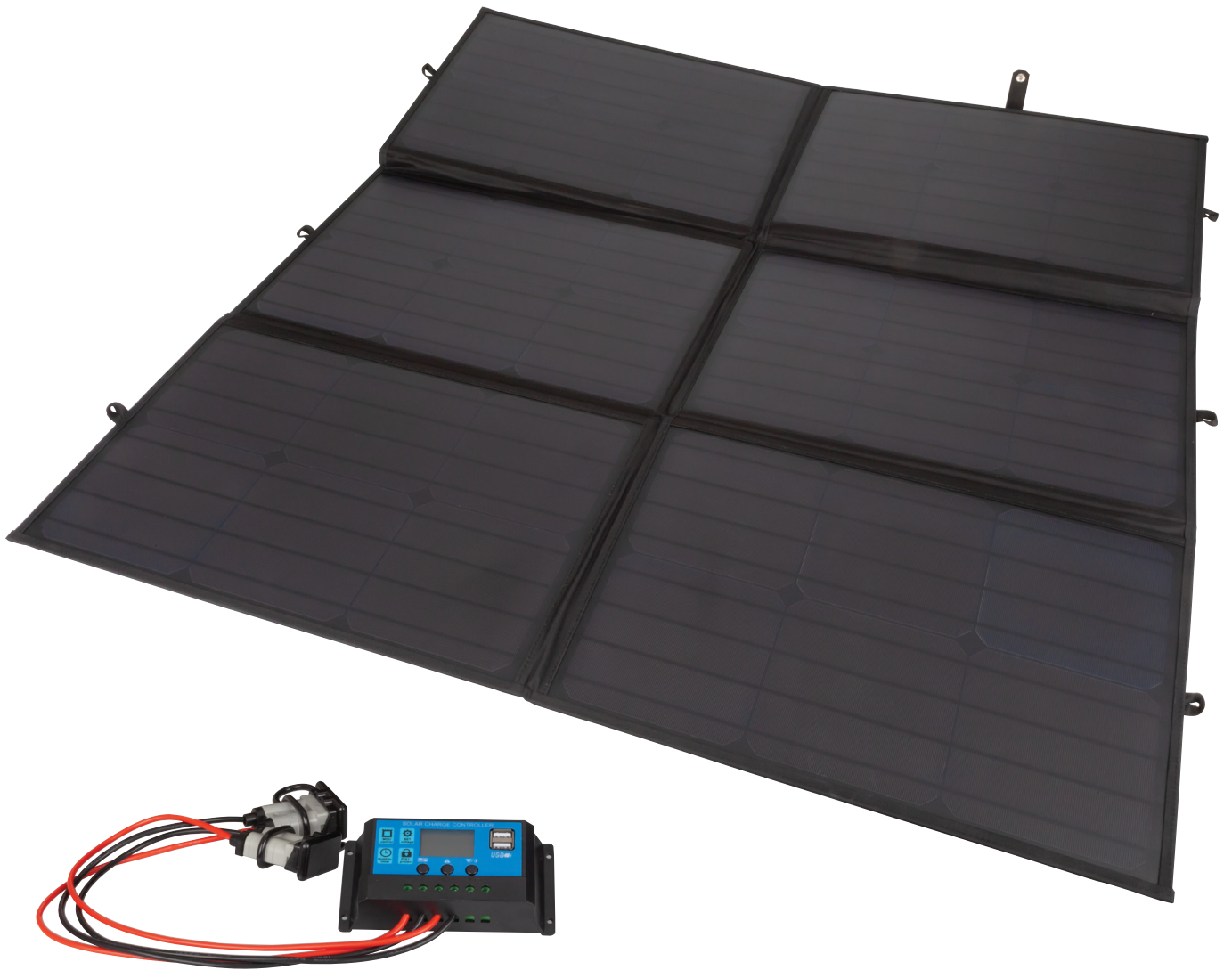


POWERTECH



**200W Canvas Blanket
Solar Panel
with Charge Controller
ZM9124
User Manual**

INTRODUCTION

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.

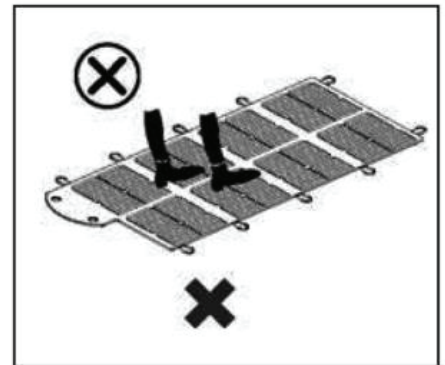
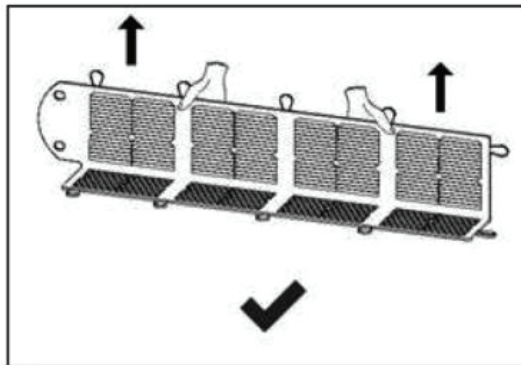
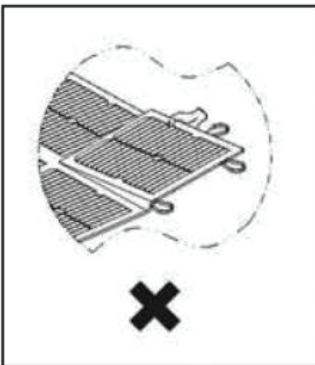
This product converts natural sunlight into DC electricity. It is designed to charge a 12V battery.

BOX CONTENTS

1 x 200W Canvas Blanket Solar Panel
1 x Solar Charge Controller
2 x Leads

CAUTION / WARNING

- 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.**



SPECIFICATIONS

Solar Panel:	
Solar Cell Type:	Monocrystalline 156 x 156mm
Power Output:	200W
Open Circuit Voltage:	23.7V
Short Circuit Current:	9.8A
Working Voltage:	18V
Working Current:	9.5A
Weight:	6.2KG
Dimensions:	
Folded:	512(W) x 360(H)mm
Unfolded:	1070(W) x 1032(H)mm

Solar Charge Controller

System Voltage:	12/24V Auto
Charge Current:	20A
Discharge Current:	20A
Max. Solar Input:	<50V
Battery Equalisation:	
Sealed:	14.4V
GEL:	14.2V
Flood:	14.6V
Float Charge:	13.7V (Default, Adjustable)
Discharge Stop:	10.7V (Default, Adjustable)
Discharge Reconnect:	12.6V (Default, Adjustable)
USB Output:	5V, 2A
Self-Consumption:	<10mA
Operating Temperature:	-35 ~ 60°C
Weight:	154g

HOW TO USE

- 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 solar charge controller before connecting battery clamp lead to the solar controller.

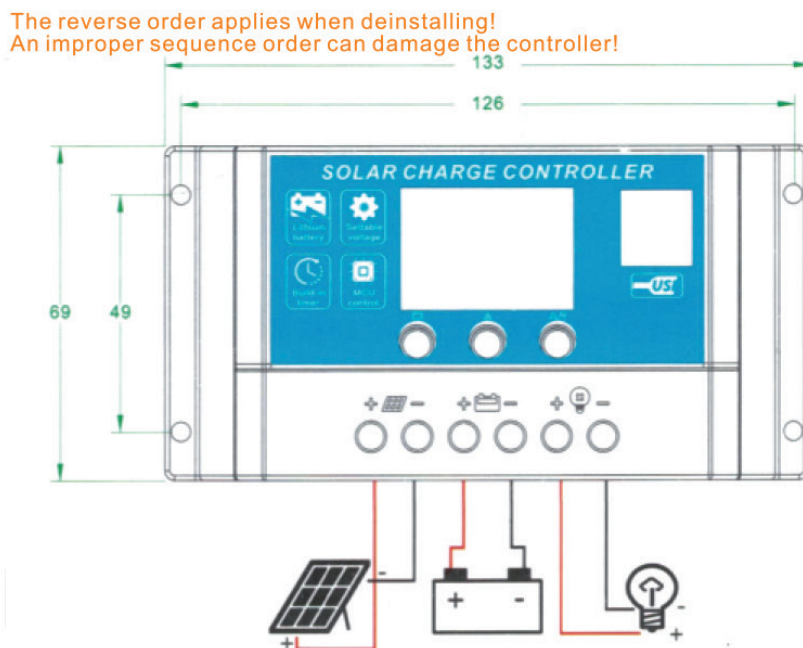
SAFETY INSTRUCTIONS

- 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 lead acid batteries (Flood, AGM, GEL), and lithium ion. 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 solar charge controller will be hot when working. Please install in a flat, well ventilated area.

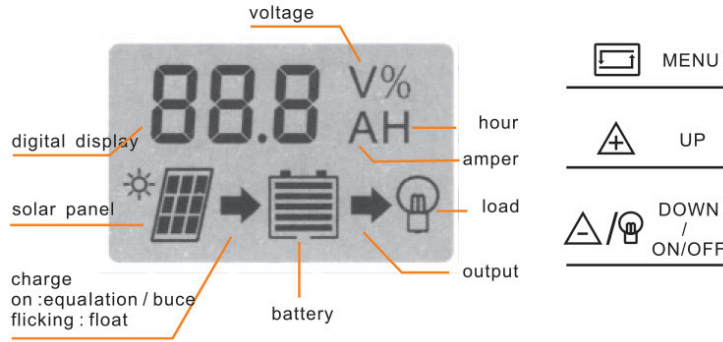
HOW TO CHARGE A 12V BATTERY

1. Connect the battery to the solar charge controller.
2. Connect load to solar charge controller.
3. Connect solar panel to solar charge controller.
4. Reverse this order when disconnecting.

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

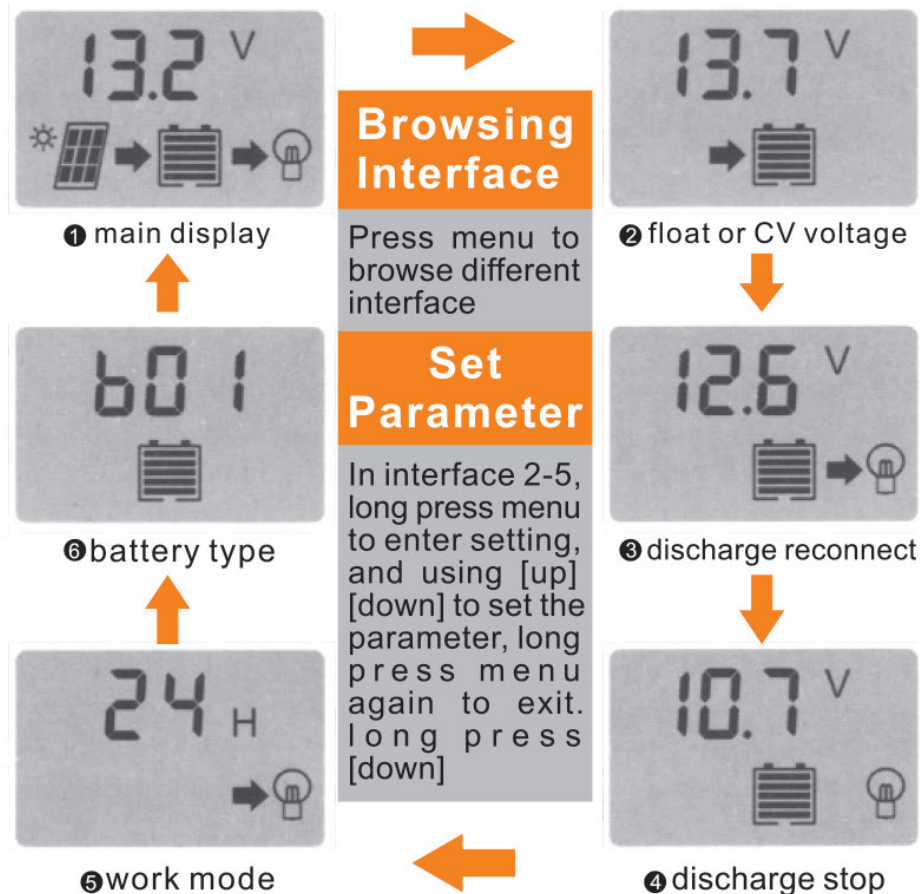


LCD DISPLAY/KEY



- Menu: Switch between different displays, or enter/exit settings by long press.
- Up: Press to increase value
- Down: Press to decrease value

DISPLAY / SETTINGS



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 24 hours
 [1-23H] Load on after sunset and closed after, setting hours [0H] Dusk to dawn

TROUBLESHOOTING

Issue	Probably Cause	Solution
Charge icon not on when sunny	Solar panel closed or reversed	Reconnect
Load icon off	Mode setting wrong	Set again
	Battery low	Recharge
Load icon slow flashing	Over load	Reduce load watts
Load icon fast flashing	Short circuit protection	Auto reconnect
Power off	Battery too low / reverse connected	Check battery / connection

FULL TECHNICAL PARAMETERS

Model	1210	1215	1220	4820	4830
System Voltage	12V/24V AUTO			48V	
Charge Current	10A	15A	20A	20A	30A
Discharge Current	10A	15A	20A	20A	30A
Max Solar Input	< 50V			< 80V	
Battery Type	b01 Sealed		b02 GEL		b03 Flood
Equalization	14.4V		14.2V		14.6V
Float Charge	13.7V (default, adjustable)				
Discharge Stop	10.7V (default, adjustable)				
Discharge Reconnect	12.6V (default, adjustable)				
Battery Type	b04 Iron lithium 4 Strands	b05 Iron lithium 5 Strands	b06 Lithium ion 3 Strands	b07 Lithium ion 4 Strands	
Constant Charging Voltage	3.6V*4/*5			4.2V*3/*4	
Recovery Charge Voltage	3.4V*4/*5			4.0V*3/*4	
Low Voltage Protection	2.6V*4/*5			3.1V*3/*4	
Low Voltage Recovery	2.9V*4/*5			3.7V*3/*4	
b04~b07 Parameters can not be set					
USB Output	5V/2A				
Self-consume	< 10mA				
Operating Temperature	-35 ~ +60°C				
Size/Weight	133*70*34mm/154g				

*All red colour voltage *2, *4 while using 28V/48 system.

*Product specifications are subject to change without prior notice.

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