

# Solar Combiner Box Specifications



## PART 1 GENERAL

### 1.1 SUMMARY

- A. Furnish and install solar combiner box and accessories for DC circuits as shown on the drawings.

### 1.2 REFERENCES

- A. Fused Combiner Box shall comply with:
  1. UL STD 1741
  2. NEC 690
  3. CSA STD C22.2 No. 31 & No. 107.1

### 1.3 SUBMITTALS

- A. Drawings:
  1. Submit enclosure dimensional sizing and conduit entry/exit locations.
  2. Customer to specify custom design requirements including: current ratings, voltage ratings, NEMA ratings, Output conductor size & quantity.
- B. Product Data: Submit manufacturer's product data sheets including:
  1. Assembly (including switching, switches, control wiring and accessories) ratings (voltage, current, and short-circuit current rating)
  2. Conductor termination temperature ratings for conductors terminated in the field.
  3. Fuse ratings and type.

### 1.4 CLOSEOUT SUBMITTALS – PROVIDE

- A. Final as-built drawings and product data information
- B. Operation, instruction, and maintenance manuals including replacement parts list.

### 1.5 QUALIFICATIONS

- A. The equipment manufacturer shall have a minimum twenty five years experience in producing electrical equipment.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Equipment shall be handled and stored in a manner that avoids damage.
- B. Equipment shall be inspected prior to installation for damage. Damaged equipment must not be installed.

### 1.7 MAINTENANCE MATERIALS

- A. Information sheets to be provided for CCB Series. (IF 1598, IF 1624)

## PART 2 PRODUCTS

### 2.1 GENERAL

- A. Manufacturer:
  1. Crouse-Hinds
  2. Manufactured by a company that has been in the manufacturing business for over 20 years.

### 2.2 CONSTRUCTION

- A. Combiner Box with integral finger-safe non-fused Disconnect Switch (600Vdc/1000Vdc)

Provide combiner box(s) complete with circuitry as necessary to protect the equipment including disconnect switch with finger-safe fuse holders having all necessary fusing and other options, as shown on drawings and listed below:

1. The Manufacturer shall be Cooper Crouse-Hinds. The series shall be CCB.
2. A finger-safe, non-fused disconnect is required and it shall be interlocked to prevent the opening of the cover when the switch is in the ON position. Interlock shall be defeatable for testing purposes. Handle must be pad-lockable in the OFF position.
3. Integral disconnect switches shall be 100% continuous duty rated and listed to UL 98 & 98B.
4. 600Vdc and 1000Vdc units shall utilize Cu bussing for all interconnection.
5. The combiner box shall be arranged to have between 02 and 36 input circuits with a 100A, 200A, 250A, 400A, or 600A non-fused disconnect switch rating.
6. Individual ampere rating of the fuses shall be as indicated on the drawing. Manufacturer of the 600Vdc and 1000Vdc fuses shall be Cooper Bussmann or equivalent. Series shall KLM, PVM, or PV.
7. All fuse holders shall be finger-safe and shall have local open-fuse indication. Manufacturer of the fuse holders shall be Cooper Bussmann or equivalent. The fuseholder shall be the CHPV Series.
8. The enclosure shall be NEMA 3R, 4 or 4X with seamless door gaskets for combiner boxes with an integral disconnect rated 100, 200, 250, 400, or 600A.
9. NEMA Type 4X Fiberglass enclosures have patented UVA & UVB protection and hold a 94-5VA flame rating.
10. All bussing shall be copper with a protective plating to prevent corrosion.
11. The combiner box shall have 90°C field wireable output terminations, suitable for Cu or Al conductors.
12. Homerun & cable whip assemblies are hi-pot and continuity tested at the factory.
13. DC Current monitoring shall be provided by Obvius and rated for operation from -30°C to 60°C.

#### Cooper Crouse-Hinds

P.O. Box 4999 • Syracuse, NY 13221

Toll Free: (866) 764-5454

Fax: (315) 477-5179 FAX Orders Only: (866) 653-0640

crouse.customerctr@cooperindustries.com

# Solar Combiner Box Specifications



## PART 2 PRODUCTS (con't)

14. Surge protection shall be 600Vdc or 1000Vdc rated and wired to the positive and negative bus. Manufacturer of the surge protection module is Cooper Bussmann or equivalent.
15. All incoming materials are inspected prior to assembly.
16. All units are hi-pot and continuity tested prior to shipment.
17. All electrical connections with torque requirements are verified with calibrated instrumentation and visibly marked.
18. Units shall be rated to 600Vdc or 1000Vdc continuous duty.
19. Units shall be configured for positively ground, negatively grounded, or ungrounded arrays.

### B. Combiner Box with integral finger-safe fusing (600Vdc/1000Vdc) (Non-Disconnecting Combiner Box).

Provide combiner box(s) complete with circuitry as necessary to protect the equipment including finger-safe fuse holders having all necessary fusing and other options, as shown on drawings and listed below:

1. The Manufacturer shall be Cooper Crouse-Hinds. The series shall be CCB.
2. 1000Vdc units shall utilize Cu bussing for all interconnection.
3. The combiner box shall be arranged to have between 02 and 36 input circuits.
4. Individual ampere rating of the fuses shall be as indicated on the drawing. Manufacturer of the 600Vdc and 1000Vdc fuses shall be Cooper Bussmann or equivalent. Series shall be KLM, PVM, or PV.
5. All fuse holders shall be finger-safe and shall have local open-fuse indication by request. Manufacturer of the fuse holders shall be Cooper Bussmann or equivalent. The fuseholder shall be the CHPV Series.
6. The enclosure shall be NEMA 3R, 4 or 4X with a seamless door gaskets for combiner boxes.
7. NEMA Type 4X Fiberglass enclosures have patented UVA & UVB protection and hold a 94-5VA flame rating.
8. All bussing shall be copper with a protective plating to prevent corrosion.
9. The combiner box shall have 90°C field wireable output terminations, suitable for Cu or Al conductors.
10. Homerun & cable whip assemblies are hi-pot and continuity tested at the factory.
11. DC Current monitoring shall be provided by Obvius and rated for operation from -30°C to 60°C.
12. All units are hi-pot and continuity tested prior to shipment.
13. All electrical connections with torque requirements are verified with calibrated instrumentation and visibly marked.
14. Units shall be rated to 600Vdc or 1000Vdc continuous duty.
15. Units shall be configured for positively ground, negatively grounded, or ungrounded arrays.

### C. Compact Combiner Box with integral finger-safe fusing (600Vdc) (Non-disconnecting Combiner Box).

Provide combiner box(s) complete with circuitry as necessary to protect the equipment including finger-safe fuse holders having all necessary fusing and other options, as shown on drawings and listed below:

1. The Manufacturer shall be Cooper Crouse-Hinds. The series shall be CCB.
2. 600Vdc units shall utilize 90°C Cu conductor for factory wiring.
3. The combiner box shall be arranged to have between 01 and 04 input circuits.
4. Individual ampere rating of the fuses shall be as indicated on the drawing. Manufacturer of the 600Vdc fuses shall be Cooper Bussmann or equivalent. Series shall be KLM, PVM, or PV.
5. All fuse holders shall be finger-safe and shall have local open-fuse indication. Manufacturer of the fuse holders shall be Cooper Bussmann or equivalent. The fuseholder shall be the CHPV1U.
6. The enclosure shall be NEMA Type 4X with a seamless door gasket for combiner boxes.
7. NEMA Type 4X Fiberglass enclosures have patented UVA & UVB protection and hold a94-5VA flame rating.
8. All bussing shall be copper with a protective plating to prevent corrosion.
9. The combiner box shall have 90°C field wireable output terminations, suitable for Cu or Al conductors.
10. Homerun & cable whip assemblies are hi-pot and continuity tested at the factory.
11. DC Current monitoring shall be provided by Obvius and rated for operation from -30°C to 60°C.
12. All units are hi-pot and continuity tested prior to shipment.
13. All electrical connections with torque requirements are verified with calibrated instrumentation and visibly marked.
14. Units shall be rated to 600Vdc continuous duty.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Equipment shall be installed and handled in accordance with the manufacturer's recommendations contained in IF 1598 Solar Combiner Installation and Maintenance Information Sheet.
- B. Equipment shall have a nameplate installed to the front cover and indicate, at a minimum: number of input circuits, max ambient temperature, ampere rating of input circuits, voltage rating, short-circuit current rating, and integral disconnect ampere rating if provided.

#### Cooper Crouse-Hinds

P.O. Box 4999 • Syracuse, NY 13221

Toll Free: (866) 764-5454

Fax: (315) 477-5179 FAX Orders Only: (866) 653-0640

crouse.customerctr@cooperindustries.com