# MPPT SCC

User's manual

Please connect the battery first, and then connect the solar panel after setting the system parameters. If you do not operate in order, the battery will be damaged

Catalogue

※ When using lithium batteries, please set the system voltage first, and then set the corresponding battery type (see P8-3.8/3.9).

Solar energy system wiring diagram

SCC

Load

+ Breaker

Fuse

Fuse +
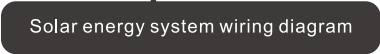
PV Array

Battery

※ Perform the following steps to connect cables and install them ※

Step 1
Connect
batteries

Step 2
Connect
the load

Step 3
Connect the
solar panels

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
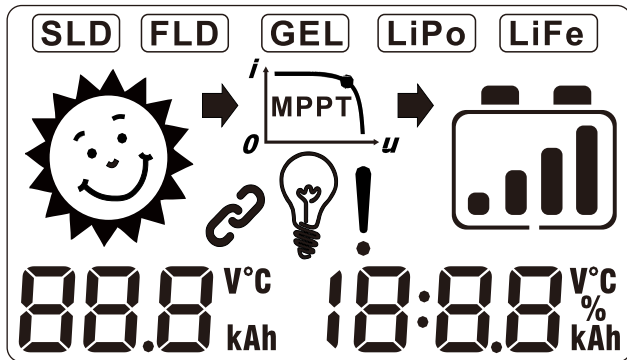
NOTICE:
If a lithium battery is used, set the system voltage and then the battery type before use. (See P8-3.8 for details)

3.1 LCD Screen

3.2 Status introduce

Item	ICO	Status	
PV array	☼	Day	Charging
	NONE	Night	No charge
Battery	🔋	Uncharged / Battery capacity	
	☼ → MPPT → 🔋	Charging	
	SLD FLD GEL LiPo LiFe	Battery type	
Load	💡	load on	
	NONE	load off	

3.3 Button definition

Button meaning	Button pattern		Button function
MENU	≡	◀	Short press the next page or increase the value, and long press to enter the lower-level interface or save;
SET	↰	▶	Short press to the previous page or reduce the value, long press to exit without saving.

3.4 Boot screen
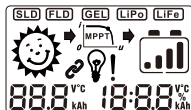
Starting interface

Battery voltage

The main interface automatically displayed after startup.

3.5 Load switch on/off

Current battery voltage
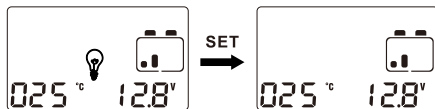
3.5.1 Short pressing "SET" button to switch on/off the load.

3.6 Main loop pages

(1)
Current battery voltage
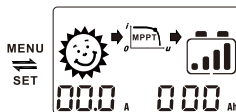
(2)
Cumulative Charging

(3)
Cumulative discharge

(1)
Current PV voltage

(1)Current battery voltage:
    Long press "MENU" key to enter the next level of Settings;
    Long press "SET" to switch the ambient temperature, controller internal temperature, current battery voltage and PV voltage;
    Press "SET" to manually turn on/off the load;
(2)Cumulative Charging: Long press "MENU" to clear the cumulative charge value;
(3)Cumulative discharge:Long press "MENU" to clear the cumulative discharge value;
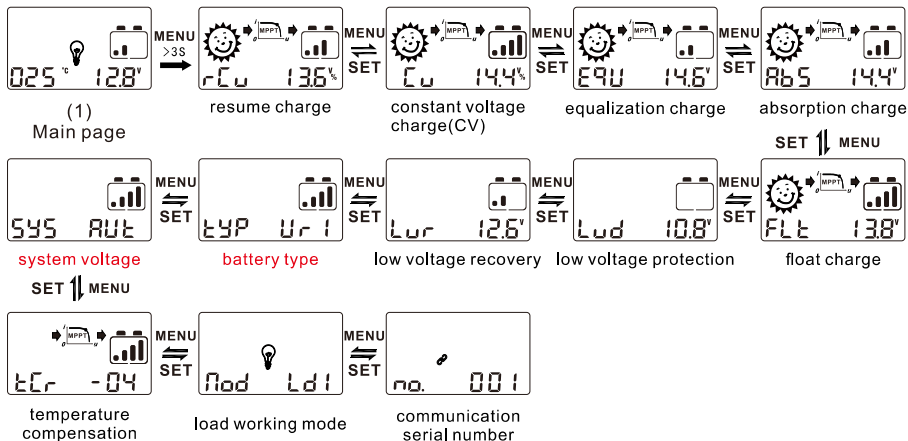
6

3.7 Setting pages

(1) Main page — `025℃  128ᵛ`

MENU >3S →

resume charge — `rCu  13.6%`

MENU ⇌ SET

constant voltage charge(CV) — `Cu  14.4%`

MENU ⇌ SET

equalization charge — `E9u  14.6ᵛ`

MENU ⇌ SET

absorption charge — `Ab5  14.4ᵛ`

SET ↕ MENU

system voltage — `5Y5  Aut`

MENU ⇌ SET

battery type — `tYP  Ur1`

MENU ⇌ SET

low voltage recovery — `Lur  12.6ᵛ`

MENU ⇌ SET

low voltage protection — `Lud  10.8ᵛ`

MENU ⇌ SET

float charge — `FLt  13.8ᵛ`

SET ↕ MENU

temperature compensation — `tCr  -04`

MENU ⇌ SET

load working mode — `Nod  Ld1`

MENU ⇌ SET

communication serial number — `no.  001`

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

3.8 System voltage setting

After entering setting pages,switch to the system voltage page,long press for "MENU" 3 seconds until the "AUT" starts to flash.Then sort press "MENU" or"SET" to turn the system voltage 12V or 24V. or 36V or 48V.
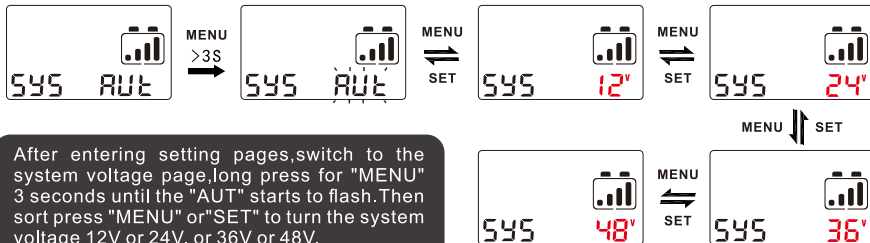
3.9 Battery type

Under the main page, long press "MENU"for 3 seconds to enter the setting page, and then short press "MENU" to switch to the battery type page(Ur1).
After entering battery type page(Ur1),long press "MENU" for 3 seconds to enter battery type selection pages, short press "MENU"or "SET"to switch among gel battery, sealed battery, flooded battery and lithium batteries.

Under each lithium battery page,long press "MENU"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 "MENU" for 3 seconds, the parameter will become to battery capacity, short press "MENU"or "SET" to set the capacity of the currently connected lithium batteries. After setting the parameters, save the data.Long press for "MENU" 3 seconds to save.

typ Ur1 battery type user mode 1	MENU >3S → **typ Ur1** user mode 1	MENU ⇌ SET **GEL** **typ GEL** gel battery	MENU ⇌ SET **SLD** **typ SLd** sealed battery	MENU ⇌ SET **FLD** **typ FLd** flooded battery SET ⇅ MENU

LiPo LiFe **typ Ur2** battery type user mode 2	MENU ⇌ SET **LiPo** **typ 4:3.7** Lithium battery 3.7V/cell,4 in series	MENU ⇌ SET **LiPo** **typ 3:3.7** Lithium battery 3.7V/cell,3 in series	MENU ⇌ SET **LiPo** **typ 5:3.2** Lithium battery 3.2V/cell,5 in series	MENU ⇌ SET **LiFe** **typ 4:3.2** Lithium battery 3.2V/cell,4 in series

MENU >3S (×5, all columns)

LiPo LiFe **CAP Ur2**	**LiPo** **typ 4:3.7**	**LiPo** **typ 3:3.7**	**LiPo** **typ 5:3.2**	**LiFe** **typ 4:3.2**

MENU >3S (all columns)

LiPo LiFe **CAP 100 Ah** Lithium battery capacity SET ⇅ MENU	**LiPo** **CAP 100 Ah** Lithium battery capacity SET ⇅ MENU	**LiPo** **CAP 100 Ah** Lithium battery capacity SET ⇅ MENU	**LiPo** **CAP 100 Ah** Lithium battery capacity SET ⇅ MENU	**LiFe** **CAP 100 Ah** Lithium battery capacity SET ⇅ MENU

LiPo LiFe **CAP 200 Ah**	**LiPo** **CAP 200 Ah**	**LiPo** **CAP 200 Ah**	**LiPo** **CAP 200 Ah**	**LiFe** **CAP 200 Ah**

⑨

3.10 Load working mode

The default load mode of the controller is 24 hours and there are four loads Alternative working modes:

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

LD1:The load works normally and can be turned on or off manually.

LD2:The load automatically opens at dark and closes at dawn.

LD3:Load working hours after dark, load working hours before dawn. (automatically identify dark and light according to local environment)

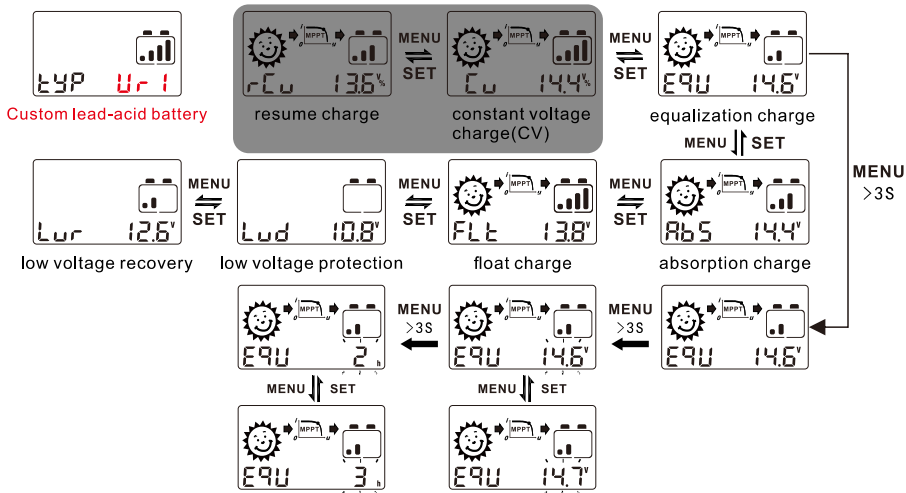LD4:Load automatically open at dawn, load automatically close at dark.

When selecting 'LD3' this mode, set the length of the two work (hours). If you need to test, you can choose 'on', at this time the length of the unit hour changes into minutes. If you do not need to test, you can choose 'oFF' to close the test. Working hours restored to hours.
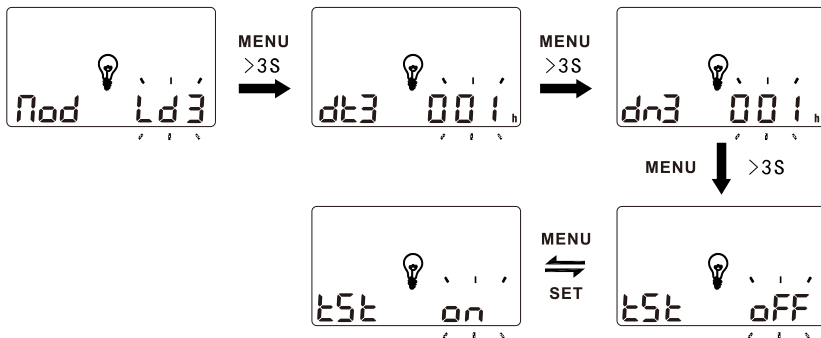
3.11 Lead-acid battery custom parameter Settings:

If the battery type is set to Ur1, other parameters can be set except recovery charging and constant voltage charging.

typ Ur1
Custom lead-acid battery

rCv 13.6%
resume charge

Cu 14.4%
constant voltage charge(CV)

EQU 14.6v
equalization charge

Lur 12.6v
low voltage recovery

Lvd 10.8v
low voltage protection

FLt 13.8v
float charge

Ab5 14.4v
absorption charge

EQU 2
EQU 14.6v
EQU 14.6v

EQU 3
EQU 14.7v

MENU
SET

MENU >3S

3.12 Lithium Battery Custom Parameter Settings:

If the battery type is "Ur2", you cannot set balanced charging, lifting charging, or floating charging. Other parameters can be set.

Lithium battery custom

resume charge

constant voltage charge(CV)

equalization charge

low voltage recovery

low voltage protection

float charge

absorption charge
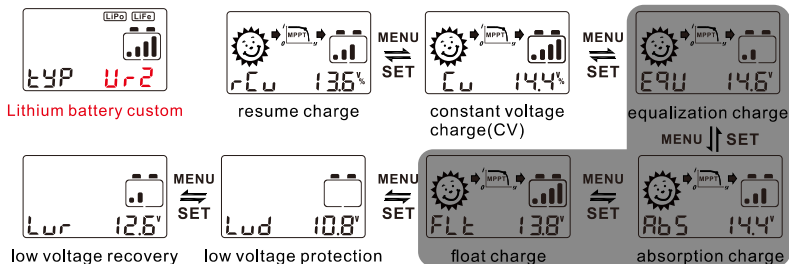
Protection	Condition	Status
Solar panel reversed	Solar panel can be reversed if battery is not connected	Controller isn't broken
Battery is reversed	Battery can be reserved if PV is unconnected	
Battery over-voltage	Battery voltage reaches the over-voltage point	Stop charging and discharging
Battery 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

5.Fault Management

Error code	Cause	Correction
PV array indicator is off when sunlight is enough	Solar panel is disconnected	Check whether if PV array connection is proper or not
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 (at least 8V to activate the controller) 2.The voltage of PV must be higher than battery voltage.
E 1 (Ex1)	Battery over discharge	The load will stop automatically and recover when battery voltage reaches 12.6V(LVR)
E 2 (Ex2)	Battery over voltage	Make sure the settled value of high voltage disconnection voltage is over battery voltage and reconnect PV array.
E 3 (Ex3)	Over load	Reduce load or check load connection
E 5 (Ex5)	Controller overheating	The controller will restart after it cools down
E 6 (Ex6)	Input voltage of solar panel is too high	Check voltage of solar panel and reduce quantities of solar panel in series

Rated charge current		10A	20A	30A	40A	50A	60A
Input							
Maximum input power	12V	130W	260W	390W	520W	650W	780W
	24V	260W	520W	780W	1040W	1300W	1560W
	36V	/	/	/	/	(1950W)	(2340W)
	48V	/	/	/	/	(2600W)	(3120W)
System rated voltage		12V/24V Auto.				12V/24V or 12V/24V/36/48V Auto.	
Max open voltage of solar panel		<60V (24V)	<60V (24V)	<100V (24V)	<100V (24V)	<100V(12V/24V) <150V(12V/24V/36V/48V)	
Output							
Rated Discharge Current		10A	10A	20A	20A	30A	
Battery type		User default, Sealed, Flooded, GEL, LiFePO4, Li(NiCoMn)O2.					
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	24V(<50mA)/48V<(35mA)			
HVD	12V Lead acid battery	24V Lead acid battery	36V Lead acid battery	48V Lead acid battery
	16V	32V	48V	64V
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			
Aperture for installation	Φ5mm			

※ The preceding parameters are 12V system and the temperature is 25°C.24V system 2x; 36V system 3x;48V system 4x.