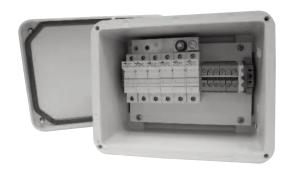


# **Photovoltaic Combiner Boxes**

## **BCBCT Series Compact Combiner Boxes**

## **Features**

- UL Listed to UL1741 Standard
- cUL Certified to CSA Standard C22.2 No. 107.1-01
- 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 Fiberglass enclosure
- Ground blocks included
- Operating temperature -40°C to 50°C
- Common configurations in stock for fast shipment<sup>†</sup>
- Negative pass-through (number of inputs = number of circuits)



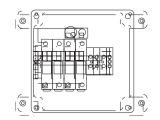
**BCBCT Series Compact Box** 

Specifications <sup>↑†</sup>				
Number of Input Circuits	2 to 3	4	5 to 6	
Input conductor range	10AWG	10-14AWG	14-16AWG	
Number of output conductors	1	1	1	
Output conductor range	4-10AWG	3-10AWG	4-14AWG	
Max rated current (DC continuous)	50A for 2 Circuits 75A for 3 Circuits	80A	60A for 5 Circuits 72A for 6 Circuits	
Max fuse size	25A	20A	12A	
Enclosure dimensions (in), Weight	7.6x7.5x4.9, 4 lbs	7.6x7.5x4.9, 4 lbs	9.6x7.5x4.9, 5 lbs	

# Part Number System Compact Combiner Box Part Number System Example: BCBCT-04-XXF = B C B C T - 0 4 - 0 0 F

NEMA Enclosure F – 4X (fiberglass)

# Typical Layout



Compact BCBCT Series 2 to 6 Circuits BCBCT-04-00F Pictured

- \* See DCM Data Sheet 2038 for details.
- \*\* See Data Sheet 2053 for details.
- † Please verify stocked configurations with your Cooper Bussmann sales representative.
- $^{\scriptscriptstyle \dag\dag}$  Certain specifications may be modified to meet requirements, please consult factory.
- \* When fuses are specified, 600Vdc midget fuses are installed in holders. When ordering without fuses, the combiner box should be fused according to the local AHJ.

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## BCBS 600Vdc and 1000Vdc Series Standard Combiner Boxes

#### **Features**

- 600Vdc UL Listed to UL1741 Standard\*
- 100Vdc Self certified
- · 4 to 24 Input circuits
- 600Vdc or 1000Vdc Rated units
- Finger-safe Cooper Bussmann modular fuse holders\*
- · Configured for both positive and negative grounded arrays
- Single or dual 90°C output terminals
- · Negative input terminal blocks
- · Steel or fiberglass NEMA 3R, 4 or 4X enclosures with seamless door gaskets
- Operating temperature -40°C to 50°C
- Common configurations in stock for fast shipment\*\*



**BCBS Series Standard Box** 

Specifications***						
Voltage	600Vdc Series			1000Vdc Series		
Rating standard	Listed to UL1741		IEC	IEC Rated Components		
	cUL Listed to CS	SA Standard C22	.2 No. 107.1-01	Sel	Self-Certified Fuse Gear	
Fuse type	600Vdc Midget fuses†		1	1000Vdc PV fuses <sup>†</sup>		
Number of input circuits	4 to 12	16	20 to 24	4 to 12	16	20 to 24
Input conductor range	10-14AWG	10-14AWG	10-14AWG	10-14AWG	10-14AWG	10-14AWG
Number of output conductors	1#	2	2	1	2	2
Output conductor range	300kcmil-1AWG	3/0AWG	300kcmil-4/0AWG	300kcmil-1AWG	3/0AWG	300kcmil-4/0AWG
Max fuse size	25A for 4-8 Circuits	204	20A	20A	20A	20A
	20A for 12 Circuits	ZUA	20A 20A	ZUA	ZUA	
Max rated current (DC continuous)	100A for 4 Circuits		400A for 20 Circuits	100A for 4 Circuits		400A for 20 Circuits
	200A for 8 Circuits	320A	480A for 24 Circuits	200A for 8 Circuits	320A	480A for 24 Circuits
	240A for 12 Circuits		TOUR IOI 24 OIICUID	240A for 12 Circuits		400A IOI 24 Oliculo
Steel enclosure dimensions (in), weight	16x12x6, 30 lbs	16x16x6, 36 lbs	20x16x6, 40 lbs	16x12x6, 30 lbs	16x16x6, 36 lbs	20x16x6, 40 lbs
Fiberglass enclosure dim. (in), weight	18x16x6, 20 lbs	18x16x9, 30 lbs	22x18x9, 31 lbs	18x16x6, 20 lbs	18x16x9, 30 lbs	22x18x9, 31lbs

#### Part Number System Standard Combiner Box Part Number System

## Example: BCBSK-12-XXFS06R = B C B S K - 1 2 - 1 0 F S 0 6 R M

Series Prefix BCBS - Standard Combiner Box -Blank – for 600Vdc systems K - for 1000Vdc systems Number of Poles 08 12 16 20 24 Fuses (amps) ‡ 00 – No Fuses Included 600Vdc fuses 01 02 03 04 05 06 07 09 10 12 15 20 25 (see Max fuse size in table) 02 03 04 05 06 1000Vdc fuses 01 12 15 20 (see Max fuse size in table) 10 **NEMA Enclosure** R - 3R4 - 4 (powder coated steel)

F - 4X (fiberglass)

Surge Protective Device (SPD)# S06 - 600Vdc

> S10 - 1000Vdc Blank - No SPD

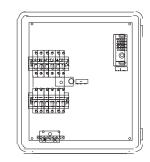
SPD Remote Contact Signaling R – With remote signaling

Blank - No remote contact

Current Monitoring Device M – With current monitoring device

Blank - Without current monitoring device

# **Typical Layout**



Standard BCBS Series 4 to 24 Circuits BCBS-12-00F Pictured

- + Excludes SPD and current monitoring options.
- See Data Sheet 2053 for details.
- \*\* Please verify stocked configurations with your Cooper Bussmann sales representative. Ordering surge protective device and/or current monitoring options may require a custom product. Consult factory for specific size before ordering.
- Certain specifications may be modified to meet requirements, please consult factory.
- † See DCM Data Sheet 2038 for for 600Vdc fuses details and Solar PV Data Sheet 720110 for 1000Vdc fuse details.
- <sup>++</sup> Two (2) for 12 string (+) output only.
- \* When fuses are specified for 600Vdc combiner boxes, midget fuses are installed in the holders, for 1000Vdc combiner boxes, Solar PV fuses are installed in holders. When ordering without fuses, the combiner box should be fused according to the local AHJ.
- # See Data Sheet 2055 for details.

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# **BCBD Series with Integrated Disconnect**

#### **Features**

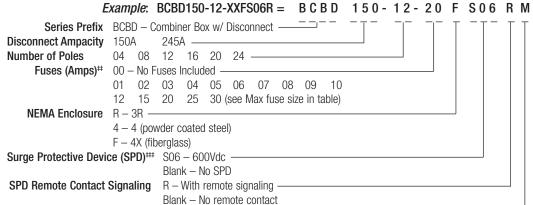
- UL Listed to UL1741 Standard+
- cUL Certified to CSA Standard C22.2 No. 107.1-01
- 150 and 245A Integrated disconnect switches
- 4 to 24 Input circuits
- Continuous duty rated at 600Vdc
- 600Vdc Midget fuses\* for overcurrent protection
- Finger-safe Cooper Bussmann modular fuse holders\*\*
- Configured for both positive and negative grounded arrays
- Single or dual 90°C output terminals
- Negative input terminal blocks
- Steel or fiberglass NEMA 3R, 4 or 4X enclosures with seamless door gaskets
- Operating temperature -40°C to 50°C
- Common configurations in stock for fast shipment\*\*\*



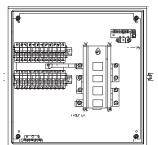
BCBD Series Integrated Disconnect Box

Specifications <sup>†</sup>					
Disconnect Rating (Amps)	150A		245A		
Number of input circuits	4 to 12	16 to 24	4 to 12	16 to 24	
Input conductor range	8 - 14AWG	14AWG	8 - 10AWG	14AWG	
Number of output conductors	1	1	1	1	
Output conductor range	2/0-2AWG	2/0-1/0AWG	300kcmil - 2AWG	300kcmil - 4/0AWG	
	30A for 4 Circuits	8A for 16 Circuits	30A for 4 Circuits	12A for 16 Circuits	
Max fuse size/number of circuits	15A for 8 Circuits	6A for 20 Circuits	30A for 8 Circuits	12A for 20 Circuits	
	12A for 12 Circuits	6A for 24 Circuits	20A for 12 Circuits	10A for 24 Circuits	
Max rated current (DC continuous)	120A for 4 or 8 Circuits 144A for 12 Circuits	128A for 16 Circuits 120A for 20 Circuits 144A for 24 Circuits	120A for 4 Circuits 240A for 8 or 12 Circuits	192A for 16 Circuits 240A for 20 or 24 Circuits	
Steel enclosure dimensions (in), weight	20x16x6, 50lbs	24x20x6, 62lbs	24x20x6, 62lbs	24x24x6, 72lbs	
Fiberglass enclosure dimensions (in), weight	22x18x9, 38lbs	27x21x10, 60lbs	27x21x10, 60lbs	27x25x12, 61lbs	

# Part Number System Combiner Box with Disconnect Part Number System



Typical Layout



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

- <sup>+</sup> Excludes current monitoring options and 24-pole circuit with SPD.
- \* See DCM Data Sheet 2038 for details.

**Current Monitoring Device** 

- \*\* See Data Sheet 2053 for details.
- \*\*\* Please verify stocked configurations with your Cooper Bussmann sales representative. Ordering surge protective device and/or current monitoring options may require a custom product. Consult factory for specific size before ordering.
  - Certain specifications may be modified to meet requirements, please consult factory.
- # When fuses are specified, 600Vdc midget fuses are installed in holders. When ordering without fuses, the combiner box should be fused according to the local AHJ.
- \*\*\* See Data Sheet 2055 for details.

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M – With current monitoring

Blank - Without current monitoring device



## **Recombiner (Array Combiner) Boxes**

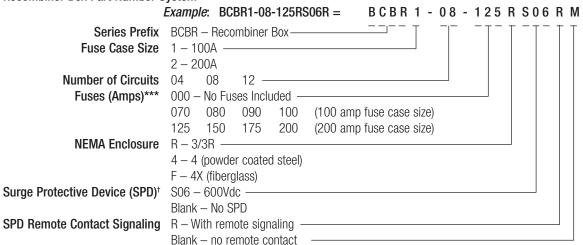
## **Features**

- · Self certified to UL1741 Standard
- 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	1/0-8AWG	1/0-8AWG	1/0-8AWG	250MCM-6AWG	250MCM-6AWG	250MCM-6AWG
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
Steel Enclosure dimensions (in), weight	24x24x8, 65 lbs	36x30x8, 125 lbs	42x36x8, 175 lbs	36x30x12, 140 lbs	36x30x12, 160 lbs	48x36x12, 220 lbs
Fiberglass Enclosure dimensions (in), weight	24x24x10, 34 lbs	36x30x8, 94 lbs	48x36x12, 110 lbs	36x30x12, 94 lbs	36x30x12, 135 lbs	48x36x12, 160 lbs

#### **Recombiner Box Part Number System**



Blank - No current monitoring device

\* See Data Sheet 4203 for details.

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

**Current Monitoring Device** M – With current monitoring

\*\*\* Fuse ampacity must coincide with fuse case size specified e.g., 100A or 200A. When ordering without fuses, the combiner box should be fused according to the local AHJ.

<sup>†</sup> See Data Sheet 2055 for details.

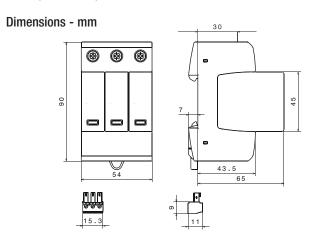
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## Integrated Surge Protective Device\*

## **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 configurations
- easyID™ Visual status indication
- Available with remote contact signaling
- Operating temperature -40°C to 80°C
- Five year warranty<sup>†</sup>





BSPH\_\_\_\_YPV(R)







Remote Signal Contact Available

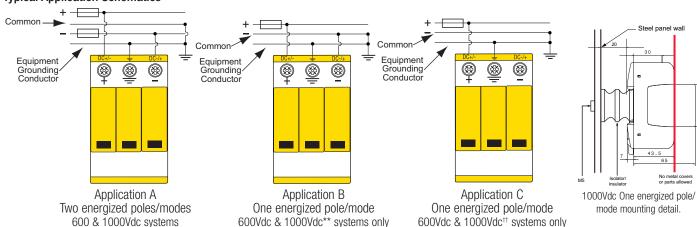


Specifications				
Max Continuous Operating Voltage	600Vdc	1000Vdc		
Total Discharge Current	40kA	40kA		
Voltage Protection Level	≤2.5kV	≤4.0kV		
Voltage Protection Level at 5kA	≤2.0kV	≤3.5kV		
Integrated Fuse Breaking Capacity	30kA	30kA		
Nominal Discharge Current	12.5kA	12.5kA		
Max Discharge Current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

(Max. system discharge current (8/20  $\mu$ s) [ $I_{max}$ ] 25kA)

Data Sheet 2054

## **Typical Application Schematics**



- \* See Data Sheet 2055 for additional details.
- \*\* 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.
- †† BSPH31000YPV(R) 1000Vdc one energized pole/mode requires the following: 1. Use a suitable electrical insulator to keep a 10mm min. safety distance from the PV-SPD and other grounded parts in the housing as shown. 2. No metal covers are in the area of the module release buttons as shown.

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# **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			
Processor	60MHz Arm7 embedded CPU processor			
LEDs	3 x RF, 2 x RS 485, 2 x pulse, alive, alarm			
Protocol	Modbus RTU			
Address Setting	Modbus address may be set from 1 to 247 via DIP switch			
Inputs	- 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			
	- Pulse count values are stored in non-volatile memory.			
Communications	1 RS-485 (+,-, S), 9600/19200 baud, N, 8, 1, two wire. Supports up to 32 external devices per ModHopper (expandable)			
RF	Frequency Hopping, ISM band, -SN Option: 400MHz Receive Only (Sensor Network)			
Environmental	North America: Temperature 0° – 50°C, 0 – 95% humidity, non-condensing. Pollution degree 2, altitude up to 2000M			
EMC	FCC CFR 47 Part 15, Class A			
Size	6.5x4.5x2" (260x64x45mm)			
Weight	1.25lbs (0.67 kg)			
Power Input	9-30Vdc, 200mA			

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