



IMPORTANT SAFETY INSTRUCTIONS

This manual contains important safety instructions that must be followed during the installation and operation of this product. **READ THIS MANUAL THOROUGHLY:** The operator is responsible for proper and safe use of this equipment. The manufacturer strongly recommends that the operator read and thoroughly understand the instructions and contents of this owner's manual before attempting to use the equipment. If any portion of this publication is not understood, contact the nearest Authorized Service Dealer for starting, operating and servicing procedures. **SAVE THESE INSTRUCTIONS:** The manufacturer suggests that this manual and the rules for safe operation be copied and posted near the unit's installation site. Safety should be stressed to all operators and potential operators of this equipment.

SAFETY: Throughout this manual, and on tags and decals affixed to the unit, DANGER, WARNING, CAUTION and NOTE blocks are used to alert personnel to special instructions about a particular operation, function or service that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Their definitions are as follows:



DANGER INDICATES A HAZARDOUS SITUATION OR ACTION WHICH, IF NOT AVOIDED, **WILL** RESULT IN DEATH OR SERIOUS INJURY.



WARNING Indicates a hazardous situation or action which, if not avoided, **could** result in **death or serious injury**.



CAUTION Indicates a hazardous situation which, if not avoided, **could** result in **minor or moderate injury**.



NOTE - Indicates an important statement. Follow these instructions closely.

ATTENTION - Electrostatic Sensitive Devices. Observe precautions for handling.

Four commonly used safety symbols accompany the DANGER, WARNING and CAUTION blocks. The type of information each indicates is as follows:



This symbol points out a potential Explosion Hazard.



This symbol points out a potential Fire Hazard.



This symbol points out a potential Electrical Shock Hazard.

These “Safety Alerts” cannot eliminate the hazards that they signal. Strict compliance with these special instructions, plus common sense are major accident prevention measures.

Study these safety rules carefully before operating or servicing this equipment. Become familiar with this Owner’s Manual and with the unit. The Unit can operate safely, efficiently and reliably only if it is properly installed, operated and maintained. Many accidents are caused by failing to follow simple and fundamental rules or precautions. The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual, and on tags and decals affixed to the unit are, therefore, not all-inclusive. If using a procedure, work method or operating technique the manufacturer does not specifically recommend, ensure that it is safe for personnel. Also make sure the procedure, work method or operating technique utilized does not render the unit unsafe. Despite the safe design of this unit, operating this equipment imprudently, neglecting its maintenance or being careless can cause possible injury or death. Permit only responsible and capable persons to install, operate and maintain this equipment. **These units generate potentially lethal voltages.** Ensure steps are taken to make the unit safe before attempting to work on the unit. The installation of this unit must always comply with applicable codes, standards, laws and regulations.

General Safety Hazards

For safety reasons, this equipment should only be installed, serviced and repaired by a Service Dealer or other competent, qualified electrician or installation technician who is familiar with applicable codes, standards, regulations and product Installation Manual guidelines. The operator also must comply with all such codes, standards, regulations and product Installation Manual guidelines.

This unit is designed for INDOOR installation ONLY. Never operate the unit outside without the proper NEMA enclosure.

Electrical Hazards

All units covered by this manual produce dangerous electrical voltages that can cause fatal electrical shock. Utility and battery power delivers extremely high and dangerous voltages when installed, as does the HUMLESS unit when it is in operation. Avoid contact with bare wires, terminals, connections, etc. while the unit is running. Ensure all appropriate covers, guards and barriers are in place, secured and/or locked before operating the unit. If work must be done around an operating unit, stand on an insulated, dry surface to reduce potential shock hazard. Do not handle any kind of electrical device while standing in water, while barefoot, or while hands or feet are wet. **DANGEROUS ELECTRICAL SHOCK MAY RESULT.**

To prevent injury, before working on this unit (for inspection, service or maintenance), always put the unit into the OFF mode.

In case of accident caused by electric shock, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. **AVOID DIRECT CONTACT WITH THE VICTIM.** Use a non-conducting implement, such as a dry rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and get immediate medical help.

Never wear jewelry when working on this equipment. Jewelry can conduct electricity resulting in electric shock.

Fire Hazard

For fire safety, the generator must be installed and maintained properly. Installation **MUST** always comply with applicable codes, standards, laws, regulations and product Installation Manual guidelines. Adhere strictly to local, state, and national electrical and building codes. Comply with regulations the Occupational Safety and Health Administration (OSHA) has established. Also, ensure that the unit is installed in accordance with the manufacturer's instructions and recommendations. Following proper installation, do nothing that might alter a

safe installation and render the unit in noncompliance with the aforementioned codes, standards, laws and regulations.

All electrical work must be performed in accordance with local, state and federal electrical codes. Read all instructions and safety information contained in this manual before installing or using this product. This product is designed for indoor / compartment installation. It must not be exposed to rain, snow, moisture or liquids of any type. Use insulated tools to reduce the chance of electrical shock or accidental short circuits. Always disconnect the energy source prior to installing or performing maintenance on the system. Live power may be present at more than one point since our system utilizes both batteries and AC and DC. Always verify proper wiring prior to starting the unit. There are no user serviceable parts contained in this product.

NOTE Every effort was made to make sure that the information and instructions in this manual were both accurate and current at the time the manual was written. However, the manufacturer reserves the right to change, alter or otherwise improve this product or manual at any time without prior notice.

1. General Information

1.1 Introduction

Congratulations on your purchase of the 1500 Series from Humless. The 1500 Series is a pre-configured, turn-key drop-in back-up power system that includes everything you need for back-up power (chargers, inverters and light-weight advanced lithium). Powerful, yet simple to use, the Humless 1500 Series Unit will provide you with years of trouble-free performance all backed by our limited 3 year (36-month warranty).

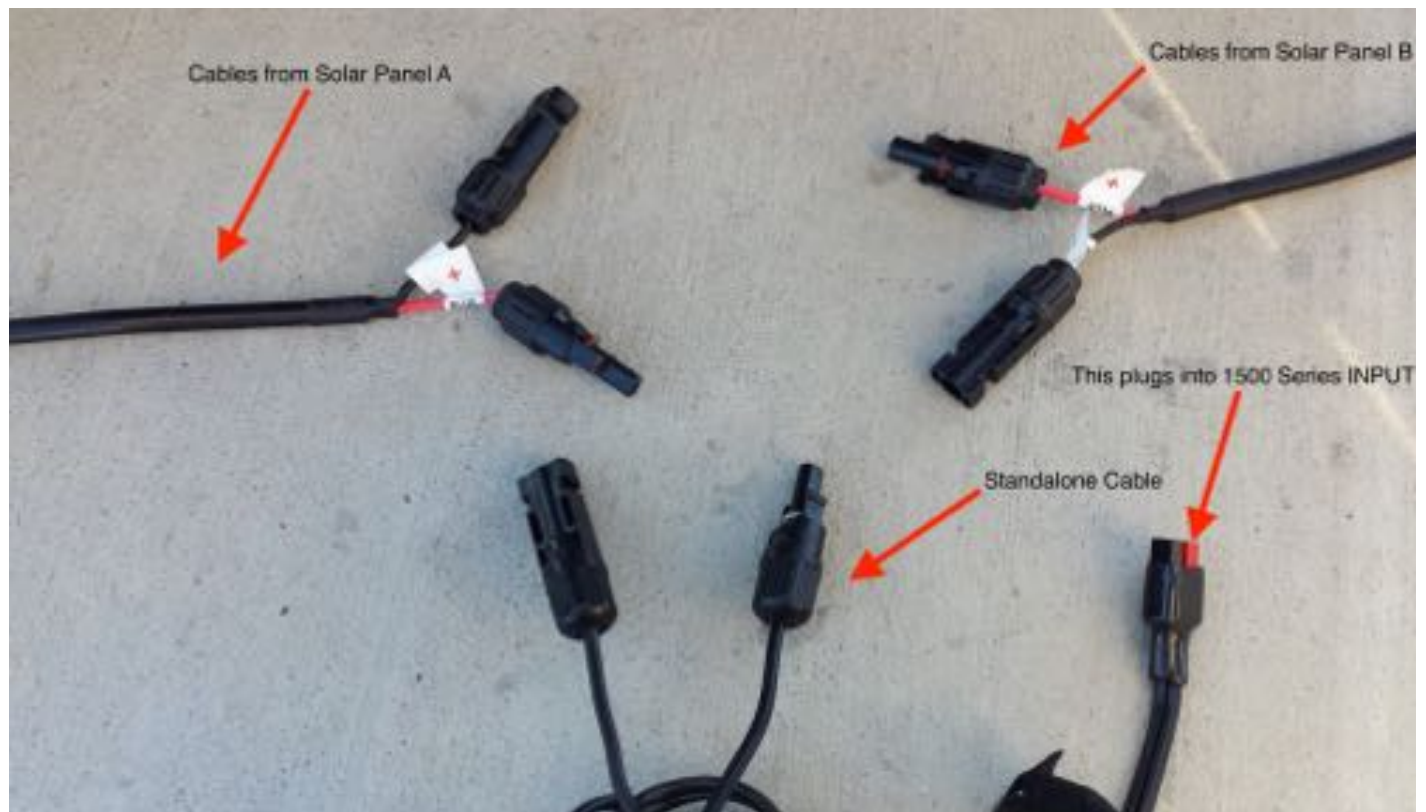
The 1500 Series is CE certified meeting the stringent requirements of UL1642, ensuring you the highest level of electrical safety and reliability.

Installation is easy. Switch on the power and use it.

2. How to Connect Solar Panels in Series

2.1 How to

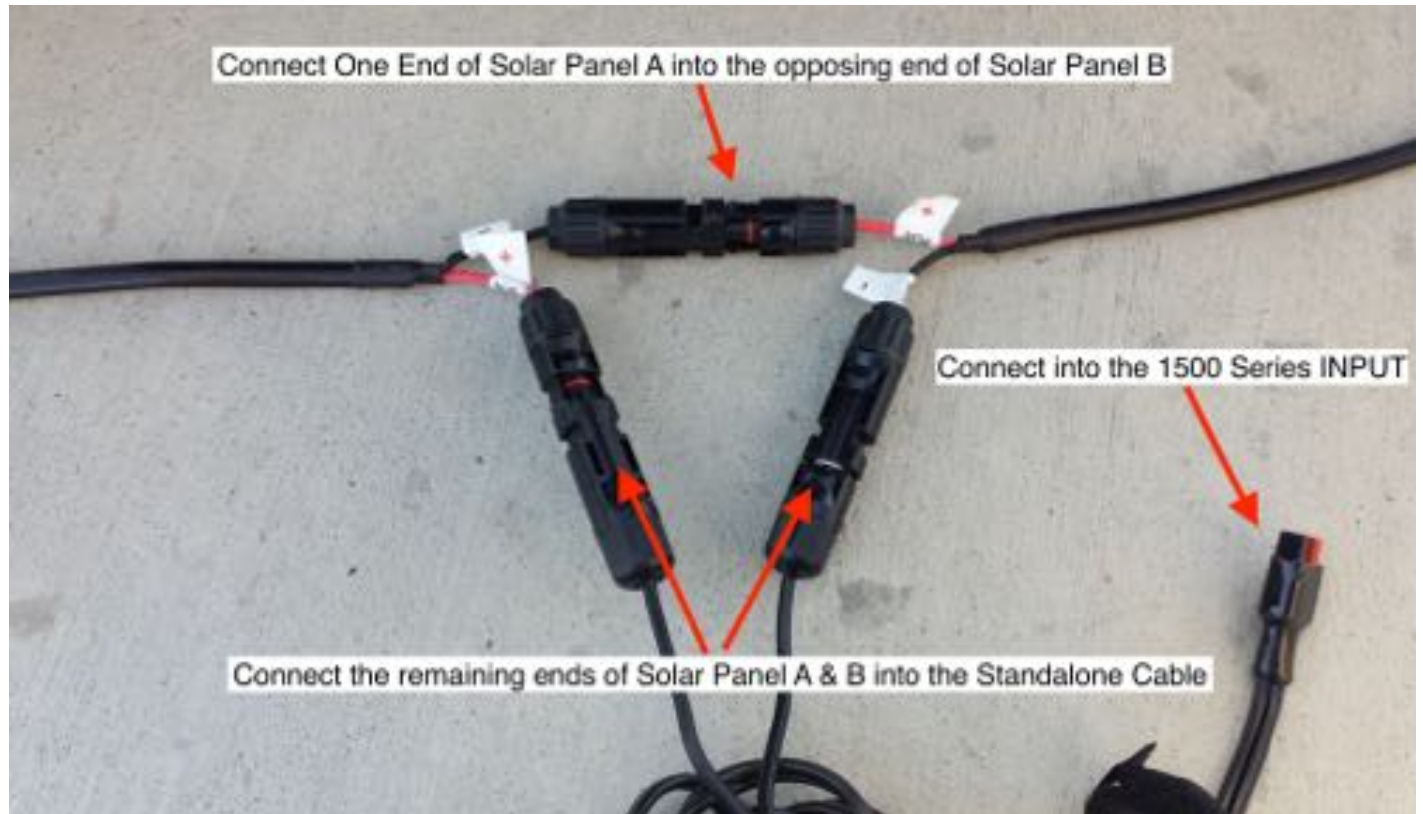
The purpose of this document is to outline how to connect multiple solar panels together in Series.



Step 1: Remove the solar panels & carefully set them up next to each other positioned facing the sun.

Step 2: Look at the back of each solar panel. Each solar panel will have a cord with two (2) x MC4 connectors on the end of it. Take one (1) of the MC4 connectors from one panel and connect it to one (1) of the MC4 connectors from the other panel. ENSURE THE CABLES ARE FIRMLY INSERTED INTO EACH OTHER (test that they cannot be pulled apart by loosely pulling

at the connectors)



Step 3: Take the remaining one (1) of the MC4 connectors at the end of each panel and connect it to one (1) of the MC4 connectors from the extension cable.

Step 4: Connect the Anderson connectors from the extension cable into the Humless 1500 Series.

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