

SOLAR-NAVI PWM CHARGE CONTROLLER

台灣設計製造 主要零件-美國 通過歐洲CE認證& RoHS宣告

SOLAR-NAVI PWM 充電控制器
SUN-CORE - 10/20 A 12/24V 自動判斷系統電壓
太陽能燈光控制器

SUN-PURE - 6 A 12/24V 自動判斷系統電壓
太陽能燈光控制器

SUN-ENGINEER - 10/20 A 12/24V 自動判斷系統電壓
太陽能充電控制器工業用或行動電源、汽車、船舶使用

中文操作說明書

感謝你購買SUN-NAVI 綠色能源公司生產太陽能控制器商品，為了保護你安全應用該項產品，開始使用前，請先閱讀此操作說明書。

駿燁綠能有限公司 說明書版本 (Cat. No. L128)

安全提醒

1. 請不要連接超過該控制器的太陽能板輸出電壓值。
2. 請連接電瓶DC 12V 或是DC 24V的系統，請太陽能板輸入電壓值開路電壓值不要超過DC 30V (電瓶12V) 或是DC 50V(電瓶24V)。
3. 電瓶輸入電壓正、負極接錯，這時候連接到充電控制器，會對控制器造成重大損害。
4. 太陽能板輸入端，正、負極接錯，這時候連接到充電控制器，會對控制器造成重大損害。
5. 使用銅導線在最小溫度75°C隔離環境，銅導線徑選擇5.5mm和2.0mm之間。
6. 太陽能板輸入電流和負載電流超過該機型最大電流額定比率25%，持續時間不超過5分鐘，超出額定比率25%，將會使機器在安全邊緣及機體發燙，使得控制器縮短使用壽命。
7. 這台控制器設計能在週圍環境溫度60°C時候持續工作。
8. 安裝空間，控制器請勿靠近產生高热度的地方，也請勿直接曝曬太陽光。

開始安裝指示

1. 控制器面板朝上固定牆面上，提供空間，讓氣流能夠在控制器由下往上循環散熱。
2. 確定太陽能板和負載電流，沒有超過安裝機型電流比例，才繼續安裝，請參考下列表格。

機型	Sun-Core 12/24V 10A	Sun-Core 12/24V 20A	Sun-Engineer 12/24V 10A	Sun-Engineer 12/24V 20A	Sun-Pure 12/24V 6A
電瓶電壓	12V	12V	12V	12V	12V
12V 最大太陽能板開路電壓	30V	30V	30V	30V	30V
電瓶電壓	24V	24V	24V	24V	24V
24V 最大太陽能板開路電壓	50V	50V	50V	50V	50V
太陽能板電流	10A	20A	10A	20A	6A
負載電流安培	10A	20A	10A	20A	6A
25%超出電流值	12.5A	25A	12.5A	25A	7.5A
Gel PWM	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V
Sealed PWM	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V
Flooded PWM	14.4V 28.8V	14.4V 28.8V	14.4V 28.8V	14.4V 28.8V	14.4V 28.8V
LVD	11.4V 22.8V	11.4V 22.8V	11.4V 22.8V	11.4V 22.8V	11.4V 22.8V
LVD Reconnect	12.6V 25.2V	12.6V 25.2V	12.6V 25.2V	12.6V 25.2V	12.6V 25.2V

3. 按照控制器上面號碼，照順序1~6號碼一致鎖緊。
4. 優先連接電瓶，特別小心連接時候，電線的裸線部份不要碰觸到控制器黑色金屬外殼(接地)。
5. LED顯示器將會執行自我測試後，顯示目前電瓶電壓準位。
6. 接下來，連接太陽能板，請注意正、負極性。
7. 最後，連接燈具或是其他負載。
8. 所有連接太陽能板、電瓶、燈具(負載)完成之後，將會自動進行充電。
9. 電瓶正端請串接加上各10A/20A安培數保險絲。

SUN - CORE - 10A/20A點燈型 SUN - PURE - 6A點燈型

LED面板顯示解釋	
Battery status	電池狀態
C Charging	C 充電中
0~F Battery Level	0~F 電瓶目前容量%
Set	設定
1~7 Battery Type	1~7 種電瓶充電模式
β Dimmer	8 燈光漸亮功能
9 Save Mode	9 節能60%輸出
Alarm	警告
L Lvd	L 電瓶放電過低警告
E Error	E 按鈕壓住超過15秒警告
t Temp Alarm	t 環境溫度超過60°C警告
Light	燈光狀態
<input type="checkbox"/> Light On	<input type="checkbox"/> 小點點亮表示燈亮中

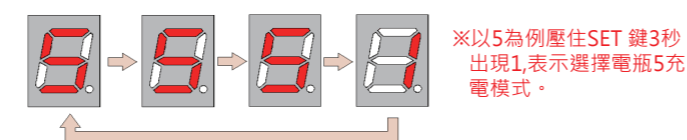
1. 設定'0'是清除所有的啟用功能設定，壓住SET鍵3秒，1閃爍一次，表示此重置完成，內部所有設定恢復出廠值。

設定	功能
SET 0	回到出廠設定1模式

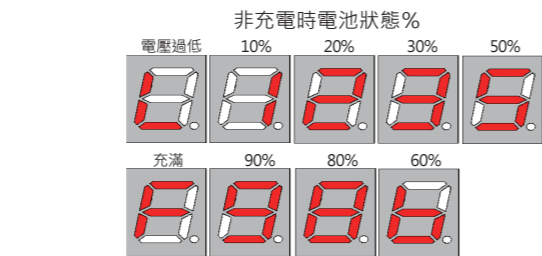
2. 設定電池類型，出廠設定膠體GEL'1'，可選擇1~7種類，請參考下方表格。

設定	電池類型	吸收階段
SET 1	GEL	14.00V
SET 2	GEL 2	14.15V
SET 3	SEL	14.30V
SET 4	SEL 2	14.40V
SET 5	SEAL富液型	14.60V
SET 6	FLOOD	14.70V
SET 7	FLOOD	15.40V

3. 如何設定電瓶種類，每壓一下SET鍵數字就加1，當按壓累積到出現你要的數字時，立刻壓住SET鍵3秒鐘，該數字閃爍數字'1'之後，就選擇該項充電模式。

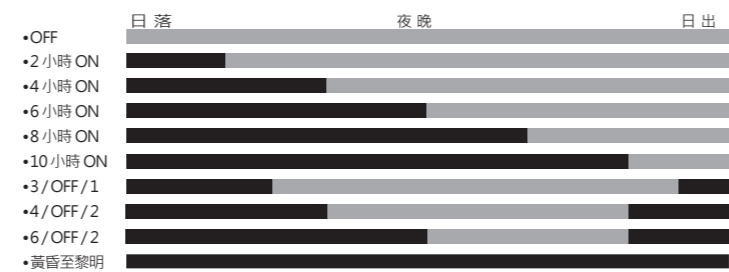


4. 確認控制器各項電壓條件正常，10秒開始充電，顯示英文`C`字Chargeing 並且閃爍。
5. 當沒有充電狀態，控制器將自動轉為顯示電瓶準位，顯示`0~9`閃爍數字×10%。



6. 當電瓶充滿電時，顯示英文`F`字Full並且閃爍。
7. 當電瓶放電太低的時候，電瓶保護功能啟動，顯示英文`L`字並且閃爍，將禁止電瓶輸出電流，它將充電回到固定電壓值，才能重新解除LVD保護，LVD解除電壓需到達12.6V (25.2V)才能解除。
8. 當SET鍵持續壓住15秒以上，顯示英文`E`字，表示錯誤Error並且閃爍。
9. 當環境溫度低於-40°C，高於+60°C時，機器會啟動保護機制，並且顯示英文字`t`小寫，並且閃爍，直到溫度狀態解除，自動恢復充電。
10. 燈光控制模式選擇，調整旋轉10段選擇開關，選擇亮燈時間，內容請看圖1。
11. 夜晚亮燈時間，內容請看下方圖2。

【圖1】

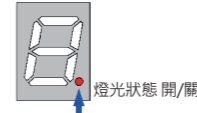


【圖2】

設定	功能
SET 8	燈光 漸亮/瞬暗
SET 9	SAVE節能模式60%功率持續輸出

12. 設定8，該功能啟動後，夜間亮燈，燈光會由暗漸漸亮起來。
13. 設定9，節省電力模式，該功能啟動後，夜間亮燈，燈光持續輸出60%，節約能源輸出。

14. 按下TEST鍵後，燈具點亮並且自動計時5分鐘，燈具點亮中可以再壓一下TEST鍵立即關閉。
15. 當燈具點亮的時候，LED右下角`.`也會點亮顯示中。
16. 當有LVD狀態發生時，按下TEST鍵，燈具不會點亮。
17. D/D模式會自動學習夜間亮燈的時間長度。
18. 2、4、6、8、10是天黑亮燈持續小時數。
19. 1/3.2/4. 2/6入夜後點燈時間，和日出之前點燈時間，會依照當地地區調整和學習。
20. 啟動各項設定後就算拔掉電源，重新啟動後，各項設定也不會消失。
21. BTS端接PTC-10K型溫度感測器，線最長5米。
22. 夜晚時，20秒後，控制器自動開啟燈光。
23. TEST鑑按下時，LED 會顯示目前亮燈模式。



10段選擇開關位置	OFF	2	4	6	8	10	3/1	4/2	6/2	D/D
LED顯示號碼	0	1	2	3	4	5	6	7	8	9

SUN - ENGINEER - 10A / 20A一般獨立工作站型

LED面板顯示解釋	
Battery status	電池狀態
C Charging	C 充電中
0~F Battery Level	0~F 電瓶目前容量%
Set	設定
1~7 Battery Type	1~7 種電瓶充電模式
β Load ON/OFF	8 負載端可以手動控制開/關
9 Save Mode	9 節能70%輸出
Alarm	警告
L Lvd	L 電瓶放電過低警告
E Error	E 按鈕壓住超過15秒警告
t Temp Alarm	t 環境溫度超過60°C警告
<input type="checkbox"/> Light On	<input type="checkbox"/> 小點點亮表示負載輸出中

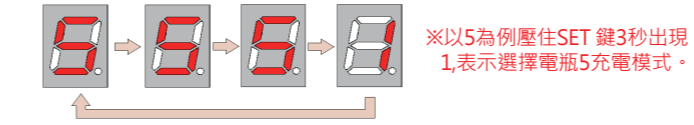
1. 設定'0'是清除所有的啟用功能設定，壓住SET鍵3秒，1閃爍一次，表示此重置完成，內部所有設定恢復出廠值。

設定	功能
SET 0	回到出廠設定1模式

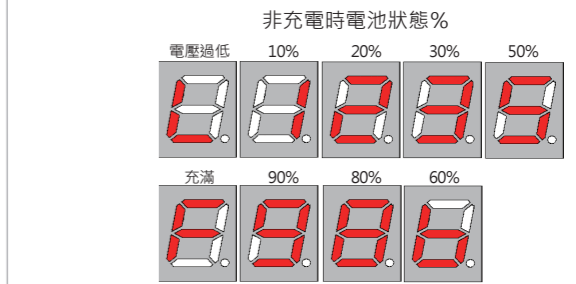
2. 設定電池類型，出廠設定膠體GEL'1'，可選擇1~7種類，請參考下方表格。

設定	電池類型	吸收階段
SET 1	GEL	14.00V
SET 2	GEL 2	14.15V
SET 3	SEL	14.30V
SET 4	SEL 2	14.40V
SET 5	SEAL富液型	14.60V
SET 6	FLOOD	14.70V
SET 7	FLOOD	15.40V

3. 如何設定電瓶種類，每壓一下SET鍵數字就加1，當按壓累積到出現你要的數字時，立刻壓住SET鍵3秒鐘，該數字閃爍數字'1'之後，就選擇該項充電模式。



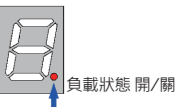
4. 確認控制器各項電壓條件正常，10秒開始充電，顯示英文`C`字Charging並且閃爍。
5. 當沒有充電狀態，控制器將自動轉為顯示電瓶準位，顯示`0~9`閃爍數字×10%。



6. 當電瓶充滿電時，顯示英文`F`字Full並且閃爍。
7. 當電瓶放電太低的時候，電瓶保護功能啟動，顯示英文`L`字並且閃爍，將禁止電瓶輸出電流，它將充電回到固定電壓值，才能重新解除LVD保護，LVD解除電壓需到達12.6V (25.2V)才能解除。
8. 當SET鍵持續壓住15秒以上，顯示英文`E`字，表示錯誤Error並且閃爍。
9. 當環境溫度低於-40°C，高於+60°C時，機器會啟動保護機制，並且顯示英文字`t`小寫，並且閃爍，直到溫度狀態解除，自動恢復充電。

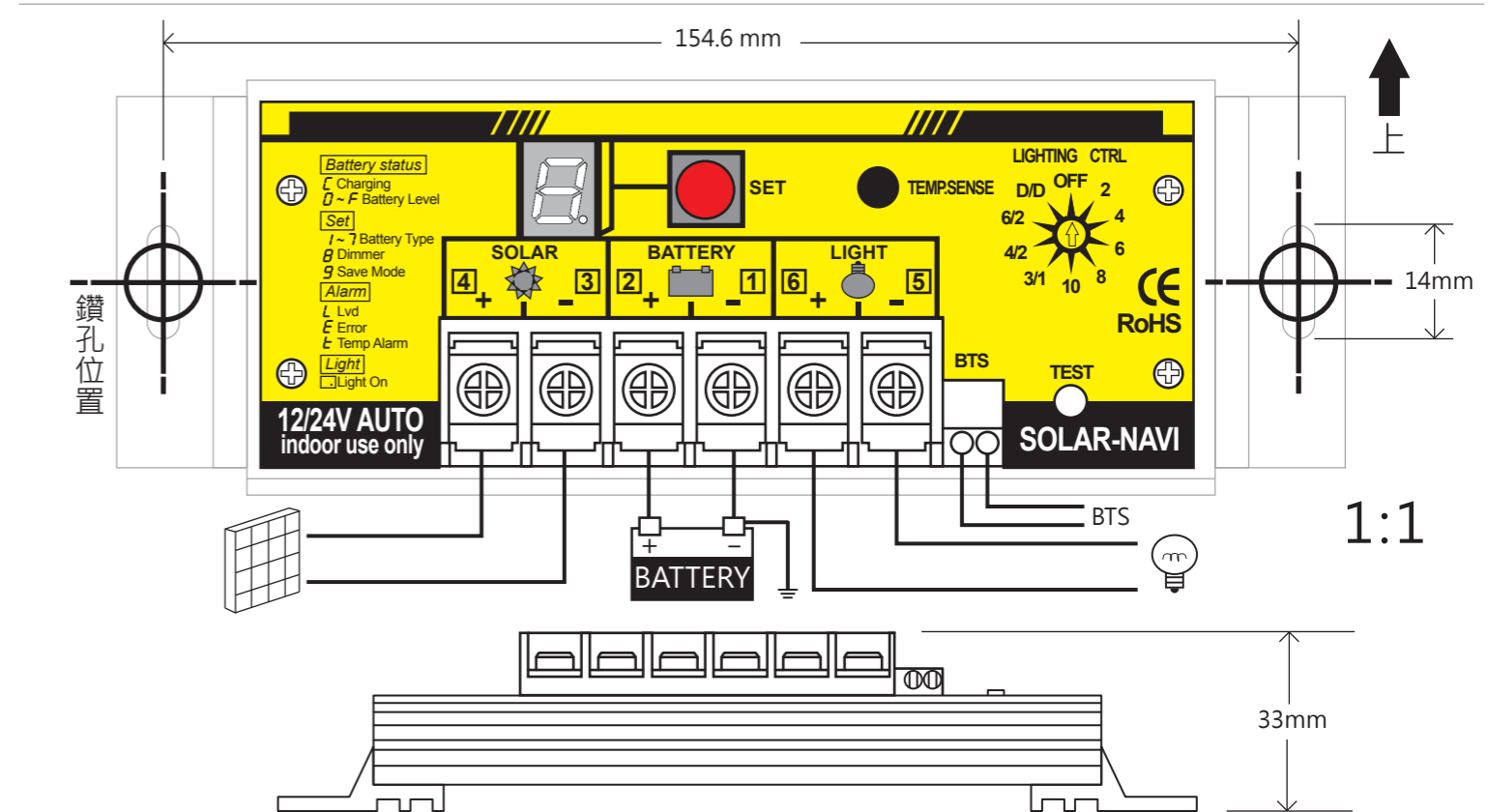
設定	功能
SET 8	LOAD負載端輸出 開關
SET 9	SAVE節能模式70%功率持續輸出

10. 設定8，LOAD負載端輸出電壓打開或是關閉。
11. 設定9，節省電力模式，該功能啟動後，負載端電壓持續輸出70%，節約能源輸出。
12. 當負載端有電壓輸出時候，LED右下角`.`也會點亮顯示中。
13. 當有LVD狀態發生時，LOAD負載端不會輸出電壓。
14. 啟動各項設定後就算拔掉電源，重新啟動後，各項設定也不會遺失。
15. BTS端接PTC-10K型溫度感測器，線最長5米。



固定安裝尺寸圖 SUN - CORE - 10A/20A SUN - ENGINEER - 10A/20A SUN - PURE-6A

1. L × W × H 167.6mm × 56.5mm × 32.3mm。
2. 鎖固中心點距離154.6mm。
3. 4mm螺絲。
4. 263±10g
5. 負極端和外殼正確接地。
6. IP 54。
7. 可以使用防發霉的黑色耐酸鹼EPOXY把金屬部份包覆起來。



SOLAR-NAVI PWM CHARGE CONTROLLER

Taiwan design and manufacture major parts United States passed the European CE certification & RoHS declare

SOLAR-NAVI PWM

SUN-CORE - 10/20 A 12/24V

Automatically determine the system voltage
Solar charge controller

SUN-PURE - 6 A 12/24V

Automatically determine the system voltage
Solar charge controller

SUN-ENGINEER - 10/20 A 12/24V

Automatically determine the system voltage
Solar charge controller or power supply for industrial, automotive, marine

Operating instructions

Thank you for purchasing SUN-NAVI green energy company producing solar controller products, in order to protect your security applications of the product, before you start to use, please read the operation manual.

SOLAR-NAVI LTD Manual version (Cat. No. L128)

Security reminder

- Do not connect more than the controller of solar panel output voltage value.
- Connect to the battery DC 12V or DC 24V systems, solar panel input voltage open circuit voltage values do not exceed the DC 30V (battery 12V) or DC 50V (battery 24V)
- Positive and negative battery input voltage wrong, this time connected to a charge controller will cause substantial damage to the controller.
- Solar Panel input, positive and negative mistake then when connected to a charge controller will cause substantial damage to the controller.
- Use copper wires at 75 ° c minimum temperature isolation environment, between copper wire diameter selection 2.0mm ~ 5.5mm.
- Solar Panel input and load currents exceeds the models maximum current rating rates 25%, duration of no more than 5 minutes, exceeding rated ratio 25% will make the machine safety edge and the body is hot, will allow controllers to shorten the service life.
- This controller design can work in ambient temperature: 60 ° c when continuous.
- Installation space, the controller do not place close to the high heat, you should not direct sunlight.

Start installation instructions

- Controller panels fixed on the wall, providing space, allowing airflow to controller cycles from bottom to top heat sink.
- Determine the solar panels and the load current, no more than installing models current ratio, continue with the installation, please refer to the table.

Type	Sun-Core 12/24V 10A	Sun-Core 12/24V 20A	Sun-Engineer 12/24V 10A	Sun-Engineer 12/24V 20A	Sun-Pure 12/24V 6A
Battery voltage	12V	12V	12V	12V	12V
Maximum solar panel 12V open circuit voltage	30V	30V	30V	30V	30V
Battery voltage	24V	24V	24V	24V	24V
Maximum solar panel 24V open circuit voltage	50V	50V	50V	50V	50V
Solar Panel current	10A	20A	10A	20A	6A
Load current in amps	10A	20A	10A	20A	6A
25% exceeds the current value	12.5A	25A	12.5A	25A	7.5A
Gel PWM	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V
Sealed PWM	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V	14.1V 28.2V
Flooded PWM	14.4V 28.8V	14.4V 28.8V	14.4V 28.8V	14.4V 28.8V	14.4V 28.8V
LVD	11.4V 22.8V	11.4V 22.8V	11.4V 22.8V	11.4V 22.8V	11.4V 22.8V
LVD Reconnect	12.6V 25.2V	12.6V 25.2V	12.6V 25.2V	12.6V 25.2V	12.6V 25.2V

- In accordance with the controller number above, in accordance with the order number 1~6 line lock.
- Priority battery connection, special care connections, bare part of the wires do not touch controller black metal shell (ground).
- LED display will perform a self test, which showed battery voltage.
- Next, connect solar panel, note the positive and negative polarity.
- Finally, connect lamps or other load.
- All solar panel, battery, lights (load) is complete, will automatically be charged.
- Battery positive threaded together with a number of amps fuses.

SUN-CORE-10A/20A Lighting SUN-PURE-6A Lighting

LED solution as shown in the Panel	
Battery status	Battery status
C Charging	C Charging
D ~ F Battery Level	0~F Battery current capacity%
Set	SET
I ~ 7 Battery Type	1~7 battery charging modes
B Dimmer	8 Lighting dimmer function
g Save Mode	9 60% energy output
Alarm	ALARM
L Lvd	L Low battery discharge warning
E Error	E Button pressed for more than 15 seconds warning
t Temp Alarm	t Ambient temperature exceeds 60 ° c warning
Light	Status lights
Light On	Small dots in bright show lights

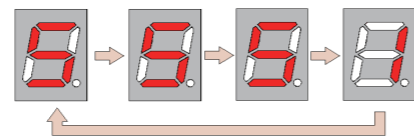
- Setting '0' is to clear all of the function setting is enabled, press and hold SET key for 3 seconds, 1 Flash once, the reset is complete, all set to factory values.

SET	FUNCTION
SET 0	Back to the factory setting 1 mode

- Set the battery type, colloidal GEL ' factory setting 1 ', you can choose the 1~7 category, please refer to the below table.

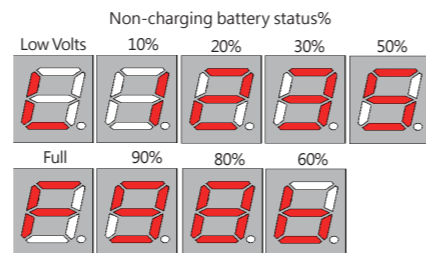
SET	Battery type	Absorb phase
SET 1	GEL	14.00V
SET 2	GEL 2	14.15V
SET 3	SEL	14.30V
SET 4	SEL 2	14.40V
SET 5	SEAL Liquid wealth	14.60V
SET 6	FLOOD	14.70V
SET 7	FLOOD	15.40V

- How to set the type of battery, every SET number 1, when you press the cumulative figures that you want to appear, immediately press and hold SET key for 3 seconds, the numbers flashing after the digit '1', on the selection of the battery charging mode.

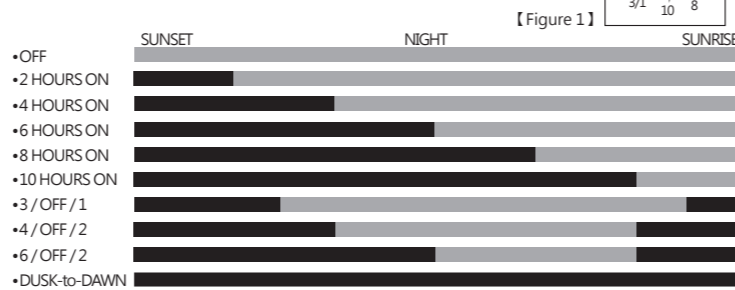


※To 5, for example 1 press and hold SET key for 3 seconds appear, select the battery 5 charging mode

- Confirm that the voltage of the controller is properly, start charging 10 seconds, shows English-language letter c "Charging and flashing.
- When there is no charging status, the controller is automatically converted to display battery-, display the symbol '0~9 "blink digital X10%



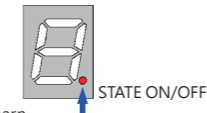
- When the battery when fully charged, show f words Full and Flash.
- When battery discharges when too low, battery protection feature starts, displays the L Word and flashing, will prevent the battery output currents, it charged back to a fixed voltage value, to regain lift LVD protection, LVD discharge voltage required to reach 12.6V (25.2V) to unlock the.
- When the SET key press and hold for more than 15 seconds, shows "E" in English words, indicates an error Error and flashing.
- When the ambient temperature is below -40 ° c and above + 60 ° c, the machine will start protection mechanism, and show the English words and replacing t "lowercase and flashes until the temperature status lifted, automatic recovery charge.
- Lighting control mode selection, adjusting the rotating selector switch in paragraph 10, select the lighting time, please look at the Figure 1.
- Lights at night time, content please see below in Figure 2.



SET	FUNCTION
SET 8	Light bright/territory transient dark
SET 9	Power saving mode 60% power output

- Set of 8, this feature after launch, night lights, lights will be dark gradually lights up.
- Set 9, power-saving mode, this feature after launch, night lights, light constant 60%, conservation of energy output.

- After pressing the TEST button, lamp and auto-timing 5 minutes, can pressure TEST key in the lamp immediately turn off the.
- When the lamp is lit when LED right corner " " also lit display.
- When LVD state occurs, press the TEST button, lights will not light up.
- D/D model automatic night lights of time length.
- 18.2 · 4 · 6 · 8 · 10 is the number of lights dark hours.
- 19.1/3 · 2/4 · 2/6 light time after nightfall, and the lamp time before sunrise, will be adjusted in accordance with local area and learn.
- 20 Start the set even after unplugging the power, after a reboot, the set will not disappear.
- 21.BTS Terminal PTC-10K-type temperature sensor line length 5 meters.
- 22.At night, after 20 seconds, the controller automatically turn on lights.
- 23.TEST is pressed, LED will display the current light mode.



10 select switch locations	OFF	2	4	6	8	10	3/1	4/2	6/2	D/D
Display number	0	1	2	3	4	5	6	7	8	9

SUN - ENGINEER - 10A / 20A General independent station type

LED solution as shown in the Panel	
Battery status	Battery status
C Charging	C Charging
D ~ F Battery Level	0~F Battery current capacity%
Set	SET
I ~ 7 Battery Type	1~7 battery charging modes
B Load ON/OFF	8 Load-side you can manually control the on/off
g Save Mode	9 70% energy output
Alarm	ALARM
L Lvd	L Low battery discharge warning
E Error	E Button pressed for more than 15 seconds warning
t Temp Alarm	t Ambient temperature exceeds 60 ° c warning
Light On	Little shining points in the load output

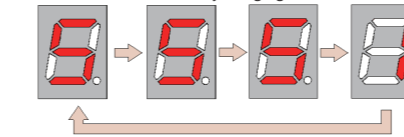
- Setting '0' is to clear all of the function setting is enabled, press and hold SET key for 3 seconds, 1 Flash once, the reset is complete, all set to factory values.

SET	FUNCTION
SET 0	Back to the factory setting 1 mode

- Set the battery type, colloidal GEL ' factory setting 1 ', you can choose the 1~7 category, please refer to the below table.

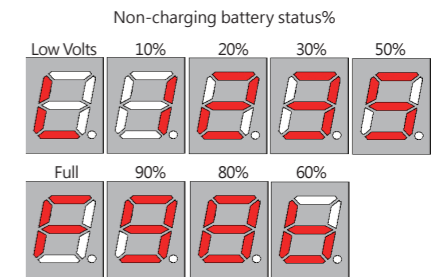
SET	Battery type	Absorb phase
SET 1	GEL	14.00V
SET 2	GEL 2	14.15V
SET 3	SEL	14.30V
SET 4	SEL 2	14.40V
SET 5	SEAL Liquid wealth	14.60V
SET 6	FLOOD	14.70V
SET 7	FLOOD	15.40V

- How to set the type of battery, every SET number 1, when you press the cumulative figures that you want to appear, immediately press and hold SET key for 3 seconds, the numbers flashing after the digit '1', on the selection of the battery charging mode.



※For example three seconds press and hold SET for 5 1 appears, select charge battery 5 mode

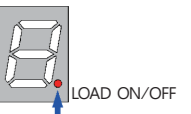
- Confirm the controller voltage normal, start charging 10 seconds, shows English letter c "Word flashing Charging and.
- When there is no charging status, the controller automatically to display the battery, display and replacing 0~9 "blink digital X10%



- When the battery when fully charged, show f words Full and Flash.
- When battery discharges when too low, battery protection feature starts, displays the L Word and flashing, will prevent the battery output currents, it charged back to a fixed voltage value, to regain lift LVD protection, LVD discharge voltage required to reach 12.6V (25.2V) to unlock the.
- When the SET key press and hold for more than 15 seconds, display the e Word, indicates an error Error and flashing.
- When the ambient temperature is below -40 ° c and above + 60 ° c, the machine will start protection mechanism, and shows t lowercase English words and flashing until the temperature status lifted, automatic recovery charge.

SET	FUNCTION
SET 8	Load ON/OFF
SET 9	Power saving mode 70% power output

- Set 8,LOAD output voltage open or closed.
- Set 9, power-saving mode, this feature starts, load side voltage constant 70%, conservation of energy output.
- When the load side voltage output when in the right corner can light the LED display.
- When LVD status occurs, the end will not output voltage.
- Start the set even after unplugging the power, after a reboot, the setting is not lost.
- BTS Terminal PTC-10K-type temperature sensor line length 5 meters.



Fixed installation size diagram SUN - CORE - 10A/20A SUN - ENGINEER - 10A/20A SUN - PURE-6A

- L x W x H 167.6mm x 56.5mm x 32.3mm.
- Locking center point distance 154.6mm.
- 4mm Screw.
- 263±10g.
- Negative and the case is properly grounded.
- IP 54.
- Mildew can be used acid and alkali in black EPOXY coated metal parts.

