



12V / 24V SOLAR PANEL CONTROLLER



Solar Panel Controller



NOTE: Please read all the way through instructions below at least once before continuing & make sure the solar panel is connected to your battery and lights are illuminated on the Controller.

NOTE: The regulator must be powered on first from the battery. Make sure to connect the regulator with battery first, then connect to the solar panel.

The solar panel controller on the back of the panel can be set to charge 9 different battery types AGM, Gel, Flooded, 3/4/6/7 ternary lithium cells in series, 4/8 LiFePo4 lithium cells in series.

Supported Battery Modes

1. AGM Battery
2. Gel Battery
3. Flooded Battery
4. 3 ternary lithium cells in series
5. 4 ternary lithium cells in series
6. 7 ternary lithium cells in series
7. 4 LiFePO4 lithium cells in series
8. 8 LiFePO4 lithium cells in series
9. 6 ternary lithium cells in series

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 or change what setting your regulator is on, please follow the instructions on the next page:

Step 1. Locate the controller which is affixed to the back 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. While the display is flashing, press the mode button to select **5**. Wait until display stops flashing. **NOTE: Select **5**, not **5**.**



Step 4. When **5** is selected, press the button for 3 seconds until the display starts flashing. Release the button, then press and hold it until 2 LEDs and the display start flashing. Continue pressing the button until you select the desired battery mode configuration.

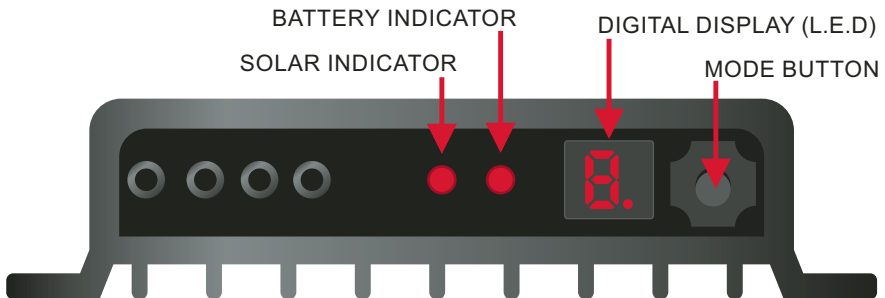
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|--------------------------------------|--------------------------------------|
| 1. AGM Battery | 6. 7 ternary lithium cells in series |
| 2. Gel Battery | 7. 4 LiFePO4 lithium cells in series |
| 3. Flooded Battery | 8. 8 LiFePO4 lithium cells in series |
| 4. 3 ternary lithium cells in series | 9. 6 ternary lithium cells in series |
| 5. 4 ternary lithium cells in series | |

Step 5. After suitable battery type is selected, press and hold the button until the LEDs are not flashing.

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

Battery Indicator - Solid On

Solar Indicator - Slow Flashing



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



BATTERY TYPE	Sealed	Gel	Flooded	Ternary-Material Lithium	Lithium Ion Phosphate
SYSTEM CURRENT	20A				
SYSTEM VOLTAGE	12V/24V Auto	12V/24V Auto	12V/24V Auto	3 & 4 Strings: 12V System 7 Strings: 24V System (N means string number)	4 Strings: 12V System 8 Strings: 24V System (N means string number)
OVERVOLTAGE PROTECTION	17.0V	17.0V	17.0V	4.2V*N+2.0V	3.65V*N+2.0V
EQUALIZING CHARGING VOLTAGE	14.6V	-	14.8V	-	-
BOOST CHARGING VOLTAGE	14.4V	14.2V	14.6V	-	-
FLOATING CHARGING VOLTAGE	13.8V	13.8V	13.8V	-	-
OVERCHARGE VOLTAGE	-	-	-	4.2V*N	3.65*N
OVERCHARGE RECOVERY	-	-	-	3.9V*N	3.4V*N
BOOST CHARGING RECOVERY VOLTAGE	13.2V	13.2V	13.2V	-	-
OVER-DISCHARGE RECOVERY VOLTAGE	12.5V	12.5V	12.5V	3.3V*N	3.0V*N
UNDERVOLTAGE	12.0V	12.0V	12.0V	3.2V*N	2.8V*N
OVER-DISCHARGE VOLTAGE	11.0V	11.0V	11.0V	3.0V*N	2.5V*N
TEMPERATURE COMPENSATION	-4.0mv/°C/2V	-4.0mv/°C/2V	-4.0mv/°C/2V	-	-
EQUALIZING CHARGING DURATION	1 Hour	-	1 Hour	-	-
BOOST CHARGING DURATION	4 Hours	4 Hours	4 Hours	-	-
OVERLOAD AND SHORT-CIRCUIT PROTECTION	1.25 times of rated current: 30s; 1.5 times of rated current: 5s of overload protection; Over 3 times of rated current: short-circuit protection				
OPERATING TEMPERATURE	-35°C to +65°C;				
PROTECTION DEGREE	IP68				







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
 Solar Panel	Steady on	Solar panel connected but not charging
	Steady off	No connection or not enough light (night)
	Slow flashing	Charging in process
	Quick flashing	System over-voltage
 Battery	Steady On	Normal battery function
	Steady Off	Battery not connected
	Slow Flashing	Battery under voltage
	Quick Flashing	Battery over discharged

Common problems & Solutions		
Led Indication	Problem	Solution
 Battery indicator "Off"	Battery not detected	Check that the solar panel and battery cable connections are correct and tight. Also check you have the correct polarity, i.e. Red to positive, Black to negative.
 Battery indicator "Slow Flashing"	Battery in over-discharge protection	Charge battery to recover voltage.
 Battery indicator "Quick Flashing"	Battery in over-charge protection	Disconnect solar panel
 Solar indicator "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, i.e. Red to positive, Black to negative.
 Solar indicator "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 will be off.
 Solar indicator "Quick Flashing"	Not charging	Solar panel voltage is too high for the controller.