

SG-Unit(SU10/12G)_V5

Intelligent Remote Controller

(Infrared and 2.4G communication)



User Manual

User Manual_SG-Unit series_V1.1_QE
CE, RoHS, ISO9001:2015
Subject to change without notice!

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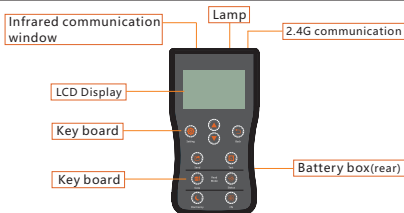
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Dear clients,

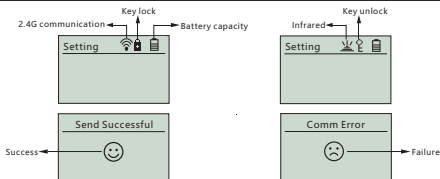
Thanks for using the new generation of SG-Unit smart remote controller! Please read this manual carefully before using this product.

This product manual provides some important suggestions related to the remote controller, including usage, programming and troubleshooting.

1.Appearance



2.Icon position and description



☆Battery capacity indication:

	Capacity $\geq$ 75%
	50% $\leq$ Capacity < 75%
	25% $\leq$ Capacity < 50%
	Capacity < 25%

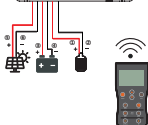
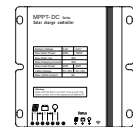
3.Key Instructions

Key	Function	Key	Description
	Parameter setting/ confirmation		Test the setting
	1.Menu Page Up 2. Increase the setting data		Read Parameters
	1.Menu Page Down 2. Decrease the setting data		Read running status
	Return to the menu/exit		Send dormancy command
	Send Parameters		Function keys (Combined application)

Combination keys	Function	Combination keys	Function
	Enter the remote controller setting interface		Turn on the light / Switch to SOS mode
	Lock/Unlock parameter settings		Advanced function setting interface
	Switch between old and new versions	/	/

4.Operating

4.1 Precautions



- ① Install two AA batteries, positive and negative poles can not be reversed;
- ② The remote controller will automatically enter sleep mode after 1 min without any key operation;
- ③ The remote controller sets the solar controller one by one, could not set several controllers at the same time;
- ④ Turn on the backlight and lights will shorten battery life;
- ⑤ When the low battery symbol is displayed, please replace the battery;
- ⑥ If long time no operation, the battery should be taken out.

4.2 Wake up and Lighting

1. Press "ⓘ" Setting key or "⬆" or "⬇" Back key will wake up the remote controller.
2. Pressing the "ⓘ" FN key and "⬆" key at the same time, will turn on the lighting, pressing it again will switch to SOS distress signal mode, and pressing it again will turn it off. If the lighting is not manually turned off after being turned on, it will automatically turn off after 30 seconds.

4.3 Remote Controller Version Selection

SU10/12G: The remote controller status bar displays the letter "N", as shown in Figure 1.

SG-Unit: The remote controller status bar does not display the letter 'N', as shown in Figure 2.

Switching mode: Press the "ⓘ" FN and "⬆" Back keys for 1 second.

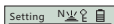
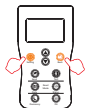


Figure 1

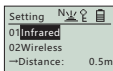


Figure 2

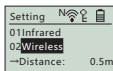
4.4 Enter the settings interface



- ① Simultaneously press the "ⓘ" Setting key and the "⬆" Back key for 1 second. At this time, the remote controller will beep once to enter the communication selection interface, and then release the key;
- ② Press the "⬆" key to select the "Infrared" or "Wireless" communication method.

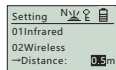


Infrared



Wireless

4.5 Wireless remote control distance



If you select "Wireless", "Distance" can be set, the setting range are 0.5m, 5m, 10m, 15m, 20m, 25m and 30m.

If the communication mode is selected, Press the "⊗" Setting key to confirm, the icon of "Infrared" or "Wireless" will display on the top of the interface.

5.Parameter setting and operation

5.1 Parameter Setting

Press "⬆️⬆️" can browse the setting parameters, when you want to modify the shading parameter, you can press the "⊗" Setting key, then the cursor starts blinking, press the "⬆️⬆️" key, the current parameter can be adjusted, after adjustment is complete, press the "⊗" Setting key to change to the next parameter or press the "⬅️" Back key to exit the current parameter setting.

——For details, please refer to Chapter 6, "Parameters Setting."

5.2 Send



When the parameters are set up, aim at the solar charge controller and press the "⊗" Send key.

① If send successfully, remote controller displays "Send Successful" and will beep a long sound.

② If failed, remote controller displays "Comm Error" and beep three short sounds.

NOTE: If you press the "⊗" Send key, do not immediately remove the remote controller, otherwise it will cause setup failed.

③ If the parameters such as battery type, load current or voltage settings are wrong, remote controller displays "Data Error" and beep three short sounds.

Send Successful	Comm Error	Data Error

5.3 Test



Aim at the solar charge controller and press "⏻" Test key, the load will be on. Test mode will last for 1 min, then enter the normal work mode.

— — **This feature varies by controller, please refer to the controller user manual.**

5.4 Read



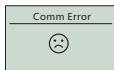
Press the "⏻" Data key, and the remote controller will read the setting parameters in the controller.

① If reading successfully, the remote controller will beep a long sound and display the setting values, you can press "⏻" key to navigate through the parameters, press the "⏻" Back key to return to the previous page.

② If failed, the remote controller will display "Comm Error" and beep three short sounds, after 4s the remote controller automatically returns to the previous page.

Parameter	
01Time1:	4.0H
02Dim1:	100%
03Dim NP1:	100%

Read successfully



Read failed

5.5 Lock



① Press the "⏻" FN and "⏻" Setting key at the same time more than 1s, the remote controller beeps two short sounds, then the "⏻" Setting key will be lock to prevent carelessness operation.

② If you want to unlock, press the "⏻" FN and "⏻" Setting key again at the same time more than 1s, the remote controller beeps one short sound and the unlocked symbol comes out.

Setting	N	📶	🔒	🔋
01Time1 :			4.0H	
02Dim1 :			100%	
03Dim NP1:			100%	

Lock

Setting	N	📶	🔒	🔋
01Time1 :			4.0H	
02Dim1 :			100%	
03Dim NP1:			100%	

Unlock

5.6 Status



Press the "Status" key, the remote controller will read the running status of the controller.

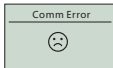
① If reading successfully, the remote controller will beep a long sound and display the running status, you can press the "Up/Down" key to navigate through the data, press the "Back" key to return to the previous page.

② If failed, the remote controller will display "Comm Error" and beep three short sounds, after 4s the remote controller automatically returns to the previous page.

—For details, refer to Chapter 7, "Running status"

Status:	Open ĆP
01Batt V :	13.07
02Load I :	0.00A
03Load V :	6.6V

Read successfully



Read failed

☆ When display parameters or status successfully, the "Send" key does not work, only after press the "Back" key to exit, the "Send" key will be available.

5.7 Dormancy

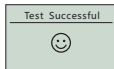
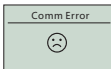
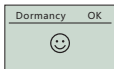


① Press the "Dormancy" key, and the remote controller will emit a short beep. At this time, the display screen will change from "Setting" to "Dormancy OK".

② If it displays "Comm Error" and emits 3 short beeps, the controller has not entered sleep mode.

③ If you want to exit Dormancy mode, please press the "Test" key, the remote controller beeps briefly, and the top of the display screen shows "Test Successful".

—To exit dormancy mode, please refer to the user manual of the controller.



6.Parameter Setting

When read status information successfully, press the "

Num	Name	Range	Step Length	Default
01	Time1	0~6.5H+24H+D2D *1	0.5H	4H
02	Dim1	0~100%	10%	100%
03	Dim NP1	0~100% *2	10%	100%
04	Time2	0~7.5H	0.5H	0H
05	Dim2	0~100%	10%	100%
06	Dim NP2	0~100%	10%	0%
07	Time3	0~7.5H	0.5H	0H
08	Dim3	0~100%	10%	100%
09	Dim NP3	0~100%	10%	0%
10	Time4	0~7.0H+T0T	0.5H	0H
11	Dim4	0~100%	10%	100%
12	Dim NP4	0~100%	10%	0%
13	Time5	0~7.5H	0.5H	0H
14	Dim5	0~100%	10%	100%
15	Dim NP5	0~100%	10%	0%
16	D/N Thr	1.0~20.0V	0.5V	5V
17	D/N Dly	0~30m	5min	0min
18	Load I	0.10~10.0A	0.05A	0.30A
19	Dim Auto	Yes/No *3	—	Yes
20	Dim V	2.8~32.0V *4	0.1V	12.5V
21	Dim %	1~40%	1%	10%
22	Battery	LI/AGM/GEL/LIQ *5	—	LI
23	Series	1~4+8 *6	1	4
24	BCV	3.0~32.0V	0.1V	14.4V
25	BVR	2.9~31.9V *7	0.1V	13.6V
26	LVD	2.4~30.0V *8	0.1V	10.4V
27	LVR	2.6~31.0V *9	0.1V	12.0V
28	0°C Chg	Yes/Slow/No *10	—	Yes
29	Delay Off	10~150s *11	10s	10s
30	Password	0000~9999 *12	1	0000
31	Priority Type	Battery/Hybrid *13	—	Hybrid

*1.If "Time1" is set to "24H", the load will work for 24hours.For controllers with "Standard" function(Smart series).

Setting	N	Wi-Fi	Bluetooth	Battery
01Time1 :				24H
02Dim1 :				100%
03Dim NP1:				100%

Setting	N	Wi-Fi	Bluetooth	Battery
01Time1 :				24H
02Dim1 :				100%
03Dim NP1:				100%

*2." Dim NP" :This feature is suitable for controller with the sensing function, When people is away from the lamp , the controller runs according to "Dim Np" power.

Note: When the remote controller switches to the SG Unit version, the unmanned power item for each time period can only be set uniformly.

*3.If you select "Yes" in the " Dim Auto" item, then the " Dim V" and" Dim %" will display.

Setting	N	Wi-Fi	Bluetooth	Battery
19Dim Auto:				Yes
20Dim V :				12.5V
21Dim % :				10%

Setting	N	Wi-Fi	Bluetooth	Battery
19Dim Auto:				Yes
20Dim V :				12.5V
21Dim % :				10%

*4.For the lithium battery, "Dim V" should not be higher than the "BCV" ; for the Gel,Liquid or AGM battery, " Dim V" should not be higher than 12.5V.

*5.If you select "LI" in the " Battery" item, then the " BCV" and" BVR" will display.

Setting	N	Wi-Fi	Bluetooth	Battery
22Battery:				LI
23Series :				4
24BCV :				14.4V

Setting	N	Wi-Fi	Bluetooth	Battery
22Battery:				LI
23Series :				4
24BCV :				14.4V

*6.The number of Lithium batteries is applicable in the following options:1/2/3/4/8.If you change Series,the BCV, BVR,LVD,LVR,Dim V and D/N Thr will change accordingly.

Series and its default parameters					
Series	BCV	BVR	LVD	LVR	D/N Thr
1	3.6V	3.4V	2.6V	3.0V	3.0V
2	7.2V	6.8V	5.2V	6.0V	5.0V
3	12.6V	11.7V	9.0V	10.2V	5.0V
4	14.4V	13.6V	10.4V	12.0V	5.0V
6	25.2V	23.4V	18.0V	20.4V	10.0V
8	28.8V	27.3V	20.8V	24.0V	10.0V

*7."BVR" should be less than "BCV" 0.1V, if you want to reduce"BCV", you should first reduce "BVR".
 ※ "BCV" corresponds to the previous version's "CVT", and "BVR" corresponds to the previous version's "CVR".

Setting	N	Wi-Fi	Bluetooth	Battery
25BVR :				13.6V
26LVD :				10.4V
27LVR :				12.0V

*8.The data in the table is only for Gel,Liquid or AGM cell.
 If you select "LI" in the " Battery" item, the range of "LVD" is 2.4~30.0V, the range of "LVR" is 2.6~31.0V.

*9. 3.2V controller"LVR"should be higher than "LVD" at least 0.2V;12V controller"LVR"should be higher than "LVD" at least 0.6V;24V controller"LVR"should be higher than "LVD" at least 1.2V. If you want to improve "LVD", you should first improve "LVR".

Setting	N	Wi-Fi	Bluetooth	Battery
28 0°C Chg :				Yes
29DelayOff :				10s
30Password :				0000

*10."0°C Chg" is suitable for lithium series controller. It can be set to "Yes", "Slow" or "No" . When the controller detects that the ambient temperature is higher than 0°C, the charging function is normal. when the ambient temperature is lower than 0°C, if the "0°C Chg" is set to "Yes", the charging function is normal, else if the "0°C Chg" is set to "slow", the max charging current is 20% of the rated current, else if the "0°C Chg" is set to "No", the controller does not charge the battery.

*11.DelayOff" : This feature is suitable for controller with the infrared sensing function, when people is near the lamp, it will work as pre-setting power, when people is away from the lamp, after "DelayOff" time ,It will work as "Dim NP" power.

Setting	N	Wi-Fi	Bluetooth	Battery
28 0°C Chg :				Yes
29DelayOff :				10s
30Password :				0000

*12.Some solar charge controllers can set the lock password, and the parameters of the remote controller can be send successfully to the solar charge controller only when the password of remote controller matches with the solar charge controller.Please refer to the manual of solar charge controller to see if the controller has this function.

—Please refer to the controller manual to determine if there is a lock password function.

Setting	N	Wi-Fi	Bluetooth	Battery
25BVR :				13.6V
26LVD :				10.4V
27LVR :				12.0V

Setting	N	Wi-Fi	Bluetooth	Battery
25BVR :				13.6V
26LVD :				10.4V
27LVR :				12.0V

Setting	N	Wi-Fi	Bluetooth	Battery
28 0°C Chg :				Yes
29DelayOff :				10s
30Password :				0000

***13. Priority type ***: There are two options: Hybrid/Battery. The default is Hybrid, which is only applicable to the SU12G remote controller. The SU12G is only compatible with controllers that complement the mains power supply.

Setting	N		
29DelayOff:	10s		
30Password:	0000		
31Priority Type:			

※ **For lead acid battery, voltage parameters set by remote controller only for 12V system, for 24V system, the actual operating parameters are doubled. For lithium battery, please refer to the controller's user manual.**

7. Running Status

Num	Name	Name describe	单位
	Status :	Charge	
1	Batt V	Battery voltage	V
2	Load I	Load current	A
3	Load V	Load voltage	V
4	PV V	PV voltage	V
5	PV I	PV current *	A
6	Energy	Total generating capacity	AH
7	OD Times	Over discharge times	Times
8	FC Times	Fully charge times	Times
9	Day1-HV	A day ago highest voltage	V
10	Day1-LV	A day ago lowest voltage	V
11	Day2-HV	Two days ago highest voltage	V
12	Day2-LV	Two days ago lowest voltage	V
13	Day3-HV	Three days ago highest voltage	V
14	Day3-LV	Three days ago lowest voltage	V

*Some types of controller are temporarily unable to detect PV current, the remote controller displays " ---. "

1. When you press " Status key, the first line of the LCD displays the system status, including "Charge", "Discharge" or "Convert" and so on.

2. If the controller is being protected for some reason, the remote controller will display failure information in priority, include "Over CD", "Short CD", "Low VD", "Over VP", "Over VB", "Over TD", "Open CP" and "HardwareP". Please refer to the controller's user manual to troubleshoot the system.

Name	Name Describe
Charge	Charging
Discharge	Discharging
Convert	In charge and discharge conversion
Over CD	Over current disconnect
Short CD	Short circuit disconnect
Low VD	Low voltage disconnect
Over VP	PV over voltage protection
Over VB	Battery over voltage protection
Over TD	Over temperature disconnect
Open CP	Open circuit protection
HardwareP	Hardware protection

3. When read status information successfully, press the " 

8. Advanced functions

Simultaneously press and hold the " FN key and the " 

Setting	N	Wi-Fi	Battery
01SCP Key :	Yes		
02PWM Key :	Yes		
03OTP Key :	75		

If "SCP" is selected, two options "Yes" and "No" are available, and can be set according to actual usage conditions.

If "PWM" is selected, two options "Yes" and "No" are available, and can be set according to actual usage conditions.

If "OTP" is selected, the temperature can be set within a range of 55°C to 87°C, according to actual usage conditions.

If you need to read the controller parameters, you must be on the current interface. Briefly press the " Data key. After a long beep, the parameters will be read. In the parameter reading interface, you can access "Status" "Parameters" "Testing" and switch between old and new remote controls. After successfully switching between infrared and 2.4G, the device will return to the main parameter setting interface. Press and hold the " FN key and the "

Parameter	
01SCP Key :	Yes
02PWM Key :	Yes
03OTP Key :	75

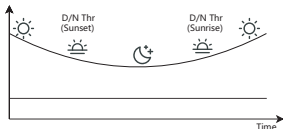
—Please refer to the controller user manual to determine whether advanced function parameter settings are supported

9. Technical parameters

Battery model	AA battery(1.5V) × 2Pcs
Power supply voltage	3.0V
Power consumed of sleep mode	<0.5uA
Normal power consumption	<8mA
Sending power consumption	<55mA
Light consumption	<35mA
Backlight consumption	<10mA
Effective distance(Unobstructed)	7m(Infrared),30m(2.4G Wireless)
Size	120*65*20mm
Net weight	96g(Not including the battery)
Automatic sleep	1 min
Lighting time	30s
Backlight time	30s
Working temperature	-25°C~50°C
Protection degree	IP22

10. Work mode

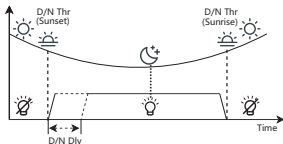
10.1 Standard(24H)



For controllers with "Standard" function(Smart series), if "Time 1" is set to "24H" and sent to the controller successfully, the controller's load will always open.

—For details, refer to the controller's instruction manual.

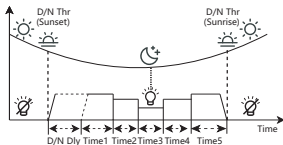
10.2 Dusk to Dawn (D2D)



If "Time1" is set to "D2D", the controller works in dusk to dawn mode.

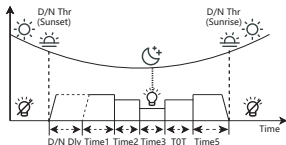
※ If "Time1" is set to D2D mode, "Time4" can not be set to T0T mode.

10.3 Five-stage Night Mode



You can set the Time 1-5, Dim 1-5 and Dim NP1-5 with SG-Unit.

10.4 T0T mode(Load working time in the early morning can be set)



On the SG-Unit remote controller, Time4 can be set to T0T mode. In T0T mode, the controller will automatically calculate the fourth time length to ensure that the morning light time (i.e. the fifth time) meets the setting. If the load is required to be turned off during the T0T time period, the power of Time4 will be set to 0%.

※ If Time4 is set to T0T mode, Time1 can not set to D2D mode.

10.5 Sensing mode

For controllers with sensing function, if work mode is set to "Five-stage Night Mode" or "T0T mode", "DelayOff" and "Dim NP" works in all periods.

If you set the operating mode parameters are as follows:

Num	Name	Setting Data
1	Time1	1.0H
2	Dim1	100%
3	DimNP1	100%
4	Time2	2.0H
5	Dim2	80%
6	DimNP2	50%
7	Time3	3.0H
8	Dim3	30%

Num	Name	Setting Data
9	DimNP3	0%
10	Time4	T0T
11	Dim4	0%
12	DimNP4	0%
13	Time5	2.0H
14	Dim5	50%
15	DimNP5	100%
16	DelayOff	10s

The controller works as follows :

When night falls, the light stays on for 1 hour, 100% powered. Whether people approach or walk away, the lamp maintains 100% brightness.

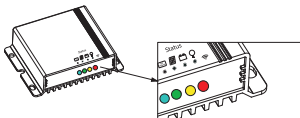
In the second 2 hours, if no person is near, the brightness will remain at 50%*80%. When someone is approaching, the brightness will be 80%.

In the third time period of 3 hours, when someone is approaching, the brightness will be 30%. If no person is near, the lamp will turn off, because the DimNP3 set as 0%.

If Time4 set TOT, the controller will auto calculate the lighting hours according to the real night length. Because DIM4 and DimNP4 both set 0%, the lamp will turn off during the whole stage.

In the fifth time stage, the lamp will maintain a 50% brightness for 2 hours before the dawn.

11.LED indications



LED	Status	Function
Green LED	On	Solar panel is correctly connected, but not charged
	Fast flash(0.1s on/0.1s off)	MPPT charging
	Flash(0.5s on/0.5s off)	Boost or Equalization charging(GEL,Liquid,AGM)
	Slow flash(0.5s on/2s off)	Float Charging
Yellow LED	On	Battery is normal
	Slow flash(0.5 on/2s off)	Battery voltage is low
	Fast flash(0.1 on/0.1s off)	Low voltage protection
	Off	Over voltage protection
Red LED	Off	Work normal
	On	The load has been turned off
	Flash(0.5s on/0.5s off)	Over temperature protection
	Fast flash(0.1s on/0.1s off)	Short circuit or Over current protection
Blue LED	On	In the work of municipal
	Off	The mains power connection is abnormal (The voltage is between 0~10V, 14~20V, and above 28V)
	Slow flash	The mains power connection is normal

*If the controller is in multiple protection states at the same time, the priority order of displaying fault information is: short circuit protection --> overcurrent protection --> low voltage protection - overvoltage protection --> over temperature protection.

*Non hybrid products do not have blue indicator lights.