

# Photovoltaic Combiner Boxes

## BCBC/BCBCT\* Series Compact Combiner Boxes

### Features

- ETL Listed to UL1741 Standard
- cETL Certified to CSA Standard C22.2 No. 29
- 2 to 6 Input circuits
- Continuous duty rated at 600Vdc
- 600Vdc Midget fuses\*\* for overcurrent protection
- Finger-safe Cooper Bussmann modular fuse holders\*\*\*
- NEMA 4X Polycarbonate enclosure
- Ground blocks included
- External mounting feet included
- Operating temperature -40°C to 50°C
- Common configurations in stock for fast shipment†



BCBC Series Compact Box

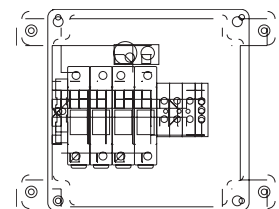
| Specifications††                  |                  |                  |                  |
|-----------------------------------|------------------|------------------|------------------|
| Number of Input Circuits          | 2 to 3           | 4                | 5 to 6           |
| Input conductor range             | 6-14AWG          | 6-14AWG          | 6-14AWG          |
| Number of output conductors       | 1                | 1                | 1                |
| Output conductor range            | 6-14AWG          | 6-14AWG          | 6-14AWG          |
| Max rated current (DC continuous) | 76A              | 76A              | 76A              |
| Max fuse size                     | 25A              | 20A              | 12A              |
| Enclosure dimensions (in), Weight | 6.5x6.5x4, 4 lbs | 6.5x6.5x4, 4 lbs | 6.5x9.5x4, 4 lbs |

### Part Number System Compact Combiner Box Part Number System‡

**Example:** BCBC-04-10P = B C B C - 0 4 - 1 0 P

|                 |                                                                                                                        |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |
|-----------------|------------------------------------------------------------------------------------------------------------------------|----|----|----|----|--|--|--|--|--|--|--|--|--|--|--|
| Series Prefix   | BCBC – Compact Combiner Box                                                                                            |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |
| Number of Poles | 02                                                                                                                     | 03 | 04 | 05 | 06 |  |  |  |  |  |  |  |  |  |  |  |
| Fuses (Amps)††  | 00 – No Fuses Included    01   02   03   04    05   06   08   09   10   12   15   20   25 (see Max fuse size in table) |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |
| Enclosure       | P – NEMA 4X (Polycarbonate)                                                                                            |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |

### Typical Layout



**Compact BCBC Series**  
2 to 6 Circuits  
BCBC-04-00P Pictured

\* BCBC Combines negative inputs with a jumper. BCBCT allows negative inputs to pass through to the outputs without being combined.

\*\* See Data Sheet 2038 (DCM) or 2020 (KLM) for details.

\*\*\* See Data Sheet 2053 for details.

† Please verify stocked configurations with your Cooper Bussmann sales representative.

†† Certain specifications may be modified to meet requirements, please consult factory.

‡ Total system ampacity (poles x fuse amp rating) may not exceed 76 amps.

†† When fuses are specified, 600Vdc midget fuses are installed in holders.



## Features

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BCBD Series Integrated Disconnect Box

| Specifications <sup>†</sup>                  |                 |                 |                 |                                          |                          |
|----------------------------------------------|-----------------|-----------------|-----------------|------------------------------------------|--------------------------|
| Disconnect Rating (Amps)                     | 28A             | 55A             | 75A             | 150A                                     | 245A                     |
| Number of input circuits                     | 4               | 4               | 4 to 12         | 4 to 24                                  | 4 to 24                  |
| Input conductor range                        | 4-14AWG         | 4-14AWG         | 4-14AWG         | 4-14AWG                                  | 4-14AWG                  |
| Number of output conductors                  | 1 or 2          | 1 or 2          | 1 or 2          | 1 or 2                                   | 1 or 2                   |
| Output conductor range                       | 2/0-14AWG       | 2/0-14AWG       | 350kcmil-6AWG   | 350kcmil-6AWG                            | 350kcmil to 6AWG         |
| Max fuse size                                | 30A             | 30A             | 30A             | 6A to 30A <sup>††</sup>                  | 10A to 30A <sup>††</sup> |
| Steel enclosure dimensions (in), weight      | 12x10x6, 15 lbs | 12x10x6, 15 lbs | 20x20x6, 42 lbs | 20x20x6, 50 lbs, or<br>20x24x6, 50 lbs   | 24x24x6, 55 lbs          |
| Fiberglass enclosure dimensions (in), weight | 14x12x6, 12 lbs | 14x12x7, 12 lbs | 20x16x8, 28 lbs | 24x20x18, 35 lbs, or<br>24x24x10, 35 lbs | 24x24x8, 40 lbs          |

**Example:** BCBD150-12-10F = B C B D 1 5 0 - 1 2 - 1 0 F S 0 6 R

|                                      |                                   |    |    |     |     |    |    |    |    |                              |  |
|--------------------------------------|-----------------------------------|----|----|-----|-----|----|----|----|----|------------------------------|--|
| <b>Series Prefix</b>                 | BCBD – Combiner Box w/ Disconnect |    |    |     |     |    |    |    |    |                              |  |
| <b>Disconnect Ampacity</b>           | 28                                | 55 | 75 | 150 | 245 |    |    |    |    |                              |  |
| <b>Number of Poles</b>               | 04                                | 08 | 12 | 16  | 20  | 24 |    |    |    |                              |  |
| <b>Fuses (Amps)<sup>††</sup></b>     | 00 – No Fuses Included            |    |    |     |     | 01 | 02 | 03 | 04 |                              |  |
|                                      | 05                                | 06 | 08 | 09  | 10  | 12 | 15 | 20 | 25 | (see Max fuse size in table) |  |
| <b>Enclosure</b>                     | R – NEMA 3/3R                     |    |    |     |     |    |    |    |    |                              |  |
|                                      | 4 – NEMA 4 (Powder Coated Steel)  |    |    |     |     |    |    |    |    |                              |  |
|                                      | F – NEMA 4X (Fiberglass)          |    |    |     |     |    |    |    |    |                              |  |
| <b>Surge Protective Device (SPD)</b> | S06 - 600Vdc                      |    |    |     |     |    |    |    |    |                              |  |
|                                      | S10 - 1000Vdc                     |    |    |     |     |    |    |    |    |                              |  |
| <b>SPD Remote Contact Signaling</b>  | R - With remote signaling         |    |    |     |     |    |    |    |    |                              |  |
|                                      | Blank - no remote contact         |    |    |     |     |    |    |    |    |                              |  |

[illegible]

**Integral Disconnect on  
BCBD Series**  
4 to 24 Circuits  
BCBD245-24-00R Pictured

\* See Data Sheet 2038 (DCM) or 2020 (KLM) for details.

\*\* See Data Sheet 2053 for details.

\*\*\* Please verify stocked configurations with your Cooper Bussmann sales representative.

† Certain specifications may be modified to meet requirements, please consult factory.

†† Depends on the number of input strings:

- BCBBD150 (ckt/max A): 4/30A, 8/15A, 12/12A, 16/8A, 20/6A, 24/6A

- BCBD245 (ckt/max A): 4/30A, 8/30A, 12/20A, 16/12A, 20/12A, 24/10A

± Total system ampacity (poles x fuse amp rating) may not exceed ampacity of selected disconnect switch.

±± When fuses are specified, 600Vdc midget fuses are installed in holders.

### Recombiner (Array Combiner) Boxes

## Features

- ETL Listed to UL1741 Standard
- cETL Certified to CSA Standard C22.2 No. 29
- 4 to 12 Input circuits
- Continuous duty rated at 600Vdc
- 600Vdc PVS-R Fuses\* for overcurrent protection
- 100A and 200A Fuse case sizes
- 70A – 200A Fuse ampacity configurations
- Steel or fiberglass NEMA 3R, 4 or 4X rated enclosures with seamless door gaskets
- Operating temperature -40°C to 50°C



| Specifications**                  |                 |                 |                  |                 |                  |                  |
|-----------------------------------|-----------------|-----------------|------------------|-----------------|------------------|------------------|
| Fuse Case Size                    | 100             |                 |                  | 200             |                  |                  |
| Number of input circuits          | 4               | 8               | 12               | 4               | 8                | 12               |
| Number of output conductors       | 2               | 4               | 4                | 2               | 4                | 4                |
| Input conductor range             | 6-2/0AWG        | 6-2/0AWG        | 6-2/0AWG         | 6-4/0AWG        | 6-4/0AWG         | 6-4/0AWG         |
| Output conductor range            | 4-500kcmil      | 4-500kcmil      | 4-500kcmil       | 4-500kcmil      | 4-500kcmil       | 4-500kcmil       |
| Max fuse rating                   | up to 100A      | up to 100A      | up to 100A       | up to 200A      | up to 200A       | up to 200A       |
| Max rated current (DC continuous) | 760A            | 1520A           | 1520A            | 760A            | 1520A            | 1520A            |
| Enclosure dimensions (in), weight | 24x24x6, 34 lbs | 36x36x8, 94 lbs | 42x36x8, 110 lbs | 36x36x8, 94 lbs | 48x36x8, 135 lbs | 60x36x8, 160 lbs |

## Recombiner Box Part Number System

**Example:** BCBR100-08-125R-S06R = B C B R 1 0 0 - 0 8 - 1 2 5 R S 0 6 R

|                                 |                                  |     |     |     |                          |
|---------------------------------|----------------------------------|-----|-----|-----|--------------------------|
| <b>Series Prefix</b>            | BCBR – Recombiner Box            |     |     |     |                          |
| <b>Fuse Case Size</b>           | 100                              | 200 |     |     |                          |
| <b>Number of Circuits</b>       | 04                               | 08  | 12  |     |                          |
| <b>Fuses (Amps)***</b>          | 000 – No Fuses Included          |     |     |     |                          |
|                                 | 070                              | 080 | 090 | 100 | (100 amp fuse case size) |
|                                 | 125                              | 150 | 175 | 200 | (200 amp fuse case size) |
| <b>Enclosure</b>                | R – NEMA 3/3R                    |     |     |     |                          |
|                                 | 4 – NEMA 4 (Powder Coated Steel) |     |     |     |                          |
|                                 | F – NEMA 4X (Fiberglass)         |     |     |     |                          |
| <b>Protective Device (SPD)</b>  | S06 - 600Vdc                     |     |     |     |                          |
| <b>Remote Contact Signaling</b> | R - With remote signaling        |     |     |     |                          |
|                                 | Blank - no remote contact        |     |     |     |                          |

\* See Data Sheet 4203 for details.

\*\* Certain specifications may be modified to meet requirements, please consult factory.

\*\*\* Fuse ampacity must coincide with fuse case size specified e.g., 100A or 200A.

## Integrated Surge Protective Device\*

### Features

- Only true UL 1449 3<sup>rd</sup> Edition (Type 2)\*\*
- IEC 61643-11 Type 2, IEC 61643-1 Class II
- Available in standard and disconnect combiner boxes\*\*\*
- UL 94V0 Thermoplastic material
- IP20 Finger-safe
- 600Vdc, 1000Vdc, 1200Vdc configurations
- *easyID*™ Visual status indication
- Available with remote contact signaling
- Operating temperature -40°C to 80°C
- Five year warranty†



BSPH...YPV(R)

*easyID*™  
Visual Status Indication

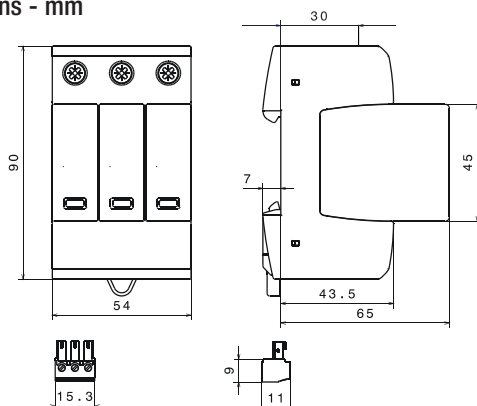


Remote Signal  
Contact Available



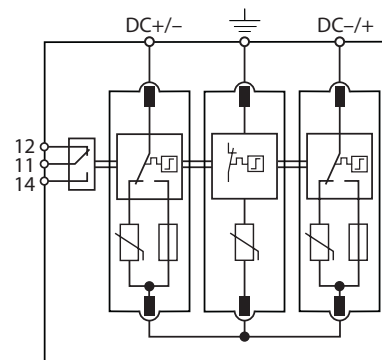
| Specifications                    |                                     |         |         |
|-----------------------------------|-------------------------------------|---------|---------|
| Max Continuous Operating Voltage  | 600Vdc                              | 1000Vdc | 1200Vdc |
| Total Discharge Current           | 40kA                                | 40kA    | 30kA    |
| Voltage Protection Level          | ≤2.5kV                              | ≤4.0kV  | ≤4.5kV  |
| Voltage Protection Level at 5kA   | ≤2.0 kV                             | ≤3.5kV  | ≤4.0kV  |
| Integrated Fuse Breaking Capacity | 30kA                                | 30kA    | 30kA    |
| Nominal Discharge Current         | 12.5kA                              | 12.5kA  | 12.5kA  |
| Max Discharge Current             | 25kA                                | 25kA    | 25kA    |
| Response time                     | ≤25ns                               | ≤25ns   | ≤25ns   |
| Min Conductor Ratings             | 60/75°C 14AWG                       |         |         |
| Max Conductor Ratings             | 60/75°C 2AWG Stranded 4AWG Flexible |         |         |

### Dimensions - mm



Shown with optional remote contact signaling

### Module Circuit Diagrams



BSPH...YPV(R)

Shown with optional remote contact signaling

\* See Data Sheet 2055 for additional details.

\*\* Does not apply to 1200Vdc unit.

\*\*\* Surge module may increase the enclosure size requirement, please see factory for specific sizes.

† See Cooper Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

## Current Monitoring Device

### Features

- Available in standard and disconnect combiner boxes\*
- Uses Obvius Solar Current Monitor (SCM) unit
- Unique “Mesh” technology optimizes routing communications with no configuration
- Twisted pair output or wireless communication
- 8 or 16 Input circuit monitoring units
- Monitors 4 to 24 input circuits



| Specifications         |                                                                                                                       |
|------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Processor</b>       | 60MHz Arm7 embedded CPU processor                                                                                     |
| <b>LEDs</b>            | 3 x RF, 2 x RS 485, 2 x pulse, alive, alarm                                                                           |
| <b>Protocol</b>        | Modbus RTU                                                                                                            |
| <b>Address Setting</b> | Modbus address may be set from 1 to 247 via DIP switch                                                                |
| <b>Inputs</b>          | - 2 pulse inputs, dry contact                                                                                         |
|                        | - Monitor consumption/rate/min/max                                                                                    |
|                        | - Pulse rate/width user selectable to 10Hz, 50Hz, 100Hz, or 250Hz.                                                    |
|                        | - Pulse rate option: 10Hz, minimum pulse width 50ms                                                                   |
|                        | - Pulse rate option: 50Hz, minimum pulse width 10ms                                                                   |
|                        | - Pulse rate option: 100Hz, minimum pulse width 5ms                                                                   |
|                        | - Pulse rate option: 250Hz, minimum pulse width 2ms                                                                   |
|                        | - Contact closure threshold 100W to 2.5kW user selectable                                                             |
| <b>Communications</b>  | - Pulse count values are stored in non-volatile memory.                                                               |
|                        | 1 RS-485 (+, -, S), 9600/19200 baud, N, 8, 1, two wire. Supports up to 32 external devices per ModHopper (expandable) |
| <b>RF</b>              | Frequency Hopping, ISM band, -SN Option: 400MHz Receive Only (Sensor Network)                                         |
| <b>Environmental</b>   | North America: Temperature 0° – 50°C, 0 – 95% humidity, non-condensing. Pollution degree 2, altitude up to 2000M      |
| <b>EMC</b>             | FCC CFR 47 Part 15, Class A                                                                                           |
| <b>Size</b>            | 6.5x4.5x2" (260x64x45mm)                                                                                              |
| <b>Weight</b>          | 1.25lbs (0.67 kg)                                                                                                     |
| <b>Power Input</b>     | 9-30Vdc, 200mA                                                                                                        |

\*Monitoring module may increase the enclosure size requirement, please consult factory for specific sizes.

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