

# User's Manual

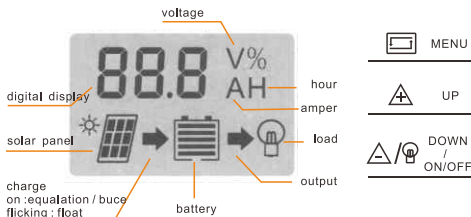
## Safety Instructions

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 suitable for lead acid batteries (Flood, AGM, GEL) and lithium ions, (note the use of please controller is arranged for the right type of battery) **it is not suited for nickel metal hydride, or other batteries.**
4. The charge regulator is only suitable for regulating solar modules. **never connect another charging source to the charge regulator.**
5. The controller will be hot when it is working. Please install the controller on a smooth, well ventilated surface.

## Product Features

1. Build-in industrial micro controller.
2. Big LCD display, all adjustable parameter.
3. Fully 3-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

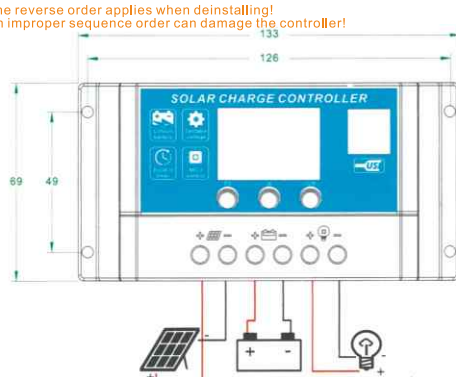


menu: switch between different display, or to enter/exit setting by long press.  
 up: press to increase value.  
 down: press to decrease value.

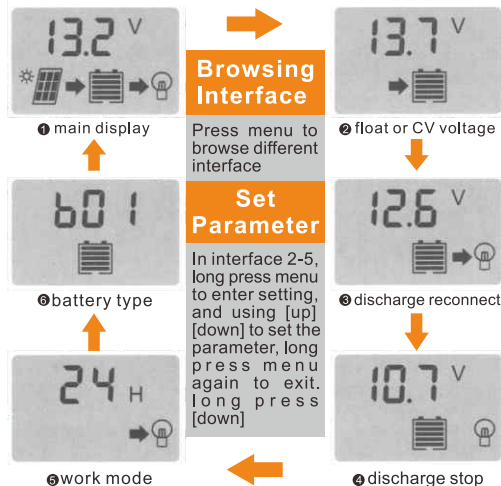
## System Connection

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 uninstalling!  
 An improper sequence order can damage the controller!



## 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 [0H] Dusk 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 slow flashing	Over load	Reduce load watt
Load icon fast flashing	Short circuit protection	Auto reconnect
Power off	Battery too low/Reverse	Check battery/Connection

## Technical Parameter

Model	1210	1220	1230	
System Voltage	12V/24V AUTO			
Charge Current	10A	20A	30A	
Discharge Current	10A	20A	30A	
Max Solar Input	< 50V			
Battery Type	b01 Sealed	b02 GEL	b03 Flood	
Equalization	14.4V	14.2V	14.6V	
Float Charge	13.7V ( default, adjustable )			
Discharge Stop	10.7V ( default, adjustable )			
Discharge Reconnect	12.6V ( default, adjustable )			
Battery Type	b04 Iron lithium 4 Strands	b05 Iron lithium 5 Strands	b06 lithium ion 3 Strands	b07 lithium ion 4 Strands
Constant Charging Voltage	3.6V*4/*5		4.2V*3/*4	
Recovery Charge Voltage	3.4V*4/*5		4.0V*3/*4	
Low Voltage Protection	2.6V*4/*5		3.1V*3/*4	
Low Voltage Recovery	2.9V*4/*5		3.7V*3/*4	
b04~b07 Parameters can not be set				
USB Output	5V/2A			
Self-consume	< 10mA			
Operating Temperature	-35 ~ +60°C			
Size/Weight	133*70*34mm/154g			

\*All red color voltage\*2,\*4 while using 24V/48 system.  
 \*Product specifications are subject to change without prior notice.