ESSENTRA COMPONENTS

Quick guide

COMPONENTS FOR YOUR SOLAR PV SYSTEM

USE THE RIGHT COMPONENTS TO ENSURE OUTSTANDING SOLAR-ENERGY EQUIPMENT.

Solar power technology has advanced impressively while also becoming less expensive. Getting PV panels installed is a perfect way to generate electricity without negatively impacting the environment. Solar energy equipment, whether for an industrial application of solar energy, commercial or residential, requires you to consider various components to produce a quality system that will last for the 25+ years that customers are expecting.

These include:

- Cable and wire management products, from UV-resistant cable ties to cable clamps and cable routing clips
- Protection and finishing solutions, including bolt caps and profile end caps, and cable sleeves and cable wraps
- PCB hardware for Solar PV inverters, such as fan guards and PCB spacers and PCB supports
- Access hardware for electronic enclosures, from handles to lock cam types and tamper proof hinges
- Fasteners for ease of mounting, such as push rivets
- Liquid-tight components, including cord grips, weather-stripping tape and cable entry systems

Unfortunately, errors in installation and the use of poor-quality components can cause a lot of expensive problems. Customers are often left paying the price for repairs and services, installation teams' reputations suffer, and the solar community ends up looking untrustworthy.

A bad installation of the PV system significantly impacts performance. Not only do the panels have to be placed for maximum exposure to the sun, but they have to be mounted with consideration for extreme weather conditions such as strong winds, which is one of the main causes for damage to the PV system.

This guide is designed to help you make those choices. To further help you, we've made free CADs of our solutions available for download. You can also request free samples for most of our products, so you can try before you buy.

IDEAL COMPONENTS

The basic components of solar PV systems can vary. The equipment needed for solar power depends on the system. What they all will have, however, are panels, mounting equipment, DC-to-AC inverter, wiring and fuse box connections, and a utility power meter. Below are our recommended solar components you'll need to ensure quality.

SOLAR PANELS AND FUSE BOX

What is needed for a solar panel system: proper cable management, for starters. Panels have to stand up to all environments and endure small animals living underneath them, so correct routing, supporting and organizing of your cables is key to protecting them.

STANDARD CABLE TIES – LOCKING, WEATHER-RESISTANT

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Tough and high quality, these UV-resistant nylon cable ties are designed for outdoor use, wherever heat is present. The built-in lock system prevents accidental removal. Available in minimum loop tensile strengths, ranging from 18 pounds to 175 pounds. UL94 V-2.

CABLE STRAPS

View online

Cable management straps with locking button offer high degrees of flexibility. Made from black nylon, it can be wrapped and secured around a number of cables to bundle them together. UL94 HB.

CABLE CLAMPS – SNAP IN CABLE HANGER

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Support cables and define their route with cable hanger clamps. Self-mounting and quick to install by hand, simplifying the panel installation process. Fit the strap around a cable and press into the hole. Available in nylon and polypropylene. Cable clamps are available in different styles, materials and mounting types, from adhesive cable clamps to screw-mount cable clamps.

STAINLESS-STEEL CABLE TIES

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316 stainless-steel cable ties are self-locking and easily installed by hand, which speeds up the process of installing solar panels and equipment. Resistant to extreme temperatures, with great strength and durability. Available in minimum loop tensile strengths of 100 pounds to 250 pounds. UL E309388.

EDGE MOUNT CABLE TIE HOLDER

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Made of nylon 6/6 with stainless-steel grip material. A permanent fixing for all sheet-material applications. Also available as an edge clip or with cable tie already installed.

SELF-ADHESIVE CABLE-TIE MOUNTS

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UV-resistant, adhesive mount is positioned without tools for quick installation. Cable ties can be inserted from all four sides. Also comes with a screw fixing for additional support. Our range of cable-tie mounts are available in different mounting options, from push-mount cable ties to screw-mount cable ties. Nylon, UL94 V-2.

CABLE CONDUIT

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Ideal for fuse-box connections. When wiring the DC section of grid-connected PV system components, single conductor cable should be housed in flexible plastic cable conduit. Ours is highly flexible with a high-fatigue life, awarded quality approvals and compliance worldwide. Long cables should be installed in our corrosion- and heat-resistant metal conduit as a surge-protection measure. Our conduit range also supports accessories such as elbows, fittings and clamps. Available in a variety of materials, depending on your needs.

CONDUIT EDGE CLIPS – CORRUGATED TUBE MOUNTING CLIP

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Conduit accessories, such as corrugated conduit clips, enhance the performance of your cable conduit. These edge clips securely hold corrugated/convoluted tubing or other bundles to your PV mounting structure. Nylon 6/6 with stainless-steel grip.

CABLE CLAMP – FIR-TREE MOUNT

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Nylon cable clamp that also works as a conduit clamp. The internal rib spanning the diameter of the clamp provides a tight grip. Releasable latch for convenient maintenance. Fir-tree mount accommodates a large range of panel thicknesses compatible with your lightweight PV mounting structure. Nylon 6/6, UV94 V-2.

CABLE WRAPS – SPIRAL

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Lightweight, cost-effective protection for bundling cables. Crush resistant, flexible and easy to install, they protect against wear against sharp module and mounting structural edges while allowing cables to exit the wrap at any point. Available in PE and heat-stabilized nylon.

PUSH-IN RIVETS – FIR TREE

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Ideal if using rubber mats to help stabilize your mounting structure on rooftops. Fir-tree push rivets have a ribbed design for fast and easy installation with a secure hold in various materials. When pushed into a hole, the flexible ribs deflect, then spring back to lock securely in place. Nylon 6/6, UL94 V-2.

BOLT HEAD AND NUT CAPS

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LDPE standard bolt caps protect washers, bolts and nuts. The extendable head suits large studs and helps protect against weathering and tampering, while providing a finished appearance. Available in a choice of color options.

SQUARE TUBE INSERTS AND GLIDES

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Available in a variety of options and styles. Standard square ribbed inserts are ribbed for easy assembly and secure fitting to cover sharp edges. Available in a variety of colors, materials and sizes.

SQUARE END CAPS – VINYL

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PVC end caps are ideal for square profiles, adding a finished look to a solar panel's tubular mounting rails. These square tubing end caps are flexible and easy to fit.

ENCLOSURE BOXES: CONTROLLER, DC-TO-AC INVERTER, COMBINER BOX, FUSE BOX AND UTILITY METER

The controller, or solar charge controller, regulates the voltage and current coming from the solar panels going to the battery. If your solar panels will be off-grid, or each panel puts out about two watts or less for each 50-battery amp-hours, then you don't need a controller.

Here again, your system might not need a PV combiner box. If it's for a typical home, you won't. For larger applications, the combiner box consolidates the energy from the panels and sends it to the inverter. If a combiner box isn't applicable, then you'll rely on the solar-power-system inverter to take the energy from the solar panels and convert the direct current (DC) into ready-to-use alternating current (AC) to generate power. For residential use, it's usually placed in the loft or attic, which means it has to stand up to extreme heat.

Solar fuses and circuit breakers protect the wiring of the solar PV system and its components from overheating and catching fire. Like utility meters, your fuse box needs to withstand the elements while preventing tampering.

SEALING GASKETS

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Door gaskets and seals are essential for sealing your outdoor electronics cabinet. Sealing gaskets are clip-on profiles that protect against vibrations, ingress of humidity and dirt. Different styles available in EPDM and PVC. Also consider weather-stripping tape, which provides great barrier protection from moisture and air and excellent weather and oxidation resistance, conformability and flexibility at low temperatures.

IP67 SEALING GROMMETS

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Ideal for external applications, providing a dust and watertight seal. Can act as a blanking plug until a cable is installed. Made of EPDM.

CORD GRIPS – STRAIGHT

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Designed for superior sealing and strain relief. Cord grips are used to pass cables into an enclosure or control device, controlling the bend or stopping a cable from being pulled out of a system. IP68 rating for excellent protection against the environment. Also available as a right-angle cord grip. Nylon with TPE inner sealing gland and CR/NBR outer sealing gland. UL94 V-2.

PUSH-IN BLANKING CABLE PLUG

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Made of black silicone rubber and rated IP67. Designed as a protective cover for cord-grip mounting holes and fitted with a pull tab for an easy grip to remove.

CYLINDER-LOCKING QUARTER-TURN LATCHES

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IP65 rated quarter-turn cam lock made from black-powder-coated die-cast zinc with a 6mm compression. When key is turned 90° the cam turns to the locking position. When the key is turned 180° the cam moves to the fixing position. The quarter-turn latch provides both good compression and good noise isolation with different head styles, key options and grip ranges available.

SCREW-ON CONCEALED HINGES

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Prevent tampering with concealed hinges, available in multiple styles in steel, stainless steel or nylon. Both left-hand and right-hand application is possible. High-mechanical strength makes these hinges suited to both light and heavy-duty applications.

CAM LATCHES – LIFT AND TURN

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Low-profile swing handle stows away when not in use. With a 90˚ rotation, these are simple to install, using either a bracket or snap-in fastener. Also consists of a slam-action spring-loaded handle and can be used either indoors or outdoors. They are ideal for the parts of a solar panel system that house electronics and wiring, such as enclosures of inverters and combiner boxes. Available with a choice of keyed alike, key to differ, or a button to press.

PCB STANDOFFS – HEXAGONAL/ INSULATOR/NYLON & BRASS

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Provides insulation and protection from electrical transmission, while providing a more secure, stable hold. Installed by hand, without the need for assembly equipment. Ideal for use when high mechanical strength is required and provides sturdy, insulated spacing for high-power electronic applications. Nylon with brass inserts. UL94 V-2.

PCB VERTICAL CARD GUIDES

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Mount circuit boards in tight spaces and give your PCB stability. Use a vertical card guide or a horizontal one depending on the mounting direction of your printed circuit board design. PCB card guides are easy to install and also used to prevent boards from bending. Some come with adhesive backs while others give you a locking action.

FAN MOUNTS – RIGID

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Works as an anti-vibration fan mount, providing shock and vibration protection. Helps secure your fan in place so that your electronics are kept cool. Made of ABS.

FAN FILTER SETS

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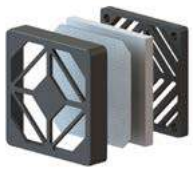
Fan filter Sets include one each of fan guard to protect fingers, fan filter cover, fan filter mesh sheet and felt filter. IP30 rated for protection from tools and wires greater than 1 inch.



LED SPACERS

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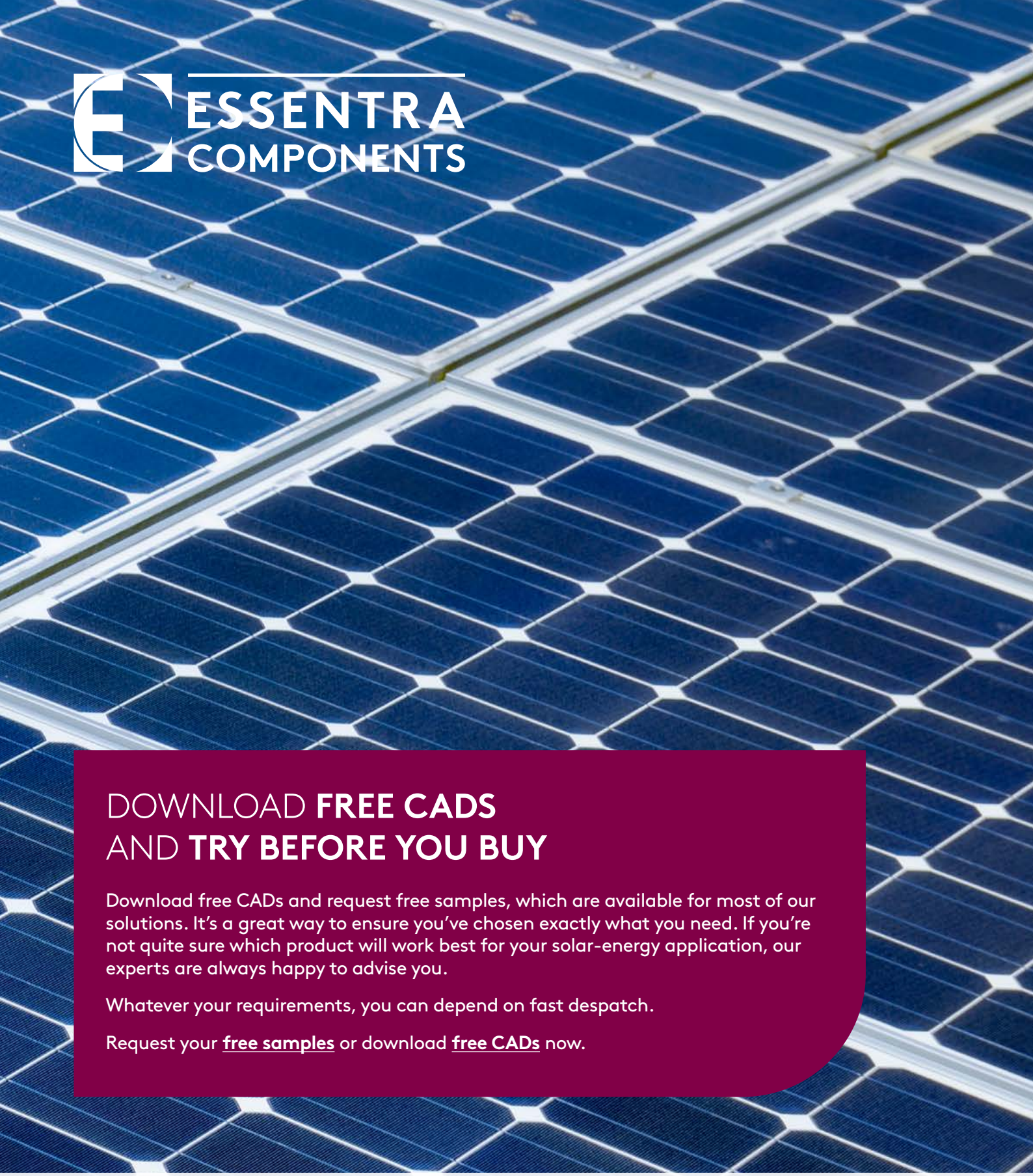
Available in three different styles to accommodate both T-1 LEDs and T-1 3/4 LEDs. Provides height control and lead wire retention and stability with self-retaining feature for auto insertion and pre-assembly. Made of PVC. UL94 V-0. Our full range of LED spacers minimize shifting and also includes square spacers.

PLASTIC ONE-PIECE PULL HANDLES

View online

Aluminum zinc-alloy female-arch pull handle is strong and suitable for the enclosure doors of your solar power system or solar inverter.



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