



Instruction Manual

Important! Please read instructions before operating.

Model/Number:

Nature Power 28 Amp Charge Controller/ 60028

Electrical: Handles up to 28 Amps = 450 Watts of Solar Power

Includes:

- 28 Amp Charge Controller



IMPORTANT SAFETY:

Safety of persons and property has been given when designing this product. However, wrong connections may cause damage to parts or all of the system. For your safety please follow all regulations during operation.

- Installation of this product should be carried out by qualified personal
- Observe manufacturer's safety procedures when working around batteries and other electrical equipment
- This product is NOT Weatherproof and should be placed in a well ventilated dry, area, free from flammable gases, weather, and moister. Prevent any liquid splatter to the controller, and DO NOT clean with a wet cloth
- Keep away from Children
- Keep controller away from direct sunlight, electric heaters, or high temperature electrical appliances.
- Make sure to check rated voltage of solar panel, and battery loads before connecting charge controller. Rated voltages should be 12 or 24 Volts.
- Confirm gauges of connecting cables must match requirements of current. If diameter is too small the cable will overheat and lower output power.
- Controller's input current must be smaller than 28 Amps/450Watts.
- Connections must be placed in order and ensure that the positive (+) matches the positive (+) and the negative (-) matches the negative (-). (Connections are in Parallel)

Product Description/Features:

Any solar panel that is rated over 12 watts or higher requires the use of a charge controller. The Charge controller is designed to protect your 12/24 Volt Gel-Cell or Lead-acid batteries. It prevents overcharging and discharging of the battery. It also comes equipped with a built-in blocking diode to avoid reverse current overnight.

- **Overload Protection:** if the load's current exceeds the rated current, the controller will activate protection mode and lock-up. The LCD display will show "Overload" until the load's current drops below 28 Amps.
- **Short Circuit Protection:** if the load short circuits, the controller will active protection mode and lock-up, the LCD display will show "Short Circuit"
- **Low Voltage Protection:** if the battery's voltage drops too low to charge. The controller will cut off the load and LCD display will show "Battery Low"
- **LCD Display:** Shows the battery voltage, charging current and loads' current in 5 second internals, during operation

Mounting:

Consider the location- ideally within 2 to 5 feet from the battery, in a well protected dry place, product is designed to be wall mounted, mount with mounting screws.

Installation Connection:

Step 1: connect the charge controller to the battery

Use a suitable wire (6 or 8 AWG) *AWG=American Wire Gauge
-Connect the wire to the battery positive terminal then to the charge controller's "Battery Positive +"

-Use a separate wire, connect the negative battery terminal to the charge controller's "Battery Negative -"

Step 2: connect the charge controller to the solar panel

Choose your AWG by the distance you will mount your solar panel from the battery. We recommend stranded wire. Stranded wire does not fatigue or loose connections over time. It is best to attach wires using crimped connectors.

6 Meters > 10 AWG,

9 Meters > 8 AWG,

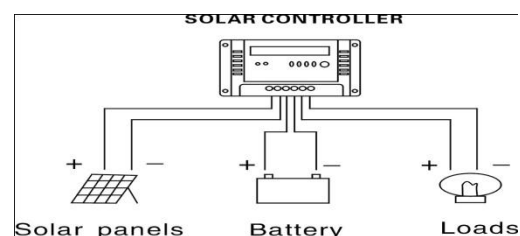
12 Meters > 6 AWG,

Longer distances are not recommended or loss of current will occur.

-Connect the solar panels red positive wire to the charge controller's "Array Positive +"

-Then using a separate wire connect the solar panels black negative wire to the charge controller's "Array Negative -"

Additional Holes are to connect Loads. Please see diagram below



Operation:

When accurate connections are applied the charge controller will turn ON automatically. The charge controller will charge in 3 stages; Bulk charge mode, Constant-Voltage Mode, and Float mode. During the charging period the LCD screen will display battery voltage, charge current and current of loads in 5 second intervals.

Charging Status: (LED = RED)

ON: bulk charge

Flickering: float charging

OFF: battery is fully charged/no charge from solar panel

Battery condition is displayed on the LED bar graph, indicating 3 different stages. Please see diagram

Battery Power	Color Display	12V	24V
Low Voltage	RED	10.5-11V	21-22V
Normal Voltage	RED flickering	11-13V	22-27.4V
Fully Charged	GREEN	>13.7V	>27.4V

Specifications:

MODEL	28 Amp Charge Controller	
Rated Voltage Automatic Recognition	12V	24V
Max Solar Input	20V	40V
Max Load/Charging current	450 Watts or 28 Amps	450 Watts or 28 Amps
Full Charge Cut (Default)	13.7V	27.4V
Low Voltage Cut (Default)	10.5V	21V
Max AWG	6 AWG	6 AWG
Dimension	6.5x4.3x1.8" - 16x11x4.5cm	
Net Weight	1 lbs - 500g	

Trouble Shooting:

Confirm all connections are secure and tight.

PROBLEM:**1. Load Stops working, LCD displays BATTERY LOW**

Reason: Low Voltage of Battery

Solution 1: Cut off the loads, charge battery manually and restart the controller by pressing the RESET button, after the battery finish charging, reconnect.

Solution 2: Increase solar panel power

Solution 3: Change Battery

2. Load Stops working, LCD Displays OVER LOAD

Reason: Overload

Solution: Reduce the quantity of loads and press RESET

3. Load Stops working, LCD Displays SHORT CIRCUIT

Reason: Load short circuited

Solution: Eliminate the malfunction and press RESET

4. Stops working:

Reason: During the night, the load does not charge

Settings:**Start up:**

SOLAR > OK > BATTERY > CHARGE > LOADS

Menu:

BATTERY > MENU > SOLAR

CHARGE > MENU > SOLAR

LOAD > MENU > SOLAR

System Temperature:

SOLAR > MENU > TEMPERATURE > OK

Charging Current:

TEMPERATURE > MENU > OK

Discharging Current:

CHARGE > MENU > LOAD > OK

Battery Capacitance:

LOAD > MENU > BATTERY > OK

Charge Off Voltage:

BATTERY > MENU > CHARGE OFF > OK

Set-Up Charge Off Voltage:

CHARGE OFF > ^ or v > CHARGE OFF > OK

Load Off Voltage:

CHARGE OFF > MENU > LOAD OFF > OK

Set-Up Load Off Voltage:

LOAD OFF > ^ or v > LOAD OFF > OK

Load On:

LOAD ON > MENU > LOAD ON > OK

Set-Up Load On Voltage

LOAD ON > ^ or v > LOAD ON > OK

Reset settings to Default:

MENU hold down for more the 5 seconds

Start up for Overloads:

OVERLOAD > RESET > SOLAR > OK

Start up for Short Circuit:

SHORT CIRCUIT > RESET > SOLAR > OK

Limited Warranty: Proof of Purchase is Required (Receipt)

1 Year: Free from defects in material and workmanship

For more information:

Earthtech Products, Inc.

10A Merrick Avenue

Merrick, NY 11566

Tel: 1-877-548-3387

Fax: 1-877-548-3387