1.0 OVERVIEW
Cover all modules in the PV array with dark, opaque material before making electrical connections to the recombiner box or an approved disconnecting / de-energizing means from the panels. All U.S. installations must be performed in compliance with the National Electrical Code (NEC), ANSI/NFPA 70 and applicable local codes. Cooper Crouse-Hinds Recombiner Boxes comply with the National Electrical Code.

All Canadian installations (600V systems only) shall conform to Canadian Electrical Code Part I CSA 22.2 No. 107.1. Installation should be performed only by authorized personnel.

2.0 INTRODUCTION
(PLEASE SAVE THESE INSTRUCTIONS)
This manual provides important instructions for the Cooper Crouse-Hinds (CCH) Recombiner Boxes and shall be followed during installation and maintenance. The CCH Recombiner Boxes are designed and tested to stringent safety requirements. However, as with all electrical equipment, specific safety practices must be followed. To reduce the risk of injury, carefully read this instruction booklet in its entirety before installing, wiring, or using this product in any way.

2.1. DISCLAIMER OF LIABILITY
The installation techniques, handling and use of this product are beyond company control. Therefore, Cooper Crouse-Hinds does not assume responsibility for loss, damage or expense resulting from improper installation, handling or use of this product.

2.2. LISTING INFORMATION
This product meets or exceeds the requirements set forth by Underwriters Laboratories (UL) for components used with PV Modules. This UL Standard is UL 1741 for accessories used with inverters.

2.3. LIMITED WARRANTY
Recombiner box limited warranties are for 1 year for materials and workmanship.

3.0 IMPORTANT SAFETY INSTRUCTIONS
There are no user-serviceable parts in this enclosure, other than the fuses. Do not alter any portion of this product; otherwise, the warranty will be invalidated. Storage temperature: -60°C to +85°C

4.0 ELECTRICAL CHARACTERISTICS
The combiner box electrical ratings are indicated on Table 1.

5.0 BUS BAR

If bus bar construction is used, all bolted connections should be torqued periodically to ensure adequate connection. See Section 12.0 Maintenance.

6.0 DISCONNECT SWITCH (OPTION)
If no Integral Disconnect Switch is provided one must be utilized in the PV system at time of installation and any conductor not opened through disconnect switch must be grounded during installation. All disconnects to be turned to the OFF position and locked out prior to servicing.

7.0 SURGE PROTECTION (OPTION)
Only replace with approved surge protection module. Cooper Crouse-Hinds recommends the use of Cooper Bussmann fast-acting PV series surge protection. Surge Protective Device (Thermally Protected) for PV applications
The Surge-Trap PV provides advanced overvoltage protection to photovoltaic systems, which does not require additional over-current protection due its high short circuit withstand.
8.0 GROUNDING
A ground bar has been provided for the convenience of combining several grounds into one larger ground wire. Please refer to NEC Article 690 on grounding PV arrays for specific requirements. Any conductors not wired through disconnect must be grounded upstream.

9.0 FUSE SELECTION

**WARNING**
To prevent damage to your photovoltaic system and equipment, the CRB Series Solar Recombiner Box and CAFB Array Fuse Box must have fuses installed in each fuse holder in order to operate properly.

Cooper Crouse-Hinds recommends use of Cooper Bussmann R Series PV Series fuses.

Please consult the module manufacturer and/or rating label to select the appropriate fuse size. Please consult NEC Article 690 for more information. A maximum of a 400 Amp fuse may be used with this product (see Table 1 for electrical properties). Cooper Crouse-Hinds Recombiners are not shipped with fuses unless ordered with fuses.

**WARNING**
To prevent injury, death, or damage to your photovoltaic system, do not install fuses prior to completing Section 11.2. Pour éviter toute blessure, décès ou des dommages à votre système photovoltaïque, ne pas installer les fusibles.

**WARNING**
To prevent injury, death, or damage to your photovoltaic system, extreme caution should be taken whenever entering the control cabinet due to energized components.

Photovoltaic panels generate power whenever exposed to ANY light. Cover the panel entirely prior to wiring or servicing with an opaque cover.

Prior to installation or servicing, switch all disconnects to OFF position and use only insulated tools and proper Personal Protection Equipment.

Pour éviter toute blessure, décès ou des dommages à votre système photovoltaïque, la prudence extrême doit être prise lors de chaque entrée de l’armoire électrique grâce à des composants sous tension.

Les panneaux photovoltaïques produisent de l’énergie à chaque fois exposés à la lumière. Recouvrez le panneau entièrement avant de câbler ou de l’entretien avec un couvercle opaque.

Avant l’installation ou l’entretien, mettez tous les déconnecté à la position OFF et utilisez uniquement des outils isolés et le bon équipement de protection individuelle.

10.0 WIRING

- Remove factory lexan protective cover before installation.
- Make ground connections first. This includes source circuit grounds, conduit grounds, and enclosure grounds if using a metallic enclosure.
- Insert positive input conductor from the source circuit to the Touch Safe fuse holder and tighten to torque specifications in Table 1.
- Insert negative input conductor from the source circuit to the negative collector holder and tighten to torque specifications in Table 1.
- Insert positive output wire to the inverter (or other destination) into the positive output terminal and secure to the torque requirements in Table 1.
- Insert negative output wire to the inverter (or other destination) into the negative output terminal and secure to the torque requirements in Table 1.
- Reattach factory lexan protective cover.

Make sure all connections are tight, secure and safe.

11.0 CHECK YOUR WORK

**WARNING**
To prevent injury, death, or damage to your photovoltaic system, extreme caution should be taken whenever entering the control cabinet due to energized components.

Photovoltaic panels generate power whenever exposed to ANY light. Cover the panel entirely prior to wiring or servicing with an opaque cover.

Prior to installation or servicing, switch all disconnects to OFF position and use only insulated tools and proper Personal Protection Equipment.

Pour éviter toute blessure, décès ou des dommages à votre système photovoltaïque, la prudence extrême doit être prise lors de chaque entrée de l’armoire électrique grâce à des composants sous tension.

Les panneaux photovoltaïques produisent de l’énergie à chaque fois exposés à la lumière. Recouvrez le panneau entièrement avant de câbler ou de l’entretien avec un couvercle opaque.

Avant l’installation ou l’entretien, mettez tous les déconnecté à la position OFF et utilisez uniquement des outils isolés et le bon équipement de protection individuelle.

**WARNING**

To prevent component damage or electric shock, avoid touching any component or any part of the circuitry while the equipment is operating. Do not place heavy loads on associated system cables or maneuver them in a manner which may expose personnel or equipment to current. Do not connect system cables when the terminals are wet or damp. Do not disconnect cables under load.

Pour éviter les dommages aux composantes de choc électrique, évitez de toucher tout composant ou toute partie du circuit tandis que l’équipement est en marche. Ne placez pas de lourdes charges sur les câbles du système associés ou les manipulations d’une manière qui peut exposer le personnel ou les équipements actuels. Ne pas brancher les câbles du système lorsque les bornes sont mouillées ou humides. Ne pas déconnecter les câbles sous charge.

These steps need to be completed with your personal safety in mind. Before installing fuses, complete these simple time-saving checks:

11.1. MEASURE VOLTAGE (VOC)
Check the open circuit positive voltage (Voc) from each individual solar array string to the negative bus bar. Ensure each Voc is the proper polarity and within the intended range. Voc does not vary much with irradiance and temperature conditions.

11.2. CHECK GROUND CURRENTS
Check the DC current from each individual string (fuse holder) to ground. If current is present, locate and repair any ground faults.

11.3. INSERT FUSES
Check that the fuses are the proper rating and type and insert fuses into fuse holders and secure it in the closed position.

11.4. FINAL INSPECTION
Check the DC voltage from the combined output lug to the negative bar. Ensure voltage is the proper polarity and within the desired voltage range.

- Check to ensure that all conduit connections are clean and tight and are properly sealed against environmental concerns.
- Reattach factory lexan protective cover.
- Close and secure the enclosure door.

12.0 MAINTENANCE

**WARNING**
To prevent component damage or electric shock, avoid touching any component or any part of the circuitry while the equipment is operating. Do not place heavy loads on associated system cables or maneuver them in a manner which may expose personnel or equipment to current. Do not connect system cables when the terminals are wet or damp. Do not disconnect cables under load.

Pour éviter les dommages aux composantes de choc électrique, évitez de toucher tout composant ou toute partie du circuit tandis que l’équipement est en marche. Ne placez pas de lourdes charges sur les câbles du système associés ou les manipulations d’une manière qui peut exposer le personnel ou les équipements actuels. Ne pas brancher les câbles du système lorsque les bornes sont mouillées ou humides. Ne pas déconnecter les câbles sous charge.

Please review this manual fully before beginning work on recombiner boxes. Follow all safety guidelines and warnings.

Every 6 months inspect and re-torque all electrical connections per Table 1. Replace desiccant if applicable.

We recommend an Electrical Preventive Maintenance Program as described in the National Fire Protection Association Bulletin NFPA 70B: Recommended Practice for Electrical Equipment Maintenance (www.nfpa.org).
## Table 1 - Electrical and Mechanical Ratings

<table>
<thead>
<tr>
<th><strong>4.0 CRB Series</strong></th>
<th><strong>Description</strong></th>
<th><strong>Voltage</strong></th>
<th><strong>Max Current</strong></th>
<th><strong>Max Fuse Size</strong></th>
<th><strong>Max PV Module Short Circuit Current</strong></th>
<th><strong>Ambient</strong></th>
<th><strong>Input Conductors (Cu/Al)</strong></th>
<th><strong>Output Conductors (Cu/Al)</strong></th>
<th><strong>Dimensions</strong></th>
<th><strong>NEMA Rating</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 CRB_03</td>
<td>3 Array Recombiner Box (01 - 03 Strings)</td>
<td>600/1000</td>
<td>1200</td>
<td>400</td>
<td>256.4</td>
<td>50</td>
<td>#4 - 500MCM</td>
<td>#2 - (2600MCM)</td>
<td>48 x 36 x 12</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>3.2 CRB_06</td>
<td>6 Array Recombiner Box (01 - 06 Strings)</td>
<td>600/1000</td>
<td>1200</td>
<td>200</td>
<td>128.2</td>
<td>50</td>
<td>#6 - 250MCM</td>
<td>#2 - (2600MCM)</td>
<td>48 x 36 x 12</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>3.3 CRB_12</td>
<td>12 Array Recombiner Box (01 - 12 Strings)</td>
<td>600/1000</td>
<td>1200</td>
<td>100</td>
<td>64.1</td>
<td>50</td>
<td>1/0 - 8</td>
<td>#2 - (2600MCM)</td>
<td>48 x 36 x 12</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>3.4 CRB_03 DS</td>
<td>3 Array Recombiner Box w/ Integral Disconnect Switch (01 - 03 Strings)</td>
<td>600/1000</td>
<td>1200</td>
<td>400</td>
<td>256.4</td>
<td>50</td>
<td>#4 - 500MCM</td>
<td>#2 - (2600MCM)</td>
<td>60 x 36 x 12</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>3.5 CRB_06 2DS</td>
<td>6 Array Recombiner Box w/ Integral Disconnect Switch (04 - 06 Strings)</td>
<td>600/1000</td>
<td>1200</td>
<td>200</td>
<td>128.2</td>
<td>50</td>
<td>#6 - 250MCM</td>
<td>#2 - (2600MCM)</td>
<td>60 x 36 x 12</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>3.6 CRB_12 2DS</td>
<td>12 Array Recombiner Box w/ Integral Disconnect Switch (07 - 12 Strings)</td>
<td>600/1000</td>
<td>1200</td>
<td>100</td>
<td>64.1</td>
<td>50</td>
<td>1/0 - 8</td>
<td>#2 - (2600MCM)</td>
<td>60 x 36 x 12</td>
<td>40/4/3R</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5.0 CDB Series</strong></th>
<th><strong>Description</strong></th>
<th><strong>Voltage</strong></th>
<th><strong>Max Current</strong></th>
<th><strong>Max Fuse Size</strong></th>
<th><strong>Max PV Module Short Circuit Current</strong></th>
<th><strong>Ambient</strong></th>
<th><strong>Input Conductors (Cu/Al)</strong></th>
<th><strong>Output Conductors (Cu/Al)</strong></th>
<th><strong>Dimensions</strong></th>
<th><strong>NEMA Rating</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 CDB DS100</td>
<td>100A Disconnect Box (01 - 12 Strings)</td>
<td>600/1000</td>
<td>(12) 100</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
<td>#6 - 250MCM</td>
<td>110-325</td>
<td>Varies</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>4.2 CDB DS250</td>
<td>250A Disconnect Box (01 - 12 Strings)</td>
<td>600/1000</td>
<td>(12) 250</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
<td>#6 - 250MCM</td>
<td>110-325</td>
<td>Varies</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>4.3 CDB DS400</td>
<td>400A Disconnect Box (01 - 12 Strings)</td>
<td>600/1000</td>
<td>(12) 400</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
<td>#2 - (2600MCM)</td>
<td>150-450</td>
<td>Varies</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>4.4 CDB DS600</td>
<td>600A Disconnect Box (01 - 12 Strings)</td>
<td>600/1000</td>
<td>(12) 600</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
<td>#2 - (2600MCM)</td>
<td>150-450</td>
<td>Varies</td>
<td>40/4/3R</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>6.0 CAFB Series</strong></th>
<th><strong>Description</strong></th>
<th><strong>Voltage</strong></th>
<th><strong>Max Current</strong></th>
<th><strong>Max Fuse Size</strong></th>
<th><strong>Max PV Module Short Circuit Current</strong></th>
<th><strong>Ambient</strong></th>
<th><strong>Input Conductors (Cu/Al)</strong></th>
<th><strong>Output Conductors (Cu/Al)</strong></th>
<th><strong>Dimensions</strong></th>
<th><strong>NEMA Rating</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 CFB_03</td>
<td>3 Array Fuse Box (01-02 Strings)</td>
<td>600/1000</td>
<td>(3) 400</td>
<td>400</td>
<td>256.4</td>
<td>50</td>
<td>#4 - 500MCM</td>
<td>150-450</td>
<td>Varies</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>5.6 CFB_06</td>
<td>6 Array Fuse Box (01-06 Strings)</td>
<td>600/1000</td>
<td>(6) 200</td>
<td>200</td>
<td>128.2</td>
<td>50</td>
<td>#6 - 250MCM</td>
<td>275-375</td>
<td>Varies</td>
<td>40/4/3R</td>
</tr>
<tr>
<td>5.7 CFB_12</td>
<td>12 Array Fuse Box (01-12 Strings)</td>
<td>600/1000</td>
<td>(12) 100</td>
<td>100</td>
<td>64.1</td>
<td>50</td>
<td>1/0 - 8</td>
<td>100</td>
<td>Varies</td>
<td>40/4/3R</td>
</tr>
</tbody>
</table>

* For Fiberglass Only, Consult Factory for additional information
* Dual ratings indicate 600V Rating Followed by 1000V Rating
* Consult Factory for special output conductor requirements
* CSA for 600Vdc only
All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Crouse-Hinds “Terms and Conditions of Sale,” and since conditions of use are outside our control, the purchaser should determine the suitability of the product for his intended use and assumes all risk and liability whatsoever in connection herewith.