DCMONT
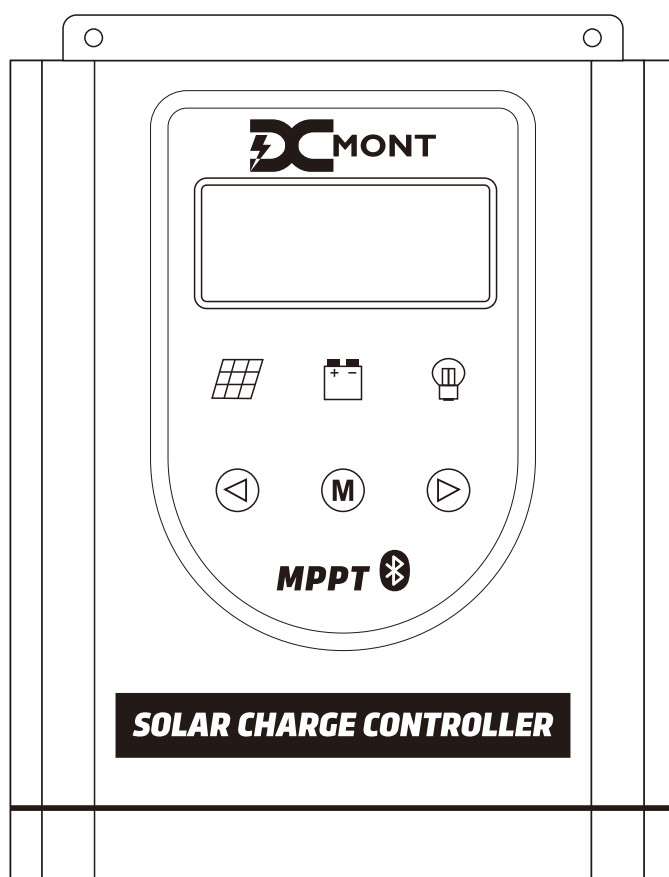
SKU: DC-MPPT-MPK2-40A / DC-MPPT-MPK2-60A / DC-MPPT-MPK2-100A

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION AND MAINTENANCE,
FOLLOW ALL PROVIDED WARNING & CAUTION, AND KEEP IT FOR FUTURE REFERENCE.

V1.0

SAFETY INSTRUCTIONS

General Safety Information

- Read all of the instructions and cautions in the manual before beginning the installation.
- There are no serviceable parts for this controller. Do NOT disassemble or attempt to repair the controller.
- Do NOT allow water to enter the controller.
- Make sure all connections going into and from the controller are tight.

Charge Controller Safety

- NEVER connect the solar panel to the controller without a battery.
- Do NOT use the solar controller to charge non-rechargeable batteries. Doing so may result in harm to the user and/or damage the solar module, battery and controller.

WARNING!
- Battery must be connected first, then the solar panel, finally the load. Otherwise it may cause a dangerous occurrence where the controller would experience a high open circuit voltage at the terminals.
- Once equalization is active in the battery charging, it will not exit this stage unless there is adequate charging current from the solar panel. There should be NO load on the battery when in equalization charging stage.


BATTERY SAFETY

- Use only sealed lead-acid, flooded or lithium batteries which must be deep cycle.
- Explosive battery gases may be present while charging. Be certain there is enough ventilation to release the gases.
- Be careful when working with large lead acid batteries. Wear eye protection and have fresh water available in case there is contact with the battery acid.
- Carefully read battery manuals before operation.
- Do NOT let the positive (+) and negative (-) terminals of the battery touch each other.
- Recycle battery when it is replaced.
- Equalization is carried out only for flooded lead acid batteries. Do NOT equalize VRLA type AGM / gel / lithium cell batteries UNLESS permitted by battery manufacturer.

CONTENTS

1 x MPPT Solar Controller
1 x Bluetooth Module
1 x Remote Temperature Sensor
1 x User Manual

IDENTIFICATION OF PARTS
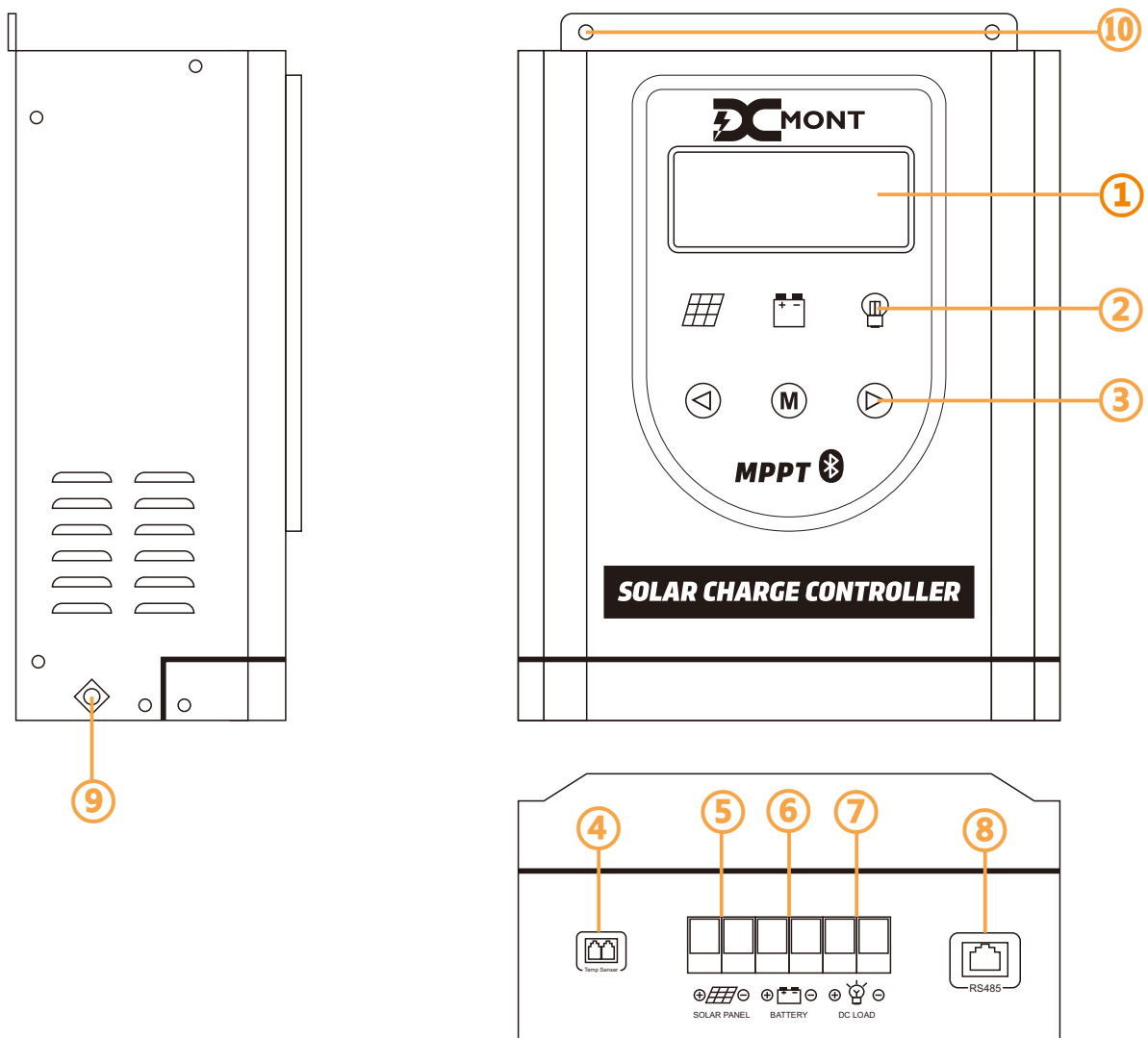
① LCD Screen   ② Indicators   ③ Buttons   ④ Remote Temperature Sensor Port
⑤ Solar Panel Terminals   ⑥ Battery Terminals   ⑦ Load Terminals
⑧ Communication Port   ⑨ Grounding Terminal   ⑩ Mounting Holes

LED INDICATORS

Blue indicator (left):
on -> bulk charge, flashing -> equalization, absorption or floating charge, off -> stop charging.
Green indicator (middle):
on -> battery is normal, flashing quickly -> battery is over-voltage, flashing slowly -> battery low voltage, off -> battery voltage is too low or not connected.
**Red indicator (right):**
on -> load is on, flashing -> overload, off -> load is off.

INSTALLATION

- Choose a mounting location on a vertical surface which should be protected from direct sunlight, high temperatures, and water. Make sure there is good ventilation.
- Verify that there is sufficient room to run wires, as well as clearance above and below the controller for ventilation. The clearance should be at least 6 inches (150mm).
- Secure the controller on the mounting location.
- Switch off the air switch or fuse of the battery, solar panel and load.
- Connect the battery to the battery terminals on the controller.
- Connect the solar panel to the solar panel terminals on the controller.
- Connect the load to the load terminals on the controller.
- Switch on the fuse of the battery first, then the air switch of the solar panel, finally the fuse of the load.
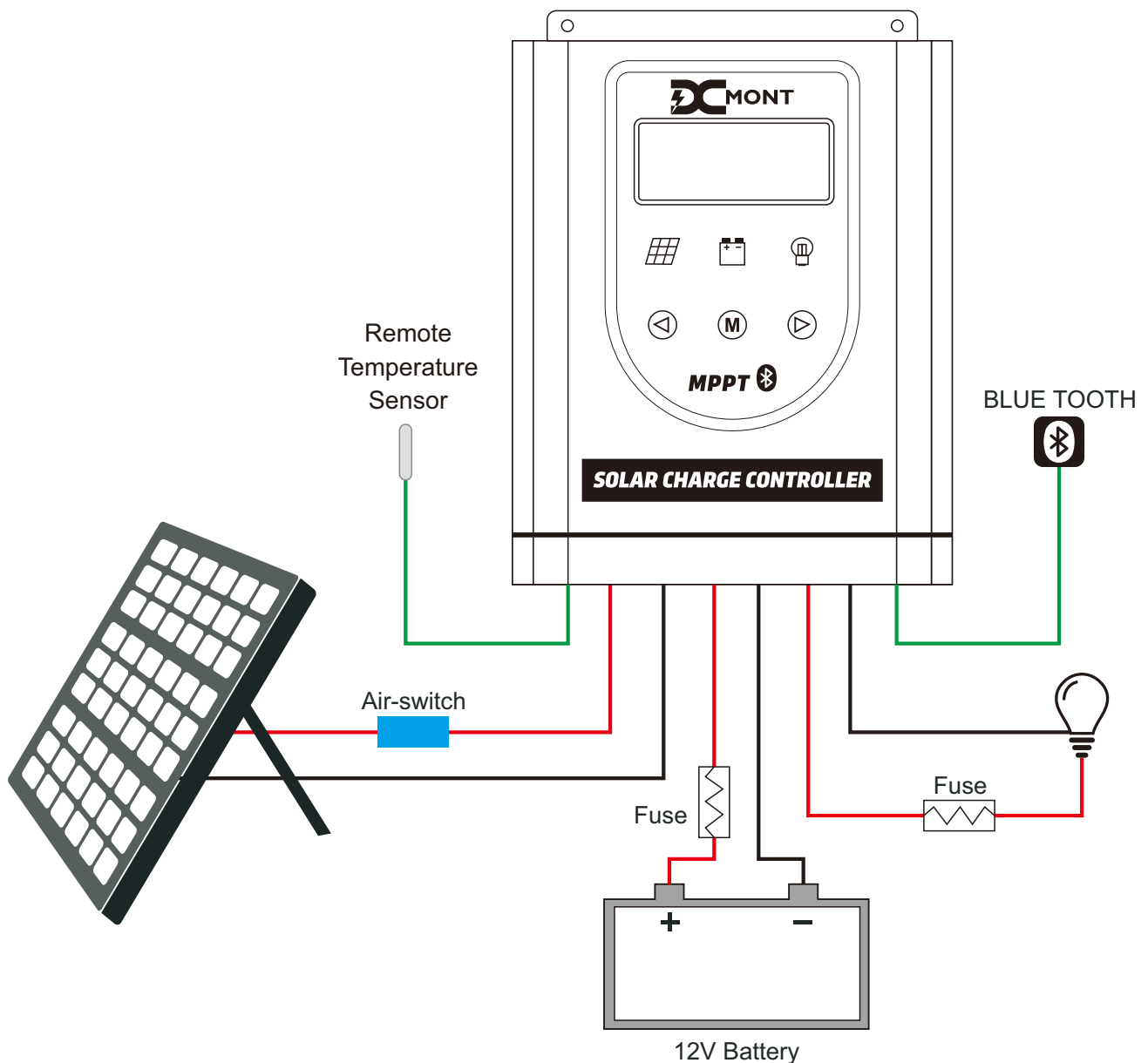
REMOTE TEMPERATURE SENSOR

- This sensor measures the temperature at the battery and uses this data for very accurate temperature compensation.
- Simply connect the cable of the sensor and adhere the sensor on top or the side of the battery to record ambient temperature around the battery.

BLUETOOTH MODULE

- With the Bluetooth module, you can monitor your system and change parameters directly from your cell phone.

DOWNLOADING APP

- Search and download "SController2.1" in App Store on your iPhone.
- For the Android version, you can scan the QR code to download and install the App.

OPERATION

- Plug the Bluetooth module into the RS485 port of the charger.
- Enter the App interface and click "Bluetooth".

- Choose and click "BT18", you can see real-time status of solar panel, battery, load, power generation and electricity consumption.
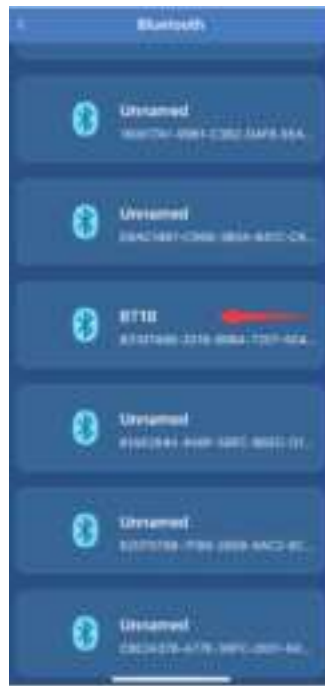
- Click ⚙ on the right top of the interface for battery setting, load setting, Chinese / English switching and reset.

- **1. Battery Setting**

  In this interface, you can choose battery type, system voltage, and set up battery parameters (absorption voltage, absorption duration, over voltage disconnection voltage, etc.).

- **2. Load Setting**

  In this interface, you can choose normal working mode or other working modes.

  Normal

  By switching on "Normal", the load will work for 24H per day.

Load working mode

By switching on "Load working mode", you can choose other working modes for the load, i.e. (1) light control mode, (2) dual time period control mode or (3) time period control mode.

(1) Light control

As the interface shows, the load will turn on when the voltage of the solar panel decreases to 5V at sunset and turn off when the voltage reaches 6V at sunrise.

(2) Dual time period control

As the interface shows, the load will be on for 1 minute after sunset (solar panel voltage decreases to 5V) and be on for 0 minute before sunrise (solar panel voltage reaches 6V). The load working time duration can be set up.

(3) Time period control

In this interface, you can set up load working time period.

- **3. Chinese / English Switching**

  By switching on/off this switch, you can set the system language to English / Chinese.
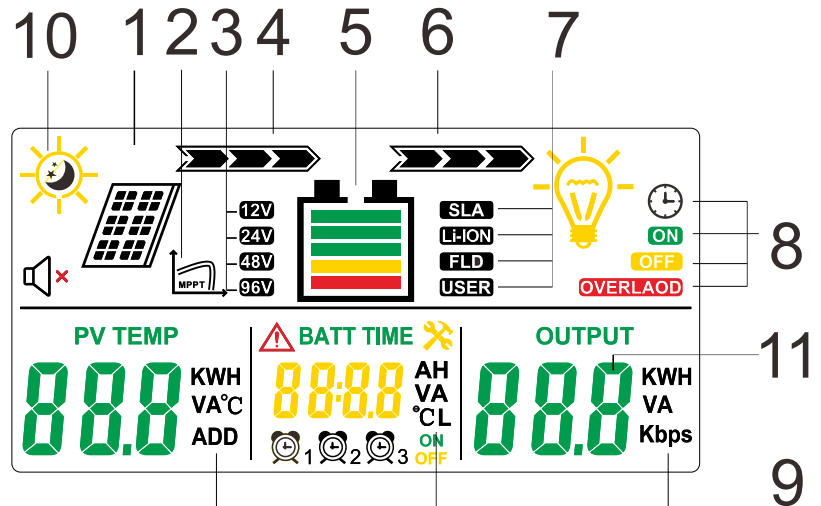

- **4. Reset**

  By switching on "Reset", you can reset the controller to factory settings.

OPERATING THE CONTROLLER

LCD Display Interface Overview

1. Solar panel
2. Working status
3. System voltage level
4. Charging
5. Battery capacity
6. Discharging
7. Battery type
8. Load working mode&status
9. Unit
10. Day/night
11. Characters

LCD Display Interface

- **Main Display**

  On the main display, you can check charging & discharging current, battery voltage, system voltage, battery type, etc. Press ◀ to the time interface displaying time and date. Press ➕ to the capacity interface displaying charging & discharging capacity.

  Interface will remain if the machine works well. It will switch automatically to the fault interface (check ERROR CODE CHART in this manual for information) after 15s if something is out of work. Press ◀ / ➕ to exit the fault interface.
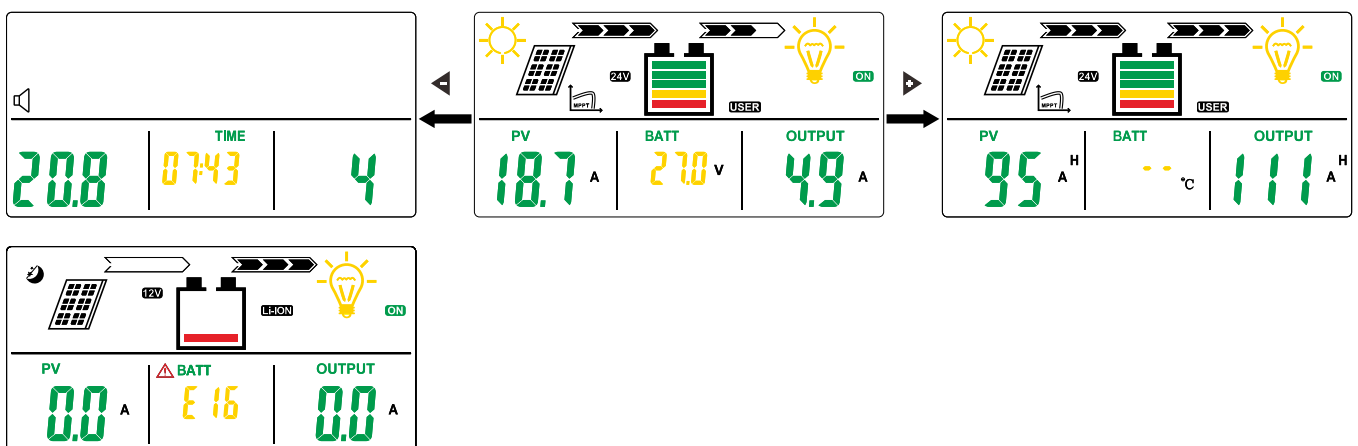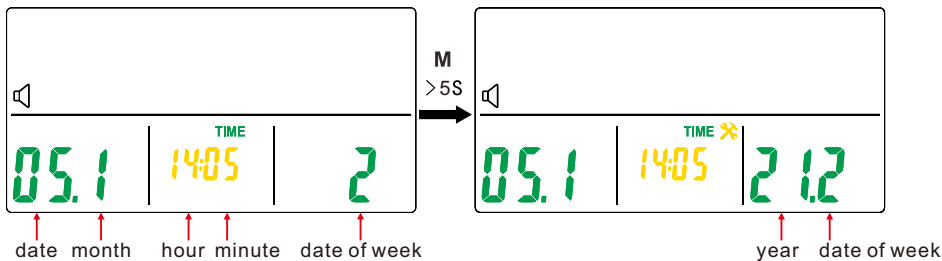

- **Load On/Off Setting:** On the main display, press **M** to switch on/off the load.
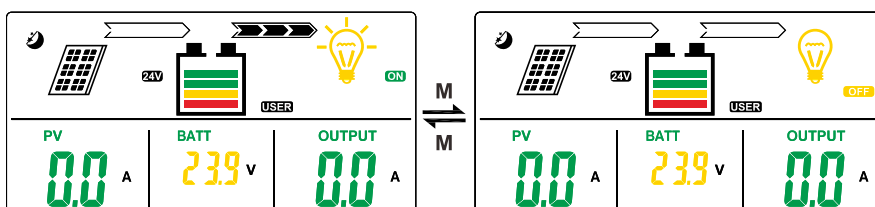
- **Panel Voltage Display:** On the main display, long press ◀ for over 5s to check PV voltage.
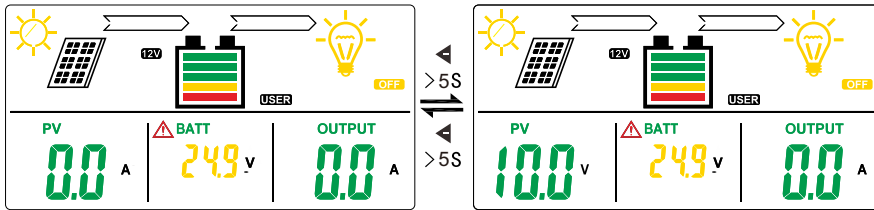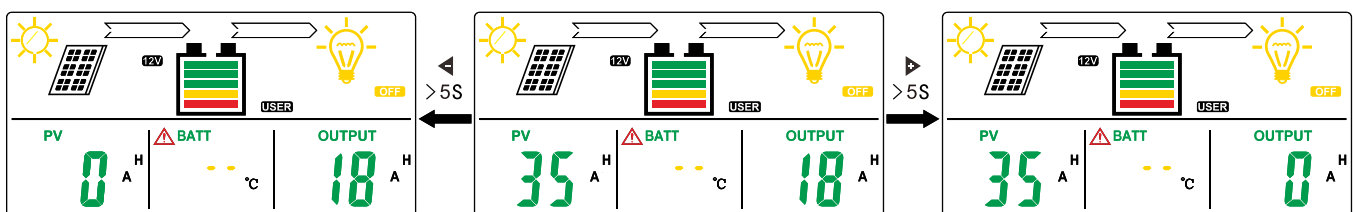

- **Time and Date Setting:** On the main display, press ◀ to enter the time interface. Then long press **M** for over 5s to enter the setting interface. From left to right, it is date, month, hour, minute, year and day of week. Short press ◀ or ▶ to modify, and long press **M** for over 5s to save. Short press **M** to switch. Month: 1~9 stands for January~September; O stands for October; N stands for November; D stands for December.

- **Sound Setting:** To set sound, long press ◀ on the time interface to turn on/off sound.
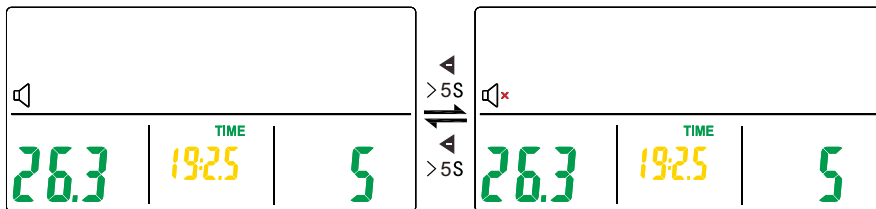
- **Total Capacity Count:** Maximum total charging / discharging capacity is 65KAH. Once over 65KAH, the count starts again from 0 Ah. On the main display, press ▶ to enter the capacity interface. Then long press ◀ over 5s to restart charging capacity count. Long press ▶ over 5s to restart discharging capacity count.

- **Restore Factory Settings:** On the capacity interface, long press **M** to restore factory settings.
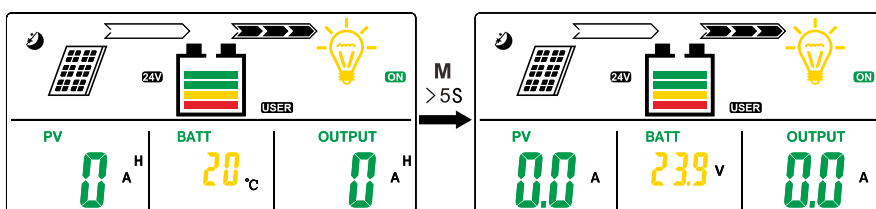
PARAMETER SETTING

On the main display, long press **M** to enter interfaces 01. Short press ◀ / ➤ to enter the last / next interface. On each interface, short press **M** and the character will flash. Short press ◀ / ➤ to decrease / increase the character. To confirm the setting, you can long press **M** and it will go back to the main interface automatically, or short press **M** and it will enter the next interface.

00:	Working Interface	01:	Battery Type Setting
02:	Battery Voltage(12/24/36/48V Auto Recognized)	03:	Battery Capacity
04:	Float Charge Voltage Setting	05:	Absorption Charge Voltage Setting
06:	Absorption Charge Time Setting	07:	Equalization Charge Voltage Setting
08:	Equalization Charge Time Setting	09:	Lithium-Ion Battery Constant Voltage Setting
10:	Lithium-Ion Battery Charge Recovery Voltage Setting	11:	Discharge Cutoff Voltage Setting
12:	Discharge Recovery Voltage Setting	13:	Load Working Mode Setting
14:	Load Working Time After Dark	15:	Load Working Time Before Dawn
16-23:	Load Time Period Control & Time Setting	24:	Temp. Compensation Coefficient Setting
25:	Communication Address Setting	26:	Baud Rate Setting
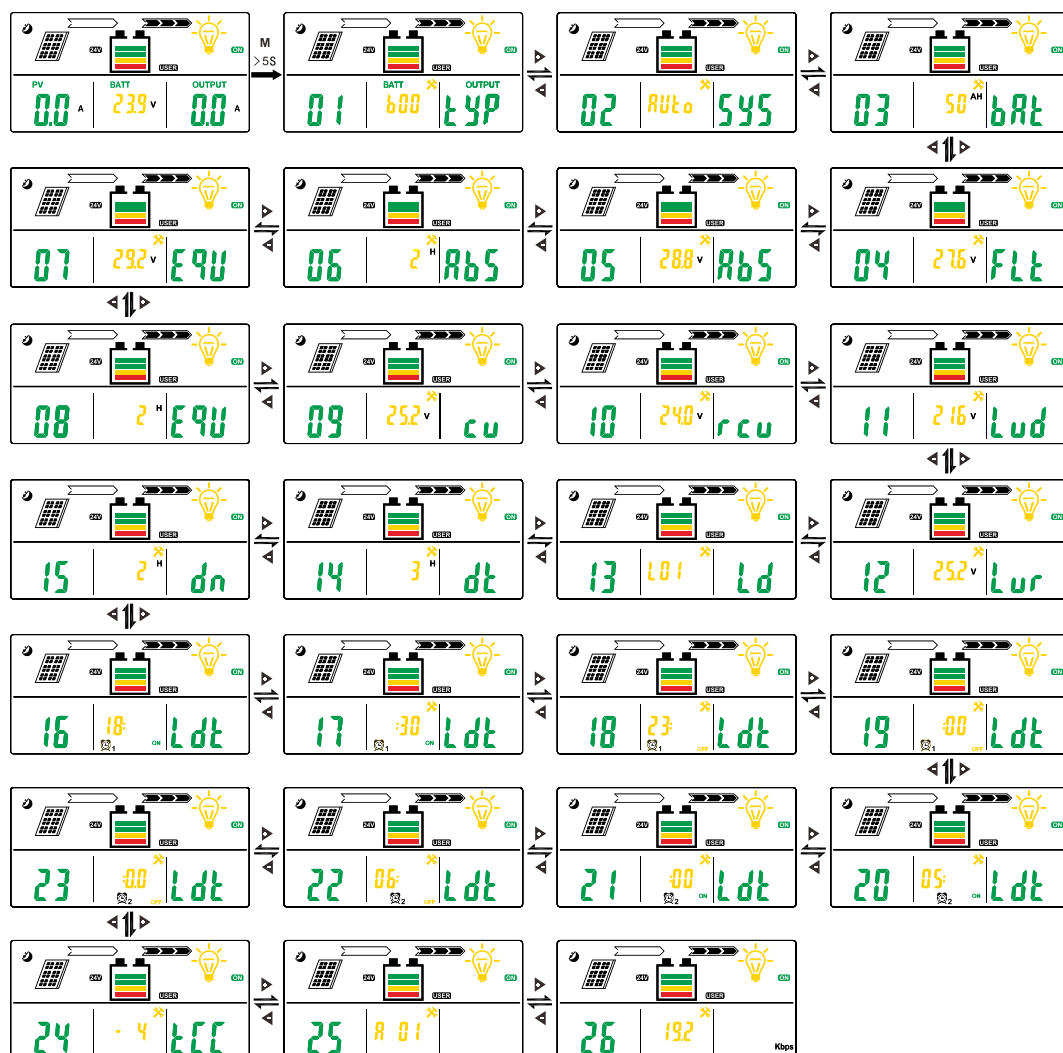
PARAMETER SETTING

Interface 01: Battery Type Setting

b00: lead-acid battery custom;

b01: sealed battery;

b02: flooded battery;

b03: gel battery;

b04: lithium battery custom;

Note: For b04, CV (constant voltage charging) voltage and RCV (recovery charging voltage) should be set up manually.
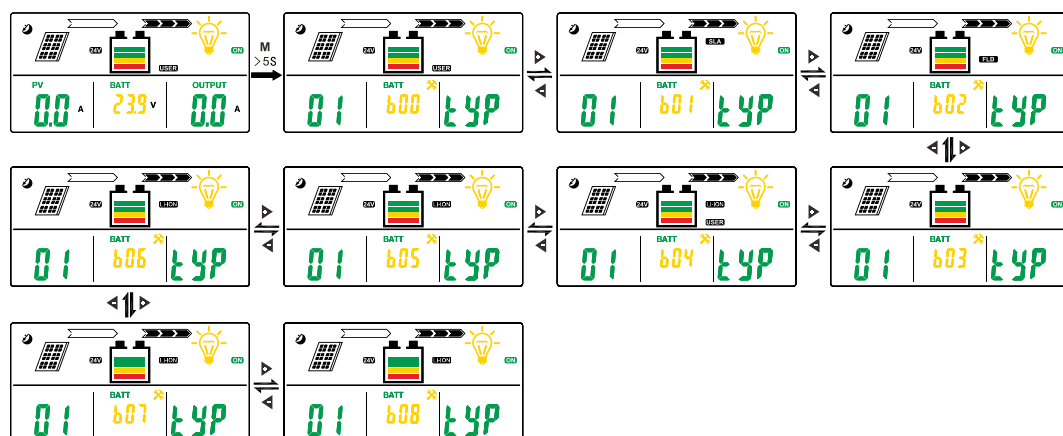
b05: 3.2V*4 series of LiFePO4;

b06: 3.2V*5 series of LiFePO4;

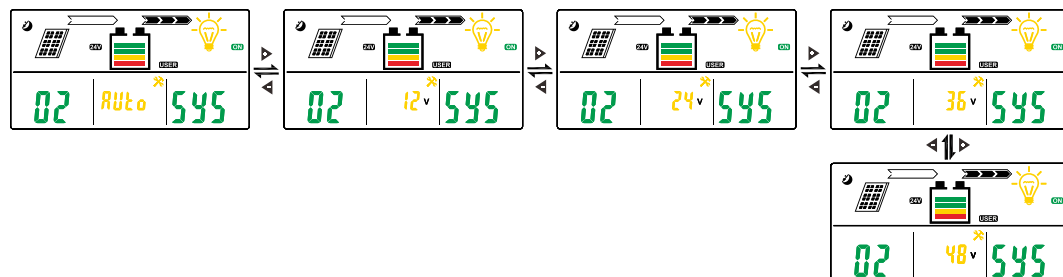b07: 3.7V*3 series ternary lithium battery;

b08: 3.7V*4 series ternary lithium battery.

Note: Charging parameters cannot be set up from b05 to b08.

Interface 02: Battery Voltage Setting

Battery voltage can be auto recognized or manually set.

Interface 13: Load Working Mode Setting

L01: normal mode (load working for 24H per day)

L02: light control mode (load working at day time)

L03: anti-light control mode (load working at night)

L04: dual time period control mode (light control with priority)

L05: time period control mode (load working time period can be set)

L06: charging mode (load off)
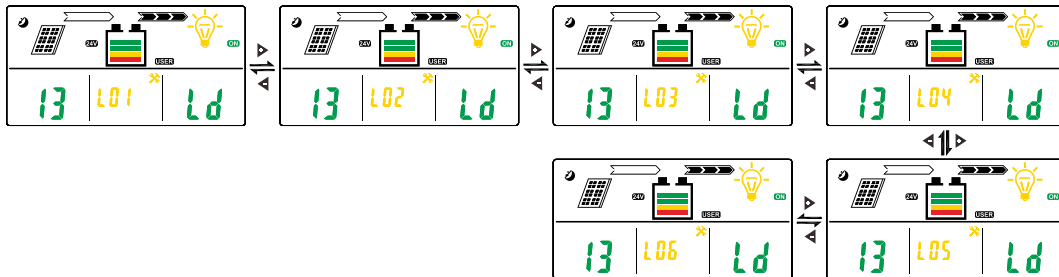
Interface 26: Baud Rate Setting

On the main display, long press **M** to enter interface 01. Short press ◀ to enter interface 26. Short press **M** and the character will flash. Short press ◀ / ✚ to set the baud rate to 9.6kbps. Long press **M** to confirm the setting.

PARAMETERS

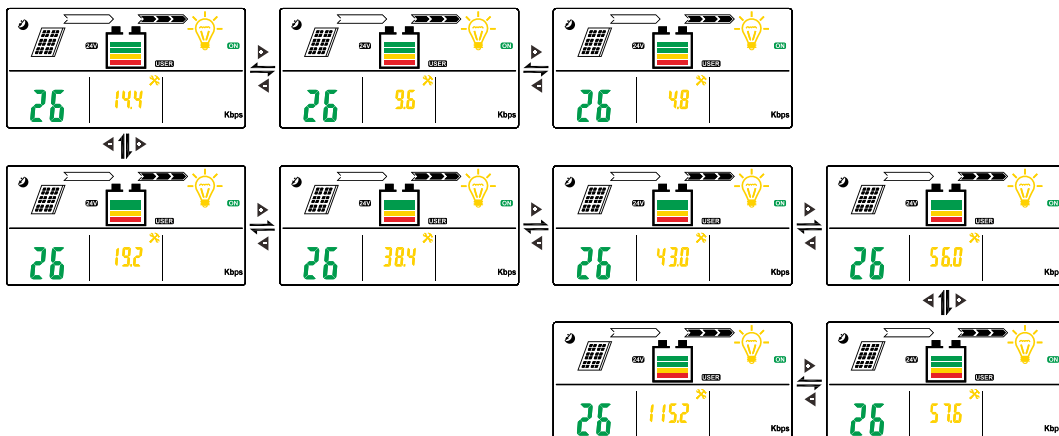| SKU	DC-MPPT-MPK2-40A	DC-MPPT-MPK2-60A	DC-MPPT-MPK2-100A
Electrical			
System Voltage	12V/24V/36V/48V Auto Recognition		
Rated Battery Current	40A	60A	100A
Rated Load Current	20A	30A	50A
Max. Battery Voltage	57.6V		
Max Solar Input Voltage	150V		
Max Solar Input Power	12V / 520W, 24V / 1040W, 36V / 1560W, 48V / 2080W	12V / 650W, 24V / 1300W, 36V / 1950W, 48V / 2600W	12V / 1300W, 24V / 2600W, 36V / 3900W, 48V / 5200W
Self-Consumption	≤35mA @ 12V/24V/36V/48V		
Temp Compensation	-4mV/°C/2V		
General			
Max Terminal Size	25mm² / 3AWG		
Working Temperature	-20~+55°C		
Storage Temperature	-30~+80°C		
Humidity Range	10%~90% No Condensation		
Enclosure	IP32		
Altitude	< 3000m		
Communication	RS485, RJ45 Port		
Network Cable Type	Cat5		
Certification	FCC Part 15 Class B; CE; RoHS		

BATTERY CHARGING PARAMETERS

SKU	Gel	Sealed	Flooded	Li
Float Voltage		13.8V		/
Boost Voltage		14.4V		/
Equalization Voltage		14.6V		/
Low Voltage Disconnect		10.8V		/
Low Voltage Reconnect		12.6V		/

∗ Parameters are multiplied by 2 for 24V systems, by 3 for 36V systems and by 4 for 48V systems.

ERROR CODE CHART

CODE	ERROR	DESCRIPTION & QUICK TROUBLESHOOT
Ex1	Battery over-discharged	Battery voltage is too low. Load will be turned off until battery is recharged to recovery voltage.
Ex2	Battery over-voltage	Battery voltage has exceeded controller limit. Check battery voltage for compatibility with controller and check battery voltage setting.
Ex3	Overload	Load power draw exceeds controller capability. Reduce load output, and switch on load manually or wait 6 minutes for auto switch-on.
Ex4	Load Short Circuit	Check load wiring and rewire.
Ex5	Overheating	Controller exceeds operating temperature limit. Ensure controller is placed in a well-ventilated, cool, dry place. Controller automatically resumes charging when the temperature drops.
Ex6	Input Over-current	Input current exceeds controller rated input current. Decrease the number of panels in parallel.
Ex8	Indicating the controller should be restarted after the system voltage is set up.	Disconnect the solar panel first, and then the battery. After the LCD display is off, reconnect the system.

Note: "x" in the error code refers to the total number of errors in the system.

MAINTENANCE

- Make sure that all power is turned off before touching the terminals on the charge controller.
- Check wiring going into the charge controller and make sure there is no wire damage or wear.
- Tighten all terminals and inspect any loose, broken, or burnt up connections.
- Make sure LCD readings are consistent. Take necessary corrective action.
- Check to make sure none of the terminals have any corrosion, insulation damage, high temperature, or any burnt/discoloration marks.

What is Covered?
DC MONT warrants that this MPPT controller will operate free from defects in material and workmanship under normal use during the Warranty Period of 2 Years. This Limited Warranty is to the original purchaser of the product and is not transferable to any other person or entity.

Within the Warranty Period, DC MONT will either replace the product or provide you with a refund at our discretion provided that the fault is found to have been caused by a design or manufacturing defect under normal use and maintenance.

What is not Covered?
This Limited Warranty does not cover product failure related to damages caused by abuse or negligence, tampering, non-adherence to DC MONT guidelines or from any of the following: failure to properly install and connect the battery, failure to properly charge and maintain the battery, breakage or damage from collision, fire, water, freezing, damage from extreme heat or cold, improper storage, reverse polarity connection, short circuit of the battery terminals.

This Limited Warranty does not cover repair, maintenance, and adjustment to the product required for reasons of neglect, misuse, accident, modification, improper environment (including lack of proper temperature or humidity), unusual physical or electrical stress or interference, failure of lightning, power surges, fire, or acts of God.

Warranty Disclaimer
DC MONT makes no representations or warranties regarding the product other than those expressly stated in this Limited Warranty. The foregoing Limited Warranties are exclusive and in lieu of all other express and implied warranties whatsoever. DC MONT specifically disclaims any implied warranties of merchantability or fitness for a particular purpose.

To the maximum extent permitted by applicable law, DC MONT shall not be liable for any damages whatsoever (including without limitation, special, incidental, consequential, or indirect damages for personal injury, loss of business profits, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use this product. In any case, DC MONT's entire liability under any provision of this warranty shall be limited to the amount actually paid by you for the product. Because some jurisdictions do not allow the exclusion of limitation of liability for consequential or incidental damages, the above limitation may not apply to you.