## 6. Real-time Interface

In the real-time interface (namely, the default interface after the device is powered on), please click  or  to display the below parameters in a cycle.



Note:  →  means, the load being on status,   means the load being off status.

## 7. Setting Interface

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➤ The parameter configuration process is as follows.

**Step1:** In the real-time interface, press  for 2s to enter the setting interface.

**Step2:** Click  or  to select the parameter to be configured.

**Step3:** Press  for 2s to enter the configuration interface of the specified parameter. The parameter value will be flashing.

**Step4:** click  or  to select the parameter value.

**Step5:** Press  for 2s to confirm the configuration.

**Step6:** Click  +  to exit the current interface.

➤ Common parameters are shown in the following table:

LCD Display	Parameters	Default	User define
⚙️ VPT	Output voltage class ①	220VAC	220VAC/ 230VAC
		110VAc	110VAC/ 120VAC
⚙️ FRE	Output frequency①	50Hz	50Hz/60Hz
⚙️ BLT	LCD backlight time	30s	30s/ 60s/100s(ON solid)
⚙️ LVD	Low voltage disconnect voltage②	12V: 10.8V 24V: 21.6V 48V: 43.2V	12V:10.5V~14.2V; step size:0.1V 24V: 21V-30.2V; step size:0.1V 48V: 42V-62.4V; step size:0.1V
⚙️ LVR	Low voltage reconnect voltage②	12V: 12.5V 24V: 25V 48V: 50V	12V: 11.5V~15.2V; step size:0.1V 24V: 22V-31.2V; step size:0.1V 48V: 43V-63.4V; step size:0.1V
⚙️ OVR	Over voltage reconnect voltage②	12V: 14.5V 24V: 29V 48V: 58V	12V: 11.5V~15.2V; step size:0.1V 24V: 22V-31.2V; step size:0.1V 48V: 43V-63.4V; step size:0.1V
⚙️ OVD	Over voltage disconnect voltage②	12V: 16V 24V: 32V 48V: 64V	12V: 12.5V~16.2V; step size:0.1V 24V: 23V-32.2V; step size:0.1V 48V: 44V-64.4V; step size:0.1V

- ① After configuring the parameters marked with ①, the inverter will restart automatically. It will resume work according to the new parameter value.
- ② NPower and IPower-Plus series support the modification of parameters marked with ②. Please refer to the following rules for the modification; otherwise, the parameter setting will not succeed. IPower does not support modification of parameters marked with ②.

➤ **Rules for battery protection voltage:**

- A. Over voltage limiting voltage(16.2/32.2/64.4V)  $\geq$  Over voltage disconnect voltage  $\geq$  Over voltage reconnect voltage +1V.
- B. Over voltage reconnect voltage  $\geq$  Low voltage reconnect voltage.
- C. Low voltage reconnect voltage  $\geq$  Low voltage disconnect voltage +1V.
- D. Low voltage disconnect voltage  $\geq$  Low voltage limiting voltage(10.5/21/42V).

- **Detail status is shown as the following when reaching the protection voltage point.**

Input voltage protection	Status
Over voltage protection	<p>The output is switched OFF.            The blue indicator fast flashes.            Buzzer beeps.            LCD displays the <math>\Delta IO \downarrow</math>.</p>
Over voltage reconnect	<p>The blue indicator is ON solid.            The output voltage is normal.</p>
Low voltage protection	<p>The output is switched OFF.            The blue indicator slowly flashes.            Buzzer beeps.            LCD displays the <math>\Delta IL \downarrow</math>.</p>
Low voltage reconnect	<p>The blue indicator is ON solid.            The output voltage is normal.</p>

**Note:** Although the inverter is supplied with the over voltage protection function, the surge voltage is not higher than 20V for the 12V system, not higher than 40V for the 24V system, and not higher than 80V for the 48V system; otherwise, the inverter may be damaged.

## 8. Error Codes

Error code	Faults	Buzzer	Working indicator	Fault indicator
$\Delta O T P$	Inverter over temperature Heat sink over temperature	5 beeps	OFF	ON solid
$\Delta I O V$	Input over voltage	5 beeps	Fast flashing (1Hz)	OFF
$\Delta I L V$	Input low voltage	5 beeps	Slowly flashing (1/4Hz)	OFF
$\Delta O S C$	Output short circuit	5 beeps	OFF	Fast flashing (1Hz)
$\Delta O O L$	Output overload	5 beeps	ON solid	Slowly flashing (1/4Hz)
$\Delta O V A$	Output voltage abnormal	5 beeps	OFF	OFF

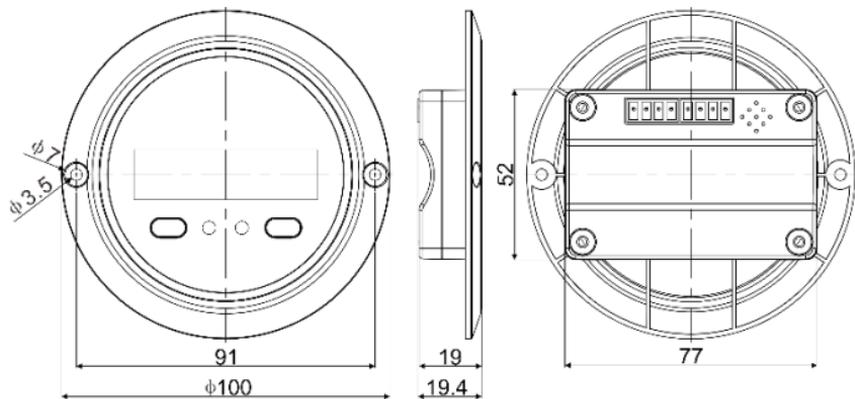
## 9. Specifications

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Model	MT91
Compatible products	NPower/IPower-Plus/IPower
Power supply	5VDC
Power supply method	Inverter communication port
LCD visual angle	12' clock
LCD backlight	Yes
Installation method	Surface mounting installation
Self-consumption	14mA/5V(no backlight) 23mA/5V(backlight)
Working temperature	-20°C~+60°C
Storage temperature	-35°C~+70°C
Dimension	φ100mm X 19.4mm(Diameter X Height)
Mounting dimension	φ100mm X 50mm(Diameter X Height)
Mounting hole size	φ3.5mm
Net Weight	65g

## 10. Dimension

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**Any changes without prior notice! Version number: V1.1**

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