USER'S MANUAL

1 PRODUCT INTRODUCTION

The CY series charge controllers is the highlight in the range.

Use of the latest charging technologies combined with state of charge determination enable optimal battery maintenance and module power monitoring for up to 2880 Wp of connected power. A large display informs the user about all operating modes with the aid of symbols. The state of charge is represented visually in the form of a tank display. Data such as voltage, current and state of charge can also be displayed digitally as figures on the display .

- Integrated data logger energy meter
- Automatic detection of voltage
- PWM control
- Multistage charging technology
- Automatic load reconnection
- Temperature compensation
- Overcharge protection
- Deep discharge protection
- Reverse polarity protection
- Short circuit protection of load
- Reverse current protection at night
- Load disconnection on battery overvoltage

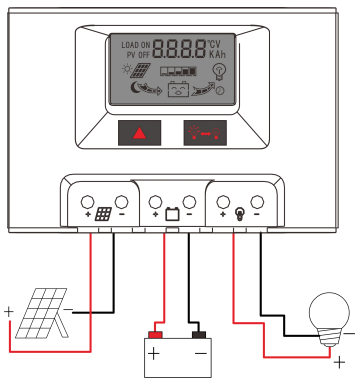
2 INSTALLATION

Only install the regulator near the battery on a suitable surface. This surface should be solid, stabile, even, dry and nonflammable.

The battery cable should be as short as possible and have a suitable cable diameter size to minimize loss, e.g. 4 mm² at 20 A and 2m length.

Do not install the controller to direct sunlight.

If the solar battery will be operated under a large temperature range (winter/summer) the external temperature sensor should be used. A temperature compensated final charge voltage will extend the batteries lifetime and uses the optimum charge capacity.



To ensure the air confection on each side keep a distance of 10 cm to the regulator. The temperature at the installation site may never fall below or exceed the maximal permitted ambient temperature.

Connect the individual components to the symbols provided.

Observe the following connection sequence during commissioning:

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

The reverse order applies when deinstalling!

Please observe that the automatic adjustment to 12V/24V systems does not function properly,if this sequence order is not followed. An improper sequence order can damage the battery!

3 OPERATION

Description of LCD graphic symbol

: Stop power output to the load

: Power output is normal but there is no current

: Power output is normal and there is a load current

: Load

: Solar Panel

: Load sensor control

: Load time control

: Battery stops charging

: Buck charging

: Float charging

: System is working good

: System is not working good

: Battery capacity

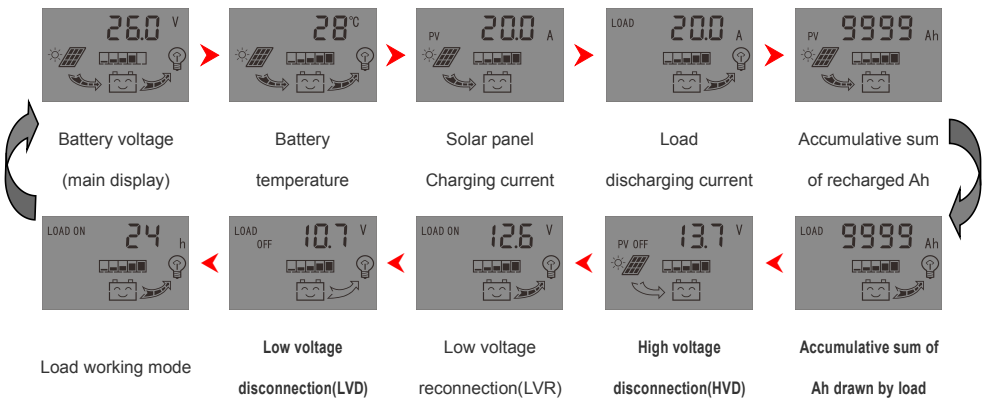
: Battery

Description of Button function

❶Button for Switching display windows ❷ to enter/exit the setting (long press for 5 seconds)

❶Adjustment of parameters plus button

❷ click this button to switch the load in main display window



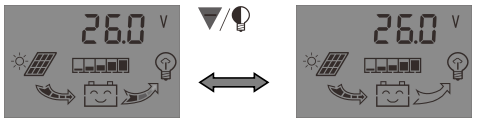
View and set the parameters

The controller will auto display the "battery voltage" main display after correct power on.This is the main display window.Use the botton to switch between different display windows. If the parameter can be set, long press the botton (>5 seconds,numbers start flashing) to enter the setting,then press the to select the setting,after that,long press the botton again to exit the setting(numbers stop flashing)

4 LCD MENU

The load ON/OFF control

In the main display window,click the bottom to ON/OFF the load.



Environment temperature

It displays the ambient temperature of the controller,also its used for temperature compensation on HVD function.The sensor must be plug in before using the controller.

Solar panel charging current

As shown on the right,it displays the charging current from the solar panel.

Load discharging current

As shown on the right,it displays the discharging current drawn by load.

Accumulative sum of recharged Ah

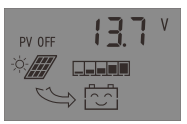
It displays the Accumulative sum of recharged Ah from solar panel.press the button for 5 seconds to reset the meter to 0. When 9999Ah are reached,it will switch back to 0 Ah.

Accumulative sum of recharged Ah

It displays the Accumulative sum of Ah drawn by load. press the button for 5 seconds to reset the meter to 0.. When 9999Ah are reached,it will switch back to 0 Ah.

High voltage disconnection(HVD)-adjustable

As shown on the right,it displays the values of HVD.when battery voltage reaches HVD voltage,the controller will start PWM control to keep the battery voltage at same level.

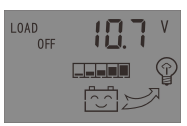


Low voltage reconnection(LVR)-adjustable

Under the LVD protection in the controller,when battery voltage is restored to higher voltage than LVR voltage,the controller will re-connect the load circuit.

Low voltage disconnection(LVD)-adjustable

When the battery voltage is lower than this voltage,the controller will disconnect the load circuit to prevent battery over-discharge.



Load working mode-adjustable

It displays the load working mode. Different values represent different load working mode.

24h - normal mode,there is always output unless the battery voltage is too low.

1-23h - Light control with time control mode. Load will turn on after dusk and turn off according to the timer setting.

0h - light control mode,load will turn on after dusk and turn on before dawn.

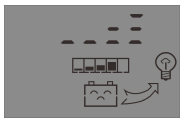
5 COMMON FAULT AND HANDLING

LVD Protection and Treatment

Screen display as shown in the figure that the battery drops below the LVD protection voltage. The controller has entered the LCD protection state, load circuit has been disconnected. Use the solar panels recharge the battery or charger when the battery voltage reaches LVR voltage, the controller will resume on the load power supply, into the normal working state.

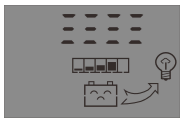
Over load Protection and Treatment

Screen display (see the figure) and flashing expressed load loop circuit current sustained 60seconds than 1.5times rated current, the controller has entered into overload protection state. After reduce the load, press the button to restore power to the load.



Short Circuit Protection and Treatment

Screen display (see the figure on the right) and flashing expressed there is short circuit on the load loop circuit. The controller has enter into Short Circuit Protection state Check the load if there is damage or not, if there is cable short circuit or not, after trouble shooting short press the button for restoration.



Solar Panel Fault and Treatment

Symbol flashing represent the controller was not detected solar panels within 24hours. Check ifthere is a connection from solar panel, check if there is an open circuit between solar panels with controller.

Load Shock Fault

Open load if the flashing, that indicate the load impulse current is more than twice rated current of the controller. The controller is restarting the load in action many timers do.

6 TECHNICAL DATASHEET

Model	2024	3024	2048	3048
Rated current	20A	30A	20A	30A
Rated voltage	12/24V		48V	
Max solar voltage	<50V		<100V	
Low voltage disconnect	10.7/21.4V		42.8V	
Low voltage reconnect	12.6/25.2V		50.4V	
Float charge	13.7/27.4V		54.8V	
Standby loss	<20mA			
Charging mode	PWM			
Temp compensation	-4mV/Cell/℃			
Opearating condition	-20℃~+60℃			
Size/Weight	110*170*55/300g			

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