

# User's Manual

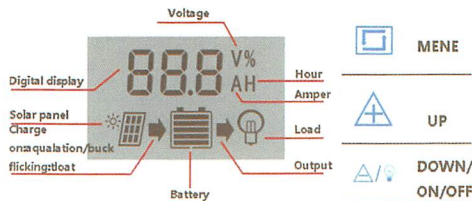
## SAFETY INSTRUCTIONS

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. The regulator is only suitable for lead acid batteries: OPEN, AGM, GEL. It is not suited for nickel metal hydride, lithium ions or other 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. Big LCD display, all adjustable parameter.
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.

## LCD DISPLAY/KEY

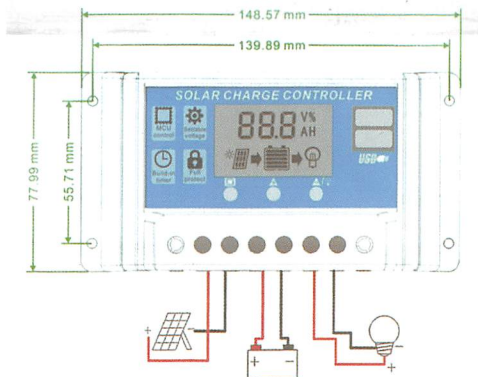


## SYSTEM CONNECTION

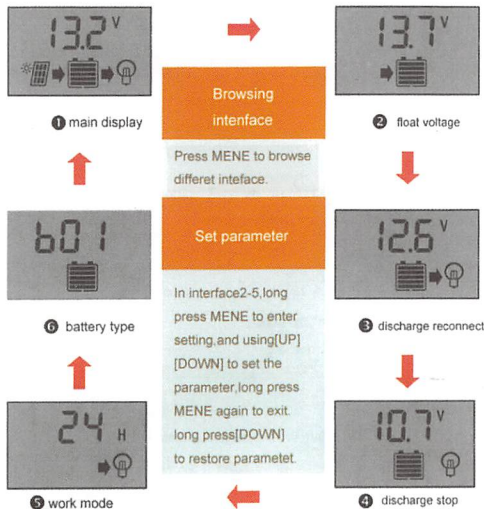
1. connect the battery to the charge regulator -plus and minus.
2. Connect the photovoltaic module to the regulator -plus and minus.
3. Connect the consumer to the charge regulator -plus and minus.

The reverse order applies when deinstalling!

An improper sequence order can damage the controller!



## LCD DISPLAY/SETTING



Attn:

1. press the [DOWN] button to ON/OFF load manually at main display.
2. The work mode is working as below.
  - [24H] load output 24 hours
  - [1-23H] load on after sunset and closed after setting hours
  - [OH] Dust to dawn

## TROUBLE SHOOTING

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

## TECHNICAL PARAMETER

MODEL	KW1210	KW1215	KW1220	KW1230	KW148
Batt v voltage	12V/24V auto adapt				
Charge current	10A	15A	20A	30A	A
Discharge current	10A	15A	20A	30A	A
Max Solar input	<50V			<80V	
Equalization	B01 sealed	B02 Gel	B03 flood		
	14.4V	14.2V	14.6V		
Float	13.7V (default, adjustable)				
Discharge stop	10.7V (default, adjustable)				
Discharge reconnect	12.8V (default, adjustable)				
Self-consume	<10mA				
USB output	5V/2A Max				
Operating temperature	-35→+60 ?				
Size/Weight	150*78*35mm /150g				

\*all red color voltage X2 ,X4 while using 24V system.

\*Product specifications are subject to change without prior notice.