

The **Kachina ARC** has 4 solar powered “Battery Maintainer” kits for club members use. The following is a set of instructions as to how to assemble and use the contents of the kit.

The folded and portable solar panels in each kit are **NOT replaceable**. The borrower is responsible for the contents of each kit. And the Kachina ARC lends the kits out with the understanding that they will returned in the same condition as when borrowed.

Information about the Kachina ARC

Solar Kit

This solar system is a **battery maintainer system**, and will not charge a dead battery. Your battery must have a minimum charge of 11 volts when you hook it up to the controller. It takes 11 volts for the controller to recognize the battery and the “type” of battery it is when you connect the battery to the middle two connectors on the regulator. This regulator is only suitable for lead acid batteries (Open, AGM, and Gel). **It is not suitable for nickel metal hydride, lithium ion, or other types of batteries.**

1.CONNECT THE BATTERY AND THE SOLAR PANELS TO THE CONTROLLER IN THIS ORDER:

- a.**First CONNECT THE BATTERY** to the center connector positions; **RED to +**. You should see the screen turn on a few seconds after connecting the battery. After the battery is connected to the center position on the controller, the controller will determine the type of battery you have hooked up to it.

- b.**Second, CONNECT THE SOLAR PANELS** to the “Y” cable. Then connect the “Y” cable to the left hand connector positions **RED to +**.

- c.**Third, CONNECT THE LOAD** to the right hand connector positions **RED to +**.

NOTE: The controller is a 20 amp controller which means whatever is connected to the right hand contacts, the load contacts, will not be allowed by the controller to draw more than 20 amps. The load includes what you might have connected to the USB ports. Check what amperage your radio will draw at full output. **NOTE:** You do not need to connect your radio through the controller! But if you do, the controller will limit the draw on the battery to 20 amps. **TO BYPASS THIS “CONTROL”** hook your radio up to the battery like you would normally do; **RED to +**. The radio will draw power directly from the battery, and not through the controller. If you are using the “load” output connectors on the controller, you will be able to monitor the amperage drawn. If you are connected directly to the battery, you cannot monitor the amperage drawn on the battery.

IMPORTANT: Connecting your radio directly with the battery will not impact the solar system’s ability to maintain/charge the battery unless you are continuously drawing from the battery more than the 20 amp limit by the controller.

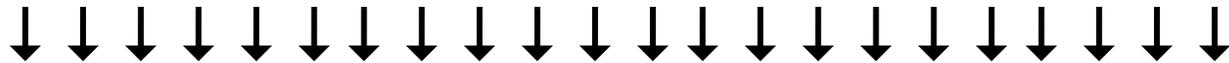
2.The controller's parameters are variable. There is no need to change the parameters in the controller! So please don't!

3.The USB ports are usable and will charge at 5 volts and up to 2 amps. And, they are part of the "output" from the controller. To turn on the USB ports and the output connection if you are using it, press the left hand button one time. The USB ports are now hot and will take energy from the battery through the controller to whatever is connected to the USB ports. You can use both USB ports at the same time. Pressing the left hand button a second time turns off the output connection and the USB ports.

4.Be aware that the panels, when open and lying on the ground are susceptible to being blown around in a mild to heavy wind. Plan to stake them down (through the grommets) or weight them down with rocks, etc. **Be sure not to walk on or put anything on the face of the panels themselves.** Remember, we cannot replace the panels/solar cells themselves. They are

valuable and can be destroyed if mishandled. You are responsible to return them to the club in the condition you received them from the club.

The Instructions that came with the controllers



User's Manual

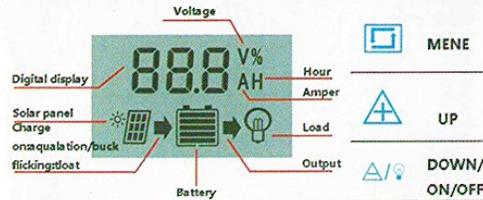
SAFETY INSTRUCTIONS

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. Built-in industrial micro controller.
2. Big LCD display, all adjustable parameter.
3. Fully 4-stage PWM charge management.
4. Built-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.

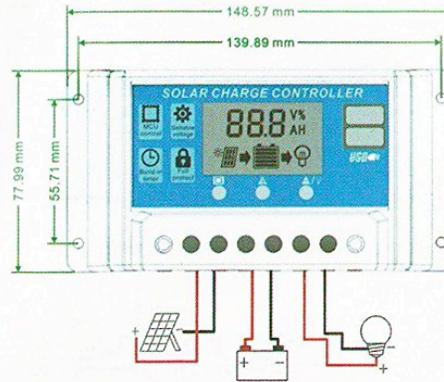
UP :press to increase value.

DOWN: Press to decrease value

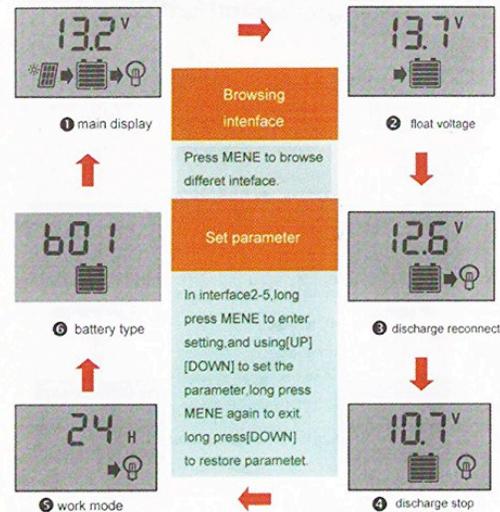
SYSTEM CONNECTION

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 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 24hours
[1-23H] load on after sunset and closed after setting hours
[OH] 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 slowflashing	Over load	Reduce load watt
Load icon slowflashing	Short circuit protection	Auto reconnect
Power off	Battery too low/reverse	Check battery/connection

TECHNICAL PARAMETER

MODEL	KW1210	KW1215	KW1220	KW1230	KW148
Batt 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	12.6V (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.