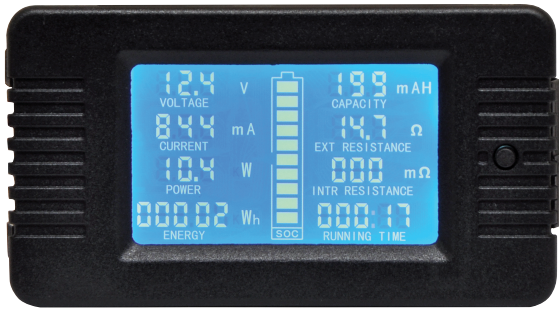


Panel Mount Multi-Function Digital Power Meter with 200A Shunt

OPERATING INSTRUCTIONS



OVERVIEW

This meter is used to monitor all kinds of battery voltage, discharge current, discharge power, discharge impedance, internal resistance, capacity, SOC, energy, running time and display the measurement data through the LCD screen.

Key Functions

1. Voltage:

- 1.1. Measuring range 0 -200V (when the test voltage is 8V, please use the independent power supply mode)
- 1.2. Display format:
 <10V display as: 9.99V
 <100V display as: 99.9V
 ≥ 100V display as: 199V
- 1.3. Minimum resolution : 0.01V
- 1.4. The starting test voltage: 0.05V
- 1.5. Measurement accuracy: 1%

2. Current:

- 2.1. Measuring range: 0-200A
- 2.2. Display format:
 <1A display as: 999mA
 <10A display as: 9.99A
 <100A display as: 99.9A
 ≥ 100A display as: 199A
- 2.3. Minimum resolution 1mA
- 2.4. The starting test current: 20mA
- 2.5. Measurement accuracy: 1%

3. Power:

- 3.1. Measuring range: 0-40000W
- 3.2. Display Format
 <10W display as: 9.99W
 <100W display as: 99.9W
 <1000W display as: 999W
 <10000W display as: 9.99kW
 ≥10000W display as: 19.9kW
- 3.3. Minimum resolution 0.01W
- 3.4. The starting test power: 0.2W
- 3.5 Measurement accuracy: 1%

4. Impedance:

$Impedance = Voltage / Current$

- 4.1. Measuring range 0-1000Ω
- 4.2. Display format:
 <100Ω display as: 99.9Ω
 ≥100Ω display as: 999Ω
- 4.3. When the test range is over or the current is zero, it will display "----"
- 4.4. Minimum resolution: 0.1Ω
- 4.5. Measurement accuracy: 1%

5. Internal Resistance:

$Internal\ resistance = (Full\ voltage - Bring\ load\ voltage) / Bring\ load\ current$, when the bring load voltage is larger than the maximum voltage, the internal resistance is zero.

- 5.1. Measuring range 0-999mΩ
- 5.2. Display format: 999mΩ , When the test range is over or the current is zero, it will display "----"
- 5.3. Minimum resolution: 1mΩ
- 5.4. Measurement accuracy: 1%

Note: Before you test the internal resistance, you should pre set the full voltage depend on the battery type, after it is fully charged you can use it to test; if you do not fully charge it, you can set the battery without load voltage is the full voltage, then test; the internal resistance is not a fixed value, the more the battery discharged, the bigger the resistance.

6. Capacity:

- 6.1. Measuring range: 0-1000AH
- 6.2. Display format:
 <1AH display as: 999mAh
 <10AH display as: 9.99AH
 <100AH display as: 99.9AH
 <1000AH display as: 999AH
- 6.3. Minimum resolution 1mAh
- 6.4. Measurement accuracy: 1%

Note: Battery capacity testing is a cumulative process of discharge current versus time, it needs some time. The time is dependent on the discharge current; before you test the capacity, you should preset the full voltage and the cut off voltage depend on the battery type, after it is fully charged you can use it to the discharge test; When the dump energy display blank, it means the discharge is over, this capacity display value is the batteries capacity.

7. SOC (State Of Charge):

- 7.1. Displayed via the battery symbol, total of 10 grids, each presenting 10% energy.
- 7.2. Calculated via the current battery voltage value, before test you should preset the full voltage and the cut off voltage depend on the battery type; every grid voltage = (the highest voltage the lowest voltage) / 10.

8. Energy:

- 8.1. Measuring range 0~9999kWh
 - 8.2. Display format:
 <1kWh display as: 999Wh
 <10kWh display as: 9.99kWh
 <100kWh display as: 99.99kWh
 <1000kWh display as: 999.99kWh
 ≥1000kWh display as: 9999kWh
 - 8.3. Over the test range will become zero.
 - 8.4. Minimum resolution: 1Wh
 - 8.5. Measurement accuracy: 1%
- Note: 1Wh=0.001kWh =0.001 Kilowatt

9. Running time:

- 9.1. Measuring range 0 ~ 999 hour (without load the time will not accumulate)
- 9.2. Display format: 0: 00:00 ~ 999:59:59
- 9.3. Over the test range will become zero.

Operating Instructions

1. Setting the full and cut off voltage:

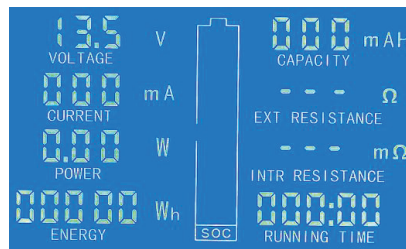


Figure 1: the normal display interface

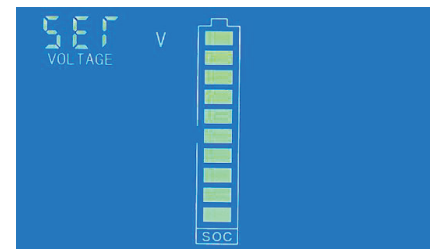


Figure 2: the voltage setting interface

2. Set the full voltage:

• Step 1: In the normal display interface (like fig.1), long press the button until the LCD screen display the interface like fig. 2, then release the button

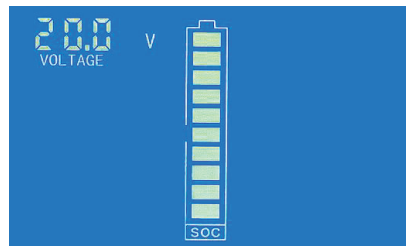


Figure 3: full voltage setting interface (low bit)

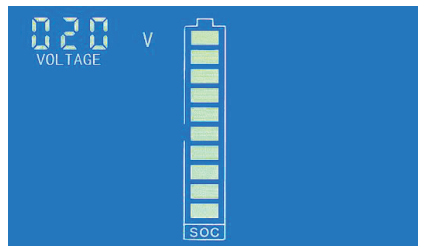


Figure 4: full voltage setting interface (high bit)

- Step 2: "SET" character blinks enabling it is the setting status of full / cut off voltage, long press the button until the LCD screen display the interface like fig. 3, then release the button.
- Step 3: The battery symbol display is full. The full voltage setting factory default is 020.0V, the numerical code scrolls flashing from the low bit to the high bit show that the current setting digit, short press to set the digit; please pay attention this, as the full voltage setting value has 4 digit, but the numerical code has only 3 digit, So the setting is divided into two part s: low bit (fig. 3) +high bit (fig. 4). For example, the default full voltage is 020.0V, then the display state is 20.0V to 020V low and high cyclic switching display. If you need to set the full voltage is 199.0V, then please set low bit to 99.0V , when the cycle reaches the high bit , it will display 099V, and only the highest zero bit flicker to prompt it can be set . Setting the high bit to 199V represents the full voltage is 199.0V.

Operating Instructions

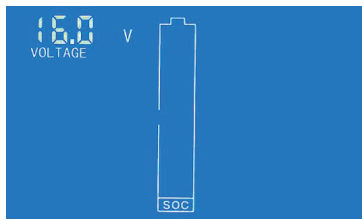


Figure 5: cut off voltage setting interface (low bit)

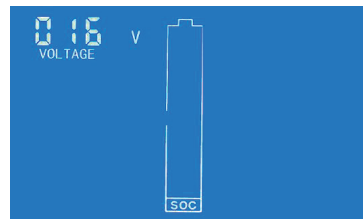


Figure 6: cut off voltage setting interface (high bit)

3. Set the Cut off voltage

- Step 1: After you set the full voltage, long press the button until LCD shows the interface of Fig. 5, then release the button
- Step 2: At this time, the battery symbol shows the zero grid to indicate the cut off voltage setting state, the default cut off voltage is 016.0V, the setting method is the same as above; the cut off voltage is 0.8 times of the full voltage by default, after setting the full voltage, the cut off voltage is automatically generated in the relationship of 0.8 times; otherwise, you can reset it
- After all the above settings are completed, long press the button until the settings are saved and exit the setting status, restore the normal display interface.

4. Current range setting

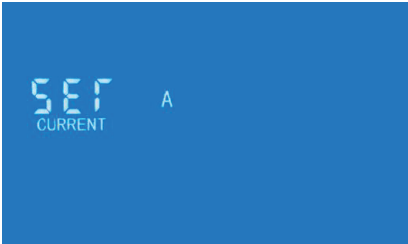


Figure 7: Current range setting interface



Figure 8: Current range choosing interface

5. Clear the Energy reading



Figure 9: Clear the energy interface

6. Clear the capacity reading



Figure 10: Clear the capacity interface

7. Clear the running time reading

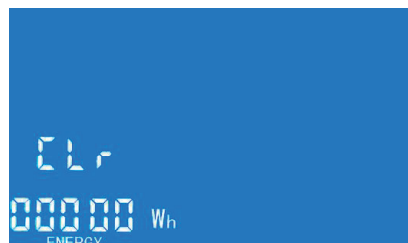


Figure 11: Clear the running time interface

- Step 1: In the normal display interface, long press the button until the LCD shows the interface of Figure 2, then release the button, short press the button again switch to the interface to Figure 7, it indicates that this state is the current range setting state.

- Step 2: Long press the button until the LCD shows the interface of Figure 8, then release the button, short press the button again to switch the current range. This meter provides four current ranges, factory default is 100A, choose the corresponding range according to the shunt.
- Step 3: After the current range setting is completed, long press the button until the settings are saved and exit the setting status, restore the normal display interface.

- Step 1: In the normal display interface, long press the button until the LCD shows the interface of Figure 2, then release the button, short press the button again switch to the interface to Figure 9, it indicates that this state is the clearing energy reading.
- Step 2: Longer press the button until the data has been cleared and exit the setting status, restore the normal display interface.

- Step 1: In the normal display interface, long press the button until the LCD shows the interface of Figure 2, then release the button, short press the button again switch to the interface to Figure 10, it indicates that this state is the clearing capacity reading.
- Step 2: Long press the button until the data has been cleared and exit the setting status, restore the normal display interface.

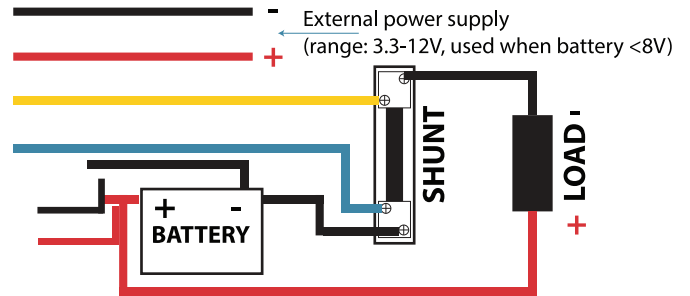
- Step 1: In the normal display interface, long press the button until the LCD shows the interface of Figure 2, then release the button, short press the button again switch to the interface to Figure 11, it indicates that this state is the clearing running time reading.
- Step 2: Long press the button until the data has been cleared and exit the setting status, restore the normal display interface.

8. Working mode

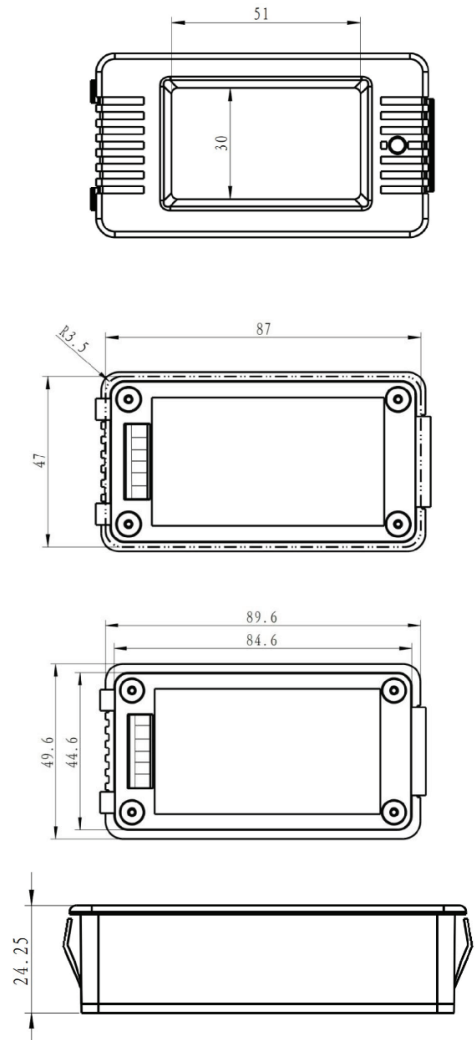
This meter has two modes: normal display mode and dormant mode. In normal display mode, short press the button to enter the dormant mode, in order to reduce power consumption, the backlight and LCD display will be turned off in dormant mode. In dormant mode, short press the button will switch to the normal display mode.

Note: The meter will stop all measurement functions in dormant mode.

Wiring Diagram:



Product Dimensions (mm):



Precautions

1. This module is suitable for indoor, please do not use outdoor.
2. Applied load should not exceed the rated voltage, current.
3. Wiring order can't be wrong.

Power Consumption

- Normal working state: 0.03-1.2 W
- Sleeping state: 0.5mW-0.5W
- The power consumption is related to the test voltage value, the higher the voltage, the greater the power consumption.

Working Temperature: -20°C ~ + 60°C