USER MANUAL

PCL-1512M / PCL-1524M

200W / 250W MPPT charge controller with load control

V.1.0

Import Safety Instructions

WARNING

Improper handling may cause a very hazardous situation resulting in personal injury or loss of life.

CAUTION

Improper handling may cause personal moderate/minor injury or equipment damage.

General Safety Instructions

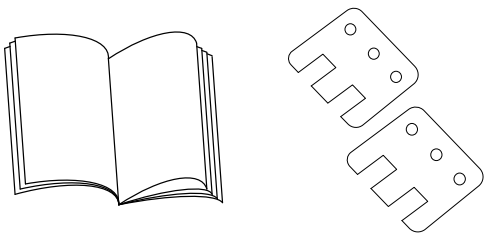
- Please follow all the instruction and warning markings in this manual and on the controller
- Do not remove or bypass grounding pin. Make sure the surface of the controller is connected to earth.
- Please check the appearance of controller before installation. Contact your sales agent if there is any obvious damage
- Please keep the controller from moisture
- Do not leave any heavy item on the top of the controller
- To reduce the chance of short-circuits, use insulated tolls when installing or working with the controller
- This controller should ONLY be installed and maintained by qualified professionals.
- Please keep this manual for your future reference

Check the Controller and Parts

The package should include a charge controller and user manual. Please contact your local dealer if there is any damage on the appearance of the charge controller or missing page in the manual.

- Charge Controller (1)

- User Manual (1)
  Fixing Plate (2)



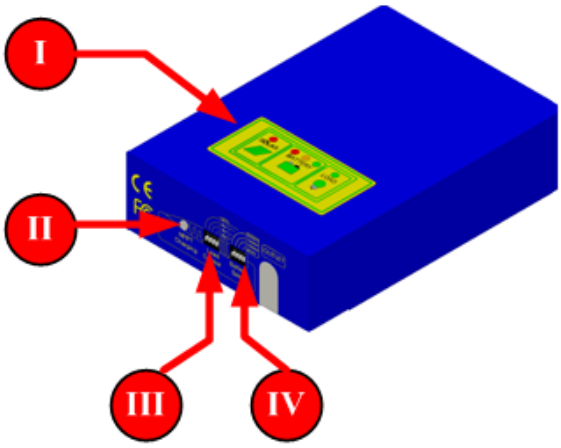
Content

I. Specification

PV Charge Controller Specification

Specification Summary		
Model	PCL-1512M	PCL-1524M
Rated Power	200W	250W
MPPT Voltage Range	6~50V	
Charging Start/Stop Voltage	6V/4V	
Rated Input Current	15A	
Converter Efficiency /MPPT Efficiency	>85%/>90%	
Sleeping Mode	5Vdc @ 1min	
Recommended Battery Spec	12Vdc min.200AH	24Vdc min.100AH
Max. Charging Current	16.66Amp	10.41Amp
Battery Floating Charge	13.8V±5%	27.6V±5%
Battery Pulse Charge	14.4V±5%，1min charging per 10min	28.8V±5%，1min charging per 10min
Battery Low Shutdown	11.5V±5%	23V±5%
Load Current	DC 16Amax, Dry Contact, Can be an inverter starter	
Load Management	16 Segments	
Enter Sleep Mode	10.5V±5%	21V±5%
Power Consumption	<1W@sleep Mode	
Operating Temperature	-20°C to 40°C	
Humidity Protection	Optional	
Dimension (L x W x H) mm	200×142×50	
Net Weight	1.7kg	
Gross Weight	1.8kg	

II. Basic Product Layout



I LED Light

II Charging Light

III Load switch

IV Charging Current switch

III. LED Status Indicator

The LED lights indicate MPPT charging, discharging, and battery status. Table 1 shows the relation between the LED lights and battery status.

LED Status Indicator	Status	PCL-1512M	PCL-1524M
SOLAR (RED LED)	Blinking	Blinks once per second when charging	
BATTERY (RED LED)	Blinking	Stop discharge < 11.5V	Stop discharge <23V
BATTERY (RED LED)	ON	Low 12V-12.8V	Low 24V-25.6V
BATTERY (YELLOW LED)	ON	Normal 12.8V-13.8V	Normal 25.6V-27.6V
BATTERY (GREEN LED)	ON	Full > 13.8V	Full > 27.6V
LOAD (GREEN LED)	Blinking	Blinks once per second when load is normal	

Table 1.

IV. Load Switch

Load switch manages discharging time based on requirement. Our product provides 16 segments load management – please see below,

Discharge Mode(0/OFF, 1/ON)	Load Output
0000	**TEST** mode for 5min
0001	2 hours on at night
0010	4 hours on at night
0011	6 hours on at night
0100	8 hours on at night
0101	10 hours on at night
0110	12 hours on at night
0111	Full on
1000	**TEST** mode for 5min
1001	2 hours on at day
1010	4 hours on at day
1011	6 hours on at day
1100	8 hours on at day
1101	10 hours on at day
1110	12 hours on at day
1111	Full on

V. Charge Current Switch

The charging current switch can adjust current based on power. The set-up modes are defined as the followings,

Discharge Mode(0/OFF, 1/ON)	Charge Current
0001	5A
0010	10A
0100	15A
1000	20A
0000	25A

VI. Wiring

Wiring Instructions:

- PV+/PV- Line：connect the output of solar panel to the PV+/PV- lines of the controller

  ---**(14AWG, Blue(PV+)/Brown(PV-)** [1]**)**
- BAT+ Line：connect to the positive polarity (+) of a battery

  ---**(10AWG, RED(+))**
- BAT+ Sensor Line：connect to the positive polarity (+) of a battery to detect its voltage

  ---**(18AWG, RED(+))**
- BAT- Line：connect to the negative polarity (-) of a battery

  ---**(10AWG、BLACK(-))**
- BAT- Sensor Line：connect to the negative polarity (-) of a battery to detect its voltage

  ---**(18AWG、BLACK(-))**
- Discharge Control Signal Line：dry contact, can work as an inverter starter

  ---**(14AWG*2、White、Orange)**
- Ground Line：this line is for grounding to avoid damage from spikes, such as lightning strike

  ---**(14AWG、Yellow and Green Stripe)**

[1] Please refer the following wiring charts.

VI. Wiring

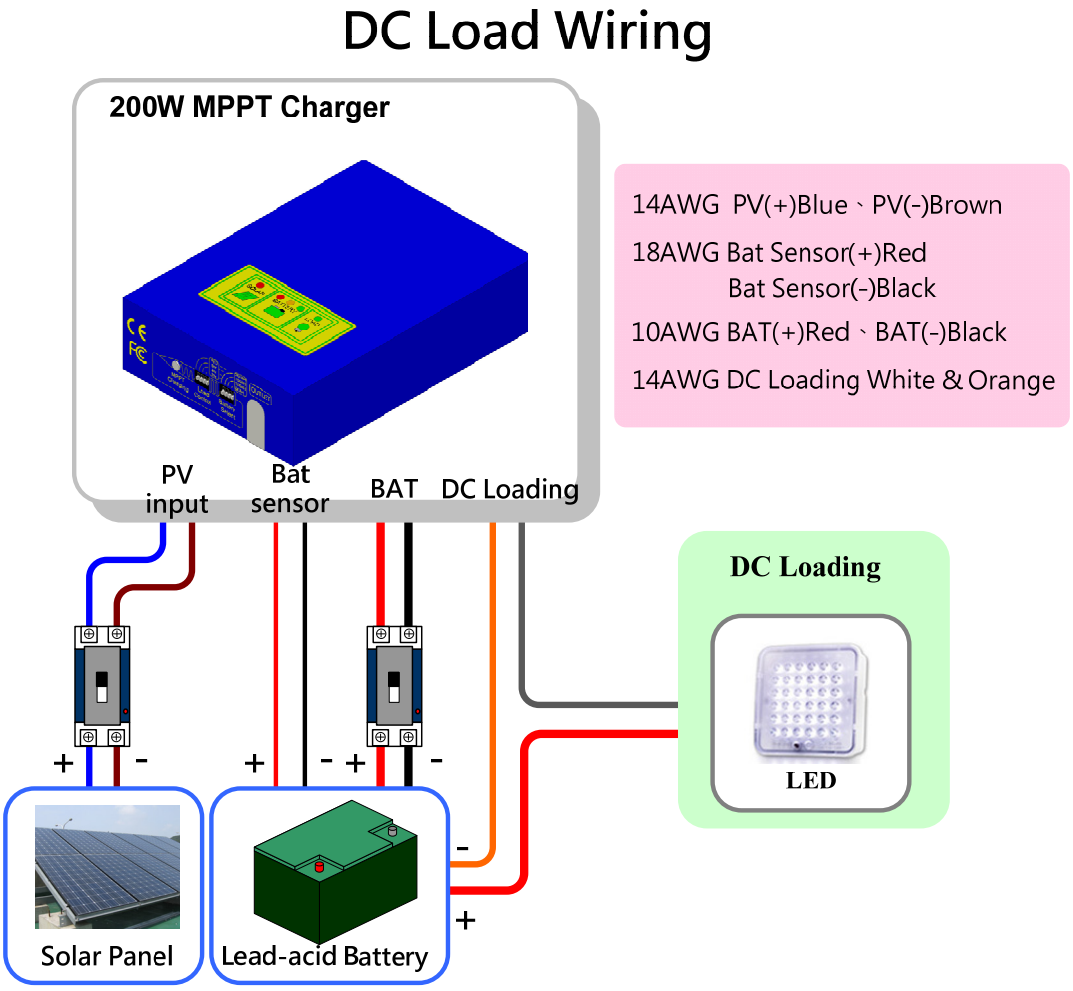


Figure 1

VI. Wiring

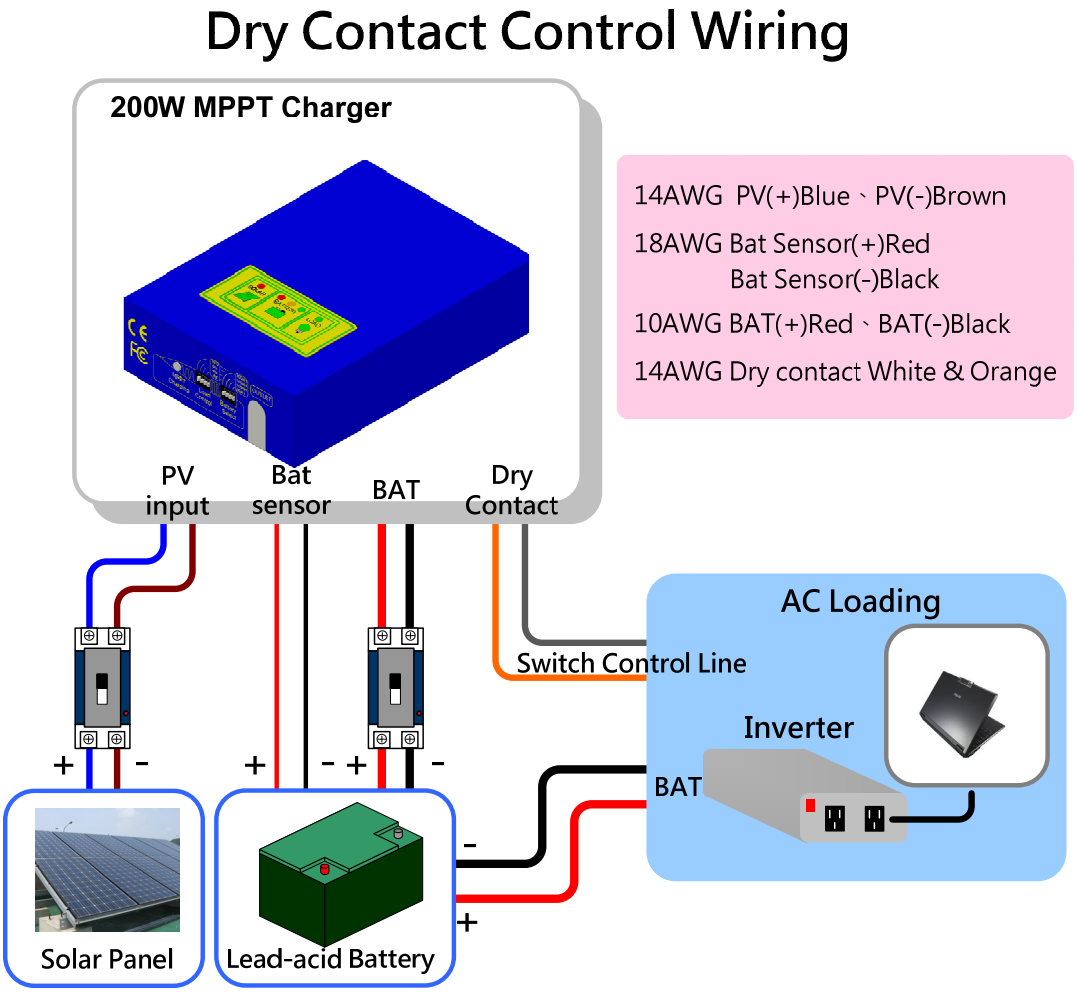


Figure 2

VII. Cautions

- Recommended Battery Specification: 12V/200Ah above or 24V/100Ah above.

- Be sure the voltage of batteries and PV panels is within the range given in the specifications.

- The charge controller should be installed in a cool, dry, and well ventilated area without any flammable items.

- The length of battery wires should be shorter than 5 meters.

- Before connect PV panels to the controller, make sure a battery has been installed properly and the controller can be started normally.

- Please unwire the input terminal, and then, batteries before removing the controller - which could be damaged permanently if those steps are followed correctly.

- If the PV panel is not wired correctly to the controller, e.g. the positive/negative poles are wired reversely, a short circuit could happen or the fuse could burn out.

VIII. Operation Instructions

- **Discharge Mode Options:** 16 segments available. Please refer to the Load Switch section in this manual.

- **Day/Night Mode Detection:** the controller will switch to day/night mode based on the input voltage from PV panels。Therefore, the PV panels needs to be installed properly before this function starts to work.

- **Day/Night Mode Switch:** It takes the controller 10-20 minutes to determine that it's daytime or nighttime. Please see the table below.

- **Day Mode:** The controller will discharge battery only during daytime.

- **Night Mode:** The controller will discharge battery only during nighttime.

Discharge Mode	Detection Time – first time after the controller is started	Normal Detection Time	LOAD Discharge
Testing Mode	Immediately	Immediately	5min
Day Mode	20min	10min	Based on Setup
Night Mode	10min	10min	Based on Setup
Full On Mode	5s	5s	Full On

IX. Protection

- **Surge Protection:** Advanced MPPT charger protection from noise and surge

- **Battery Low Voltage Disconnect:** A low voltage disconnect is used to protect the battery from excessive discharge by automatically turning off a load.

- **Constant Voltage Charge:** When the battery voltage is between 13.8V and 14.4V (or between 27.6V and 28.8V based on model), the MPPT function will turns off (*). Then, the charger will enter into a floating charge mode; when the battery voltage is over 14.4V/28.8V, the controller will change to a pulse charge mode – 1 minute charging per 10 minutes.

X. Maintenance

- The charge controller only requires little maintenance if it is used properly. Please periodically clean the controller surface with wet clothing. In addition, please keep the PV panel and battery in a good condition to ensure the whole system can function well.

- Please contact your local service center if the controller does not function normally. Do not try to repair it by yourself or remove the warranty labels.

* The voltage accuracy will be within ± 5% range.