

### Product Overview

This product is a new generation intelligent controller that integrates the charge and discharge function, it has strong stability and long lifetime. This series has battery voltage automatic identification function, PWM charging mode and comprehensive protection function, such as overcharge, over-discharge, over-current, short-circuit (with recommended 3A fuse), reverse polarity.

### Features

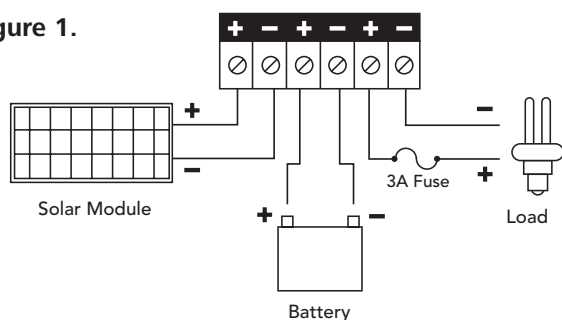
- Suits 12V systems only
- Adjustable run time for connected load or "always on" configuration
- Overcharge, discharge, over current, short circuit (with recommended 3A fuse) and reverse polarity protection.
- Three stage PWM charge control

### Installation

1. Controller should be installed in a dry and ventilated place.
2. Connection method (as shown in figure 1)
  - A.** Firstly, connect battery correctly (positive on the left). Load will remain off during the daytime and during periods of under voltage or over voltage.
  - B.** Secondly, connect solar panel (positive on the left) and the charge indicator LED will be illuminated. If LED is not illuminated, please check all the connection.
  - C.** Lastly, connect to the powered load. Ensure the connection is correct (load is displayed as a light bulb icon, positive on the left). Load will remain off during the daytime and during periods of under voltage or over voltage.

**WARNING: Above connection steps should be in this order, otherwise, controller will be damaged.**

Figure 1.



### LED Status Indicators

| LED    | State               | Function  |
|--------|---------------------|---|
| Charge | Off                 | No charging due to night time or no battery connection. |
|        | Long bright         | Battery charged.  |
| Power  | Long bright (green) | Normal charging output.                                 |
|        | Long off (green)    | Output protection.                                      |

### DIP Switch Run Time Selection

The controller is fitted with a 4 way DIP switch internally allowing you to select the run time for your connected load. To select run time, remove rear of casing with a small screw-driver and select DIP switch from the following table.

| DIP | Position | Time    |
|-----|----------|---------|
| 1   | ON       | 8 Hours |
| 2   | ON       | 4 Hours |
| 3   | ON       | 2 Hours |
| 4   | ON       | 1 Hour  |

Note that time is cumulative, so if you wish to select 6 hours run time, move switches 2 and 3 to the ON position. For 10 hours run time, move switches 1 and 3 to the ON position.

For "ALWAYS ON" configuration, select all DIP switches in the OFF position.

### Safety Advice

- The controller has reverse polarity protection however ideally avoid a reverse polarity condition as it can potentially cause damage to the connected load.
- Do not use batteries which have been completely discharged or are in poor condition.
- Controller will be damaged if BOTH solar panel and battery connection are connected in reverse polarity.
- Short circuits situations should be avoided to prevent damage to connected equipment.
- Follow your battery manufacturers guidelines for charging and ventilation to ensure explosive gases resulting from charging do not build up.
- Keep children away from charging circuit, charge controller and connections.

### Specifications

|                                 |   |
|---------------------------------|---|
| Rated voltage:                  | 12V   |
| Charging voltage:               | 14.8V   |
| Equilibrium voltage:            | 14.5V   |
| Float charge voltage:           | 13.7V   |
| Under voltage:                  | 10.8V   |
| Under recover voltage:          | 13V   |
| Non-load current:               | ≤6mA  |
| Charging circuit voltage drop:  | ≤0.2V   |
| Discharge circuit voltage drop: | ≤0.1V   |
| Max charging current:           | 5A  |
| Max load current:               | 5A  |
| Controller protection:          | Over-charge, over-discharge, over-current, short circuit (when fused), reverse polarity |
| Charge mode:                    | PWM   |
| IP rating:                      | IP22  |
| Weight:                         | ≈30g  |
| Dimensions:                     | 52W x 22H x 80D   |
| Operating Temperature:          | -20°C - 55°C  |