

Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

22g

THUNDERBOLT™ SOLAR

59171

7PC. SOLAR POWER CONNECTION CABLE KIT



Visit our website at: <http://www.harborfreight.com>
Email our technical support at: productsupport@harborfreight.com

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠ WARNING

Read this material before using this product. Failure to do so can result in serious injury. **SAVE THIS MANUAL.**

WARNING SYMBOLS AND DEFINITIONS	
	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
 DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation 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.
NOTICE CAUTION	Addresses practices not related to personal injury.

Safety Precautions

WARNING

Read all safety warnings, instructions, illustrations and specifications provided with this kit.

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

1. Shield eyes and face from batteries at all times. Wear ANSI-approved safety goggles and heavy-duty work gloves during use. Batteries produce explosive gasses.
2. Use only as intended.
3. Do not allow red and black cable clamps to touch each other or same metal object during use.
4. Do not use if bare wires are exposed, or the connectors appear damaged.
5. Use in low voltage systems only. Do not use to make connections exceeding 100 Volts or 10 Amps.
6. Inspect before every use; do not use if parts loose or damaged.
7. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



SAVE THESE INSTRUCTIONS.

Operation

Note: The numbers below correspond to the Parts List and Diagram on pages 6 & 7.

This kit supplies all the cables necessary to connect SAE solar panels to charge controllers, batteries, power stations, and other devices.

1. **SAE to SAE Dual Extension Connector:** Use to extend the length of any SAE cable. This can be used if the lead wire on a Solar Panel is not long enough to connect to other system components. The red wire is positive and black wire is negative.

Note: Extending lead wire may reduce the voltage coming from the Solar Panel.

2. **SAE Polarity Adapter:** Reverses the polarity of SAE connector on certain devices. For example, the polarity may need to be reversed depending on if the connection is coming from, or going to, a battery.
3. **Female 12V Plug:** Connects solar panels or charge controllers to devices that normally connect to 12V plugs in vehicles. The red wire is positive and black wire is negative.
4. **Male 12V Plug:** Connects solar panels or charge controllers to devices to connect different solar components to a vehicle battery through the 12V port. The red wire is positive and black wire is negative.

Note: Do not use to charge a car battery with a solar panel without a charge controller. A solar panel should not be connected directly to a battery.

5. **LED Charge Indicator:** The red wire is positive and black wire is for negative.
 - Indicates if power is being provided from a solar panel or charge controller.
 - Verifies if the polarity of a cable is correct. If the LED does not light, use the SAE Polarity Adapter to correct the issue.

Note: Only use with 12V Solar Panel systems. Do not apply more than 24VDC.

6. **SAE to 8mm Adapter:** Converts an SAE connector to a 7909 (8mm) barrel connector. Use to connect Solar Panels to various Power Stations with an 8mm input port.
7. **SAE to Battery Clamps:** Connects various SAE components directly to the terminals of various batteries. The RED clamp should connect to the Positive battery post, and the BLACK clamp to the negative battery post.

Wiring

Note: Only a licensed electrician and a licensed building contractor can safely design and implement a grid tie-in system. Any grid tie-in system must meet all applicable building and electrical codes, and must meet standards established by the area power company.

1. Run wires from panels, through weatherproof grommets and into enclosure where charge controller/regulator is located. Use wires of the proper size and rating and use twist connectors (not included) to connect wires.

2. Secure all connections using terminals, or solder all wire splices to ensure good connections.
3. Weatherproof all connections and route the wire in a way that it will not be torn loose from the panel.



Servicing



Procedures not specifically explained in this manual must be performed by a qualified technician.

⚠️WARNING

TO PREVENT SERIOUS INJURY FROM ELECTRIC SHOCK:

Before service, maintenance or cleaning:

- a. Dry outdoor wiring thoroughly while wearing electrically insulated gloves.

- b. Disconnect solar panel after use.
- c. Disconnect all batteries after use.



TO PREVENT SERIOUS INJURY FROM ELECTRIC SHOCK OR CUTS:

Do not use damaged adapters. If wiring insulation is damaged or weathered, solar panel glass

is cracked, or housing is opened, have the problem corrected before further use.

Cleaning

Clean and inspect all adapters and the solar power system used with these adapters **MONTHLY**, or more frequently to maintain peak efficiency.

1. **Wear electrically insulated gloves and ANSI-approved safety goggles.**

2. Inspect the general condition of the solar power system, including panel, batteries, controllers, and mounting connections. Check for loose hardware, wiring insulation damage or weathering, cracked glass, open housing, cracked or broken parts, loose or corroded contacts, and any other condition that may affect its safe operation.
3. Inspect and maintain batteries according to supplier's instructions.



PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 193175458018 when ordering parts.

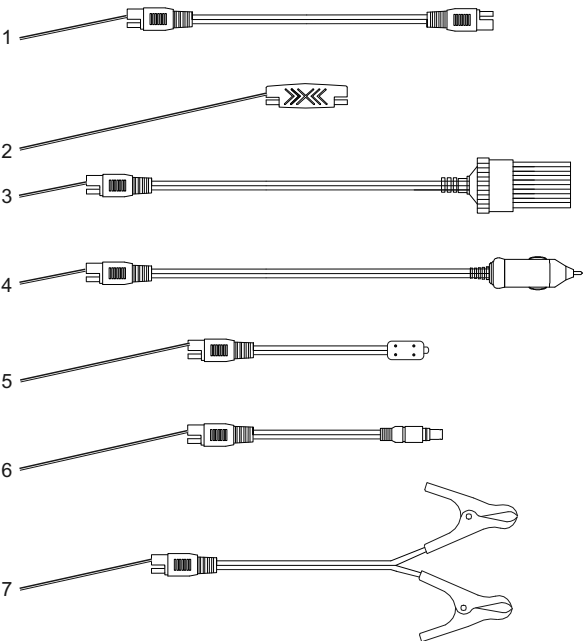


Parts List

Part	Description	Qty.
1	SAE to SAE 16AWG Copper Wire Dual Extension Connector	1
2	SAE Polarity Adapter	1
3	Female 16AWG Copper Wire 12V Plug	1
4	Male 16AWG Copper Wire 12V Plug	1
5	SAE to LED 16AWG Copper Wire Charge Indicator	1
6	SAE to 8mm 16AWG Copper Wire Adapter	1
7	SAE to Battery 16AWG Copper Wire Clamps	1



Diagram



90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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