

- 1.0 Product Overview
- 2.0 Ratings Table
- 3.0 Installation
- 4.0 Torque Table
- 5.0 Operating Instructions

- 6.0 Warranty and RMA Instructions
- 7.0 Appendices
- 8.0 UL1741/CSA Certification Letter

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IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

INSTRUCTIONS IMPORTANTES CONCERNANT LA SÉCURITÉ

Before installing or using the DISCOM 3R String Combiner Box, please read all instructions and caution markings in this manual as well as, on the string combiner, on the PV modules and PV inverter or Charge Controller.

This manual contains important instructions that shall be followed during installation and operation of DISCOM 3R String Combiner Boxes. To reduce the risk of electrical shock and to ensure the safe installation and operation of the combiner, the following safety symbols are used to indicate dangerous conditions and important safety instructions.

CONSERVER CES INSTRUCTIONS. CETTE NOTICE CONTIENT DES INSTRUCTIONS IMPORTANTES CONCERNANT LA SÉCURITÉ.



WARNING
 Could Injure Personnel or
 Damage Equipment



Instructions for
 Qualified
 Personnel Only



Positive
 Connection Point
 Symbol



Negative
 Connection Point
 Symbol



Ground
 Connection
 Point Symbol



DC Electrical
 Connection
 Point Symbol

All electrical installations, including the wiring method shall be performed in accordance with all local and national electrical codes, including ANSI/NFPA 70 and the Canadian Electric Code Part 1.



WARNING - The DISCOM 3R fused string combiner contains no user serviceable parts. For maintenance, please contact Solectria Renewables or an authorized installer by visiting <http://www.solectria.com> or by calling +1-978-683-9700.



WARNING - Disconnect all PV modules or follow your site specific instructions when connecting the array. PV arrays produce electrical energy when exposed to light and could create a hazardous condition.



AVERTISSEMENT-COUPER TOUTES LES SOURCES D'ALIMENTATION AVANT LE DÉPANNAGE



WARNING - Connection of the DISCOM 3R String Combiner Box with PV modules and a PV inverter to the electric utility grid must be performed only by qualified personnel.



WARNING - The DISCOM 3R String Combiner Box is designed to be used with a PV system where one of the two DC source conductors is grounded at the inverter. This guide assumes a negative grounded PV system. If connecting the DISCOM 3R String Combiner Box to a charge controller, substitute the term "charge controller" for inverter throughout this guide.

1.0 Product Overview

The DISCOM 3R String Combiner is a commercial disconnecting fused string combiner designed for combining multiple strings of Photovoltaic (PV) modules for connection to an inverter. In a large PV array, each string of PV modules must be fused before being paralleled and connected to an inverter. The DISCOM 3R String Combiner has eight source inputs and each source circuit is designed to utilize a fuse that is rated at least 156% of the short circuit current rating of the respective PV string source circuit. The fuse value for any source circuit should not exceed the PV module fuse rating.

1.1 Disconnect Switch Operation

The DISCOM 3R String Combiner contains a user-operable disconnect switch. When this disconnect switch handle is in the “OFF” position, the circuit is open between the ungrounded source conductors and the ungrounded output conductor(s). When the disconnect switch is in the “ON” position, the circuit is closed between the ungrounded source conductors and the ungrounded output conductor(s). The disconnect switch is fully load-break rated and can be safely operated under normal operating conditions when installation is per this guide and all warnings and ratings are observed. See Diagram 4.

2.0 Ratings Table

MODEL	DISCOM-3R-08
Maximum Input Voltage (VDC)	600
Voltage Range (VDC)	0-600
Maximum Continuous DC Current (ADC)	100
Maximum Fuse Rating (A)	15
Type Rating	3R
Ambient Operating Temperature	-40° F to +122°F (-40°C to +50°C)
Weight	18 lbs (8.2 kg)
Height	18.375 in. (466.725 mm)
Width	10.0 in. (254 mm)
Depth	5.125 in. (130.175 mm)

3.0 Installation



WARNING – These installation instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any installation unless qualified to do so.



WARNING – This manual contains important instructions for all DISCOM 3R models that shall be followed during installation of the String Combiner Box.

The general steps to installing the DISCOM 3R String Combiner Boxes are unpacking, inspecting, mounting, conduit installation, wiring, testing and commissioning.

3.1 Unpacking and Inspection

The DISCOM 3R string combiners are thoroughly inspected and rigorously tested before they are shipped. Even though the units are delivered in cardboard packaging it is possible that the units may become damaged during shipment. Inspect the combiner thoroughly after it is unpackaged. If damage is noticed, document the damage with digital photos and immediately report the damage to the shipping company. If there is any question about potential shipping damage, contact Solectria Renewables. If it is determined that the unit must be returned, an RMA number must be obtained from Solectria Renewables prior to returning the unit (in the original packaging or equivalent).

When unpacking, keep the original box in case needed. Take care not to set the combiner on a gravel roof or floor that might scratch the paint.

3.2 Mounting

The DISCOM 3R enclosure is Type 3R rated and will maintain the rating with appropriate installation methods.

The DISCOM 3R must be mounted vertically with the output conductors exiting the bottom, top, back or sides of the unit through the provided knock-outs. Output conductors can exit the top of the unit through a hub if purchased separately and listed for compatibility with the product (see label inside door) and see section 3.3.

The String Combiner weight is 18 lbs.

Be sure to verify load capacity of a wall mounting area.

Mounting holes inside the enclosure allow simple mounting to a wall, array racking or to posts. Install the combiner in an accessible location following NEC codes for enclosure and disconnect door clearances and proximity to other equipment. Although not required, installation at waist or chest height allows easiest access and keeps the unit above potential snow line or drifts as well as minimization of splash-back from rain on ground below. Installers sometimes prefer lower installation heights for aesthetics or wind-loading reasons.

Although not required, the combiner and fuses will remain most cool if the combiner is located in shade or partial shade from the array, roof equipment vault, walk-up or other equipment on the roof.

Mount the combiner using the mounting holes inside the enclosure. See Diagram 2 for mounting hole dimensions.

DIAGRAM 1

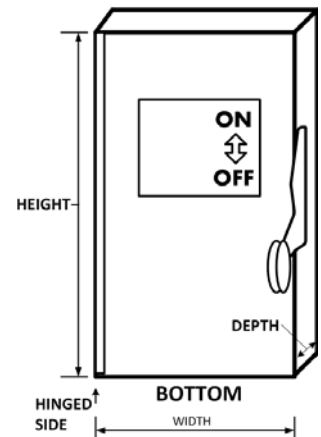
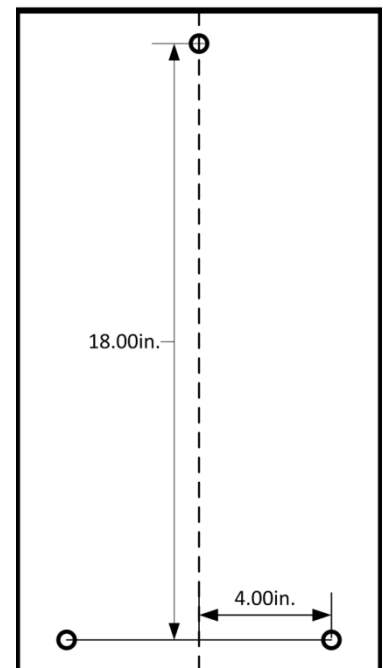


DIAGRAM 2 – Mounting Hole Dimensions

DISCOM-3R TOP



All three hole diameters are 5/16" close clearance holes (0.32").

3.3 Install Conduits

The use of UL514B or equivalent conduit fittings and UL50 installation methods are required to maintain the Type 3R rating of the enclosure. Failure to follow these standards may result in water intrusion into the unit through conduit connections and may void your warranty.

If the hub on top of the enclosure is used, it must be the appropriate Eaton hub designed for this 100A enclosure in sizes from ¾" to 2". (See hub part number list on label inside combiner door). Install the appropriate hub per the manufacturer's instructions.

Output conduits may be installed in top, bottom, back or sides. Source circuit conduits may be installed in top, bottom, back or sides.

3.4 Wiring

The DISCOM 3R String Combiner Box can be used with copper source conductors only. Either copper or aluminum output conductors may be used, although due to terminal size restrictions, aluminum wiring may not be an option in all cases. As with any aluminum wiring exercise, follow best industry practices to ensure a reliable connection; thoroughly clean the conductor just prior to making the electrical connection and use an oxide inhibitor to prevent the formation of aluminum oxide.

All conductor terminations are rated for 75°C.

All wiring must be in accordance with local and national electrical codes.

3.4.1 Remove Fuses



WARNING - Removing fuses from a live circuit may create dangerous arc-flash and shock hazards

1. Confirm that the disconnect switch is in the off position.
2. Remove each fuse from the touch-safe fuse holder for each source circuit. Store the fuses for later reinstallation.

3.4.2 Guard Removal



WARNING – Removing the plastic guard exposes the installer to dangerous voltage and shock hazards.



WARNING – Remove all fuses before proceeding with steps 3.4.2 through 3.4.7.

1. Hold the plastic guard.
2. Loosen the screw using flat screw driver or nut driver.
3. Gently remove plastic guard and store for reinstallation.
4. Leave the screw in place for reinstallation of the plastic guard.

3.4.3 Grounding

See NEC Article 690 for grounding instructions. A ground bar has been provided for grounding module Equipment Grounding Conductors (EGCs). Torque each module EGC per the Torque table. The DISCOM 3R String Combiner Box ground bar is also used to connect the unit to the inverter EGC circuit. Torque the ground lug per the Torque table.

3.4.4 Fuse Sizing

See NEC Article 690 for fuse sizing instructions.

The maximum fuse that may be used with this product is 15A (15A maximum fuse size for 8 fuse model).

3.4.5 Install Source Conductors

See NEC Articles 310 and 690 for proper source circuit conductor sizing.

DISCOM 3R inputs include copper ungrounded source circuit conductors and copper grounded source circuit conductors.

Connect the ungrounded source circuit conductors to the touch safe fuse holders, one conductor per fuse holder; torque each source circuit conductor per the Torque Rating Table. Route all ungrounded source circuit conductors such that the installation is neat and orderly.

Connect the grounded source circuit conductors to the grounded source-circuit terminal block, one conductor per screw terminal; torque each grounded source circuit conductor per the torque rating on the torque table. Route all grounded source circuit conductors such that the installation is neat and orderly.

3.4.6 Output Conductors

See NEC Articles 310 and 690 for proper output conductor sizing. Copper or Aluminum output conductors may be used.

Solectria Renewables provides output lugs with each String Combiner Box unit. The use of these lugs is required.

3.4.7 FINAL STEPS

Verify all connections meet the requirements of this Installation and Operations Guide.



WARNING: Verify the proper polarity of each source conductor. Polarity reversal can lead to dangerous arc-flash conditions capable of harming personnel and equipment.



WARNING: Check the String Combiner Box for tools and ensure the unit is clean and orderly.

Reinstall the plastic guard.

Install all fuses.

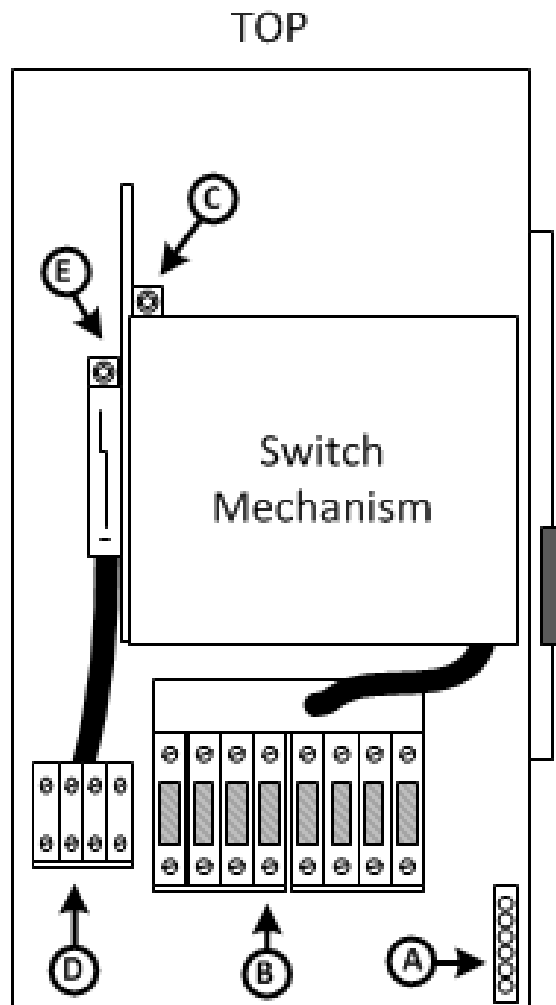
Close the string combiner door.

4.0 Torque Table

REF	COMPONENT	Cond. Types		DISCOM-3R-08
A	EGC Ground Bar Terminations	Cu or Al	30	
B	Ungrounded Source Terminations	Cu	25	
C	Ungrounded Output Lug	Cu or Al	45	
D	Grounded Source Terminations	Cu	35	
E	Grounded Output Lug	Cu or Al	45	

See Diagram 3 for Component Identification. All Torque Values Specified in inch-lbs.

DIAGRAM 3 – Component Identification Diagram



5.0 Operating Instructions

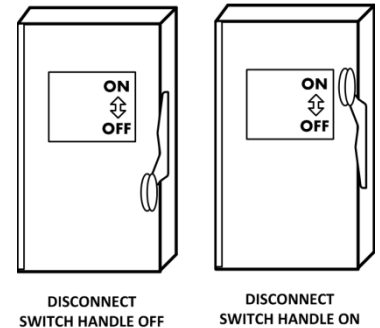


WARNING - Do not operate the disconnect handle switch with the String Combiner Box door open.

The DISCOM 3R String Combiner Box contains a user-operable disconnect switch. When this disconnect switch handle is in the "OFF" position, the circuit is open between the ungrounded source conductors and the ungrounded output conductor(s). When the disconnect switch is in the "ON" position, the circuit is closed between the ungrounded source conductors and the ungrounded output conductor(s). See Diagram 4

The disconnect switch is fully load-break rated and can be safely operated under normal operating conditions when installation is per this manual and all warnings and ratings are observed.

DIAGRAM 4



6.0 Warranty & RMA

SOLECTRIA RENEWABLES LIMITED WARRANTIES ARE PROVIDED BY SOLECTRIA RENEWABLES, LLC. ("SOLECTRIA RENEWABLES") AND COVER DEFECTS IN WORKMANSHIP AND MATERIALS. THE WARRANTY PERIOD IS 60 MONTHS FROM THE DATE OF PURCHASE OF THE STRCOM FUSED STRING COMBINER BOXES BY THE END USER OR 64 MONTHS AFTER THE DELIVERY DATE FROM SOLECTRIA RENEWABLES TO DISTRIBUTOR OR DEALER/INSTALLER, WHICHEVER IS SHORTER.

THE SOLECTRIA RENEWABLES LIMITED WARRANTIES MAY BE VOIDED DUE TO LEAKING CONDUIT HUBS, DUE TO INSTALLER DAMAGE TO PAINT FINISH OR FOAM SEAL; OR ANY OTHER MAL-TREATMENT.

If Solectria Renewables repairs or replaces a product, its warranty continues for the remaining portion of the original Warranty Period or 30 days from the date of the return shipment to the customer, whichever is greater. All warranties are null and void if full payment for products and associated shipping are not received in full and in a timely manner by Solectria Renewables.

Before returning a product directly to Solectria Renewables you must obtain a Return Material Authorization (RMA) number and the correct factory "Ship To" address. Products must also be shipped prepaid. Product shipments will be refused and returned at your expense if unauthorized, returned without an RMA number clearly marked on the outside of the shipping box, if shipped collect, or if shipped to the wrong location.

Information Solectria Renewables needs when you are obtaining service:

- 1) The model names and serial number of your product
- 2) Information about the installation and use of the unit
- 3) Information about the failure and/or reason for the return
- 4) A copy of your dated proof of purchase.

Preparing the product for shipping:

- 1) Package the unit safely, preferably using the original box and packing materials. Please ensure that your product is shipped fully insured in the original packaging or equivalent. This warranty will not apply where the product is damaged due to improper packaging.
- 2) Include the following:
 - a. The RMA number supplied by Solectria Renewables, LLC clearly marked on the outside of the box
 - b. A return address to which the replacement unit can be shipped. Post office boxes are not acceptable.
 - c. A contact telephone number where you can be reached during work hours.
 - d. A brief description of the problem

Ship the unit prepaid to the address provided by your Solectria Renewables customer service representative.

Returning a product from outside of the USA or Canada:

In addition to the above, you MUST include return freight funds and are fully responsible for all documents, duties, tariffs, and deposits.

7.0 Appendices

7.1 Appendix A – DISCOM 3R Datasheet

http://www.solectria.com/?page_id=32

7.2 Appendix C – Contact Information

Solectria Renewables LLC
360 Merrimack Street
Building 9, 2nd floor
Lawrence, Massachusetts 01843
USA

Tel: 978.683.9700
Fax: 978.683.9702

Sales/ general info: inverters@solectria.com
Customer Support: service@solectria.com
Website: www.solectria.com

7.3 Appendix D – Authorized Distributors

See website for complete and updated listing: http://www.solectria.com/?page_id=95



AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant:	Solectria Renewables, LLC	Manufacturer:	Solectria Renewables, LLC
	360 Merrimack Street		360 Merrimack Street
Address:	Bldg 9, Floor 2	Address:	Bldg 9, Floor 2
	LAWRENCE, MA 01843		LAWRENCE, MA 01843
Country:	USA	Country:	USA
Contact:	Chinedu Igbokwe	Contact:	Chinedu Igbokwe
Phone:	(978) 683-9700	Phone:	(978) 683-9700
FAX:	(978) 683-9702	FAX:	(978) 683-9702
Email:	Chinedu.Igbokwe@solren.com	Email:	Chinedu.Igbokwe@solren.com

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Cortland, NY 13045

Control Number: 3058249 **Authorized by:** _____
 for William T. Starr, Certification Manager



This document supersedes all previous Authorizations to Mark for the noted Report Number.

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Intertek Testing Services NA Inc.
 165 Main Street, Cortland, NY 13045
 Telephone 800-345-3851 or 607-753-6711 Fax 607-756-6699

Standard(s):	UL 1741 UL Standard for Safety Inverters, Converters, and Controllers for Use in Independent Power Systems Second Edition, Dated January 28, 2010
	CSA C22.2 #107.1 General Use Power Supplies Issued:2001/09/01 Ed:3
Product:	Combiner Box
Models:	DISCOM-YY DISCOM3R-YY Where: YY is the number of circuits (4 to 30)