THUNDER

CONGRATULATIONS ON YOUR PURCHASE OF YOUR THUNDER SOLAR REGULATOR!

For your personal safety read, understand and follow the information provided in this instruction manual and on the solar regulator.

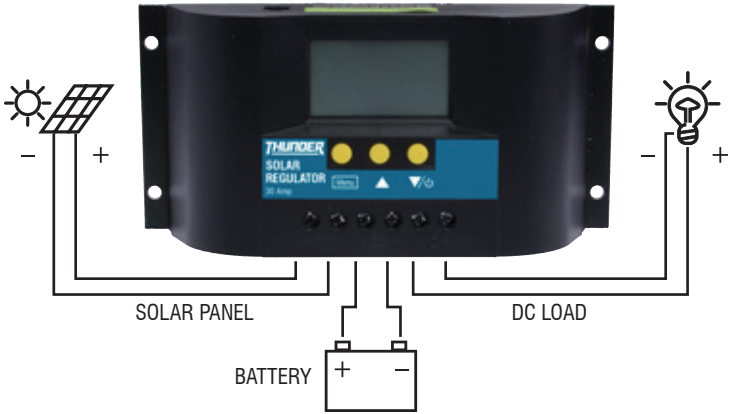
Connection to your Weekend Escape

SPECIFICATIONS

RATED CURRENT	30A	OPERATING TEMPERATURE	-10°C to 60°C
RATED VOLTAGE	12V/24V	STORAGE TEMPERATURE	-30°C to 70°C
OPEN CIRCUIT OF SOLAR PANEL	<50V	DIMENSIONS	90mm(L) x 188mm(W) x 48mm(D)
LOW VOLTAGE DISCONNECTION (LVD)	10.7V/21.4V	MOUNTING HOLE SPACING	60mm x 178mm
FLOAT VOLTAGE	14V/28V	WEIGHT	360g
LOW VOLTAGE RECONNECTION (LVR)	12.6V/25.2V	BATTERY TYPE	Wet cell rechargeable only
NO LOAD CURRENT	≤ 30ma		

INSTALLATION

1. Ensure the regulator is mounted as close to the battery as possible.
2. For best results use at least 6mm^2 automotive cable.



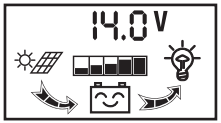
3. Connect the battery positive terminal (B+) and the battery negative terminal (B-) beneath the appropriate + and - symbols in the middle of the regulator. Then connect the solar panel positive and negative leads beneath the appropriate + and - symbols at the left of the regulator. The + and - connectors can be used to power a device directly off the regulator (not recommended for sensitive electronics).
4. Plug the external temperature sensor into the socket in the top left corner of the regulator. The temperature sensor is required for temp compensation on the high voltage disconnect function.

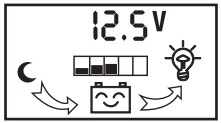
DESCRIPTION OF LCD SYMBOLS

LCD SYMBOLS			
	Load circuit off		No charge going to battery
	Load circuit on (no current)		Bulk charging battery
	Load circuit on (current being drawn)		Float charging battery
	System is working correctly		Battery running low
	Battery capacity indicator		Solar power active
	Solar not active		Load timer control on

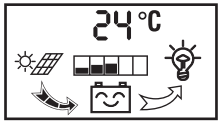
VIEW AND PROGRAM SETTINGS

The regulator will default to the “battery voltage” screen after correct installation to battery. Use the menu button to switch view to desired screen. Press the menu button to cycle from on view to the next.

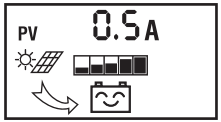




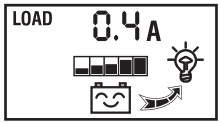
Battery Voltage
Displays current battery voltage, charge status, discharge status and battery capacity. In this screen, press and hold the menu button (>5 seconds) to shut off the load circuit.



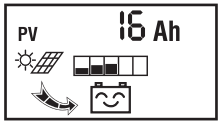
Environment Temperature
Displays current temperature, charge status, discharge status and battery capacity.



Solar Panel Charge Current
Displays the charging current from the solar panel and battery capacity.

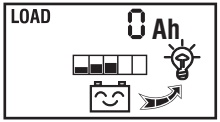


Load Discharge Current
Displays the discharge current and battery capacity.

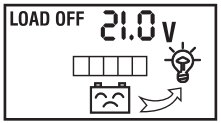


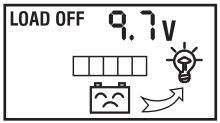
Accumulated Charge (Ah)
Displays the total amount of charge received from the solar panel in amp hours since connection/last reset. To reset to 0, press and hold the menu button (>5 seconds).

VIEW AND PROGRAM SETTINGS

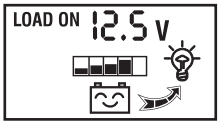


Accumulated Discharge (Ah)
Displays the total amount of discharge, in amp hours, from the regulators load circuit since connection/last reset. To reset to 0, press and hold the menu button (>5 seconds).

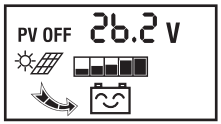


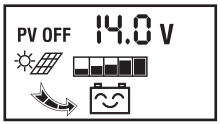


Low Voltage Disconnect
Displays the value for the low voltage disconnection (LVD). Once the battery voltage gets to this level the load circuit will be shut off and show the second screen above. To adjust the LVD voltage, press and hold the menu button (>5 seconds), once the numbers start flashing, use the arrow buttons to change the voltage. To save the settings and return to normal view, press and hold the menu button (>5 seconds).



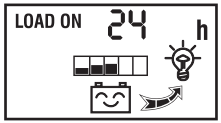
Low Voltage Reconnect
Displays the value for the low voltage reconnection (LVR). Once the battery voltage gets to this level the load circuit will turn back on. To adjust the LVR voltage, press and hold the menu button (>5 seconds), once the numbers start flashing, use the arrow buttons to change the voltage. To save the settings and return to normal view, press and hold the menu button (>5 seconds).



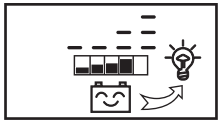


High Voltage Disconnect
Displays the value for the high voltage disconnection (HVD). Once the battery voltage gets to this level the regulator will cut off the charging circuit to the battery to prevent overcharging of the battery. Once the battery voltage drops below this level, the circuit will be re-connected. To adjust the HVD voltage, press and hold the menu button (>5 seconds), once the numbers start flashing, use the arrow buttons to change the voltage. To save the settings and return to normal view, press and hold the menu button (>5 seconds).

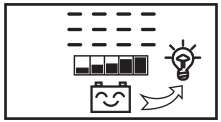
VIEW AND PROGRAM SETTINGS



Load Delay
Display shows the delay time for load disconnect. To adjust the load delay, press and hold the menu button (>5 seconds), once the numbers start flashing, use the arrow buttons to change the voltage. To save the settings and return to normal view, press and hold the menu button (>5 seconds). The delay can be set in increments of 1 hour from 0 - 24hrs. If set to 24h, the load circuit will remain on at all times, provided there are no faults detected. If set 1 - 23h, the load circuit will remain on that many hours after solar input cuts out. If set to 0h, the load circuit will only be active without solar input.



Common Fault Codes and Handling
Overload: The screen will display as shown, meaning that over 30A is trying to be drawn from the load circuit. To remedy, reduce the load, press the menu button then press the down arrow to restore power to the circuit.



Short Circuit
The screen will display as shown. To remedy, check all cables and remove the short, press the menu button then press the down arrow to restore power to the circuit.

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