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 battary 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. Large-screen LCD display, charging and discharging current display, cumulative power generation and discharge power query, temperature display, light control + delay control; adjustable charge and discharge parameters, with power-off memory and other functions.
3. Dual USB output, the maximum current of 2.5A, to support Apple's mobile phone charging.
4. Fully 3-stage charge management.
5. Build-in short-circuit protection,open-circuit protection,reverse protection,over-load protection.
6. Reverse current protection,low heat production.

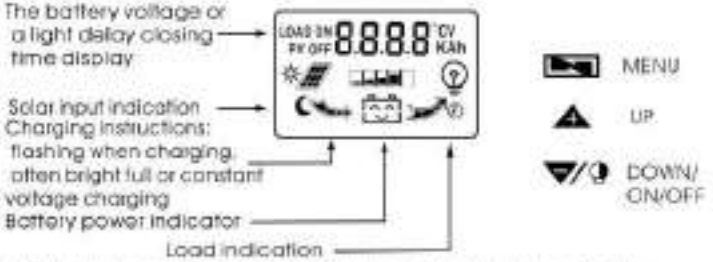
SYSTEM CONNECTION

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!

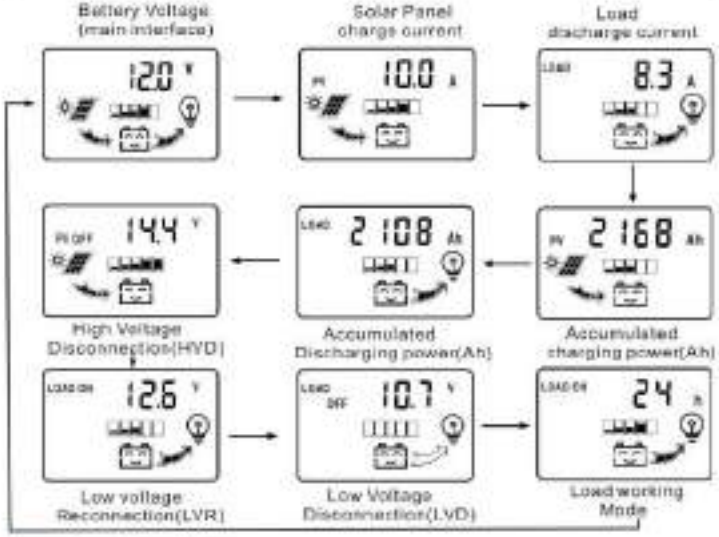
An improper sequence order can damage the controller!

LCD DISPLAY/KEY



MENU:switch between different display,or to enter/exit setting by long press.
UP:press to increase value.
DOWN:press to decrease value.

DISPLAY/SEETING



Operation instructions:

1. short press menu key to cycle through the interface and parameters;
2. long press the menu button for 3S to enter the settings manually, this number will be flashing, into the corresponding set project on turn, turn key adjustment parameters you want value, after the completion of the system of automatic memory setting value and exit setup menu;

Function declaration:

1. discharge recovery voltage: refers to the battery discharge protection, the battery voltage to restore voltage, open the output;
2. the discharge cut-off voltage: refers to the battery discharge to thevoltage when the load off, to protect the battery, to prevent the battery over discharge damage.
3. load operation mode:

【24H】 Load output 24Hours (except for battery under voltage)
【1-15H】 Load on after sunset and closed after setting hours
【0H】 Dusk to dawn

Note: 1. the light control function is controlled by the solar panel, the use of light control function must access the solar panel, otherwise the light hed no effect.
2. Load symbol 【 】 Light, only that the load output has been turned on, and there is no connection to the load.

As long as it is not set to 【1-15H】 Or 【0H】 model,(The optical delay model),Battery not under pressure condition(Battery symbol does not blink),Single short press the turn key can open /Close load output .

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
	Short circuit protection	Remove short circuit, 1 minutes or so automatic recovery
Power off	Battery too low/ reverse	Check battery/connection

TECHNICAL PARAMETER

MODEL	K1688				
Batt voltage	12V/24V auto				
Charge current	10A		20A		30A
Discharge current	10A		10A		10A
Max solar input	12V battery, the highest 23V; 24V battery when the highest 46V				
Equalization	14.4V				
Float charge	13.7V (defaul,adjustable)				
Discharge stop	10.7V (defaul,adjustable)				
Discharge reconnect	12.6V(defaul,adjustable)				
Charge reconnect	13V				
Voltage of open light	Solar panel 8V(Light lights delay)				
Voltage of close light	Solar panel 6V(Light off delay)				
USB output	2 way USB output. 5V/2.5A(MAX)				
Self-consume	<10mA				
Operating temperature	-35～+60C				
Size/Weight	125X112X34mm / 179g				

*All red color voltage x2 while using 24V system
*This instruction is a general manual, such as a slight difference in the physical.
*Product specifications are subject to change without prior notice