

# User's Manual

## SAFETY INSTRUCTIONS

1. Make sure your battery has enough voltage for the controller to recognize the battery type before first installation.
2. The battery cable should be as short as possible to minimize loss.
3. This controller is suitable for all kinds of lead-acid batteries (including Sealed, Flooded, AGM, GEL), lithium ion batteries, and lithium iron phosphate batteries.
4. The charge regulator is only suitable for regulating solar modules. **Never connect another charging source to the charge regulator.**

## PRODUCT FEATURES

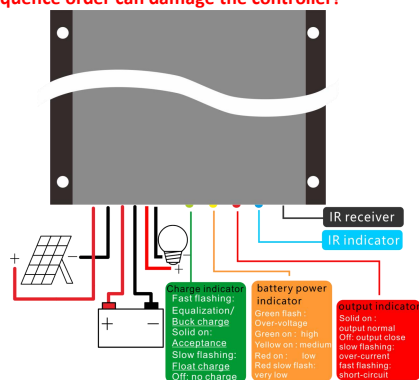
1. Build-in industrial micro controller.
2. IR remote control, LED display, auto memory function, IP68 protection.
3. Fully 4-stage PWM charge management.
4. Build-in short-circuit protection, open-circuit protection, reverse protection, over-load protection.
5. Dual mosfet Reverse current protection, low heat production.

## SYSTEM CONNECTION

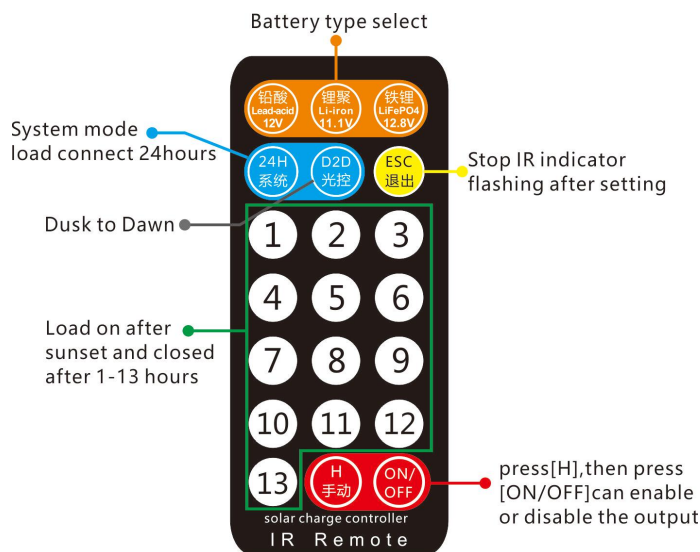
1. Connect the battery to the charge regulator - plus and minus. it will auto adapt the battery type.
2. Connect the photovoltaic module to the regulator - plus and minus.
3. Connect the consumer to the charge regulator - plus and minus.

The reverse order applies when uninstalling!

An improper sequence order can damage the controller!



## SETTING/SYSTEM MODE



1. When the controller is energized, the controller recognizes the battery voltage type. If the battery voltage is lower than 18V, it is identified as the 12V system, and if it is higher than 18V, it is identified as the 24V system.
2. After identifying the system voltage, the user can press the infrared remote controller to choose a battery type. After receiving the signal, the controller's blue light flashes and the setting is completed without restarting.
3. the controller supports 3 types of batteries, which is:
  - 12V lead-acid batteries (including Sealed, Flooded, AGM, GEL)
  - 11.1V lithium ion battery (3 series, 3\*3.7V, including capacity and power type).
  - 12.8V phosphoric acid iron lithium battery (4 series, 4\*3.2V)
 If it is a 24V system, it corresponds to:
  - 24V lead-acid batteries (including Sealed, Flooded, AGM, GEL)
  - 22.2V lithium ion battery (6 series, 6\*3.7V, including capacity and power type).
  - 25.6V phosphoric acid iron lithium battery (8 series, 8\*3.2V)
4. after the battery type is set, then user can set the work mode of the load, the system (24H) mode is normally open mode for the load, which means, the load output has been always connected (unless low power protection). Dusk to Dawn mode (D2D) means system load is disconnected in the daytime and connected at the night time. 1-13H means system load is connected when night falls and disconnected after 1-13 hours timer. The D2D mode and the timer mode are used for solar energy lighting system, which is fully automatic control.
5. when it is necessary to temporarily connect or disconnect the load, press the manual (H), enter the manual mode, and then press ON/OFF to manually switch the load, this function is generally used to test the connection of the load.

## TROUBLE SHOOTING

Situation	Probable cause	Solution
Charge LED not on when sunny	Solar panel opened or reversed	Reconnect
Load LED off	Mode setting wrong	Set again
	Battery low	recharge
Load LED slow flashing	Over load	Reduce load watt
Load LED slow flashing	Short circuit protection	Auto reconnect
Power off	Battery too low/reverse	Check battery/connection

## TECHNICAL PARAMETER

MODEL	POW-10A-12V	POW-10A-12V-3S	POW-10A-12V-4S
Size	82*45*21mm	82*58*21mm	82*58*21mm
Installing hole size	74.5mm	74.5*44.4mm	74.5*44.4mm
weight	120g	135g	150g
Remote function	NO	YES	YES
USB	NO	NO	5V/2A
Battery voltage	12V/24V auto adapt		
Rated current	5-20A		
Max Solar input	50V		
Battery type	Lead-acid	Lithium ion	LiFePO4
Equalization	14.4V	-	-
ABS	14.2V	-	-
Float	13.8V	12.6V	14.4V
Discharge stop	11.2V	9V	10V
Discharge reconnect	12.6V	10.5V	12V
Self-consume	<10mA		
Voltage of open light	Solar panel 8V (delay 10s)		
Voltage of close light	Solar panel 8V (delay 60s)		
Operating temperature	-20~+60 °C		

\*all red color voltage X2 while using 24V system

\*Product specifications are subject to change without prior notice