



## **Energy Storage Connector High Power Connection with the Help of Quick Plug**

In terms of market fervor, the energy storage market has grown very rapidly over the past few years and is one of the hottest markets. The global discussion about the sustainable use of renewable energy sources has undoubtedly given further impetus to the overall development of this market. [The sustainable use of renewable energy can only be achieved through energy storage systems ESS](#), which can support the storage of electricity generated from renewable energy sources for time-delayed, demand-driven use, both to avoid outbreaks of massive frequency fluctuations caused by delivering too much power to the grid and to provide reliable power to the network.

In an energy storage system, connectors are essential, and a proper connector can accelerate the installation and energy transfer of a battery cell-based energy storage system. Energy storage connectors have become a key component for current or signal connections. Energy storage connector products are small in size, but not at all simple in function. From a technical point of view, energy storage connectors in two categories, one is responsible for the transmission of high current and high voltage power storage connectors, one is responsible for small current and low voltage signal energy storage connectors.

### **Energy storage system with the help of fast plugging**

There are currently two technical schools of energy storage connectors, one is the fast plugging method, and another is the copper bar connection. From the point of view of several internationally renowned connector manufacturers' products, basically pushing fast plug this technology. But the choice of this technology school, but also benevolent and wise.

Copper bar connection is a soft connection, copper bar soft connection of the lap interface using molecular diffusion welding technology one-time welding molding, strong electrical conductivity, the ability to withstand the current is relatively large, in the high current connection does have advantages. And the more critical point is that, from the technical level alone, the consistency of the copper bar connection may be better in comparison. The word "may" is used here, because even the well-known international leaders in energy storage connections cannot guarantee to keep the consistency within a fixed range in a system with a dense accumulation of connections. Of course, copper bar connection this method brings installation and maintenance costs are also much higher than the quick plug, requiring manual on-site installation, and no anti-touch security is not high.



(Quick-plug energy storage connectors,HARTING)

Quick plug technology shows more advantages, first of all, is the anti-electrical shock function, which is clearly defined in the latest UL4128 standard for static energy storage systems. The [positive and negative pole of the quick plug](#) also increases the safety of the connected equipment, which is structurally much higher than the safety factor of the copper connection. Easy to install since needless to say, but the equipment cost will naturally be higher. Weak consistency is the problem of fast plug technology can not avoid the structure of the terminals in this part, the design of the intrinsic structural aspects determine its consistency is slightly weaker, and fast plug technology in the design process must be enlarged margin, the consistency of the connection resistance is not possible without fluctuations, the specific degree of consistency can be achieved depends on the technical strength of the manufacturers.

Quick plug technology generally gives the connector enough rotation angle to facilitate rapid installation while further saving wiring space, but also conducive to multi-directional line out. To further improve safety during installation, visual locking control mechanisms and finger protection contacts can be added; to ensure the accuracy of the connection process, an effective mechanical coding system is also added to the connector. The time and cost savings through quick plugging are worthwhile in any case.

#### [Energy storage high power 300 A connection](#)

One of the main goals of the energy storage system ESS is higher capacity, the previous ESS is usually powered by 200 A/800V DC, now the application trend is moving toward higher energy density, the demand for 300 A/1200V DC and larger specifications interface transmission is growing. This trend, a number of connector manufacturers are developing 300 A modules to implement in parallel in the multi-module interface to provide power, data and signals for ESS.

Amphenol's BarKlip series, for example, is rated up to 160A/200A/300A/400A/500A per terminal under different modules with terminal position assurance (TPA) and multiple coding options; HARTING's Han 300A series, which is backward compatible with the proven 200A modules, can

be connected directly to the bus bar or integrated into drawer-type energy storage units. Domestic manufacturers linked to the electronic layout of the energy storage connection device for many years, its CNZZ series can cover 120A to 400A high-power connection, fast can also recently revealed that there is a lot of accumulation in the energy storage connection, the official website gives data information for the time being does not specify the current capacity to which level can be specifically supported.



(Energy storage connector, QC)

Fast plug technology for energy storage connectors rated current in the selection of the best choice of 1.3 to 1.4 times the standard current, leaving a margin. Of course, the prerequisite for high power is safety, reliability and high consistency.

### Summary

The rapid development of new energy vehicles to promote the expansion of energy storage connector market volume, in addition to high power connection, fast plug technology under the connection safety and reliability advantages are obvious, but the cost is also relatively high. More importantly, how to ensure consistency in the dense connection of the energy storage system, which is the development of energy storage connectors can not avoid the difficult point.

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We are dedicated to providing customers with high quality products and services. Our main product lines include power distribution connectors, high voltage connectors and cable accessories. We take great pride in our products, which are manufactured to meet or exceed international standards such as UL, CE, TUV and RoHS ratings.

