



Eaton and Cooper united.

# Energizing a world that demands more.

We deliver:

- **Electrical solutions** that use less energy, improve power reliability and make the places we live and work safer and more comfortable
- **Hydraulic and electrical solutions** that enable machines to deliver more productivity without wasting power
- **Aerospace solutions** that make aircraft lighter, safer and less costly to operate, and help airports operate more efficiently
- **Vehicle drivetrain and powertrain solutions** that deliver more power to cars, trucks and buses, while reducing fuel consumption and emissions

Discover today's Eaton.

Powering business worldwide

As a global diversified power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2012 sales of \$16.3 billion, Eaton has approximately 103,000 employees around the world and sells products in more than 175 countries.

[Eaton.com](http://Eaton.com)



Eaton's Electrical Sector is a global leader in power distribution, power quality, control and automation, and monitoring products. When combined with Eaton's full-scale engineering services, these products provide customer driven PowerChain™ solutions to serve the power system needs of the data center, industrial, institutional, public sector, utility, commercial, residential, IT, mission critical, alternative energy and OEM markets worldwide.

PowerChain™ solutions help enterprises achieve sustainable and competitive advantages through proactive management of the power system as a strategic, integrated asset throughout its life cycle, resulting in enhanced safety, greater reliability and energy efficiency. For more information, visit [www.eaton.com/electrical](http://www.eaton.com/electrical).

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Solar overview brochure

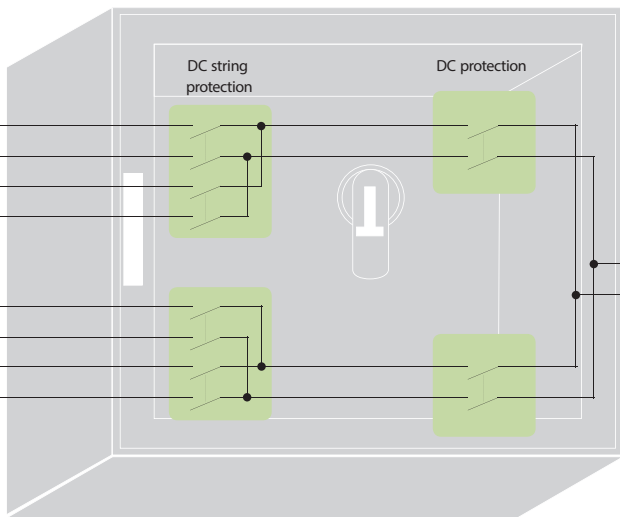
# Solar Photovoltaic (PV)



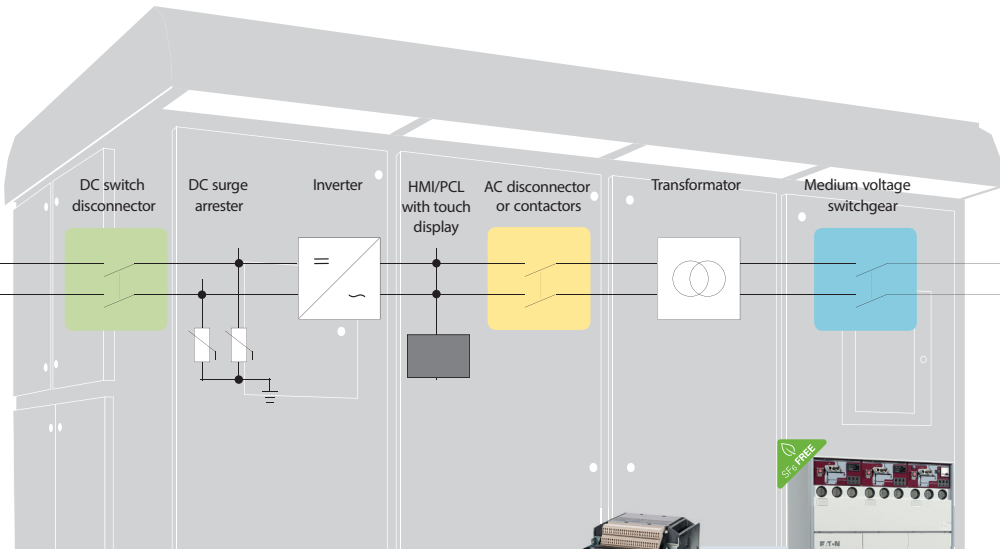
## Eaton & Bussmann by Eaton - Protecting Tomorrow's Future. Today.

A global leader in the manufacture of electrical solutions for EPC's, integrators, and inverter makers offering the largest available range of DC and AC protection and switching.

PV panel protection and switching



Inverter and grid protection and switching



**1 Ferrule Photovoltaic Fuse Links, 1 to 32A, up to 1500Vdc**

A range of fuse links specifically designed for the protection and isolation of photovoltaic strings.

Globally accredited to IEC 60269-6, UL 2579, CC and CSA, these fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

**Modular Fuse Holders, 32A, 1000Vdc**

CHPV Models, with 1000Vdc rating for use with solar gPV fuse links. Are suitable for photovoltaic applications of any size.

Tested to a wide range of standards: IEC, cULus, CSA, CCC and UR, allowing for use across global applications.

**2 Two-pole Switch Disconnecter**

The two-pole switch-disconnector P-SOL is tested according to IEC/ EN 60947-3 and TÜV-certified.

The P-SOL is designed for installation in customer-specific enclosures or inverters. It's suitable for voltages up to 1000Vdc. There are two frame sizes (fs1 for 20A and 30A and fs2 for 63A). The two-pole switching makes it possible to use the P-SOL for non-earthed systems as well.

**3 Switch-disconnectors 160 - 1600A for up to 1500Vdc**

Can be used on 1- or 2-poles. They comply with the isolation properties even for earthed IT networks.

Accessories, such as connection terminals and door coupling rotary handles enable individual installation in the most varied of distribution systems.

Auxiliary switches, undervoltage releases and remote operators facilitate signalling and automation.

Compact switch-disconnects for power inverters in switchgear systems or in separate enclosures with IP65 degree of protection.

**4 XL Style Photovoltaic Fuse Links, 50 to 630A, up to 1500Vdc**

A range of XL package fuse links specifically designed to IEC 60269-6, UL 2579, UL E335324 and CCC for protecting and isolating photovoltaic array combiners and disconnects.

These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

**XL PV Bases**

A range of XL package fuse bases with integral shields designed to be fitted with XL style photovoltaic fuse link.

Rated Voltage: 1500Vdc  
Rated Current: 250, 400 and 630A  
Standards/Approvals: IEC 60269-1

**5 Combiner Box**

Protection, monitoring and switching of PV arrays all wrapped up in one neat custom-built solution.

Configurable up to 24 strings, with Modbus-enabled real time monitoring, the combiner box is the smart choice for systems up to 1000Vdc and 32A gPV fusing.

**6 NH PV Fuse Links**

A range of NH size fuse links specifically designed to IEC 60269-6 and UL 2579 for protecting and isolating photovoltaic array combiners and DC disconnects.

These fuses also benefit from low power loss and a dual indicating feature.

**7 Surge Protection Devices**

Surge Protection Devices (SPD) are available to protect every aspect of the PV system, from a Combiner Box through to the Inverter.

The PV Advance SPD complies with the IEC 61643-11 standard. It is specifically designed for PV systems up to 1000Vdc, to protect arrays and inverters from direct and indirect lightning strikes and damaging surges.

The PV Heavy Duty SPD complies with the EN 50539-11 standard. It is specifically designed for enhanced 600, 1000 and 1200Vdc protection in mono and bi-pole applications. It uses a patented, fast-acting hybrid Short-Circuit Interrupting (SCI) technology to prevent damages caused by DC arcs.

**8 AC Contactors up to 2600A, 1000Vac**

Ratings up to 170A are covered with four sizes and three installation widths.

The smallest frame size as a contactor relay and contactor is an excellent compromise between minimum dimensions, higher physical performance capability and additional handling advantages.

In addition to a comprehensive top mounting auxiliary contact range, Eaton also offers side-mounted auxiliary contacts for all xStart contactors.

**9 Air Circuit Breakers up to 6300A, 690Vac NZM and IZM**

The circuit-breaker series NZM offers optimum installation protection up to 1600A with four sizes.

The air circuit breaker IZM, also with four sizes, covers the power range up to 6300A.

Both series are characterised by their high switching capacities and comprehensive range of accessories and provide a solution for every application.

Eight sizes allow you to cost-effectively engineer the required dimensions and ratings of the switch.

**10 Medium Voltage Switchgear Xiria Ring Main Unit**

The Xiria Ring Main Unit system is metal enclosed and air insulated, equipped with load-break switches and circuit breakers for 12kV-20kA and 24kV-16kA networks.

They operate with a combination comprised of circuit breakers and electronic relays and feature high level of operational safety and a compact design. A variety of options are available including an extensible version.

Eaton's full range of SF6-free medium voltage switchgear systems provide an opportunity to make an active contribution to reducing the worldwide emissions of SF6-gas.

**Engineering Service Capabilities**

Eaton's Electrical Services & Systems team offers a comprehensive portfolio of services tailored for every stage of a power system's life cycle - whether it's design, build, or support.

Our services integrate and optimize the elements of a power system to make sure it's aligned with business goals.

We can help keep your power system safe, efficient, reliable, and up-to-date.