



## Safety Instructions

- ◆ Before using the product, read all instructions and apply safety precautions.
- ◆ If the product is abnormal, or looks damaged, do not use.
- ◆ Do not allow rain, moisture or water to enter the controller.
- ◆ Prevent sharp objects from scratching surface of solar modules.
- ◆ Observe correct polarity when wiring connections. Ensure battery and load connections are secure to prevent short circuits.
- ◆ No user serviceable parts inside the product. Do not disassemble or attempt to repair it. Do not touch any exposed electrical conductor.



### WARNING

**This device produces electrical power, and could be fatal to children and adults if left unattended or misused.**

**Care Information:** Dust and dirt covering the surface of solar panels should be cleaned with a soft brush, then with a damp cloth wipe the surface of the panels. Bird droppings and adhesive should be removed as soon as possible from the surface of panels, so as not to affect performance.

**Limited Warranty:** This product is covered by a 1 year return to base limited warranty. Items such as fuse, cables and wear of outer casing are considered Wear and Tear components and excluded under this warranty. Labour cost to put right a warranty claim is not covered, and will be charged to the end customer.

**Force Majeure:** The manufacturer and resellers shall not be responsible or liable in any way to the customer or any third-party arising from any non-performance or delay in performance of any terms and conditions of sale, including this "Limited Warranty", due to acts of God, war, riots, strikes, fire, flood, or any other similar cause or circumstance beyond our control. In such cases, performance of this Limited Warranty shall be suspended without liability for the period of delay reasonably attributable to such causes.

# BlueFusion

## *Flex Power*

### 50w / 100w / 120w

Portable Solar Panel

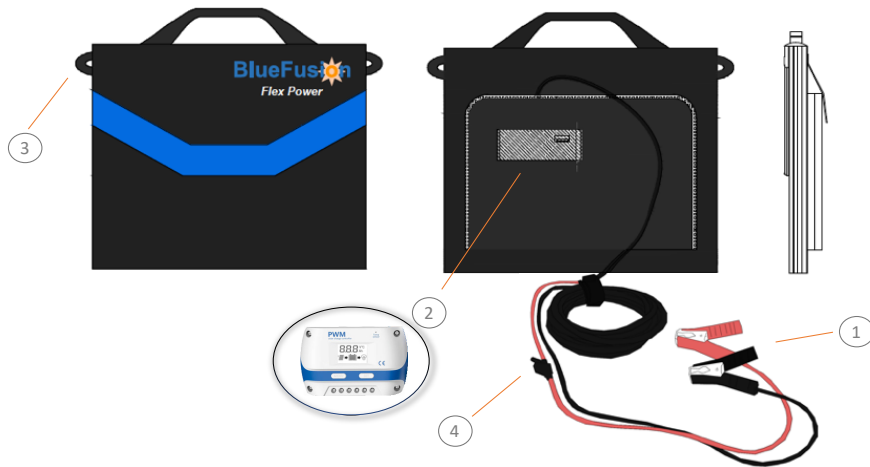
with

Integrated Charge Controller

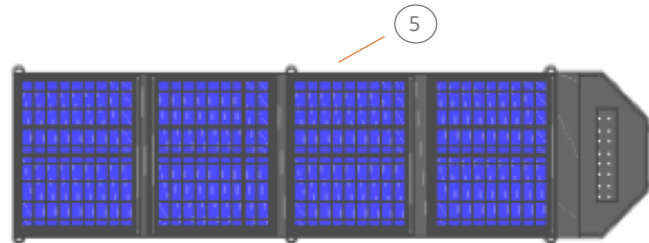
## User Guide V2.0

## Flex Power Solar Panel

### Folded Panels



### Panels Unfolded



50W for illustration. Panel layout varies with wattage.

Parts and Contents	
1	Battery Cable with Alligator clips, Red+, Black-
2	Inbuilt Charge Controller concealed inside zip pouch
3	Loops (50W/100W), Eyelets (120W)
4	Fuse
5	Solar Panels

## Panel & Controller Characteristics

Panel		PWM Charge Controller			
Power (Max)	Panel Size (Folded)	Battery Voltage	Discharge Current	USB Output	Operating Temperature
Watts	mm	V	A	A	°C
50 W	355 x 290 x 25	12 V / 24V (Auto). 9V - 32V (Custom)	Rated 10 A (Max.) (Do not exceed)	5 VDC / 2 A (Max)	-15°C ~  +50°C
100 W	360 x 295 x 40				
120 W	540 x 520 x 20				

Note: Product specification subject to change

### Compatible Storage Battery

Flex Power solar panel is compatible with these Battery types:

- **12V and 24V Sealed, Gel, and Flooded** deep cycle (leisure) lead-acid battery. *Configure battery type in controller.*
- **9V to 32V Lithium and Custom** Battery types. *Configure battery voltage in controller. See PWM Controller Instruction sheet for details of how to set Battery Voltage Parameters.*

### Connecting Controller to Battery and Load

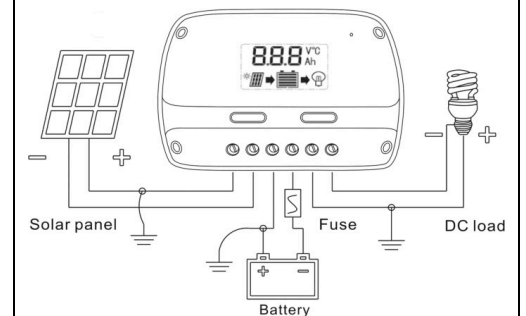
#### Unzip rear pouch to reveal solar controller and cables.

1. Connect battery to controller with correct polarity (Red +, Black -)
2. Connect 12 V load, not exceeding rated current 10A, or any USB charging devices



**WARNING**

Connect inverters directly to battery. Do not connect inverter to load side of the controller.



## Flex Power Controller

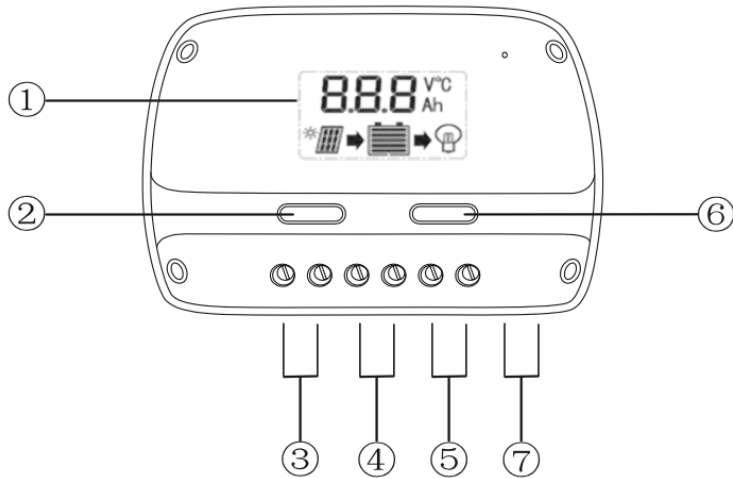


Figure 1 Characteristic

①	LCD	⑤	Load Terminals
②	MENU Button	⑥	SET Button
③	PV Terminals	⑦	USB Output Port
④	Battery Terminals		

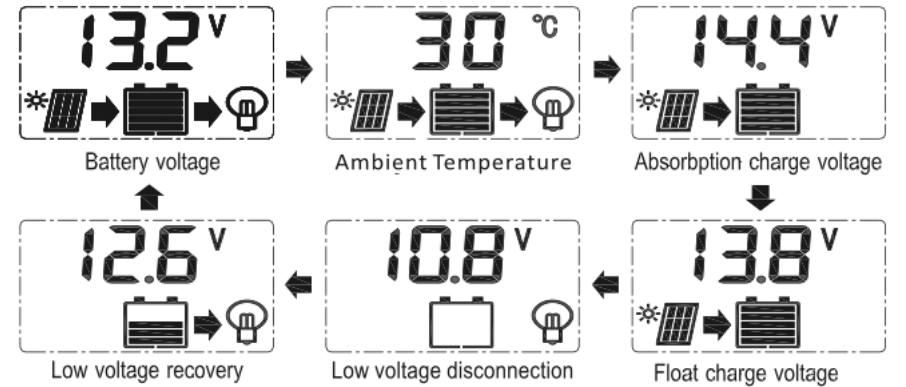
## LCD Display Icons

Item	Icon	
PV array		No charging
		No charging
		Charging
Battery		Battery capacity
Load		Load ON
		Load OFF

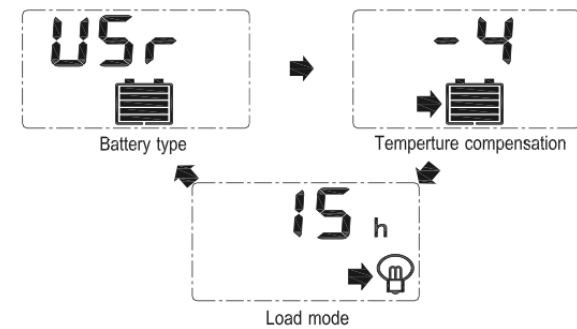
## LCD Display Navigation

Press the MENU button lightly to enter **FIRST LEVEL BROWSING MODE**.

This cycles the display information between Battery Voltage, Ambient Temperature, Panel Voltage, Low and Float Voltage settings.



With **Battery Voltage** displaying, Press the MENU button longer to enter **SECOND LEVEL BROWSING MODE**. This cycles the display information between Battery Type, Temperature Compensation and Load Working Mode settings.



## Positioning and Operating the Panel

1. Locate a clear area with direct sunlight and without shading from hanging branches or other structures.
2. Ensure panel is wired to Battery and Load. Check connections are secure.
3. Unfold the panel bag, with solar panels facing direction of the sun.

**Tip:** To maintain maximum output power, regularly re-position the solar panels to face the sun as it moves from east to west.

### First Time Battery Setup

4. If this is the first time connecting a new battery, set the controller with the correct battery type voltage. To program the controller:

**STEP 1:** Navigate to **Battery Type** while in the LCD's **SECOND LEVEL BROWSING MODE**

**STEP 2:** Press and hold the MENU button for longer to change parameters. See PWM Controller Instruction sheet for details of Battery Voltage Parameters.

**STEP 3:** Press and hold the MENU button to save and exit settings.

### Load Operating Modes

5. Once the controller is powered on, press the SET button to turn the load output ON/OFF.
6. The PWM controller can operate a 12V load in various preconfigured operating modes.
7. To change the load operating mode:

**STEP 1:** Navigate to **Load Mode** while in the LCD's **SECOND LEVEL BROWSING MODE**

**STEP 2:** Press and hold the MENU button for longer to change parameters. See PWM Controller Instruction sheet for list of all preconfigured operating models.

**STEP 3:** Press and hold the MENU button to save and exit settings.

## Troubleshooting Guide

Problem / Fault	Possible cause	Troubleshooting
The LCD Display is off while PV modules are fully unfolded and facing the sun	PV array may be disconnected	Confirm that PV modules and battery wire connections are securely connected, and check for correct polarity.
Wiring connection is correct, but No LCD Display	Battery voltage is less than 9V.  PV Voltage is less than battery voltage.	Measure battery voltage with a voltmeter. Min. 9V is required to start the controller.
Interface error code E12	Battery over voltage	Check if battery voltage is higher than OVD (Over Voltage Disconnect), and disconnect the PV module.
Interface error code E11	Battery over discharged	When the battery voltage is restored to or above LVR (Low Voltage Reconnect) load will recover.
Interface error code E13	Load Overload condition	① Reduce the number of electric equipment load. ② Press the SET button or repower the controller.

When load current exceeds the nominal rated value, the controller will automatically turn off load.