

# User's Manual

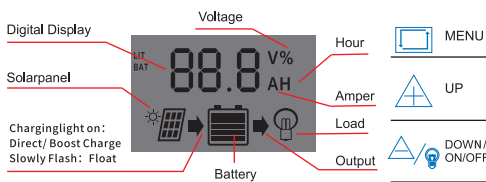
## SAFETY INSTRUCTIONS

1. This controller is suitable for three kinds of batteries, lead-acid battery (12V/24V auto); ternary lithium battery (3S/11.1V); lithium iron phosphate battery (4S/12.8V). Do not use other types of batteries.
2. Install the controller as close to the battery as possible to avoid voltage drop caused by too long wire, which will affect the normal voltage judgment of the equipment.
3. When installing for the first time, please set the battery type according to the battery type, and make sure that your battery has a high enough voltage, so that the controller can correctly identify the battery type.
4. This controller can only be used with PV panel as the input charging power, do not use DC or other power as the input charging power.

## PRODUCT FEATURES

1. Industrial level master chip is adopted.
2. Large screen, LED display, adjustable charging and discharging parameters, with power-off memory function.
3. Complete 3-stage PWM charging management.
4. Built in over-current protection, short circuit protection, open circuit protection and reverse connection protection are all self recovery type that without damaging the controller.
5. Dual USB output, maximum current 1.5A output, supporting iPhone charging.

## LCD DISPLAY / KEY

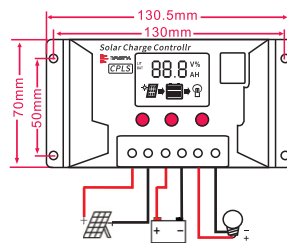


Menu key: switch parameter display interface, press and hold the key for 3s-5s to enter or exit parameter setting.  
 Page up: in the parameter setting interface, press once to increase the parameter by one gear.  
 Page down: there are two functions: 1. In the parameter setting interface, press once to move the parameter increase or decrease. 2. Turn load off or on.

## SYSTEM CONNECTION

1. Connect the positive and negative terminals of the battery with the controller as shown in the diagram, and the controller will automatically detect the battery voltage, battery, and finally the load.
2. After the load is closed, connect the positive and negative terminals of the load with the controller as shown in the diagram, pay attention not to reverse connection, and open the load after connecting.

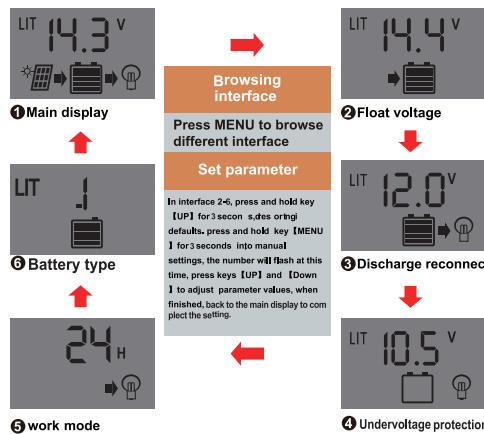
3. Connect the solar panel with the controller as shown in the diagram.
4. Wire removal standard: first remove the solar panel, then the battery, and finally the load.



### Warning:

Any operation that does not comply with the operation standards in this menu, will have no relation to the quality of this product.

## LCD DISPLAY / SETTING



Battery type setting: the system defaults to ternary lithium battery or lithium iron phosphate battery; to change the battery setting, please follow the steps below.

- Step 1: Press and hold the menu key for about 3 seconds, and the screen flashes to show the interface (3),  
 Step 2: Press the menu key select the figure (6), Press the up/down key to select the battery type (BAT: lead-acid battery, LIT1: ternary lithium battery, LIT2: lithium iron phosphate battery), and select the battery type to stay for about 3 seconds to automatically determine and return to the main interface.

Setting of light control delay mode: 24h ON mode by default  
 24h: Normal working mode of the load, no time limited, manually turn On/Off the DC output to set the load  
 00h: there is no need to set parameters. By default, The DC output for load is automatically turned off when there is sunlight, and turned on automatically when there is no sunlight.  
 1-23h: turn off or on the load according to the set time.  
 Setting: Press the menu key select the figure (6), Press and hold the menu key for about 3 seconds, and the screen will flash. Press the up key to select (24h / 00h / 01h). Select the mode according to the demand, stay for about 3 seconds and return to the main interface automatically.

## TROUBLE SHOOTING

Abnormal situation	Possible causes	Methods of solution
Sunny but not charged	Open circuit or reverse connection of PV panel	Reconnect the PV panel
Load icon slowly flash	Mode setting wrongly	Reset
Load icon fast flash	Short circuit protection	Remove short circuit and recover automatically
Controller is not on	Battery voltage too low or reversed	Replace the battery / check the reverse connection

## TECHNICAL PARAMETER

Model	CPLS10A	CPLS20A	CPLS30A
System volt	12V/24V auto adapt		
Rated charging current	10A	20A	30A
Rated discharge current	10A	10A	10A
Max solar current	12V max solar current 23V; 24V max solar current 46V		
Battery type	BAT1=lead-acid battery/12V LIT1=lithium ternary battery (3S/11.1V) LIT2=lithium iron phosphate battery (4S/12.8V)		
Charging completed volt	Lead-acid battery:14.4V(Not adjustable) Lithium ternary battery:12.6V(Not adjustable) Lithium iron phosphate battery:14.6V(Not adjustable)		
LVD	Lead-acid battery:12.6V(adjustable:11.5V-13V) Lithium ternary battery:10.5V(adjustable:10V-11V) Lithium iron phosphate battery:12V(adjustable:11.5V-12.5V)		
LVR	Lead-acid battery:10.7V(adjustable:9.5V-11.5V) Lithium ternary battery:9V(adjustable:8.5V-9.5V) Lithium iron phosphate battery:10V(adjustable:9.5V-10.5V)		
Floating voltage	Lead-acid battery:13.7V(adjustable:13V-15V) Lithium ternary battery:12.0V(adjustable:11.5V-12.5V) Lithium iron phosphate battery:13.8V(adjustable:13V-14.5V)		
Light controlled load	Solar panel 8V(Light controlled load has delay)		
USB output	2 USB Output; 5V/1.5A(MAX)		
Standby current	<10mA		
Operating temperature	-35+60°C		
Size/Weight	133*70*35mm/140g		

\* all red color voltage X2, X4w hile using 24V system.  
 \* Product specifications are subject to change without notice.

# 使用说明书

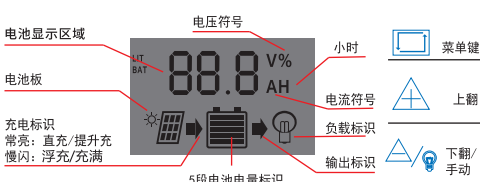
## 安全使用建议

1. 这款控制器适用于三种电池，铅酸电池（12V/24V自动识别）；三元锂电池（3S/11.1V）；磷酸铁锂电池（4S/12.8V）请勿使用其他类型的电池。
2. 将控制器尽量靠近电池安装，以避免电线过长造成电压降，影响本设备正常电压判断。
3. 首次安装时，请根据电池种类设置好电池类型，并确保您的电池有足够的电压，让控制器正确识别电池类型。
4. 本控制器只能使用光伏板作为充电电源，请勿使用直流或其他电源作为充电电源。
5. 本控制器运行的时候会发热，请注意将控制器安装在平整、通风良好的表面。

## 产品特点

1. 采用工业级主控芯片。
2. 大屏幕，LED显示，充放电参数可调，带断电记忆功能。
3. 完整的3阶段PWM充电管理。
4. 内置过流保护，短路保护，开路保护，反接保护均为自恢复型，不损伤控制器。
5. 双USB输出，最大电流1.5A输出，支持苹果手机充电。
6. 双MOS防倒灌电路，超低发热量。

## 图标定义/按键

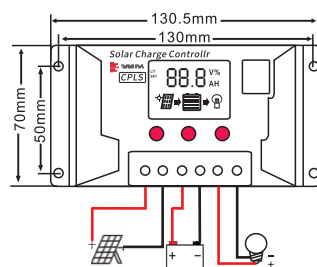


菜单键: 切换参数显示界面, 长按3S-5S进入或者退出参数设置。  
 上翻: 在参数设置界面, 按一次使参数往上一档。  
 下翻: 有两个功能: 1. 在参数设置界面, 按一次使参数往下一档。2. 关闭或打开负载。

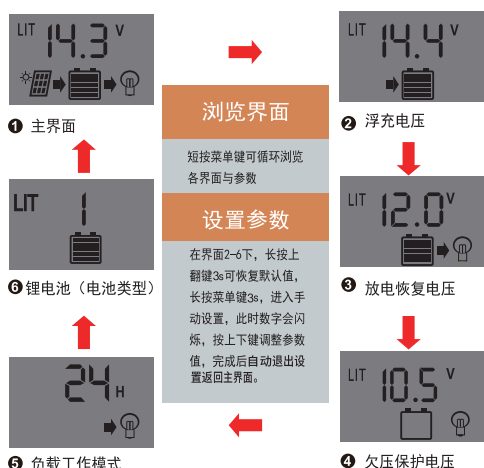
## 系统连接

1. 将蓄电池正负极按图所示接入控制器, 控制器将会自动检测电池电压。
2. 关闭负载后将负载正负极按图所示接入控制器, 注意不要反接, 接好后打开负载。
3. 将太阳能板正负极按图所示接入控制器。
4. 拆线标准: 先拆太阳能板, 接着拆电池, 最后拆负载。

注意: 任何操作不符合上述要求, 出现任何问题均有本产品无关。



## 显示界面/参数设置



### 电池类型设置:

系统默认三元锂电池或磷酸铁锂电池; 如需更换电池设置, 请按照以下步骤操作。

- 第一步: 按菜单键选择图(6)界面, 长按菜单键约3秒屏幕闪烁  
 第二步: 按上/下键选择电池类型 (BAT: 铅酸电池, LIT1: 三元锂电池, LIT2: 磷酸铁锂电池), 选定电池类型停留约3秒自动确定返回主界面。

光控延时模式设置: 系统默认24H的模式  
 24H: 负载常开模式, 不限时间, 手动打开或手动关闭负载输出;  
 00H: 无需设置参数, 默认有太阳能关闭负载, 无太阳能开通负载;  
 1-23H: 根据设定的时间来关闭或打开负载。  
 设置: 按菜单键选择图(5), 长按菜单键约3秒屏幕闪烁, 按上键选择 (24H/00H/01H)。根据需求选择模式, 停留约3秒自动确定返回主界面。

## 故障指南

异常现象	可能原因	解决办法
阳光充足但不充电	光伏板开路或反接	重新连接好光伏板
负载标识不亮	模式设置错误	重新设置
负载标识快闪	短路保护	移除短路, 自动恢复
控制器不亮	电池电压太低/反接	更换电池/检查反接

## 技术参数

型号	CPLS10A	CPLS20A	CPLS30A
系统电压	12V/24V自动识别		
额定充电电流	10A	20A	30A
额定放电电流	10A	10A	10A
最高光伏电压	12V电瓶时, 最高23V; 24V电瓶时最高46V		
电池类型	BAT1=铅酸电池12V LIT1=锂离子电池(三元锂) 3.7V电池3个串联=11.1V LIT2=磷酸铁锂电池, 3.2V电池4个串联=12.8V		
充电截止电压	铅酸电池: 默认值14.4V(不可调) 三元锂电池: 默认值12.6V(不可调) 磷酸铁锂电池: 默认值14.6V(不可调)		
放电恢复电压	铅酸电池: 默认值12.6V(可调11.5V-13V) 三元锂电池: 默认值10.5V(可调10V-11V) 磷酸铁锂电池: 默认值12.0V(可调11.5V-12.5V)		
放电截止电压	铅酸电池: 默认值10.7V(可调9.5V-11.5V) 三元锂电池: 默认值9.0V(可调8.5V-9.5V) 磷酸铁锂电池: 默认值10.0V(可调9.5V-10.5V)		
浮充电压	铅酸电池: 默认值13.7V(可调13V-15V) 三元锂电池: 默认值12.0V(可调11.5V-12.5V) 磷酸铁锂电池: 默认值13.8V(可调13V-14.5V)		
光控负载阈值	光伏板8V(光控负载有延时)		
USB输出	2路USB输出, 5V/1.5A(最大)		
待机电流	<10mA		
工作温度	-35 +60°C		
尺寸/重量	133*70*35mm/140g		

\* 红色字体标记电压仅对应12V系统, 如使用24V系统, 请X2.  
 \* 产品规格如有更改, 恕不另行通知。  
 \* 锂电池充电严格要求, 尽量使用默认值  
 \* 锂电池串联和本规格不符, 请与厂家联系改匹配参数