

Quick guide

COMPONENTS FOR **BATTERY** ENERGY STORAGE INSTALLATIONS



What is a battery energy storage system? Different energy storage systems include thermal and mechanical systems, such as pumped hydro power. Hydroelectric power storage is by far the most common form of stored energy, but harnessing it depends on finding sites with upper and lower pools. That leads us to the most common power storage device: batteries.

Battery storage systems are an important renewable energy-storage technology. They integrate solar or wind renewables in power systems all over the U.S. Off-grid energy storage relies on batteries and enables users to be 100% self-sufficient. Grid storage solutions allow users to sell back the energy to their power companies for credits and use inverters instead of batteries. However, some grid energy storage systems add batteries, creating a hybrid system so that even during blackouts, users have energy.

Battery storage for solar and wind must perform at optimum level to be effective. These energy storage

systems must react right away to changing demands, the rate of energy lost in the storage process, the capacity of storage, and the recharging speed.

In order to do those things, your indoor cabinets or outdoor enclosures must be able to withstand extreme environments and harsh temperatures to prevent equipment failure. Cable management, fasteners, access hardware – all the small components you'll need for your power storage solutions need to be robust and durable while resisting corrosion, harsh temperatures and tampering.



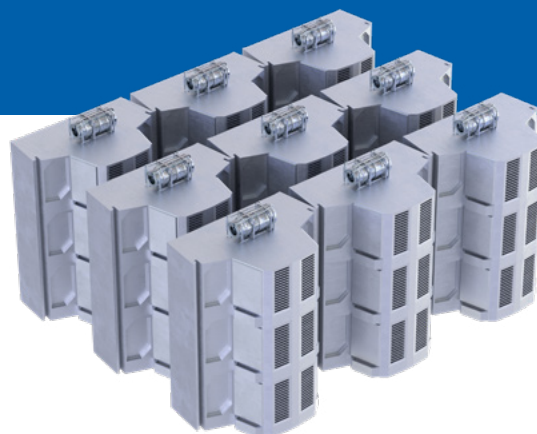
FREE SAMPLES AND CADS

This guide is intended to help you plan your enclosures for battery renewable energy storage solutions. We've made free CADs of our solutions available for [download](#). You can also request [free samples](#) and try before you buy.

You might also find it helpful to check out our [Quick Guide: Components for Your Solar PV System](#).

BATTERY ENERGY STORAGE SYSTEMS AND CONTAINERS

Whether you're designing for residential or industrial battery storage, you'll not only use a battery, but also monitoring and control systems and a power-conversion system. We recommend you use these battery energy storage system components:



CORD GRIPS

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Ideal for cables where entry into a watertight area is needed, typically used in containers for solar energy storage. Designed for superior sealing and strain relief. IP68 rating for excellent protection against the environment. UL94 V-2. Nylon.



STANDARD CABLE TIES, LOCKING, POLYPROPYLENE

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Polypropylene locking cable ties resist chemicals in harsh conditions, making them ideal for solar battery storage systems. These ties are not hydroscopic and are unaffected by variations in moisture levels. Also available: [weather-resistant self-locking nylon cable ties](#) ideal for wind power energy storage applications and [heat-resistant nylon cable ties](#), perfect for solar and wind power storage applications.



CABLE TIE MOUNTS – ARROWHEAD MOUNT, CUPPED

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Arrowhead cable tie mounts provide a secure fastening piece into a container's panel hole for a cable tie to be passed through. The cupped base provides extra stability. Nylon 6/6.



FLUSH CUP – RECESSED T-HANDLE LATCH

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Flush-mount T-Handle latch is ideal for heavy-duty doors and panels on containers. Offered in different locking styles. Corrosive-resistant stainless steel.



IP67 SEALING GROMMETS

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Provides a dust and watertight seal. Rated IP67, making it perfect for outdoor use for your renewable-energy battery storage container. Can act as a blanking plug until a cable is installed. EPDM.

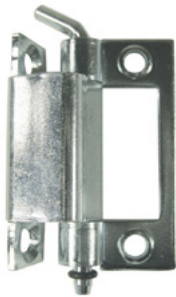


SEALING GASKETS

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Poorly sealed containers and enclosures for wind solar battery storage can create a hazard. Use clip-on profiles to provide edge protection and sealing. Essentially used on metal sheet, they offer protection from vibrations, ingress of humidity and dirt. Different styles available in EPDM and PVC. Also available: [weather-stripping tape](#) for great barrier protection from moisture and air.





SCREW/WELD-ON CONCEALED HINGES

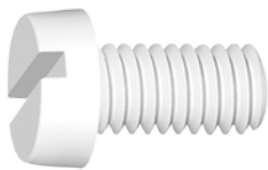
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The hinge is not visible from the outside, offering greater security by hindering vandalism. Left-hand and right-hand applicable. Ideal for metal enclosures. Different types and styles available. Your choice of steel or stainless steel.

NYLON CHEESE HEAD SCREWS

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Slotted cheese head machine screws are an excellent replacement for all metal screws. A lightweight option, they're resistant to vibration, chemicals, electricity and corrosion, protecting the integrity of containers for industrial battery banks, solar power battery storage and wind turbine energy storage applications. Nylon 6/6.



NYLON HEX NUTS

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The hexagonal shape provides an easy way to tighten and loosen this nut with a standard wrench. Nylon hex nuts are non-conductive, corrosion resistant and provide a lasting hold. Also available in polycarbonate. You might also consider [nylon wing nuts](#).



STUD MOUNT LEVELING FEET – PLASTIC SWIVEL BASE

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Adjusts to uneven surfaces and levels stationary energy storage systems. Articulating swivel and large diameter pads of these adjustable feet provide solid leveling and support. Polypropylene.



MONITORING AND CONTROL SYSTEMS



You'll need to think about your renewable energy storage device that monitors and controls the generation and consumption of energy. To maximize performance, use high-quality components as part of your battery management system (BMS). This will help dispatch the battery's power at optimal efficiency.

PCB STANDOFFS – HEXAGONAL/INSULATOR

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Male/female standoffs are designed to be installed by hand. No assembly equipment needed. These hexagonal standoffs are ideal for your renewable energy storage BMS, providing high-mechanical strength and sturdy, insulated spacing. Operating temperature range: -40°F to 185°F. UL94 V-2. Nylon with brass inserts.



PCB SUPPORT POSTS

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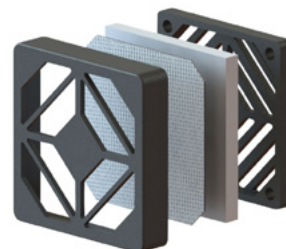
Locking teardrop design securely anchors PCBs. Quick and easy fitting, snapping into small holes and leaving a low protrusion. Operating temperature range: -40°F to 185°F. UL94 V-2. Nylon 6/6.



FAN FILTER SETS

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Rated IP30 to protect the fan of your BMS against the insertion of tools. Includes one each of finger guard, fan filter cover, fan filter mesh sheet and felt filter. Ideal for solar panel battery storage or wind energy storage applications.



FAN MOUNTS – BREAKAWAY

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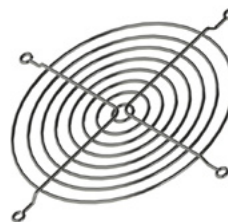
Anti-vibration fan mounts are easy to mount. They protect and cool the small DC and AC BMS fans of your power storage technology. Provides a simpler, faster installation method than conventional screw mounts. Prevents dust ingress and protects the user from accidental damage and bodily harm. Operating temperature range: -40°F to 302°F. Silicone rubber.



METAL FAN GUARDS

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Prevent debris falling into the fan blades and causing an obstruction. Ideal for protecting the monitoring and control systems of your power storage solution. Simple to install with screw mount application. Steel.



POWER CONVERSION SYSTEM



Grid storage systems and off-grid energy storage systems – also called microgrids – need to convert wind or solar panel energy into power. For example, an inverter for a solar panel system or wind turbine converts the direct current (DC) into ready-to-use alternating current (AC) to feed the grid. Some of the components you'll need for your system will include the same PCB hardware as your monitoring and control system uses, along with:



CABLE DUCTS – SCREW MOUNT, SLOTTED

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Ideal for wiring panels and energy storage systems. Holds breakout wires while providing flexibility for adding or removing wires. Also available with self-adhesive mounting. UL94 V-0. PVC.



CAM LATCHES – LIFT AND TURN

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Also known as swing handles. Low profile handle stows away when not in use. Consists of a slam-action spring-loaded handle and can be used either indoors or outdoors. Ideal for solar or wind energy storage systems that house electronics and wiring, such as enclosures for inverters. Available with a choice of keyed alike, key to differ or a button to press.



PUSH-IN RIVETS – SNAP

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Snap rivets push into the panels of your electric power storage system for easy installation, with the grommet expanding to hold it in place. The two-piece molded fastener comes assembled and ready to use, helping speed up manufacturing. Removable by pulling head. Available in black, tan or white. Nylon 66/6, polysulfone, nylon 6 and heat-resistant nylon 4/6.



CYLINDER LOCKING QUARTER-TURN LATCHES

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IP65-rated. Can be used inside or outside. When the 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 latch provides 6mm of compression and good noise isolation for your renewable energy storage system. Different head style and grip range options available. Made from black powder coated die-cast zinc.



LED SPACERS – ROUND

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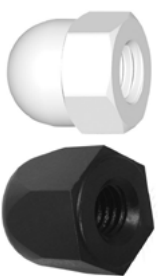
LEDs indicate an inverter's status, so you'll need the right spacers. These are available in three different styles to accommodate both T-1 and T-1 3/4 LEDs. Provides height control and lead wire retention and stability. Self-retaining feature for auto insertion and pre-assembly. Made of PVC.



CABLE WRAP – SPIRAL

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Loose cables can short circuit, creating a hazardous environment for your electrical energy storage system. Spiral cable wrap is lightweight and protective and provides cost-effective hose and cable protection. Choose between heat-stabilized nylon and polyethylene. Also available: crush-resistant [slit harness wrap](#).



CAP NUTS

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Cover exposed threaded stubs, rods or bolts with a dome shaped cap for safety and a finished look. Available with or without an added molded-in locking thread that requires added torque for a more secure assembly. Nylon.



VIBRATION MOUNT STANDOFFS

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Acts as a buffer and absorbs vibrations generated by your battery power storage systems. Also helps reduce noise. Operating temperature range: -40°F to 176°F. Neoprene rubber and steel.



NYLON FLAT WASHERS

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Used in conjunction with [screws](#), bolts or [nuts](#) and offer insulation, spacing and load distribution for your assemblies. Also available in PEEK®, PVC, polycarbonate and polypropylene.



LED MOUNTS – PANEL MOUNT

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These LED light mounts hold a T-1 3/4 LED to a panel. Easily snaps into standard panel holes by hand. Once the holder is in place, the LED will lock into place when inserted from the rear of the panel. Operating temperature range: -40°F to 185°F. Heat-stabilized nylon 6/6.



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