Intelligent Solar Charge Controller

User’s Manual

Please read this manual carefully before you use this product.

1 Product Introduction

The CM/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.

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.

Do not install the controller to direct sunlight.

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

1.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

: Battery stops charging

: Buck charging

: Float charging

: System is working good

: Solar Panel

: Load sensor control

: Load time control

: System is not working good

: Battery capacity

: Battery

2.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 restore factory setting in each parameter(long press for 5 seconds)

❶Adjustment of parameters mins buttom ❷ click this button to switch the load in main display window

3.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 or to select the setting,after that,long press the botton again to exit the setting(numbers stop flashing)

3.1 Battery voltage(main display)

As shown on the right,it displays the battery voltage measured by the controller.Also,it displays the charge and discharge status,battery capacity.

3.2 The load ON/OFF control

In the main display window,click the bottom▼/💡 to ON/OFF the load.the botton dont have such feature in other interface.

3.3 Environment temperature

As shown on the right,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.

3.4 Solar panel charging current

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

3.5 Load discharging current

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

3.6 Accumulative sum of recharged Ah

As shown on the right,it displays the Accumulative sum of recharged Ah from solar panel. press the button ⊏⊐ for 5 seconds to reset the meter to 0. Even when battery is disconnected the value remains. When 9999Ah are reached,it will switch back to 0 Ah.

3.7 Accumulative sum of recharged Ah

As shown on the right,it displays the Accumulative sum of Ah drawn by load.

press the button ⊏⊐ for 5 seconds to reset the meter to 0. Even when battery is disconnected the value remains. When 9999Ah are reached,it will switch back to 0 Ah.

3.8 High voltage disconnection(HVD)

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.

long press the botton ⊏⊐ (>5 seconds,numbers start flashing) to enter the setting,then press the ▲ or ▼/💡 to select the setting,after that,long press the botton ⊏⊐ again to exit the setting(numbers stop flashing)

3.9 Low voltage reconnection(LVR)

As shown on the right,it displays the values for the LVR voltage.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.

long press the botton (>5 seconds,numbers start flashing) to enter the setting,then press the or / to select the setting,after that,long press the botton again to exit the setting(numbers stop flashing)

3.10 Low voltage disconnection(LVD)

In the main display window,it displays the values for low LVD voltage. When the battery voltage is lower than this voltage,the controller will disconnect the load circuit to prevent battery over-discharge.

long press the botton (>5 seconds,numbers start flashing) to enter the setting,then press the or / to select the setting,after that,long press the botton again to exit the setting(numbers stop flashing)

3.11 Load working mode

As shown on the right,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.

long press the botton (>5 seconds,numbers start flashing) to enter the setting,then press the or / to select the setting,after that,long press the botton again to exit the setting(numbers stop flashing)

4 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.

5 Quality assurance

1. Quality assurance should be carried out according to the following rules:

- The product is guaranteed of replacement, returning and repairing within 7 days after Sale.
- The product is guaranteed of replacement and repairing within 1 month after sale.
- The product is guaranteed of repairing within 12 months after sale.

2. If it is not possible to identify the using date of the controller, we would refer to the ex-work date, and prescribe 18 months as the warranty period. We need to charge beyond the warranty period. The controller can be repaired for life no matter when and where you use it.

3. If the controller is damaged by the following causes, we need to charge even if it is in the guarantee period:

- Do not operate according to the user's manual.
- Use the controller under the condition which is beyond the using standard and technical requirements.
- Repair by yourself or reform by yourself.
- The inappropriate environmental condition which can cause the breakdown and aging of the apparatus.
- Improper carrying or storage.
- Regarding to the service of replacement, returning and repairing, you need to retreat the product to our company, and we decide whether to replace or repair after we make clear who should be responsible.

4. We will not note if there is any change of this product.

5 Technical datasheet

Model	CM3024 CY30A-24	CM5024 CY50A-24	CM3048 CY30A-48	CM5048 CY50A-48	CM6024 CY60A-24	CM6048 CY60A-48
Rated current	30A	50A	30A	50A	60A	60A
Rated voltage	12/24V	12/24V	48V	48V	12/24V	48V
Max solar voltage	<50V	<50V	<100V	<100V	<50V	<100V
Low voltage disconnect	10.7/21.4V		42.8V		10.7/21.4V	42.8V
Low voltage reconnect	12.6/25.2V		50.4V		12.6/25.2V	50.4V
Float charge	13.7/27.4V		54.8V		13.7/27.4V	54.8V
Standby loss	<30mA					
Charging mode	PWM					
Temp compensation	-4mV/Cell/℃					
Opearating condition	-20℃~+60℃					
Size/Weight	CM3024 CM3048	90x188x48 360g	CY30A-24 CY30A-48	110*170*55 300g		
	CM5024 CM6024 CM5048 CM6048	130x188x62 590g	CY50A-24 CY50A-48 CY60A-24 CY60A-48	130x188x62 570g		