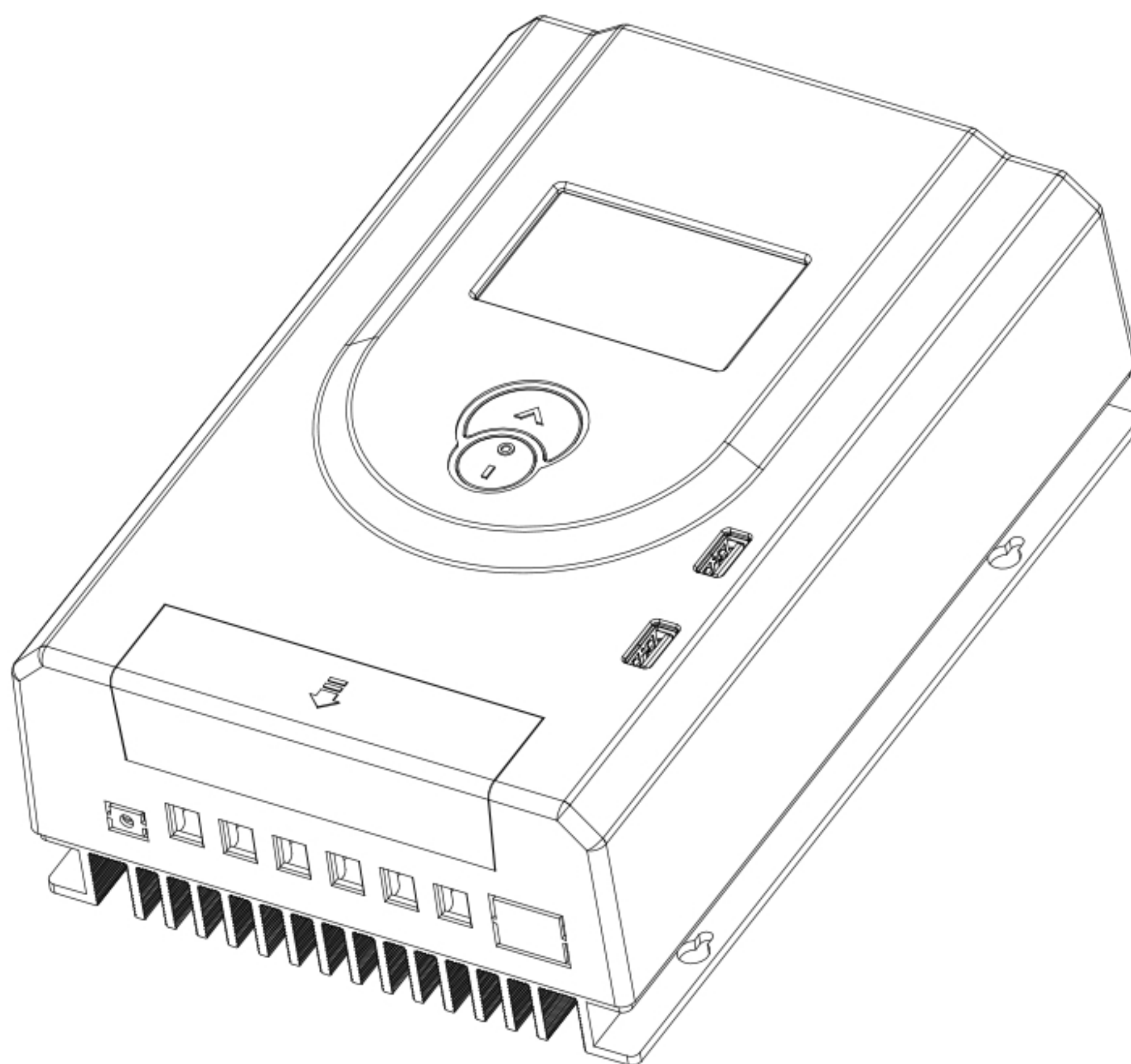


# MPPT Solar Charge Controller

## user's manual



※Thank you for selecting this series solar charge controller, please read this specification before using the product.

※Please keep this specification for the further reference.



## 1. Overview:

Thank you for selecting MPJ series solar charge controller with the most advanced MPPT control algorithm and the maximum power point of the pv array can be quickly tracked in any environment so that it can get the maximum energy from the solar panel and significantly improve the utilization of energy in solar system. The machine has the dual display function of LCD and Remote meter (optional) and standard communication interface, convenient for user extension application and satisfy different monitoring needs to the maximum extent. It can be used in communication base station, home power supply system, traffic light, solar street lamp, courtyard lamp system, etc. The features are listed below:

- Advanced MPPT maximum power point tracking technology, the tracking efficiency is no less than 99.5%.
- High quality components are used to improve the system performance, and the maximum conversion efficiency can reach 97%.
- Super fast maximum power tracking speed while ensuring tracking efficiency.
- Accurate identification and tracking of the maximum power point of multi-wave peak.
- Reliable maximum input power of pv array to ensure the safety of equipment.
- Wide PV array maximum power point operating voltage range.
- 12/24V automatic voltage identification
- The LCD is designed to dynamically display the operation data and working status of the equipment.
- Various load control modes: general mode, light control mode, dual time mode, pure charger mode .
- Seal, GEL, Flooded, LifePO4 and Li(NiCoMn)O2 battery types are available.
- The function of battery temperature compensation.
- Power statistics recording function.
- Use the Rs485 methods to maximize the communication needs of different occasions.
- Support PC monitor, external display unit and other peripherals, realize real-time data view and parameter setting function.

## 2. Product Appearance

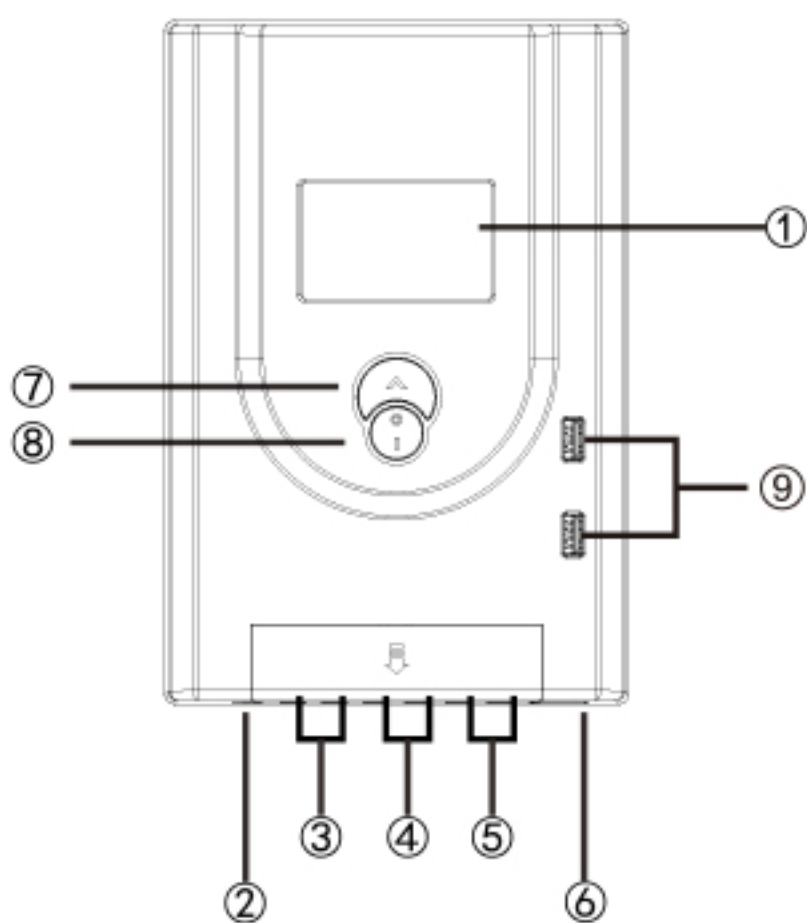


Photo 1 Appearance

①	LCD screen
②	Temperature sensor interface
③	Photovoltaic array terminals
④	Battery terminals
⑤	Load terminals
⑥	RJ45 communication interface
⑦	▲ Button
⑧	▼ Button
⑨	USB OUTPUT



NOTICE: In the case of the remote temperature sensor not connected, the controller will compensate the charging parameters by 25°C for the battery temperature.

## 3. Wiring

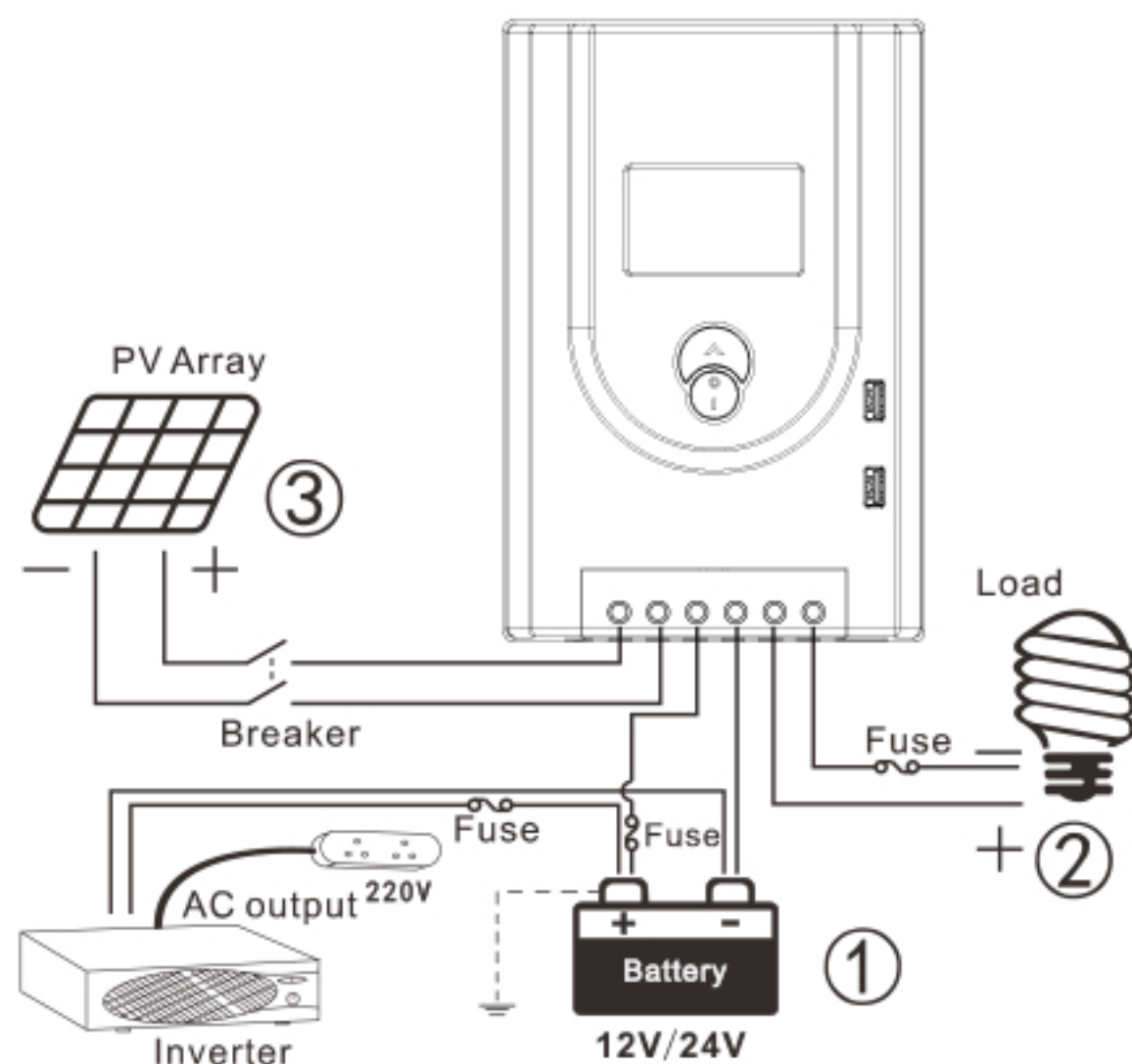


Photo 2 Connection diagram

Order of connection:

- ① Connect battery  
Notice: The battery terminal shall be installed with insurance, and the installation distance shall not exceed 50mm.
- ② Connected Load
- ③ Connect pv array
- ④ Controller is powered on

Connect the battery, identify the voltage of the control system and observe whether the display screen is lighted. If it doesn't work or the display is abnormal.



NOTICE: This series of MPPT is a common positive controller, pv array, battery and load of the positive pole can be grounded at the same time.

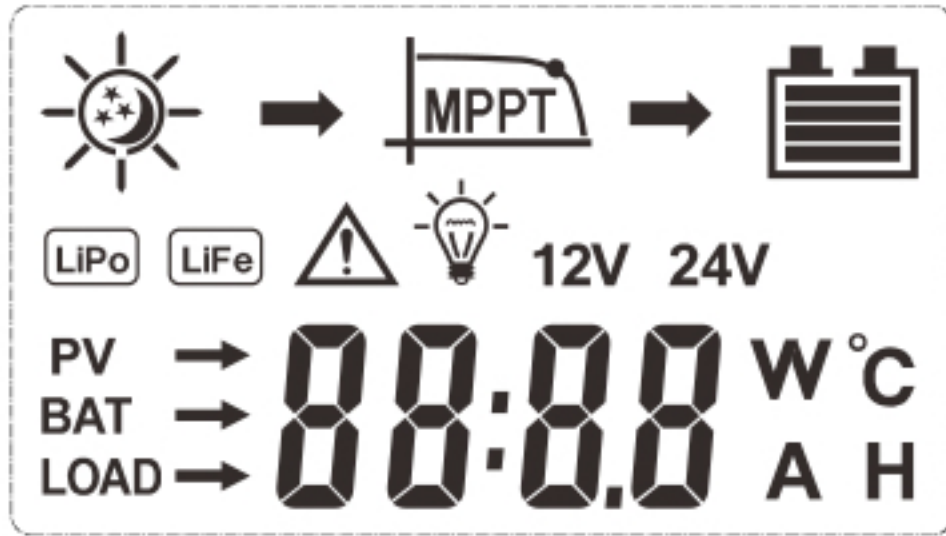


NOTICE: If the inverter or other starting current is loaded in the system, please connect the inverter directly to the battery. Do not connect with the controller's load terminal.



# 4. Interface Description

## 4.1 LCD Screen

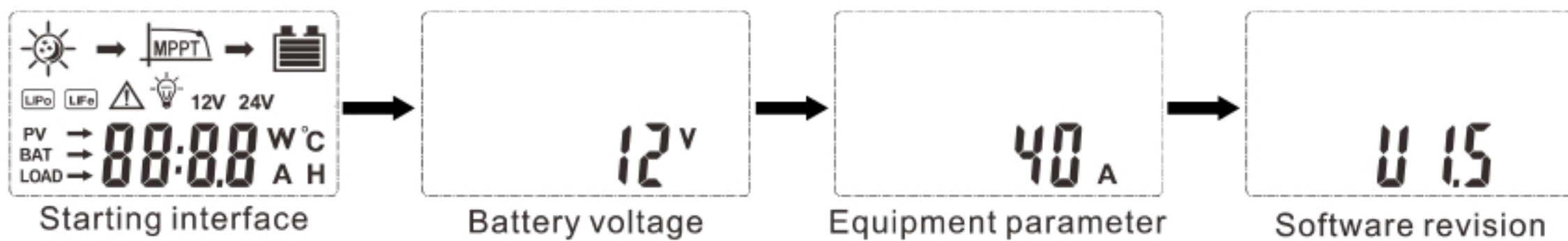


☐ Status introduce

Item	ICO		Status	
PV array			Day	Night
			Charging	
Battery			Uncharged / Battery soc	
			Battery type	
Load			load on	load off

Tip: When returning to the main page from other pages, there will be flashing prompts on the screen

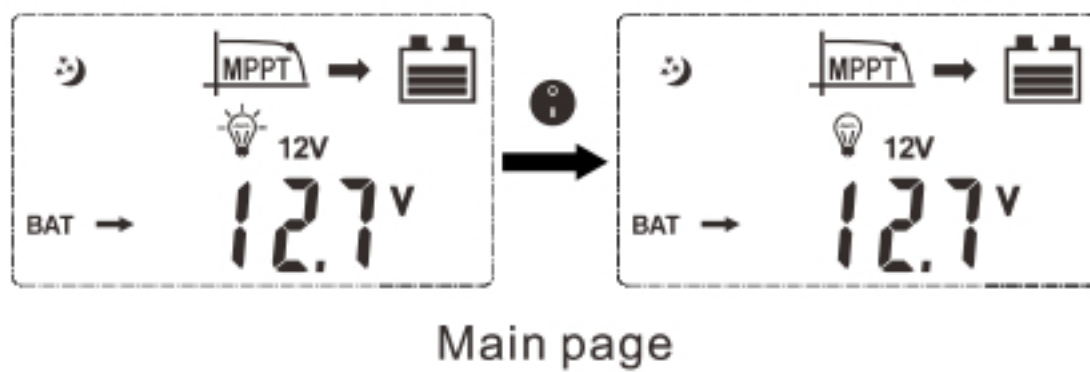
## 4.2 BOOT screen



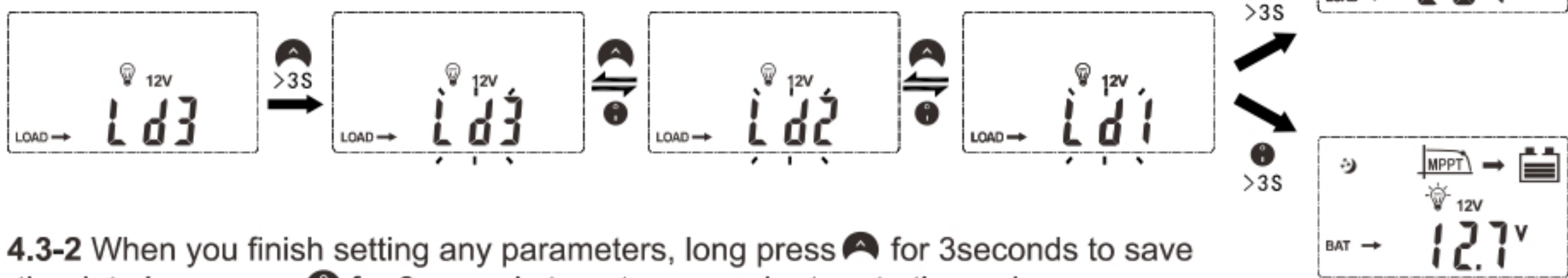
- (1) Starting interface: it is normal to detect LCD when the system is powered on.
- (2) Battery voltage interface: Battery voltage.
- (3) Equipment parameter: Controller rated charging current.
- (4) Software revision.

Notice: At the first level browse interface long press button to enter the secondary browsing interface .It will automatically exit the secondary browsing interface without doing anything for 15 seconds.

## 4.3 Buttons

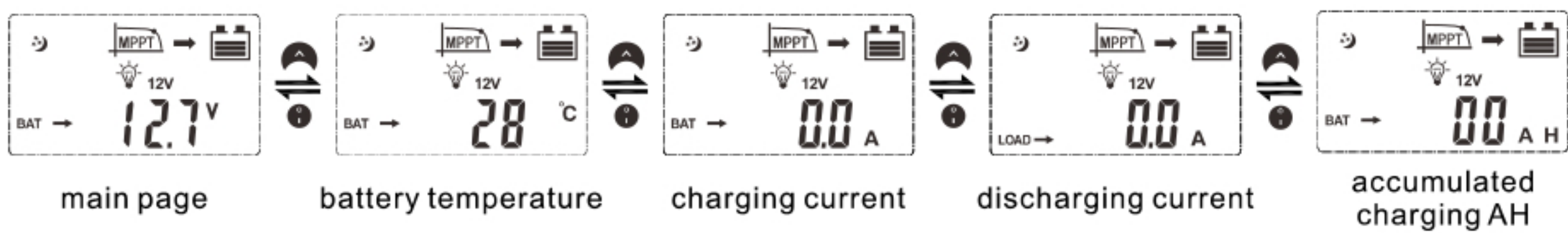


4.3-1 Short pressing button can turn on/off the load.

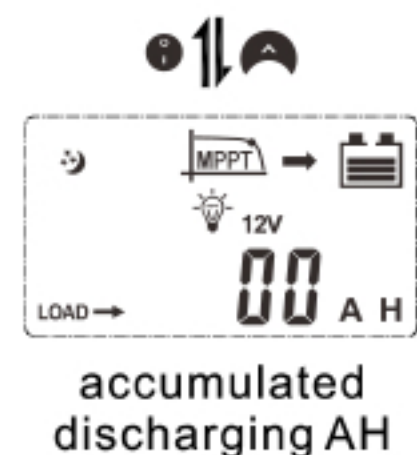


4.3-2 When you finish setting any parameters, long press for 3seconds to save the data, long press for 3seconds to not save and return to the main page.

## 4.4 Main loop pages

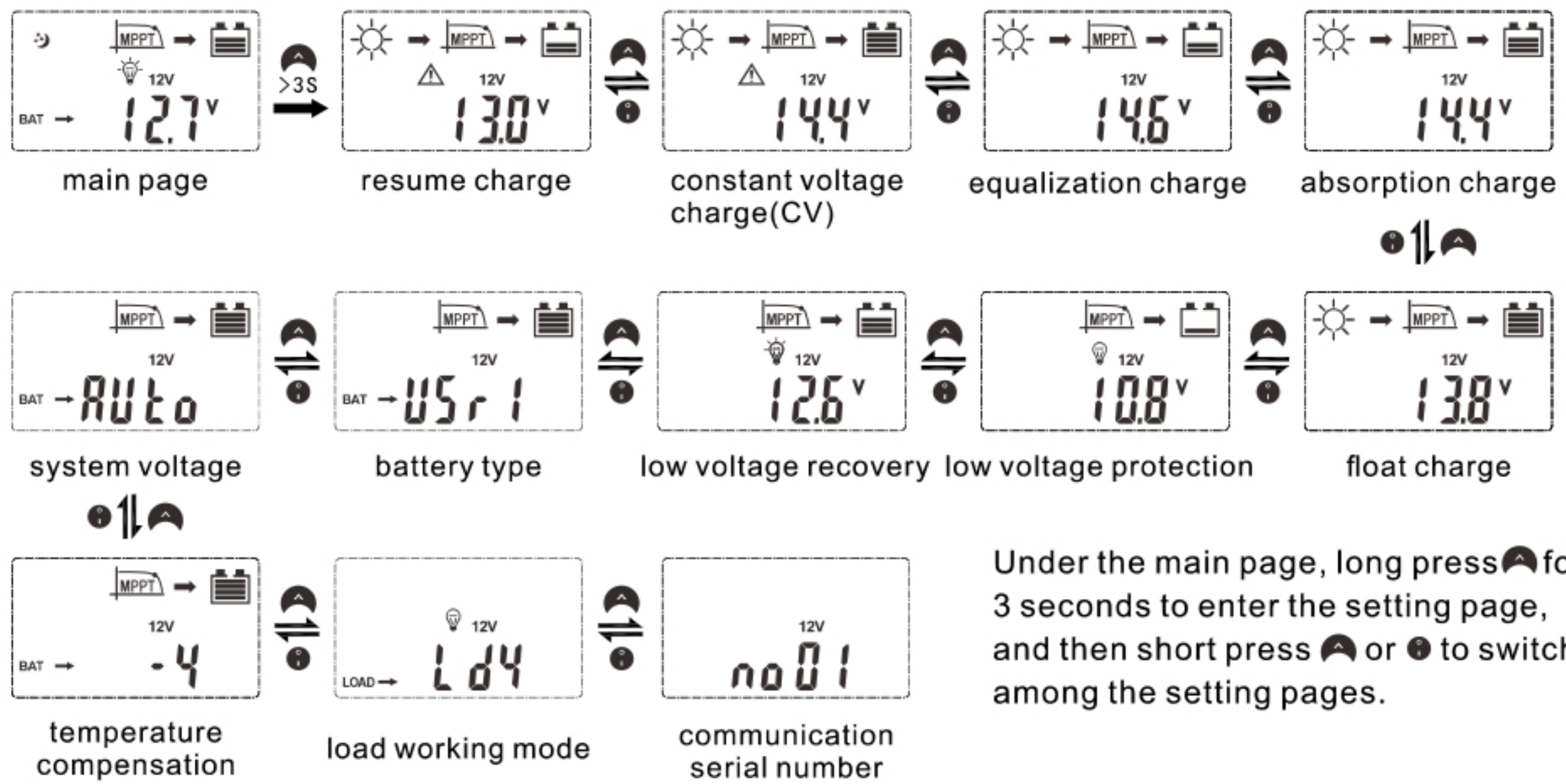


After the controller is powered on, LCD screen will enter the main page. At this time, short press or to switch among the main loop pages.



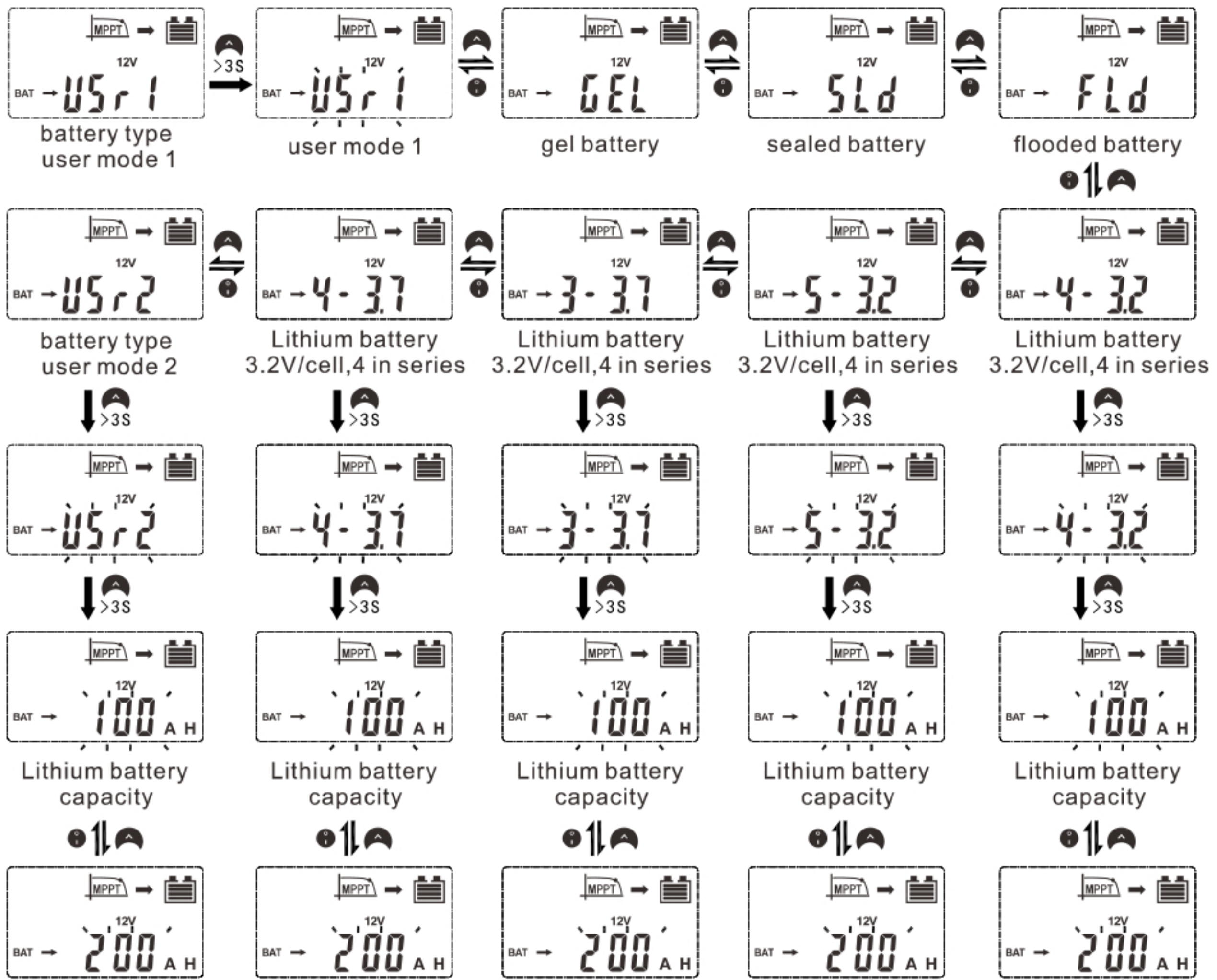


## 4.5 Setting pages



Under the main page, long press for 3 seconds to enter the setting page, and then short press or to switch among the setting pages.





## 4.6 Battery type



Under the main page, long press for 3 seconds to enter the setting page, and then short press to switch to the battery type page (user mode 1).

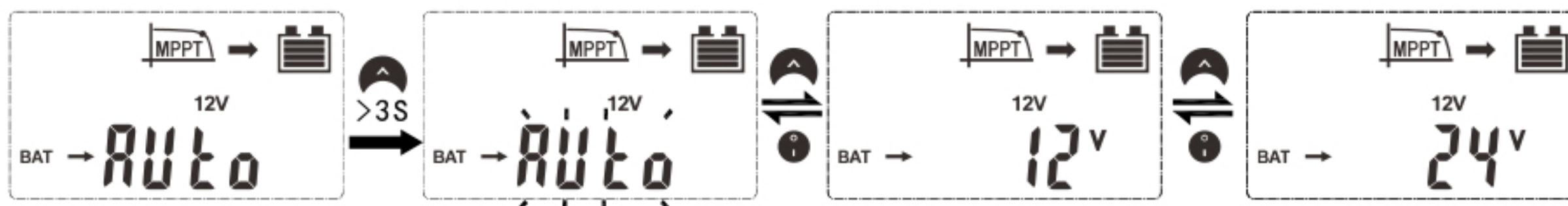
After entering battery type page (user mode 1), long press for 3 seconds to enter battery type selection pages, short press or to switch among gel battery, sealed battery, flooded battery and lithium batteries.






under each lithium battery page, long press  for 3 seconds to enter a program of setting lithium battery's capacity, at this time the parameters on screen will start flashing, keep long pressing  for 3 seconds, the parameter will become to battery capacity, short press  or  to set the capacity of the currently connected lithium batteries.

After setting the parameters, save the data, please refer to 4.4.2

### 4.7 System voltage setting



After entering setting pages, switch to the system voltage page, long press  for 3 seconds until the “auto” starts to flash. then short press  or  to turn the system voltage 12V or 24V

### 4.8 Load working mode

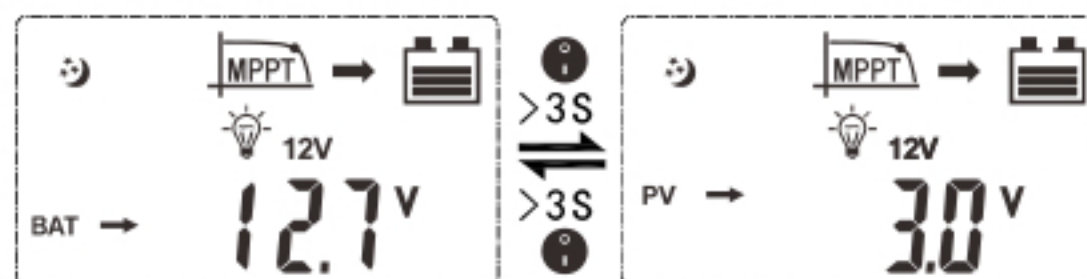
The controller default load working 24hours, and there are 4 load working modes for selection:

code	Code explanation
Ld1 (LD1)	regular mode
Ld2 (LD2)	light control mode
Ld3 (LD3)	light & time control mode
Ld4 (LD4)	Reverse light control mode






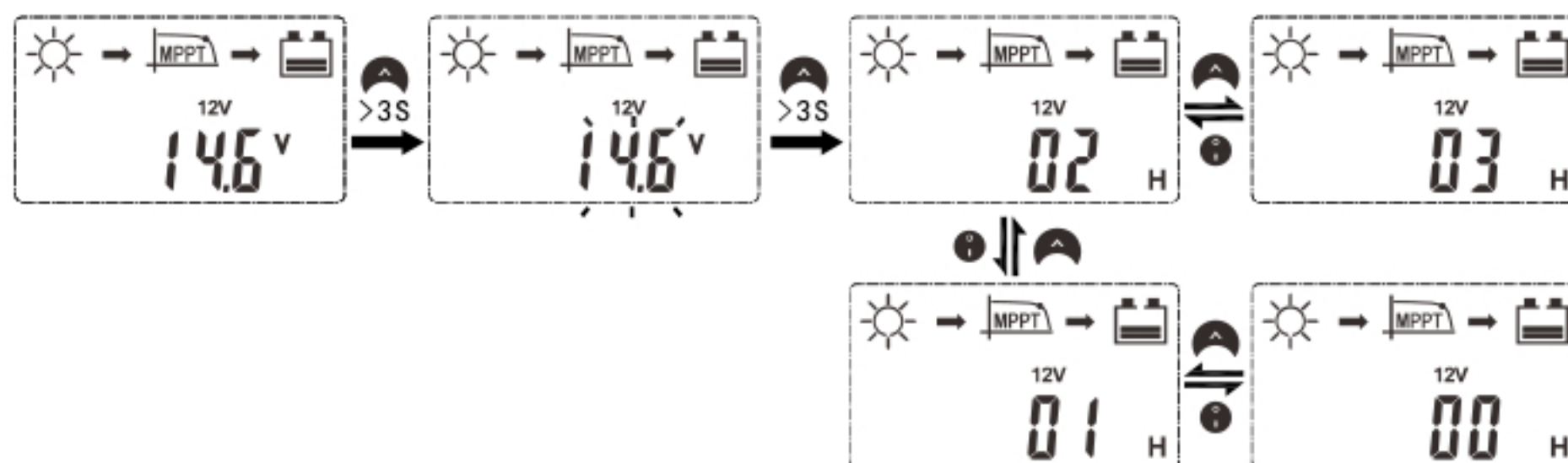
### 4.9 PV voltage page

Long press  for 3 seconds to switch between the main page and PV voltage page.






### 4.10 Setting of equalization charging duration

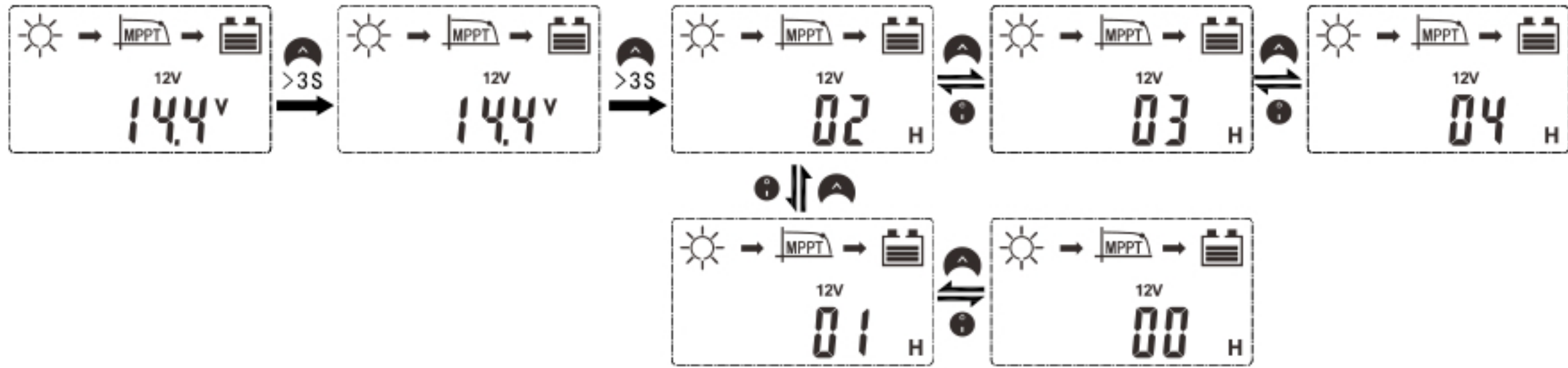
After switching to the equalization charge page from the main page, Long press  for 3 seconds when the parameter stats to flash, keep pressing it for 3 seconds to turn the page to equalization charging duration setting page, short press  or  to increase or decrease the time.



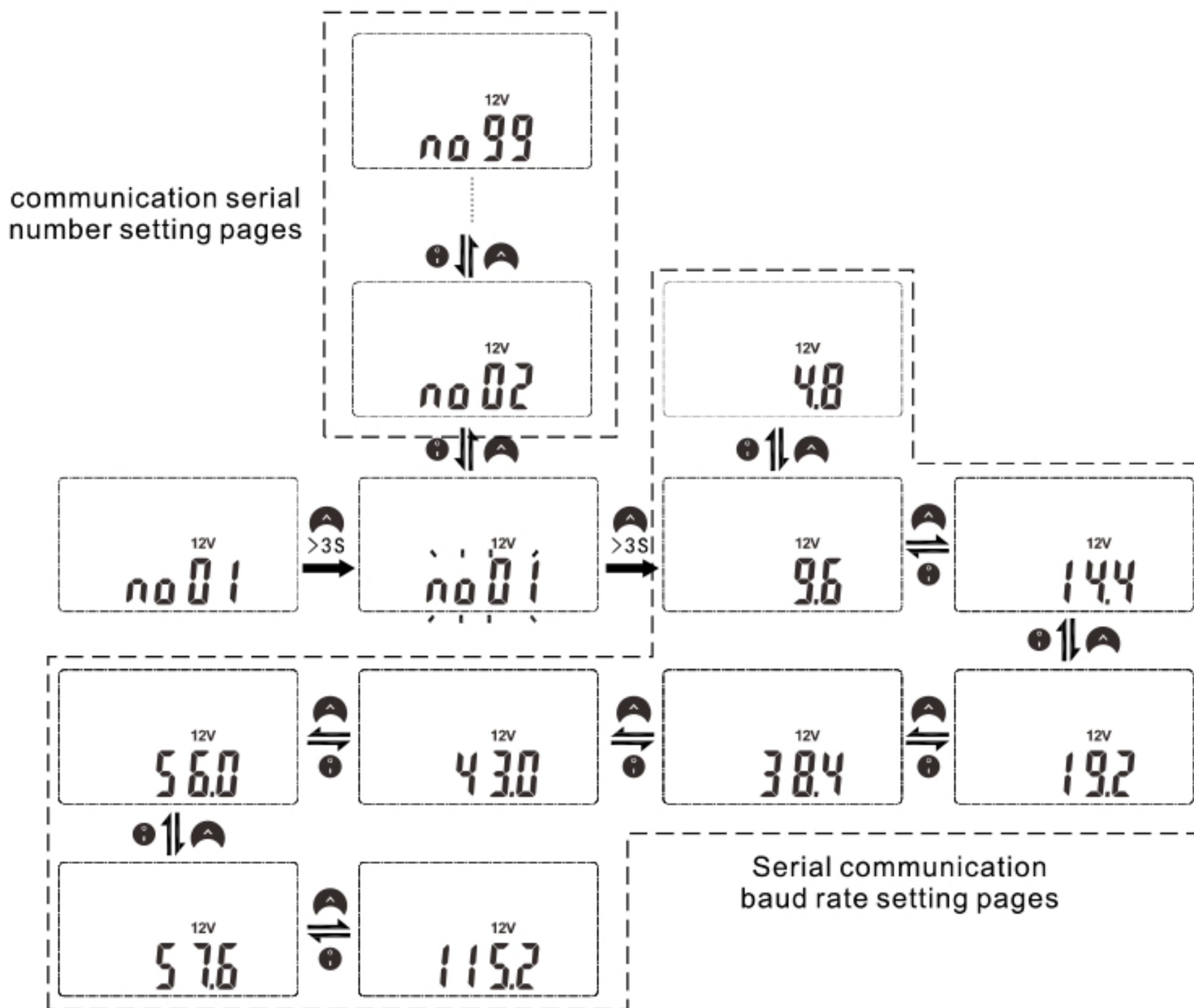


### 4.11 Setting of absorption charging duration




After switching to the absorption charge page from the main page, Long press  for 3 seconds when the parameter starts to flash, keep pressing it for 3 seconds to turn the page to absorption charging duration setting page, short press  or  to increase or decrease the time.






### 4.12 Communication setting



#### Communication serial number setting:

After entering setting pages, switch to the communication serial number page, long press  for 3 seconds until the parameter starts to flash, then press  or  to increase and decrease the serial numbers.

#### Serial communication baud rate setting:

After switching to the communication serial number page, Long press  for 3 seconds when the parameter starts to flash, keep pressing it for 3 seconds to turn the page to serial communication baud rate setting pages, short press  or  to switch among the relation pages.



## 5. Protection Function

Protection	Condition	Status
Solar panel reversed	Solar panel can be reversed if battery is not connected	Controller isn't broken
Battery is reversed	Battery can be reserved if PV is unconnected	
Battery over-voltage	Battery voltage reaches the over-voltage point	Stop charging and discharging
Battery over-discharge	Battery voltage drops the under-voltage point	Stop discharging
Over-load	The load current is over the rated current	Turn off the output

## 6. Fault Management

Error code	Cause	Correction
No sign on the LCD when there is enough sunlight	Solar panel is disconnected	Check if connection of solar input is right and contact is reliable.
No sign on the LCD when connection is right	1. Battery voltage is less than 8v 2. Voltage of solar panel is less than battery voltage	1. Check battery voltage. Controller will start only battery voltage is more than 8v 2. Voltage of solar panel must be more than battery voltage.
<b>E 1</b> (Ex1)	Battery Over-discharge	Load output is turned off automatically and recovers when battery electricity is enough.
<b>E 2</b> (Ex2)	Over voltage of storage battery	Please check whether the battery voltage exceeds the voltage and reconnect the solar panel.
<b>E 3</b> (Ex3)	Over- load	Reduce load or check load connection
<b>E 5</b> (Ex5)	Over temperature	Make the controller cool down and restart charging automatically.
<b>E 6</b> (Ex6)	Input voltage of solar panel is too high	Check voltage of solar panel and reduce quantities of solar panel in series.



## 7. Technical Data

Rated charge current	10A	20A	30A	40A	50A	60A
Input						
Max open voltage of solar panel	100V (at the lowest temperature) 92V (at a standard temperature of 25 °)					
System rated voltage	12/24V Auto recognized					
Maximum battery voltage	8V-32V					
Maximum input power	130W (12V) 260W (24V)	260W (12V) 520W (24V)	390W (12V) 780W (24V)	520W (12V) 1040W (24V)	650W (12V) 1300W (24V)	780W (12V) 1560W (24V)
Output						
Battery type	User default, Sealed, Flooded, GEL, LiFePO4, Li(NiCoMn)O2.Maint					
Equalized charging voltage ※	Maintenance-free lead-acid battery :14.6V, GEL:No;Lead-acid Flooded battery: 14.8V			Duration: 2hours		
Absorption charging voltage ※	Maintenance-free lead-acid battery :14.4V, GEL:14.2V ;Lead-acid Flooded battery: 14.6V			Duration: 2hours		
Float charging voltage ※	Maintenance-free lead-acid battery, GEL, lead-acid Flooded battery : 13.8V					
LVR ※	Maintenance-free lead-acid battery, GEL, lead-acid Flooded battery : 12.6V					
LVD ※	Maintenance-free lead-acid battery, GEL, lead-acid Flooded battery : 10.8V					
Static loss	≤ 50mA					
HVD	Lead acid battery 16V					
Light control voltage	5V/10V/15V/20V					
Temperature compensation coefficient	-4mV/°C/2V(25°C)					
Discharge loop voltage drop	≤0.2V					
LCD temperature	-20°C ~ +70 °C					
Operating temperature	-20°C ~ +55 °C					
Storage temperature	-30 ~ +80 °C					
Working humidity	≤90%, No condensation					
Protection class	IP30					
Grounded type	Positive grounded					
Dimension	175mm*120mm*47mm	215mm*145mm*75mm		261mm*191mm*84mm		
Hole size for installation	120mm*108mm	133mm*130mm		180mm*214mm		
Aperture for installation	Φ5mm					
Terminal wiring	10mm <sup>2</sup> /7AWG	16mm <sup>2</sup> /5AWG		25mm <sup>2</sup> /3AWG		
Optional function	RS485/RJ45 port					
※ Above the parameters are in 12V system at 25°C, twice in 24V system.						