12V / 24V
SOLAR PANEL
CONTROLLER
(MANUAL)

Solar Panel Controller

The solar panel controller on the back of the panel can be set to charge 4 battery types AGM, Gel, Sealed (Calcium) or Flooded. For charging specifications see Section 9. The controller is preset from factory for charging AGM (Type 1), so if you are using an AGM battery you do not need to do anything. To check what setting your regulator is on, simply tap the small black 'Mode button" on the right hand side of the digital number display on your regulator. This will illuminate and indicate a number between 1-4 which is the current battery type setting.

Types and Batteries

- **1**   AGM Battery
- **2**   Gel Battery
- **3**   Sealed (Calcium) Battery
- **4**   Flooded Battery

If you are charging Gel, Sealed (Calcium) or Flooded type Batteries, please follow the instructions on the next page:

To change battery type setting.

Step 1. Locate the controller which is affixed to the leg of the solar panel.

Step 2. Locate the small black 'Mode button' on the right hand side of the digital number display.

Step 3. Press and hold down the button for 3 seconds or until the digital display beside the button begins to flash.

Step 4. While the display is flashing press the small black mode button and:
> Select 1 for AGM battery
> Select 2 for Gel battery
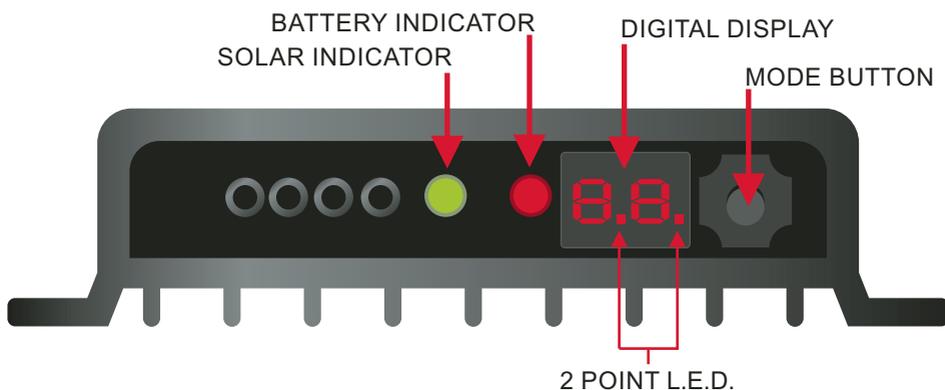> Select 3 for Sealed (Calcium) battery
> Select 4 for Flooded battery

If your solar panel is connected to your battery and is charging normally, indicators should show:

Battery Indicator (Red LED) - Solid On
Solar Indicator (Green LED) - Slow Flashing
2 Point LED - When the two dots in the display flash the battery is fully charged

BATTERY INDICATOR
SOLAR INDICATOR
DIGITAL DISPLAY
MODE BUTTON

2 POINT L.E.D.

SOLAR CONTROLLER END VIEW

Solar Panel Specifications

Specifications for your panel can be found on the specification sticker on the rear of your panel.

Controller Specifications

Controller Battery Charging Specifications - (12V / 24V)

Battery charging setting	AGM	GEL	SEALED (CALCIUM)	FLOODED
Equalize Charging Voltage	---	---	14.6V / 29.2V	14.8V / 29.6V
Boost Charging Voltage	14.4V / 28.8V	14.2V / 28.4V	14.4V / 28.8V	14.6V / 29.2V
Float Charging Voltage	13.6V / 27.2V	13.8V / 27.6V	13.8V / 27.6V	13.8V / 27.6V
Equalize Duration	---	---	2 hours	2 hours
Boost Duration	2 hours	2 hours	2 hours	2 hours

Care & Maintenance

Maintaining your panel
- Use warm water and a soft sponge or cloth to clean your panel as a clean panel performs the best.
- Regularly check all cables and connections to make sure there are no broken or exposed wires.

Troubleshooting

LED Indication		
LED Indication	**Status**	**Description**
Battery (Red)	On Solid	Battery connected and charging
	Off	NO battery connected or detected
	Slow Flash	Battery under voltage
	Quick Flash	Battery over-voltage
Solar Panel (Green)	On Solid	Solar Panel connected but not charging
	Off	No Connection or Not enough light (night)
	Slow Flash	Charging
	Quick Flash	Over-Temperature control

Common problems & Solutions		
Led Indication	**Problem**	**Solution**
Battery indicator (Red LED) "Off"	Battery not detected	Check that the solar panel and battery cable connections are correct and tight. Also check you have the correct polarity, le. Red to positive, Black to negative.
Battery indicator (Red LED) "Slowly Flashing"	Battery in over-discharge protection	Charge battery to recover voltage.
Battery indicator (Red LED) "Quickly Flashing"	Battery in over-charge protection	Disconnect solar panel
Solar indicator (Green LED) "Off" during daytime	Solar Panel wiring problem	Check that solar panel and battery cable connections are correct and tight. Also check you have the correct polarity, le. Red to positive, Black to negative.
Solar indicator (Green LED) "On" during Nighttime	Controller not detecting night	Make sure solar panel is not being affected by lights shining on it. Controller detects "night" when solar voltage less than 7V; solar indicator (Green LED) will be off.
Solar indicator (Green LED) "Quickly Flashing"	Not charging	Over temperature protection activated, solar charging "off"; controller will automatically begin to charge when temperature returns to normal.