

# User's Manual

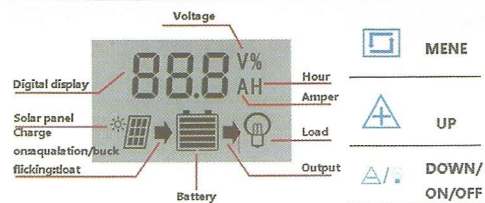
## SAFETY INSTRUCTIONS

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



MENU: Switch between different display or to enter/exit setting by long press.

Up :press to increase value.

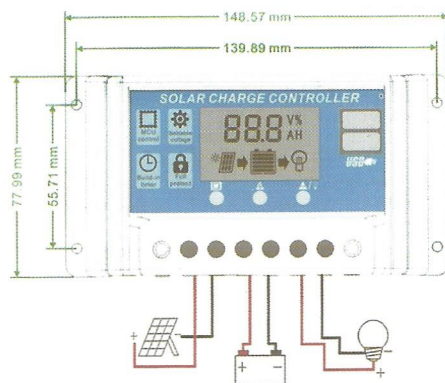
DOWN: Press to decrease value

## SYSTEM CONNECTION

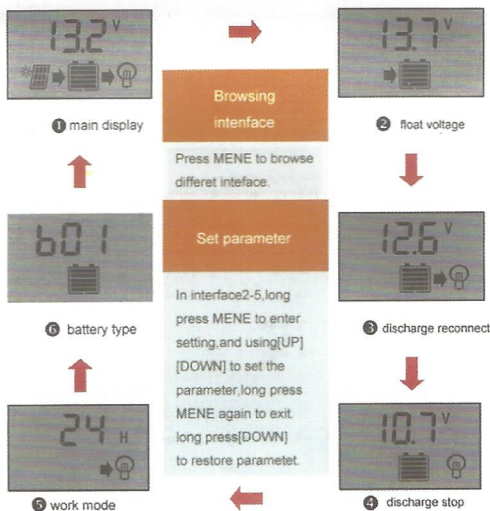
1. connect the battery to the charge regulator –plus and minus.
2. Connect the photovoltaic module to the regulator –plus and minus.
3. Connect the consumer to the charge regulator –plus and minus.

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 | KW123 |
|-----------------------|-----------------------------|---------|-----------|--------|-------|
| 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.