COOPER Bussmann

Alternative Energy Resources

Solar Products and Solutions

COOPER Bussmann

Gain The Alternative Energy Advantage

Cooper Bussmann is dedicated to providing the products necessary to protect and connect solar power to the grid.

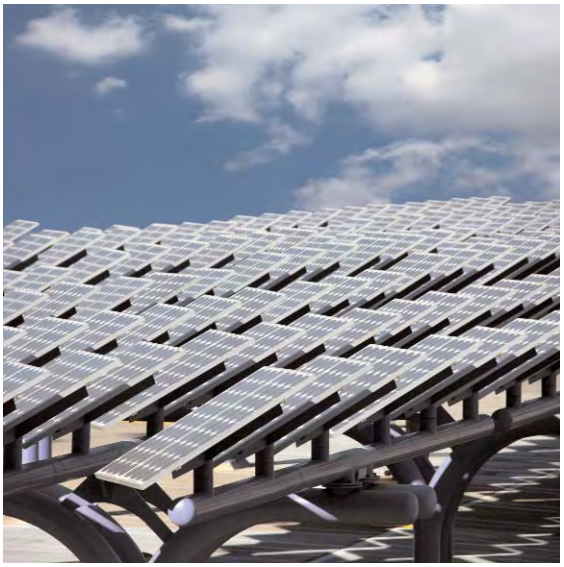
Over the last fifty years, solar photovoltaic (PV) systems have evolved into a mature, sustainable and adaptive technology.

As a result, solar power is gaining greater acceptance and is becoming an increasingly cost-effective, clean and reliable alternative to conventional energy sources.

As the installations and demand for solar PV energy systems increase, so does the need for special products that meet the requirements unique to solar power generation.

Whether it's overcurrent protection, fused disconnects, combiner boxes or power distribution and terminal blocks, Cooper Bussmann® products meet prevailing agency standards with the special performance characteristics as required for solar power applications.

Many of our industry leading solutions are developed and implemented through coordinated research and testing with leading solar panel and solar electric system manufacturers.



Newsweek GREEN RANKINGS 2009

Cooper Industries ranked in the top 100 in Newsweek's inaugural Green Rankings of America's 500 largest companies.

New Solar Combiner Boxes

Combiner boxes provide the housing to combine and connect the conductors from several arrays and/or solar panels into one main bus or feed, and are also useful when there is significant distance between the inverter and the solar panels.

Cooper Bussmann combiner boxes offer complete flexibility with the number of circuits, enclosure options and output conductors.

Features & Benefits:

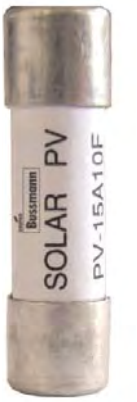
- Continuous duty rated for 600Vdc
- ETL Listed to UL 1741
- Output terminals rated for 90ºC
- Copper bus for efficient combining of high currents
- NEMA 3, 3R, 4 & 4X enclosures ratings
- Enclosures in powder coated steel with optional stainless steel and fiberglass enclosures available
- Poured-in-place seamless gaskets on doors provide a water-tight and dust-tight seal
- Large enclosures provide ample wire bending space
- Contain only Cooper Bussmann finger-safe fuse holders and power distribution blocks rated to 1000Vdc
- Configured for positive and negative grounded arrays
- Integral disconnect option available (up to 600Vdc)
- Standard combiner boxes range from 4 to 24 poles

Compact Option:

Cooper Bussmann's compact combiner box options provide better value in a space-saving enclosure that's ideal for residential and small commercial solar systems. These compact combiner boxes are available in sizes ranging from 2 to 6 poles and NEMA 4X polycarbonate enclosures as small as 6.5″ x 6.5″ x 4″.

See Data Sheet 2054

For Data Sheet and additional product information, visit www.cooperbussmann.com/datasheets/ulcsa



Solar PV Fuse Protects Photovoltaic Systems

1000Vdc Rated

Short-circuit conditions associated with solar panels do not allow for sufficient current to open a standard fuse in a way that effectively isolates faulted PV strings. The new Cooper Bussmann® Solar PV Fuse line provides a full range of protection for sophisticated solar panel systems.

1000Vdc Capacity

- Designed with a maximum 1000Vdc operating voltage based on typical solar panel systems with L/R of 1ms and below

Low Level Fault Protection

- Full range fuses can clear faults as low as 1.3 x $I_{(fuse\ rating)}$ at 1000Vdc
- Designed specifically for thin film cell and 4″, 5″ and 6″ crystalline silicon cell based panels

Superior Cycling Withstand

- Tested to withstand cycling conditions associated with solar panel system operation and environmental influences

Globally Accepted 10x38mm Dimension

- All amp ratings are available with standard ferrule, bolt and versatile PCB mount options

See Data Sheet 2054

1000Vdc Rated

Modular Fuse Holders

Now Available Up to 1000Vdc

- Class CH fuse holders are rated up to 1000Vdc for multiple applications including alternative energy

A Wide Range of Fuses

- Versions available to hold Class CC, Midget, J, gR, aR, gG and aM, PV, plus high speed fuses (13/16 x 2 1/4", 1 1/16 x 2 3/8", 8 x 32mm, 10 x 38mm, 14 x 51mm & 22 x 58mm)

A Wide Range of Poles

- 1-, 2-, 3- and 4-pole gangable versions available

Improved Electrical Safety

- IP20 finger-safe construction with multi-phase connections available to ease extracting all phases at the same time
- Lockout/tagout feature available on Class J version

Quickly Check Circuit Status

- Optional local and remote* open fuse indication available through PLC snap-on module or microswitch

Class J Version With easyID™ Viewing Window

- 0 to 30A and 35 to 60A versions available with ratings of 600Vac/dc and 200kA withstand (SCCR)
- Choice of local fuse indication: *easy*ID™ viewing window** or neon lamp***
- Dual wire rated connections simplifies wiring by eliminating the need for a terminal block for dual wire connections

*14 x 51mm and 22 x 58mm versions available with optional microswitches.
** Requires use of Cooper Bussmann LPJ_SPI indicating fuses.
*** Factory installed neon local indication, 90Vac/115Vdc minimum.

See Data Sheet 2053

Best-in-Class Midget Fuse

Superior Protection

- UL Listed up to 600Vac/dc
- Interrupting rating of 100,000A, AC
- Interrupting rating of 50,000A, DC

Full-Range Fuse Line Meets Codes And Standards For Green Power Applications

- Photovoltaic source circuits: NEC® 690, UL 1703
- Electric and hybrid-electric vehicles: NEC® 625, UL 2202 (charging systems)
- Fuel cells: NEC® 692
- DC control circuits: UL 508A
- Traction/mass transit auxiliary circuits: IEC 60077-5

See Data Sheet 2038

Finger-Safe Enclosed & Open Style Power Distribution Blocks

1000Vdc Rated

2008 NEC® and UL 508A SCCR marking requirements state that the following equipment must be marked with an assembly SCCR:

- Industrial Control Panels [409.110]
- Industrial Machinery Electrical Panels [670.3(A)]
- Certain HVAC Equipment [440.4(B)]

This SCCR is based on the lowest-rated component, or weakest link, in the assembly. Unmarked power distribution blocks will default to a rating of 10kA. The Cooper Bussmann® enclosed series PDBFS offers both high SCCR and enhanced shock protection.

UL Listing Meets Requirements Eliminating Investigation and Procedures

- Listed to UL 1953 for minimum spacing requirements of at least 1˝ through air and 2˝ over surface as required for UL 508A industrial control panel feeder applications

1000Vdc

- Self-Certified Rating

High SCCR

- Up to 200kA rating enables the power distribution block to be one of the highest rated devices in the panel to help achieve a high assembly SCCR

Enclosed for Enhanced Electrical Safety

- Safer work conditions. Finger-safe and IP20 under specific conditions

Modular, Space Saving Design

- Gangable for flexible multi-pole installations, plus small footprint for tight spacing

Simple and Fast Installation

- DIN rail mount or panel mount with captive terminal screws that are backed out at the factory

Meets Wireway Requirements

- Series PDBFS can be used to meet the new 2008 NEC® 376.56(B) requirement, which requires listed PDBs and no exposed live parts with or without wireway cover installed

See Data Sheet 1049

600Vdc Class RK1 Solar Fuses

Standard Class R Fuse Size
- Fast-acting response to DC faults
- Easy to apply and install in traditional fuse blocks and holders

600Vdc Rating
- Fuses are designed with a maximum operating voltage based on typical solar power systems

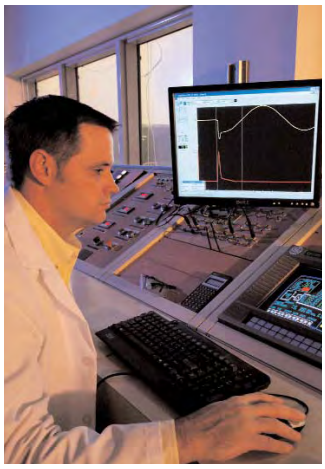
Agency Information
- UL Listed and CSA Certified

Sizes to Meet Many DC Circuit Applications
- 20 to 600A ratings

Heavy-Duty Solar Safety Switch

Cooper Bussmann's new UL Listed heavy-duty solar safety switch solution meets high DC voltage requirements for photovoltaic systems. The product offering encompasses 30 to 200A, fusible and non-fusible heavy-duty solar safety switches.

- 600Vdc Heavy-Duty Safety Switch
- UL 98 & UL 50 Listings
- Fusible and Non-Fusible Configurations
- 30 to 200A ratings
- NEMA 1, 3R, 12, & 4X Enclosures



Testing Services Provide Compliance Evaluations for Components and Assemblies

Cooper Bussmann, the leader in circuit protection technology, provides the electrical industry the Paul P. Gubany Center, the most comprehensive facility for testing electrical devices and assemblies over the widest range of volt, amp and frequency combinations possible.

- Up to 300kA, 750Vac, three-phase
- Up to 100kA, 1000Vdc

The Cooper Bussmann Paul P. Gubany Center is UL, ASTA, and CSA accredited and is an ANCE Designated facility. Tests can be conducted to many global agency standards.

For Data Sheet and additional product information, visit www.cooperbussmann.com/datasheets/ulcsa

Customer Satisfaction Team

Available to answer questions regarding Cooper Bussmann products & services Monday-Friday, 8:00 a.m. – 4:30 p.m. for all US time zones. Contact:

- Phone: 636-527-3877
- Toll-free fax: 800-544-2570
- E-mail: busscustsat@cooperindustries.com

Emergency and After-Hours Orders

Next flight out or will call shipment for time-critical needs. Customers pay only standard product price, rush freight charges, & modest emergency service fee. Place these orders through the Customer Satisfaction Team during regular business hours. For after-hours, contact:

- Phone: 314-995-1342

C3 – the Enhanced, Online Cooper Customer Center

Provides real time product availability, net pricing, order status & shipment tracking across six Cooper divisions: B-line, Bussmann, Crouse-Hinds, Lighting, Power Systems & Wiring Devices. Available at:

- www.cooperc3.com
- 877-995-5955 for log-in assistance

Application Engineering

Technical assistance is available to all customers. Staffed by degreed engineers, this application support is available Monday-Friday, 8:00 a.m. – 5:00 p.m. Central Time. Contact:

- Phone: 636-527-1270
- Fax: 636-527-1607
- E-mail: fusetech@cooperindustries.com
- Live Chat: www.cooperbussmann.com

Online Resources

Visit www.cooperbussmann.com for the following resources:

- Product search & cross-reference
- Product & technical materials
- Solutions centers for information on topical issues including arc-flash, selective coordination & short-circuit current rating
- Technical tools, like our arc-flash calculator
- Where to purchase Cooper Bussmann product

Services

Cooper Bussmann Services team provides engineering expertise in electrical system reviews, electrical safety training & component testing for Agency compliance. Contact:

- Phone: 636-207-3294
- E-mail: services@cooperindustries.com

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