



## 12 Volt CRYSTALLINE SOLAR PANELS

### USER'S MANUAL

#### **Specifications:**

12 Volt output  
Tempered glass panel  
Aluminum frame  
Fully weatherproof design

#### **PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION**

#### **Warning:**

- Avoid electrical hazards when installing, wiring, operating, and maintaining your solar module. The solar module included generates DC electricity when exposed to sunlight or other light sources.
  - For use in 12-Volt systems only
  - Observe proper polarity throughout entire power cable wiring route
  - Work Safely. Do not wear jewelry when working with electrical or mechanical equipment. Use protective eyewear when working with batteries or drills. Use extreme caution when on ladders or on a roof.
  - Follow all safety precautions of the battery manufacturer. Some batteries can release flammable hydrogen gas. Do not produce sparks when working in locations where flammable gases or vapors exist. Shield skin and eyes from battery acid. Wash thoroughly with water if skin or clothing comes in contact with acid or any corrosive matter, which may have accumulated, on the battery. Keep the terminals and casing clean.
  - Use of a charge controller is always recommended
  - Do not attempt to charge non-rechargeable batteries
  - When disconnecting, always disconnect battery last
- Connecting Solar Panel to Battery
- It is always recommended to use a solar charge controller.

#### **Connecting to a Charge Controller**

#### **Please follow these easy installation steps**

#### **For Junction Box without wires exposed:**

1. Open the junction box on the back of the panel
2. Follow the indicated polarity (+/-)
3. Select the required length of wire
4. Either wrap the wire around the screw terminals or utilize 'Crimp Connectors'
5. Screw down the screw terminals ensuring a tight clean connection.

#### **For Junction Box with exposed wires:**

1. Follow the indicated polarity (+/-)
2. Select required length of wire
3. Connect wires and use either wire nut and/or electrical tape for tight connection

Once you have identified the polarity of your wire:

- Connect Positive wire to the POSITIVE on your Solar Charge Controller
- Connect Negative wire to the NEGATIVE on your Solar Charge Controller
- Wire 'twist nut caps' may be required for this connection

#### **Caution: Always double check you have the correct polarity prior to connection to your 12 Volt battery.**

- Connect your solar charge controller to your 12 Volt battery again following correct polarity
- Your 12 Volt solar panel will now begin to charge (under full sun)

#### **Maintenance Instructions:**

Cleaning of the glass may be performed by the user, by utilizing a clean damp cloth.

Any other maintenance to the unit should be performed by qualified service personnel or contact our experienced customer service team.

#### **TROUBLESHOOTING:**

I am not sure if my panel is functioning?

- Ensure battery is operational. Over time, a battery's ability to recharge will deteriorate.
- Ensure the distance of the wires is not longer than 30 feet to your solar charge controller and all connections are secure.
- Measure the panel voltage with a voltmeter. The voltage reading should be between 16 to 25 volts in the full sun

#### **Warranty**

This product is covered by a 30 year limited warranty. N'Power Product's will warrant to the original purchaser that this product is free from defects in materials and workmanship for the period of 1 year from date of purchase.

To obtain warranty service please contact N'Power Products for further instruction, at 1-800-222-5381. Proof of purchase including date, and an explanation of complaint is required for warranty service. Distributed by Northern Tool + Equipment Company 2800 South cross Drive Burnsville, MN 55306

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