

***POWERTECH***

ZM9126

# Blanket Solar Panel with Charge Controller



**Instruction Manual**

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## BEFORE FIRST USE

Prior to using your product, please read all the safety and operating instructions thoroughly. Please ensure you follow the steps below before using the product. We recommend you keep the original packaging for storing the product when not in use.

Please pay close attention to the section entitled Warnings & Safety Information. Find a safe and convenient place to keep this instruction manual for future reference.

Unpack the product but keep all packaging materials until you have made sure your new product is undamaged and in good working order. Ensure you have all accessories listed in this manual.

## WARNINGS & SAFETY INFORMATION

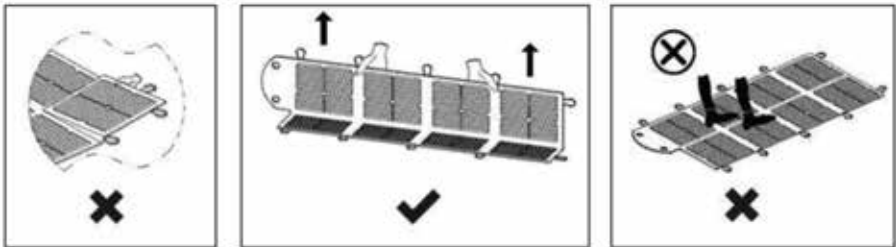
**WARNING: The manufacturer is not responsible for any potential injury from misuse**

Please ensure that you have read the product manual and instructions in full before using this product. Failure to do so may result in incorrect operation and potentially impact the performance of the product.

This product converts natural sunlight into DC electricity. It is designed to charge a 12V battery.

For optimum performance, protect the solar cell from dust, dirt, and other debris.

- Use and store the product in a dry and ventilated location.
- Do not use in flammable or explosive areas.
- Stop use immediately if any wires become loose or electronic components are exposed.
- Do not pick panel up directly by the solar cells.
- Use the gap between solar cells to pick up the panel.
- Do not stand or walk on the solar panel.



- Ensure battery has enough voltage for the solar charge controller to recognise the battery type before first installation.
- Battery cable should be as short as possible to minimise loss.
- The regulator is suitable for with LiFePO4 batteries and lead-acid batteries (Flooded, LEAD, AGM, & GEL). Not suitable for nickel metal hydride, or other battery types.
- Charge regulator is only suitable for regulating solar modules. Never connect another charging source to the charge regulator.
- The PWM solar charge controller will be hot when working. Please install in a flat, well ventilated area.
- Never open the device
- The solar controller is not waterproof & should not be left in an area exposed to direct sunlight or rain

## BOX CONTENTS

- 1 x 400W Blanket Solar Panel
- 1 x 30PWM Solar Controller
- 2 x 50A Connector 10CM Lead with Rubber Cap
- 1 x 50A Connector 4.5M Extension Lead
- 1 x 50A Connector to Alligator Clips 0.5M Lead

## OPERATING INSTRUCTIONS

- Unfold the solar panel
- Place the unfolded solar panel in a position that receives direct sunlight, facing to the sun. Ensure that no shadows are covering the solar cells.
- Tilt the solar panel at a suitable angle. This can be the same as your local latitude (additional support may be necessary, not supplied).
- Connect the solar panel to the PWM solar charge controller before connecting battery clamp lead to the solar controller.

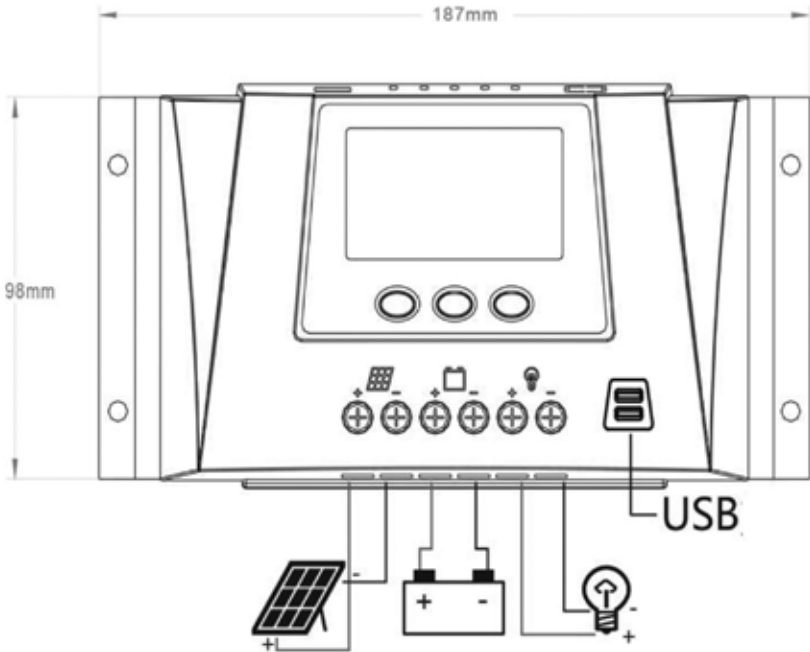
## HOW TO CHARGE A 12V BATTERY

- Connect the battery to the solar charge controller.
- Connect load to solar charge controller.
- Connect solar panel to solar charge controller.
- Reverse this order when disconnecting.

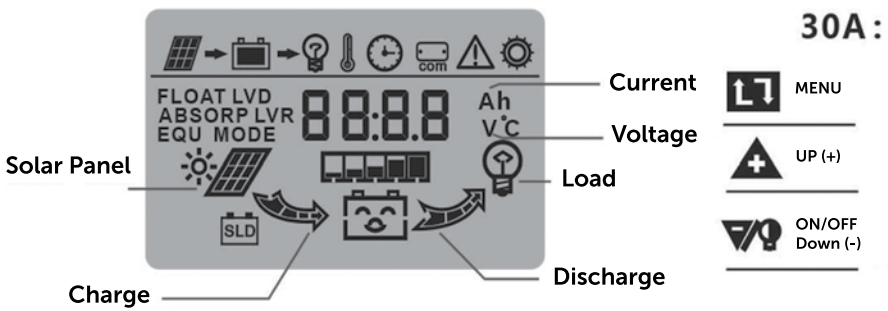
**NOTE: Heavy loads should not be connected to the battery.**

**WARNING: The reverse order applies when uninstalling. An improper sequence order can damage the controller.**

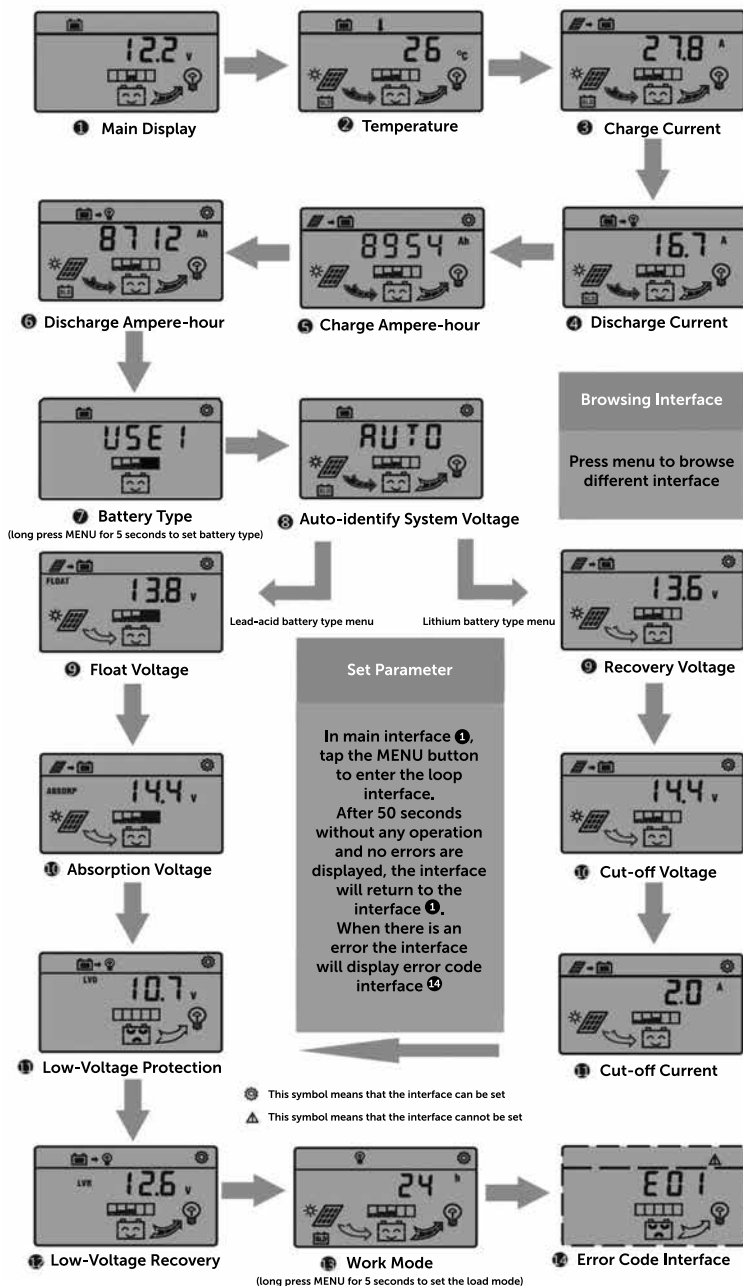
# OPERATING THE CHARGE CONTROLLER



# LCD DISPLAY / KEY



# DISPLAY / SETTINGS



## TROUBLESHOOTING

ISSUE	LIKELY CAUSE	SOLUTION
E01	Low battery voltage, load off	Change the battery or change a new battery.
E02	Overload, load off	Decrease the load, the use (-) button to turn on the load. Load will automatically turn on after 2 minutes.
E03	Load short-circuit, load off	Remove the short-circuit load, use (-) button to turn on the load.
E04	Over-voltage of battery, load off	Check the connection of battery, and whether if the capacity of battery is too low, check if there is another charger connected to the battery.
E05	Solar panel over current, controller stops charging	Check whether the power of solar panel has been over powered, decrease the panels and then the controller will start charging automatically after 2 minutes.

## FULL TECHNICAL PARAMETERS

Solar Input	Rated Current	30A
	Input Voltage	≤50V (12V)

### Charge Management

Lead-acid Batteries	3-stage charging (bulk charge, absorption charge, float charge)					
	Lead-acid Batteries	Sealed	GEL	Flood	USE1	
	Float Voltage	13.8V	13.8V	13.8V	13.8V (9~15V adjustable)	
	Absorption Voltage	14.4V	14.0V	14.6V	14.4V (9~15V adjustable)	
	Absorption Time	2 hours				
	Absorption Recovery Voltage	12.6V				
	Limited Charge Voltage	15.5V				
	Temperature Compensation	-4mV/cell/°C				
Lithium Batteries	3-stage charging (bulk charge, constant-voltage, stop charge)					
	Lithium Batteries	3.7-3	3.7-4	3.2-4	3.2-5	USE2
	Constant Voltage	12.6V	16.8V	14.4V	18.0V	14.4V (9~17V adjustable)
	Cut-off Charge Current	2A (0.1A~30A adjustable)				
	Recovery Charge Voltage	12.0V	16.0V	13.6V	17.0V	13.6V (9~17V adjustable)

**Note:** Parameters apply to 12V system as an example. If 24V/36V/48V system, the voltage parameters should be \*2/\*3/\*4

**Note:** 10A/20A controller without temperature compensation/backlight function, without cut-off current.

<b>B01</b>	<b>B02</b>	<b>B03</b>	<b>B04</b>	<b>B00</b>
Sealed battery	Gel Battery	Flood Battery	Lithium Battery - Custom Type	Lead-acid Battery - Custom Type



Discharge Management						
Batteries Type	Lead-acid Batteries	Lithium Battery				
		3.7-3	3.7-4	3.2-4	3.2-5	USE1
Low-Voltage Protection	10.7V (9~15V adjustable)	9.9V	13.2V	11.2V	14.0V	11.2V (9~17V adjustable)
Low-Voltage Recovery	12.6V (9~15V adjustable)	11.1V	14.8V	12.8V	16.0V	12.8V (9~17V adjustable)
Over-Voltage Protection	16.0V	18.5V				
Over-Voltage Recovery	15.5V	18.0V				
USB Power	5V USB, Max output 2A					
Voltage Range of Battery						
System Voltage	Lead-acid Batteries	Lithium Battery				
		3.7-3	3.7-4	3.2-4	3.2-5	USE2
12V	≤17V	≤14.6V	≤18.8V	≤16.4V	≤20V	≤16.4V

Other Specifications	
Max Wire Size	6mm <sup>2</sup> (AWG #9) / 16mm <sup>2</sup> (AWG#5) / 25mm <sup>2</sup> (AWG #3)
Working Temperature	-20°C ~ 50°C
Storage Temperature	-30°C ~ 70°C
Working Humidity	10% ~ 90%, no condensation
Dimensions	187 x 98 x 50mm
Weight	370g
Waterproof	IP30

## SPECIFICATIONS

<b>Solar Panel</b>	
Solar Cell Type	Monocrystalline
Rated Maximum Power (PM)	400W
Open-Circuit Voltage (VOC)	23.9V
Short-Circuit Current (ISC)	19.6A
Voltage at Pmax (VMP)	19.2
Current at Pmax (IMP)	18.2A
Power Tolerance	±5%
Normal Operating Cell Temp (NOCT)	47±2°C
Maximum Series Fuse Rating	15A
Operating Temperature	-40 to +85°C
Application Class	Class A
Net Weight	10.6kg
Folded Size	390 x 630 x 70mm
Unfolded Size	1265 x 2025 x 6mm

<b>Solar Charge Controller</b>	
Rated Current	30A
Rated Voltage	12/24V Auto
Dimensions	187 x 98 x 50 mm
Weight	370g

## WARRANTY INFORMATION

Our product is guaranteed to be free from manufacturing defects for a period of 12 Months.

If your product becomes defective during this period, Electus Distribution will repair, replace, or refund where a product is faulty; or not fit for intended purpose.

This warranty will not cover modified product; misuse or abuse of the product contrary to user instructions or packaging label; change of mind and normal wear and tear.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and failure does not amount to a major failure.

To claim warranty, please contact the place of purchase. You will need to show receipt or other proof of purchase. Additional information may be required to process your claim.

Any expenses relating to the return of your product to the store will normally have to be paid by you.

The benefits to the customer given by this warranty are in addition to other rights and remedies of the Australian Consumer Law in relation to the goods or services to which this warranty relates.

This warranty is provided by:

Electus Distribution

Address 46 Eastern Creek Drive, Eastern Creek NSW 2766

Ph. 1300 738 555

