The battery that came in from the cold

LIONTRON has a revolutionary new product for motorhomes and caravans: the "LIONTRON LX Arctic". This lithium iron phosphate battery is the first to perform outstandingly at temperatures as low as -30 degrees. It can be charged at extremely low temperatures without any problem

Words Peter Hirtschulz

The new Arctic version is available for all LIONTRON LiFePO4 Lithium battery sizes 12.8 V from 100Ah to 200Ah, as well as for the 25.6 V 100Ah version. The extra cost for the Arctic version is less than 100 Euro.

The Arctic System consists of two heating elements which are automatically controlled by the BMS (Battery Management System). The charge current constantly raises the cell temperature above freezing point and thus brings it into a chargeable state. This means that, unlike conventional LiFePO4 batteries, there is nothing to prevent maximum charging and discharging performance at extreme temperatures.

Even older LIONTRON LX batteries can later on be equipped with the Arctic-system. For the young generation, produced in the 3rd quarter 2020, only the heating elements have to be inserted and connected to the BMS. For earlier versions also the BMS needs to be replaced. The costs for retrofitting is about 250 Euro.

With the new Arctic battery generation, the innovative "power lions from the Lower Rhine area" have achieved another coup. The trio of entrepreneurs consisting of father Wolfgang Felzen and sons Boris and Thorsten have proven many times that they have extensive experience and are a reliable partner. An entrepreneurial spirit spurs all three of them on to top performances and innovations. They have always remained true to their aims when building up their group of companies: The products must meet the highest standard in terms of sustainability, efficiency and quality. That seems to work. Dealers report that for some time now, more and more customers have been explicitly asking for LIONTRON batteries, both for original equipment and retrofitting.

The trio like to be pragmatic, so it is no coincidence that LIONTRON customers benefit from its innovative 'five-minute' principle. LIONTRON batteries are not sealed, glued or welded (as is usual with other batteries) and unreparable in the event of a defect: on the contrary, they can easily be opened within five minutes, and within a further five minutes all individual components can be reached and then replaced within another five minutes. Finally, the closing process takes no longer than five minutes. Super easy - you can find numerous videos demonstrating this on Youtube.

This means that all components of the battery, such as cells, BMS and the Bluetooth module, can be replaced quickly and easily, if necessary. During the 5-year warranty period, repairs can be carried out by the trade partner. After the warranty period, defective elements can be replaced without any problem by a specialist or an experienced layperson. LIONTRON will, of course, provide appropriate spare parts for up to 10 years after the current series has been discontinued.

Another important feature is the LIONTRON Battery Management System (BMS), which not only manages the battery but also protects it from operating errors and possible damage. If there was a short circuit, overvoltage or excessive discharge, the BMS separates the battery internally from the consumers or chargers. Where other lithium batteries bluntly disconnect all connections, the two-part BMS of LIONTRON batteries differentiates which problem is involved and blocks charging or discharging separately. This is relevant, because the battery is protected against excessive discharge. In this case, LIONTRON batteries can be easily recharged and continue to function without interruption. Due to technical limitations, other lithium batteries usually have to be released again by manual intervention in order to be recharged at all. LIONTRON batteries will still work as they should. Simply use the battery until it is empty and then recharge. This saves the customer from having to carry out time-consuming troubleshooting or press buttons on the battery to restart it.

Thanks to LIONTRON batteries, which have been trimmed for sustainability, the mountains of scrap batteries that conventional lead batteries cause due to being unrepairable, are a thing of the past. They can be recycled at great expense, but finally about four to nine percent of the lead used in the process is emitted into the environment. This is one reason why the environmental requirements for lead batteries will gradually become stricter throughout Europe in the future. This means that the sale of lead batteries will become increasingly unattractive, not just because of their technical disadvantages. Other manufacturers of lithium batteries cannot contribute to this solution either, because only LIONTRON makes it possible to replace battery components easily thanks to their modular design. LIONTRON batteries are resource-saving, customer- and service-friendly. Thanks to this longevity, LIONTRON makes a contribution to the optimum use of valuable raw materials such as lithium.

The efficiency of LIONTRON batteries is based on the use of lithium as a base material. While a lithium iron phosphate battery uses about 95% of the energy for charging productively, the lead acid battery can only use about 85% of the charge. The rest is lost, unused during the charging process as heat. It follows that LiFePO4 batteries are at least 10% more efficient in the charging process than lead batteries.

By comparison, in order to keep the relationship between the life and performance of the lead-acid battery reasonable, a lead-acid battery may only be discharged to a maximum of about 50%. In order to have the same performance as a 100Ah lithium iron phosphate battery, one lead battery with a capacity of at least 200Ah is required. In practice, a LiFePO4 battery can replace a lead battery with double the capacity.

Lead batteries will only achieve the intended service life if they are fully charged again immediately after discharge. If they remain partially charged for a longer period of time, this also has a negative effect on their service life. As this is hardly possible in practice, most lead batteries reach the end of their life after a very short time and a few hundred cycles due to a serious loss of capacity. On the other hand, a lithium iron phosphate battery easily masters 3,000 full charge cycles and then still delivers at least 80% of its original capacity. Lithium batteries can easily be used for a further 7,000 cycles in the following years.

The economic aspects alone make lithium batteries the best choice for use in mobile homes. In reality, at least three 200Ah lead batteries would have to be successively purchased and installed at a unit price of around 400 Euro in order to achieve even approximately the same service life and performance as a single 100Ah lithium battery.

And that's not all, LIONTRON battery cells only use the best quality. This means that the total capacity of the batteries can be up to 15% above nominal capacity. For example, LIONTRON customers receive a 100Ah battery, which provides the user with up to 115Ah under real conditions. And all this at no extra charge. Even with a gentle discharge of maximum 90% or with a loss of capacity due to use, the full nominal capacity can be used.

LIONTRON batteries are maintenance-free! The user can be sure that he does not have to worry about his battery during the entire cycle life. Due to the low self-discharge, maintenance charging in winter storage has become a problem of the past.

Battery installations in motorhomes are always combined with additional battery monitoring systems. This results in extra costs of around 200 Euro for the initial equipment. LIONTRON batteries are originally equipped with Bluetooth battery monitor systems and a free APP to check the state of charge and, for example, the feed-in of the solar system, battery charger or alternator. External battery monitors are therefore not required.

In order to guarantee highest quality and safety, LIONTRON has deliberately chosen LiFePO4, i.e. lithium iron phosphate cells. Thus, in contrast to other lithium technologies, neither cobalt nor other environmentally harmful heavy metals are used in cell production. As oxygen is always found in the battery cell when cobalt is used, a thermal chain reaction can occur which leads to fires and explosions, the so-called 'thermal runaway'. This cannot happen with LiFePO4 batteries from LIONTRON.

Wolfgang Felzen & sons: Thorsten (left) and Boris (right)

Another important advantage for motorhomes and caravans is the weight. A 100Ah lithium battery weighs between 13 and 15 kg. A 200Ah lead battery easily weighs 55 to 60 kg. The long-term fuel savings and load options are easy to understand: a convincing argument for manufacturers and customers alike.

That is why the fan base for LIONTRON batteries is constantly growing. Because they are not only easy to use, they also meet the highest standards of sustainability and also guarantee high performance efficiency and top quality.

After the successful establishment of LIONTRON as market leader on the European continent, it is now unerringly conquering the three big "A", America, Australia and Asia. This next step holds a great fascination for the dynamic circumnavigator Wolfgang Felzen. As a former American football player, his son Boris naturally shares this fascination and he is sure that he will score a touchdown with the LIONTRON brand. The fourth big "A", like Arctic, is already in the programme with their new Arctic-LiFePO4-Battery.

Arctic Battery with heating element