SOLAR CHARGE CONTROLLER
USER'S MANUAL

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V2.0E

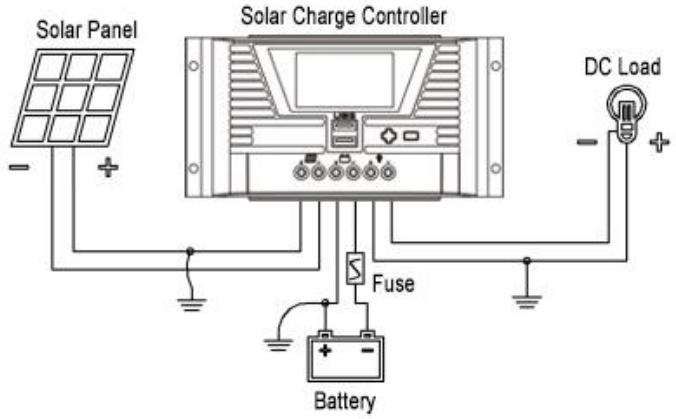
Thank you for choosing this series Solar Charge Controller. Please read this Manual carefully before using the product.

1. Product Features:

This series controller is a PWM charge controller with built in LCD that adopts the most advanced digital technique. The multiple load control modes enable it can be widely used on solar home system, traffic signal, solar street light, etc.

- System voltage 12V/24V (12V/24V/36V/48V) automatic recognition;
- Intelligent 4 stages PWM charging: Bulk, Absorption, Equalizing, Floating;
- LCD display with Back-lighting shows device's operating data and working condition;
- Humanized simple button operation; adjustable charge-discharge control parameters;
- Support more kinds of battery: Lead-acid battery (Sealed, Gel, Flooded) and Lithium battery (LiCoMnNiO2, LiFePO4);
- Multiple load control modes: 24Hours Working Control, Light Control, Light and Dual Time Control;
- Automatic temperature compensation and accumulated function of charge and discharge KWH;
- Double USB output 5V/2A;
- Perfect electronic protections.

2. System Connection:



Order of Connection:

① Connected with Battery first, and the fuse should be installed as close to battery as possible, the suggested distance is about 150mm.

② Secondly, connected with Load;

③ Connected with Solar Panel.

NOTE:

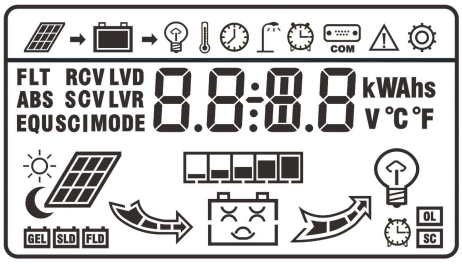
① This series is a positive ground controller. Any positive connection of Solar Panel, Load or Battery can be earth grounded as required;

② If inverter or other load with big start current is necessary in system, please connect it with Battery, not solar controller;

③ When disconnecting the system, the order will be reversed.

3. Operation：

3-1. LCD Symbol：

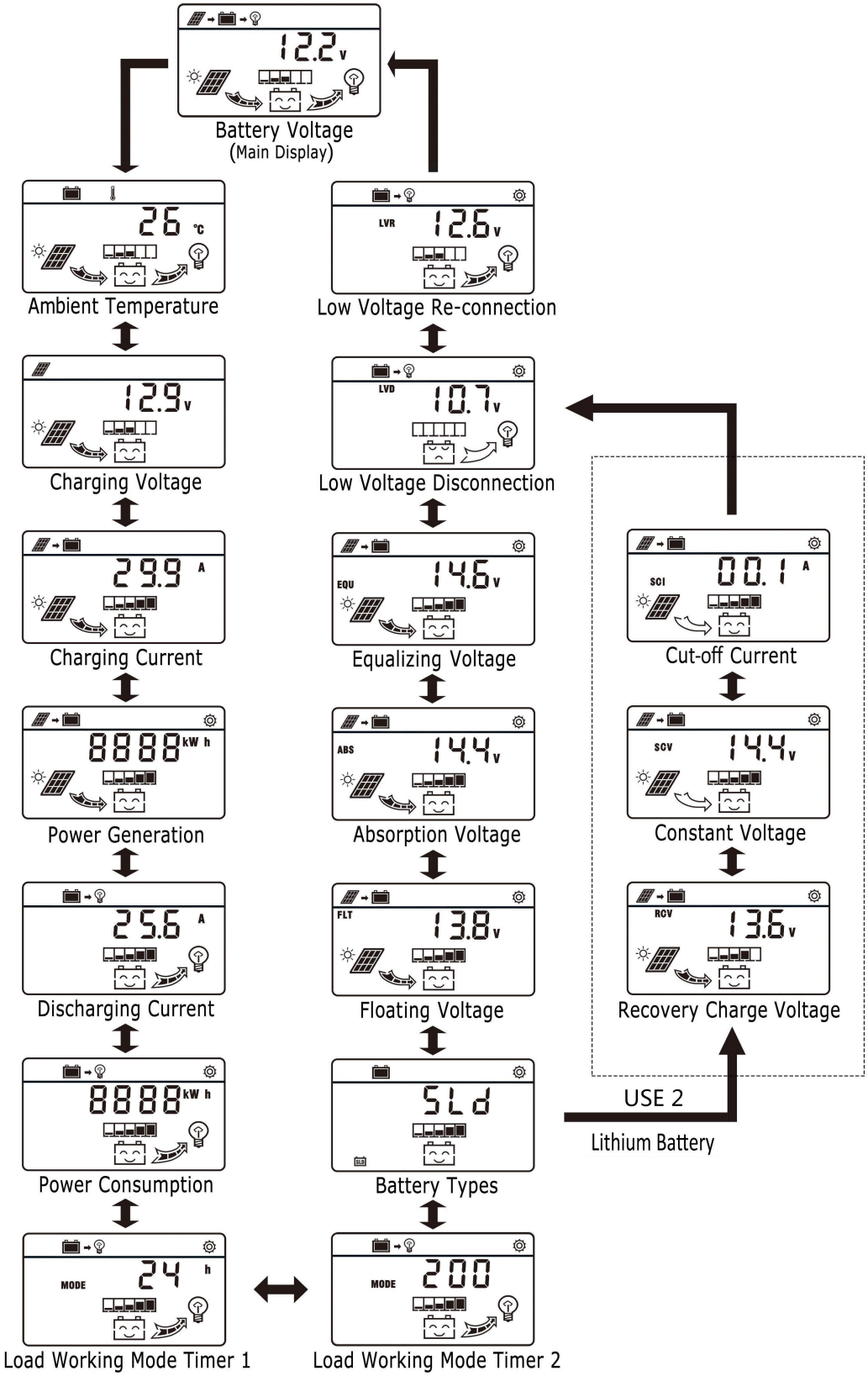


Icon	Meaning	Icon	Meaning
	Day		The data in this interface relates to charging.
	Night		The data in this interface relates to discharging.
	Charging		The data in this interface relates to temperature.
	No Charging	COM	The data in this interface relates to communication.
	Load On		The data in this interface can be set.
	Load Off		The data in this interface can not be set.
	Battery Capacity	GEL	Battery is GEL
	System working well	SLD	Battery is Sealed
	Battery in protection or system working not well	FLD	Battery is Flooded

3-2. Button Function：

Modes	Operation
Browse Interface	Short press button “＋” or “－”.
Load On/Off	When load in 24H working mode, short press button “－” in Main interface.
Setting Parameter	In the settable interface, long press button “＋” into setting, and then short press “＋” or “－” to set parameter, long press button “＋” to save and exit. (Long press button “－” to cancel the parameter and back to last setting)
Factory Reset	Long Press button “＋” 5s in the interface of Ambient Temperature.

3-3. Browse Interface:



NOTE:

① Under the interface of Accumulated KWH, long press button "+" to clear the value;

② When no operation 30s, the interface will be back to main interface, and back-light will be turned off.

3-4. Load Working Modes：

Under the load mode setting interface, long press button "＋", when Timer 1 or Timer 2 begin flashing, short press button "＋" or "—" to set parameter, then long press button "＋" to save and exit.

No.	Load Working Mode Timer 1	No.	Load Working Mode Timer 2
24H	Load 24 Hours working (Default)	200	Disable
00H	Light Control: Load On since sunset, Load Off when sunrise.	200	Disable
-00H	Reversed Light Control: Load On since sunrise, Load Off when sunset.	200	Disable
101~115	Load On for 1~15 hours since sunset	201~215	Load On for 1~15 hours before sunrise

3-5. Battery Types：

Under the interface of battery types, long press button "＋" into the type setting, then short press button "＋" or "—" to choose battery type, and then long press "＋" again to save and exit.

Icon	Meaning
SLD	Sealed Battery (Default)
GEL	Gel Battery
FLD	Flooded Battery
USE1	Lead-Acid Battery (User-defined)
USE2	Lithium Battery (User-defined)

4. Protections：

- Solar Panel Reverse-Polarity

If the solar panel is connected with controller in reversed polarity, controller will not be damaged and will work as normal when correctly connected.

- Battery Reverse-Polarity；

If the battery is connected with controller in reversed polarity (solar controller is not connected with solar panel), controller will not be damaged and will work as normal when correctly connected.

- Battery Reverse-Discharge；

Controller is able to protect battery from reversed discharging to solar panel at night.

- Over-Heating Protection；

Once the internal temperature is detected to be higher than a certain value by the controller, it will stop charging the battery and then recharging the battery automatically after the temperature drop to a certain value.

- Battery Over-Current；

Controller will stop charging when excess current is detected from the solar panel, and recharging automatically after 2 min.

- Load Over-Load；

The load will be turned off when the output current of the load exceeds its rated current for a while, and then turned on automatically after 2 min.

- Load Short-Circuit；

Controller will be in protection state when the load is short circuit, and recharging automatically after 2 min.

- Battery Low-Voltage；

Controller will turn off the load when the battery voltage is lower than the value preset for low-voltage disconnection, and turn on the load when the battery voltage reaches the value preset for low-voltage re-connection. The value for low-voltage disconnection and low-voltage re-connection can be set by users in a certain range.

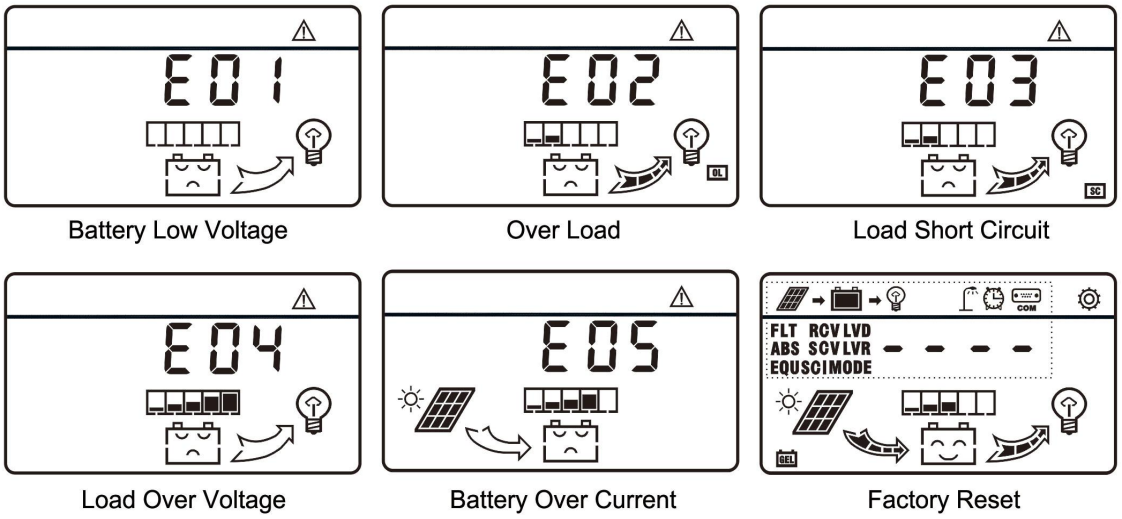
- Battery Over-Voltage；

Controller will turn off the load when the battery voltage is higher than the value preset for over-voltage protection, and turn on the load when the battery voltage is 1V lower than the value preset for over-voltage protection.

- Lightning Protection；

The lightning protection function of controller is limited and it is recommended to install devices for lightning protection on the input side to increase system reliability.

5. Troubleshooting：



Battery Low Voltage　Over Load　Load Short Circuit

Load Over Voltage　Battery Over Current　Factory Reset

Error Code	Cause	Solution
E01	Battery low-voltage	Charging the battery or change a new one.
E02	Load over-load	Please reduce the number of electric equipment or check carefully loads connection.
E03	Load short-circuit	
E04	Load over-voltage	
E05	Battery over-current	Clear Solar Panel fault

6. Technical Specification:

Rated Current		10A / 20A / 30A / 40A / 50A / 60A / 80A			
Rated Voltage		12V/24V Auto (12V/24V/36V/48V Auto)			
Max Voltage of Solar Panel		50V (100V)			
Lead-Acid Battery	Equalizing Voltage*	Sealed:14.6V / GEL: No / Flooded:14.8V			
	Absorption Voltage*	Sealed:14.4V / GEL:14.2V / Flooded:14.6V			
	Floating Voltage*	13.8V			
	Low Voltage Disconnection*	10.7V			
	Low Voltage Re-connection*	12.6V			
	Over-voltage Disconnection*	16V			
	Over-voltage Re-connection*	15.5V			
	USE1*	9~15V Adjustable			
Lithium Battery	Battery Type	LiCoMnNiO2 (3.7V-3)	LiCoMnNiO2 (3.7V-4)	LiFePO4 (3.2V-4)	LiFePO4 (3.2V-5)
	Constant Voltage*	12.6V	16.8V	14.4V	18V
	Cut-off Current*	0.1A (0.1A~30A Adjustable)			
	Recovery Charge Voltage*	12V	16V	13.6V	17V
	Low Voltage Disconnection*	9.9V	13.2V	11.2V	14V
	Low Voltage Re-connection*	11.1V	14.8V	12.8V	16V
	Over-voltage Disconnection*	18.5V			
	Over-voltage Re-connection*	18V			
	USE2*	9~17V Adjustable			
Self-consumption		⩽20mA			
Loop Voltage Drop		⩽300mV			
USB Output		5V/2A *2			
Terminals		8AWG/10mm^2 (10A/20A); 6AWG/16mm^2 (30A); 4AWG/25mm^2 (40A/50A/60A/80A);			
Temperature Compensation		-4mV/℃/2V (25℃)			
Working Temperature		-20℃~+70℃			
Protection Level		IP30			
Mounting Hole Size		137*51mm-Φ6 (10A/20A); 177*60mm-Φ5 (30A); 190*104mm-Φ5 (40A/50A/60A/80A);			
Humidity Requirement		⩽95%, N.C			
Dimension		147*82*36mm (10A/20A); 187*97*48mm (30A); 200*132*61mm (40A/50A/60A); 200*132*62mm (80A);			
Net Weight		0.25KG (10A); 0.2KG (20A); 0.4KG (30A); 0.7KG (40A/50A/60A); 0.8KG (80A);			
* Above parameters apply to 12V system at 25℃, if system voltage is 24V/36V/48V, Please *2/*3/*4					

Any changes will be without prior notice!
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