Unique Features of UZ Energy Power Lite Lithium Batteries

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Highest-Tier LiFePO4 cells from CATL

UZ Energy uses highest-quality CATL LiFePO4 cells from the market leader in lithium cells that supplies many premium automotive manufacturers. Numerous ESS (energy storage system) providers do not disclose what cells they use, this is not true of UZ Energy. As the cells are the most important part of the ESS with regards to life expectancy and safety, not knowing which cells are contained may be problematic because the cells may not come from such a reputable manufacturer. Some ESS manufacturers also switch between multiple cell suppliers, which adds the issue of compatibility between them when mixed in systems with multiple batteries in parallel, potentially causing uneven aging and unevenly distributed currents. The major contributor to life expectancy is cell quality so choosing only the highest-quality cells will decrease the total cost of ownership of a given ESS system over time.

Inter-Battery Balancing

Most BMS (battery management systems) used in ESS use some form of cell-balancing to ensure that the various cells in series maintain the same voltage over the life of the battery. Of course, this is also true of UZ batteries, though it is not necessary to do as much balancing as many other batteries because of the high-quality cells used. These cells have much less tendency to drift apart in voltage, capacity, and internal resistance in over time.
In addition, the UZ BMS allows connecting multiple Power Lite batteries in parallel, without requiring ensuring they all have the same voltage beforehand. Generally, when connecting two or more lithium batteries in parallel that do not have the exact same voltage, typically one of the following scenarios will happen, ordered from least to most favourable:

1. One or more batteries will fail because of high balance currents where the battery with the higher voltage quickly discharges into the battery with the lower voltage.

2. One or more batteries will detect an over-current situation and trigger an alarm, potentially requiring manual intervention.

3. The battery connected last will go into standby and refuse to connect to the other batteries until their voltages are almost equal. At rest, this may never happen. In a cyclical application, this may require waiting a full charge/discharge cycle.

4. The Power Lite batteries will attempt to connect in parallel. If the balance current gets too large, they will enable a dedicated charging circuit integrated into the BMS. This charger takes current from the batteries with a higher voltage and uses it to charge the batteries with lower voltages at a steady and safe rate. Once the voltages are almost equal, the batteries will automatically be connected in parallel, and the charger circuit is disabled as it is no longer needed.

Please note that even with the inter-battery balancing feature in place, UZ strongly recommends putting in parallel only batteries that are within 3.0 V of each other.

Multiple Form Factors with just a Single Battery Size

UZ Energy has put great care into the design of our battery products. One example of this is that each Power Lite battery with 5.12 kWh comes in the same 19-inch rack size. However, this battery can be installed in a rack, wall-mounted, floor-mounted, mounted indoors or outdoors, or simply stacked as required by the end-customer, with the exact same battery modules. All that is required are different housings or other accessories from the UZ Energy portfolio to adapt the battery to the various customer needs. In fact, even the side handles can be removed depending on the type of mounting required. The advantage to the customer/wholesaler is clear: only one battery type needs to be stocked for all 48 Vdc applications. This brings advantages in purchasing, as a single battery type can be purchased in quantity and makes stocking of a single battery model much easier.

Everything Included

Power Lite batteries come with a manual, warranty card and power terminal covers for transport safety. Power cables for wiring batteries in parallel, power cables to the hybrid inverter, and RS-485 communication cables so that multiple batteries can communicate with each other in parallel are available from UZ Energy as well. In short, everything is available from UZ Energy to be able to connect to an inverter for smaller systems. The only (optional) cable that may need to be sourced separately is the CAN communication cable between one battery and the inverter, as various inverters use different pinouts. But some of these are available from UZ Energy too, so do not hesitate to ask.

Optional Wi-Fi

The power Lite L051100-A1 batteries feature a socket for an the optional T300(A) Wi-Fi stick. This way it is up to the customer to have a connected battery or not. The advantages are convincing:

- Access to the UZ portal giving you real-time comprehensive information about each battery in your ESS system, as well as historical records
- Check battery parameters that may not be visible in the inverter remote monitoring (if one is available), such as battery state and temperature
- Data logger showing past events
- Ability to perform remote firmware updates without needing to visit the site of installation
- Unlimited access to the UZ Portal means no recurring fees to pay by the wholesaler or end-customer