1. Panel Illustration

2. Keys Function Description

Key areas	Key names		Executive functions	Long press functions
Setting area	+		A. Menu page down B. Increase the data	A. Continuous increase of data B. In conjunction with the "OFF" key, to lock, unlock parameter adjustment C. In conjunction with the "-" key, to enter remote control type selection interface
	-		A. Menu page up B. Decrease the data	A. Continuous decrease of data B. In conjunction with the "+" key, to enter remote control type selection interface
	Set		Set parameters	Return from the **[Load Settings]** menu to the **[Parameter Settings]** menu.
Functional area	Send		Send working parameters	-
	Receive	State	Receive running state	Go to the **[Run Data]** menu
		Parameter	Receive working parameters	-
	Test		Send test command	-
	ON		Activation command	-
	OFF		Sleep command	In conjunction with the "+" key, to lock, unlock parameter adjustment

Steps of use of the remote control:

① Power on
② Determine the type of remote control [infrared or wireless]
③ Determine if the remote control password is correct
④ Determine if the remote is in [locked]state
⑤ Have a pleasant use

3. Remote Control Power On and Power Off

•2.1 Power on

In power off state, press any key to turn on the remote control.

•2.2 Power off

If there is no key operations within 1 minute, the remote control is automaticall turns off.

4. Remote Control Send States Display

		
Sending	Send succeeded	Send failed

5. Remote Control Type Selection

5.1 Go to remote control type selection interface

((Press " + " and " - " simultaneously)

To go to the [Remote control type selection interface], and press " Set " to select remote control type: [IR] or [Wireless].

Remote control settings	
01 Remote control type:	IR
02 Wireless distance: --	
03 Current password: ****	

IR remote control

Remote control settings	
01 Remote control type:	Wireless
02 Wireless distance: 01	
03 Current password: ****	

2.4G Wireless remote control

⚠ Notice: When the remote control type is IR, the wireless distance is not adjustable.

5.2 Wireless remote control distance adjustment

Remote control settings	
01 Remote control type:	Wireless
02 Wireless distance: 01	
03 Current password: ****	

Wireless type provides 11 modes: 00~10.
00: distance is about 0.3m
10: distance is about 30m
The wireless distance can be selected according to the actual application environment.

6. Remote Control and Controller Password Settings

User can set password for the controller. When the controller password is set, it is needed to set the same password for the remote control controller to realize successful communication, otherwise the communication will fail.Initial password of the controller is "0000", and initial password of the remote control is also "0000".

6.1 Remote control password input

Remote control settings
01 Remote control type: Wireless
02 Wireless distance: 01
03 Current password: 0****

Remote control password setting method:Press the "Set" key, and the first digit of the password start to flash. Press "+" or "-" to adjust the first digit. After the first digit is adjusted, press the "Set" key to start the second digit adjustment, and then adjust the third and fourth digits. After the password is modified, the parameters can be read or modified normally.

6.2 Controller password modification

To change the controller password, you need to enter the **[Change Password]** option.

Remote control settings
-> Change Password <-
Back

After entering the **[Change Password]** option, you need to enter the old password before the new one. If the old password is entered incorrectly, the new one will not be modified successfully.

Remote control settings
01 Old password: 0000
02 New password: 0000
Back

After modification, press [Back] to return to the [Remote Control Settings] option.

Note: After modifying the password, be sure to press the " Send " key to send the new password to the controller.

7. Remote Control Parameters Lock and Unlock

In order to avoid artificial change of control parameters, the remote control comes with the capability of locking parameters. After the parameters are locked, the remote control can only send parameters but cannot receive parameters, nor can it modify the parameters, but can receive the running status. This can avoid the problem of batch parameters setting error caused by inadvertent modification by the production personnel.

Remote control settings	
01 Battery type: Lithium	12V
02 Sensing delay: --	
03 PV wake up: Yes	

Parameters locking method:

Press " OFF " and " + " for 3 seconds at the same time. Then, the controller gives two short beeps and the controller parameters are locked.

Remote control settings	
01 Battery type: Lithium	12V
02 Sensing delay: --	
03 PV wake up: Yes	

Parameters unlocking method:

In the locked state, press " OFF " and " + " for 3 seconds at the same time, and the controller parameters will be unlocked.

8. State Reading

8.1 Running state reading

Running state	
01 System state: Discharging	
02 Battery voltage: 12.3V	
03 PV voltage: 17.5V	

After the controller works, the controller state can be read using the remote control. Press the " State " key. The data read by default is the controller state

8.2 Running data menu

Press and hold the " State " key to call up the [Run Data] menu. After selecting the corresponding menu, go to different running interfaces. At this time, press the " State " key, the read data will be that of the selected menu.

State Press and hold for 3s

Running data
01 Running state
02 Past data
03 Single battery voltage

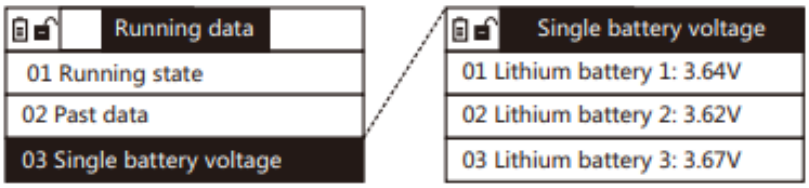
Running state
01 System state: Discharging
02 Battery voltage: 12.3V
03 PV voltage: 17.5V

Running data
01 Running state
02 Past data
03 Single battery voltage

Past data
--------> 1 day before <--------
02 Min. Voltage: 11.3V
03 Max. Voltage: 12.5V

In the **[Past Data]** menu, press the Set " key to set the number of days before to read data. After setting the number of days, press " State " to read the past data of the day.

Tip: Only part of models of controller provide the **[Past Data]** menu



In the [Single Battery Voltage] menu, press "State" to read the voltage of a single lithium battery.

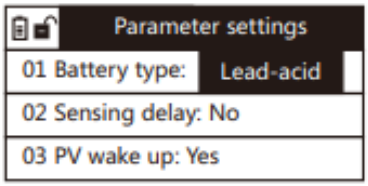
Tip: Only part of models of controller provide the **[Single Battery Voltage]** menu

9. Parameters Reading and Setting

After the controller works, remote control can be used to read its set parameters. Press the "Param" key to read the current setting parameters.

9.1 Control parameters

①Battery type selection

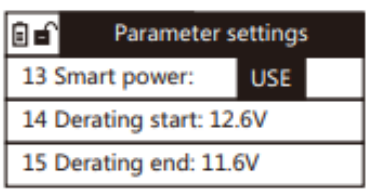


The battery type can be selected from the storage type and voltage level. The options and default parameters are as follows:

Battery type	Over discharge voltage	Over discharge recorvery voltage	Charge voltage (lithium battery) Boost charge (lead acid battery)	Charge return (lithium battery) Floating charge (lithium battery)	Remarks
Lead-acid	11.0V	12.5V	14.4V	13.8V	Automatic identification of 12V and 24V parameters
Lithium 3V	3.1V	3.4V	4.2V	4.0V	
Lithium 6V	6.2V	6.8V	8.4V	8.0V	
Lithium 12V	9.2V	10.2V	12.5V	12.0V	
Lithium 24V	9.2V	10.2V	12.5V	12.0V	Set parameters automatically*2

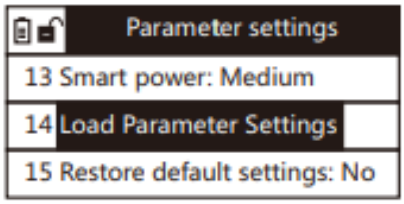
② Smart power settings

The smart power options allow the user to select an appropriate smart power curve according to their own configuration and lighting strategy. The smart power options include: No, High, Medium, Low, Auto and USE, where, in USE mode, the user can define the smart power derating start value and derating end value as well as minimum current.

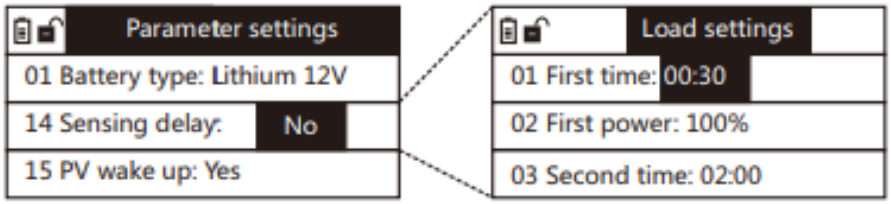


9.2 Time parameters

To set the time period and power, you need to go to the **[Load Parameter Settings]** option.

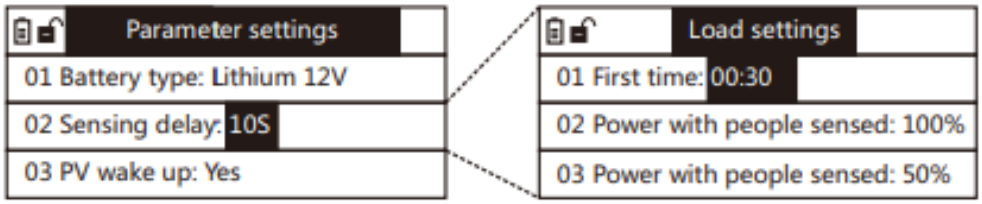


① Non-sensing power and time settings
If [Sensing Delay] is selected as [No], the load is set to the non-sensing period time and power, and the load is in the timing operation mode.



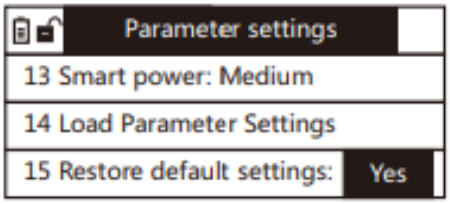
② Power and time settings under sensing function

If one sensing time is selected in the **[Sensing Delay]** option, the load is set to the sensing period time and power, and the load is in the timing + sensing operation mode.



9.3 Restore remote control to factory default parameters

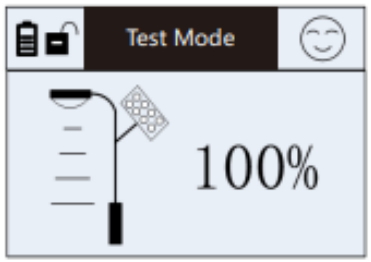
If parameters are wrongly adjusted or become disordered, you can restore the remote control to factory default parameters, and then adjust on the default parameters.

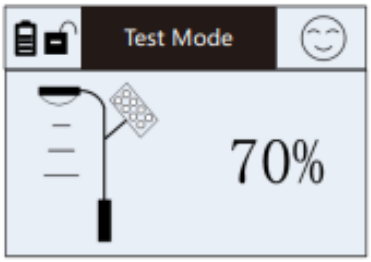


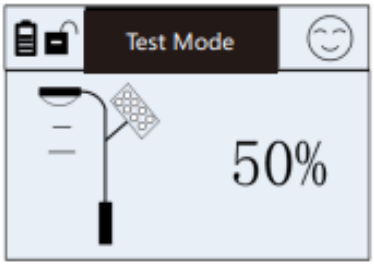
Tip: Press and hold " + " or " - " in the parameter settings item to quickly change the parameter value.

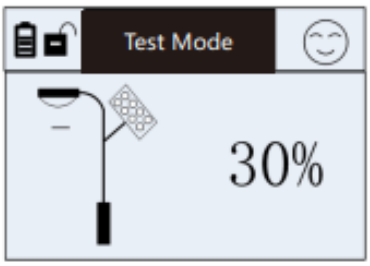
10. Test Mode

Press the " Test " key, and the remote control sends a test command to the controller. The test powers are 100%, 70%, 50% and 30% in turn.









Note: In test mode, the remote control only sends a signal to the controller without receiving parameters from the controller, so the controller will always display the "Send Succeeded" state in test mode.

11. Sleep and Wake up

When the controller is working, press the " OFF " key to put the controller into sleep mode.

When the controller is in sleep mode, press the " ON " key to take it out of sleep state.

Note: Only the infrared remote control allows the use to use the remote control to take controller out of sleep mode. If the controller is a 2.4G wireless remote control type, it must be activated by the solar panel after entering sleep mode.

12. Attentions

A. The remote control supports two signal communication modes: infrared and 2.4G wireless. Therefore, it is necessary to select the correct remote control mode according to the remote control type of the controller. If the remote control mode is not correct, the remote control will not communicate.

Difference between Infrared remote control and wireless remote control

B. When the controller with sensor needs time setting, the remote control [Sensing Delay] time has to be set to allows setting of sensing power in the [Load Settings] menu.
C. If the remote control parameters are locked, the control parameters cannot be adjusted. To adjust the parameters, you should unlock them first. But before unlocking, you can read the state.
D. When the remote control shows low battery, please replace the battery in time with battery type 5 or AA battery.

13. Parameters Setting Table

Set items	Default parameters	Data range	Adjustment step length
Battery type:	Lithium 12V	Lead, lithium 3, lithium 6, lithium 12, lithium 24	-
Sensing delay:	No	0S ~ 60M	1S
PV wake up:	Yes	Yes/No	-
Light control voltage:	5.0V	3.0V ~ 11.0V	1V
Light control delay:	10S	0S ~ 60M	1S
Over discharge voltage:	9.20V	7.5V ~ 17.0V	0.1V
Over-discharge recovery:	10.20V	7.5V ~ 17.0V	0.1V
Charge voltage (lithium battery): Boost charge voltage (lead acid battery):	12.5V	7.5V ~ 17.0V	0.1V
Charge recovery (lithium battery): Floating charge voltage (lead acid battery):	12.0V	7.5V ~ 17.0V	0.1V
Low temperature charge:	-35℃	-40℃ ~ -00℃	1℃
High temperature work:	65℃	40℃ ~ 90℃	1℃
Load current:	330mA	150mA ~ 10A	10mA
Smart power:	Medium	Auto/Low/Medium /High/No/use	-
Derating start value:	11.3V	7.5V ~ 17.0V	0.1V
Derating end value:	10.5V	7.5V ~ 17.0V	0.1V
Minimum current:	50mA	50mA ~ 1000mA	10mA
Load parameters setting		Enter the load parameters setting interface	-
Factory reset:	No	Yes/No	

14. Load Parameters Setting Table

A. Non-sensing type

Set items	Default parameters	Data range	Adjustment step length
First time:	4:00	0 ~ 15 hours	1 minute
First power:	100%	0~100%	1%
Second time:	4:00	0 ~ 15 hours	1 minute
Second power:	100%	0~100%	1%
Third time:	4:00	0 ~ 15 hours	1 minute
Third power:	100%	0~100%	1%
Fourth time:	0:00	0 ~ 15 hours	1 minute
Fourth power:	100%	0~100%	1%
Fifth time:	0:00	0 ~ 15 hours	1 minute
Fifth power:	100%	0~100%	1%
Sixth time:	0:00	0 ~ 15 hours	1 minute
Sixth power:	100%	0~100%	1%
Seventh time:	0:00	0 ~ 15 hours	1 minute
Seventh power:	100%	0~100%	1%
Eighth time:	0:00	0 ~ 15 hours	1 minute
Eighth power:	100%	0~100%	1%
Ninth time:	0:00	0 ~ 15 hours	1 minute
Ninth power:	100%	0~100%	1%
Pre-dawn time:	2.00H	0 ~ 15 hours	1 minute
Pre-dawn power:	100%	0~100%	1%

B. Sensing type

Set items	Default parameters	Data range	Adjustment step length
First time:	4:00	0 to 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	70%	0~100%	1%
Second time:	4:00	0 to 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%
Third time:	4:00	0 to 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%
Fourth time:	0:00	0 to 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%
Fifth time:	0:00	0 to 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%
Sixth time:	0:00	0 to 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%

Power without human motion sensed:	10%	0~100%	1%
Seventh time:	0:00	0 ~ 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%
Eighth time:	0:00	0 ~ 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%
Ninth time:	0:00	0 ~ 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%
Pre-dawn time:	0:00	0 ~ 15 hours	1 minute
Power with human motion sensed:	100%	0~100%	1%
Power without human motion sensed:	10%	0~100%	1%

15.Run Data Table

A. Running state

System state:	Free
Battery voltage:	12.1V
PV voltage:	12.6V
Charge current:	1.5A
Charge power:	18.9W
Charge time:	12.3Ah
Load voltage:	30.5V
Load current:	1.26A
Load power:	30.5W
Lighting-up time:	11:26
Sensing time:	0:47
Discharge Ah:	14.5Ah
Ambient temperature:	23℃
Running days:	15
Over-discharge times:	1
Full charge times:	14
Production date:	1503
Software version:	3.10

B. Past data

->N days before<-	N settable, 0~255
Maximum voltage:	13.6V
Minimum voltage:	10.6V
Maximum temperature:	45℃
Minimum temperature:	-15℃
Maximum charge power:	124W
Charge time:	47Ah
Discharge time:	38Ah
Lighting-up time:	9:48

C. Single lithium battery voltage

Lithium battery 1	3.23V
Lithium battery 2	3.24V
Lithium battery 3	3.23V
Lithium battery 4	3.26V
Lithium battery 5	3.24V
Lithium battery 6	3.23V
Lithium battery 7	3.25V
Lithium battery 8	3.24V

16.Technical Parameters

Power supply battery	No. 5 (AA) × 2
Power supply voltage	3.0V
Effective distance	8m (infrared remote control), 15m (wireless remote control)
Sleep power consumption	< 0.2uA
Normal power consumption	5mA
Transmitting instantaneous power consumption	< 50mA
Backlight power consumption	< 15mA
Product dimensions	122mm×61.5mm×22mm (L × W × H)
Package dimensions	139mm×77mm×44mm (L × W × H)
Weight	60grams (without battery)
Automatic power-off time	65seconds
2000mAH battery setting quantity	30000
Ambient temperature	-25℃ ~ 55℃

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