

e-tron Foil Battery



— CHECK WATER LEVEL +

WARNING

ATTENTION, ACHTUNG, ATENCION, ATTENZIONE
For charge safety and for the best performance, always use the correct charging cable.

DO NOT EXPOSE TO HIGH TEMPERATURES
DO NOT CHARGE IN A COOL AND DRY AREA OUT OF DIRECT SUNLIGHT.
NEVER USE THE BATTERY CHARGED SUPPLIED WITH THE SETTING.

FAST CHARGE
Just connect to charger.

SLOW CHARGE
Connect to charger and hold the Function button for 3 seconds.
Read the manual to know how to help your battery healthy.

MODEL NUMBER: e-tron Foil Battery
www.aerofoils.de

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1 Safety

1.1 General Information

Please read these safety instructions carefully and in their entirety before your first use! Place very special emphasis on paragraphs with this warning sign:



Danger

There is a risk of fire and explosion due to the incorrect operation or incorrect connection of the battery. This may result in serious injury or death. When using the battery, make sure that you do not wear jewellery such as rings or watches, which can cause a short circuit.

1.2 Safety and Warning Instructions for Use



Danger

- » Remove the battery from the battery compartment of the e-foil before starting any work on the e-foil (e.g. inspection, repair, assembly, maintenance, etc.).
- » The battery must not be disassembled, opened or dismantled. If the battery is opened, all warranty claims are void.
- » Do not expose the battery to heat or fire. Avoid prolonged direct exposure to sunlight.
- » Keep the battery clean and dry.
- » The battery must never be temporarily or permanently immersed or submerged in water.
- » The battery must not be cleaned with a water jet.
- » The polarity markings plus + (orange) und minus - (black) on the battery must always be observed. Correct use needs to be ensured at all times.
- » Keep the battery stored away from children.
- » The battery must not be short-circuited.
- » The battery must not be subjected to mechanical shocks.
- » Vapours may escape if the battery is damaged or used improperly. Supply fresh air and consult a doctor if you have any complaints. Any vapours escaping from the battery are harmful to your health.
- » Liquid may leak from the battery if used incorrectly. Avoid contact with it. In case of accidental contact, rinse with water. If the liquid gets into your eyes, seek



additional medical attention. Leaking battery fluid may cause skin irritation or burns.

- » If the battery connections become dirty, clean them with a dry, clean cloth.
- » The battery must be charged before use. Always use the charger supplied by the manufacturer. Always follow the manufacturer's instructions or the information in the device instructions for correct charging.
- » The battery must not be charged without supervision.
- » Do not charge the battery for a long time when it is not in use.
- » Do not charge the battery on easily inflammable surfaces (e.g. paper, textiles, wood, etc.). Only charge the battery when it is dry and in a fire-safe place.
- » One or more batteries must not be stored in a box or drawer where they may short-circuit each other or be short-circuited by other conductive materials.
- » The battery may only be used for the e-tron foil.
- » Always remove the battery from the e-foil when the battery is not being used.



2 Manufacturer

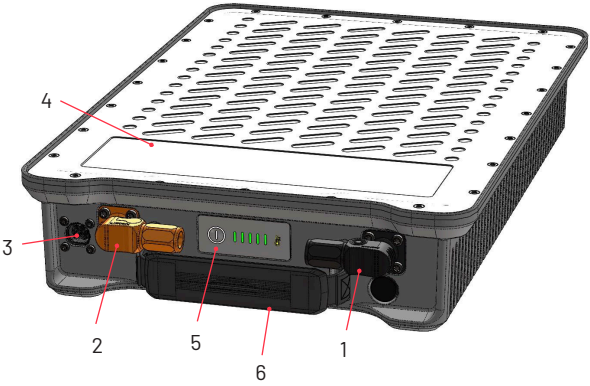
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The safety of our customers and products is of utmost importance to us. Our batteries are lithium-ion batteries that are developed and manufactured by Smart Battery Solutions GmbH in Germany. Relevant safety standards are met or even exceeded. When charged, these lithium-ion batteries have a high energy content. In the event of a defect (possibly not visible from the outside), lithium-ion batteries can catch fire in very rare cases and under unfavourable circumstances.

Therefore, if you are unsure about whether your battery may be defective, contact the Aerofoils GmbH support team immediately at: www.aerofoils.de/support



3 Battery Components



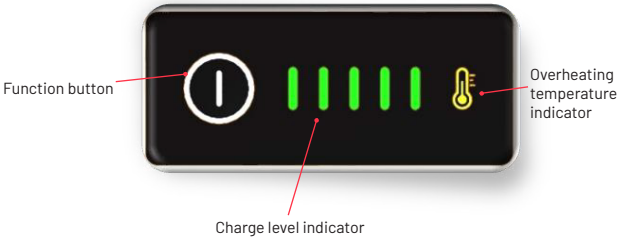
Number	Description
1	Power contact - minus
2	Power contact - plus
3	Contact socket - data plug
4	Cooling plate
5	Control and display panel
6	Carrying handle

Warning against hot surfaces

The cooling plate may become hot after using the battery.



4 Operation and Display



4.1 Charging Status Display

You can check the current charge level of the battery by shortly pressing the function button for less than 3 seconds. The battery's current charge level is then displayed via 5 LED-lamps.

The current state of charge (SoC) is displayed via the LEDs as follows:

Charging Status	Signal Description	Display
>97%	5 LED's are lit up	
>80 to 97%	LED 1,2,3,4 are lit up LED 5 flashes	
>60 to 80%	LED 1,2,3 are lit up LED 4 flashes	
>40 to 60%	LED 1,2 are lit up LED 3 flashes	
>20 to 40%	LED 1 is lit up LED 2 flashes	
0 to 20%	LED 1 flashes	



4.2 Fast Charging

Connect your charger to the battery. If no button is pressed, fast charging is automatically activated.

- » The charging bar flashes faster than during slow charging.

4.3 Slow Charging

Connect your charger to the battery. Then press the function button within 60 seconds for a duration of 3 - 5 seconds: The battery will now go into slow charging mode (maximum 10A).

- » The charging bar flashes slower than during fast charging.

4.4 Storage of the Battery

Ensure optimum storage conditions if you are not using your e-tron foil for a longer period of time (>4 weeks). The optimal charge level (SoC= State Of Charge) is about 30% of the battery's maximum capacity. Activate the storage mode with the following steps:

Press the function button for an extra long time, that is, longer than 10 seconds:

The battery is now preparing to go into storage mode.

- » If the state of charge (SoC) is > 30%, the battery will discharge itself to 30%.
- » The battery will automatically shut down once it reaches a SoC of 30%.
- » If SoC < 30%, the charger must be connected within one minute after pressing the function button on the battery for >10 seconds. This allows the battery to be charged to 30%. If no charger is connected, the battery switches off.

The storage mode function can be cancelled by pressing the function button once more.



4.5 Sleeping Mode

- » Pressing the function button for 5 - 10 seconds will put the battery into sleeping mode. In this mode, the battery's self-consumption of its power is reduced to a minimum.

4.6 Error Codes

In addition to the aforementioned functions, the LEDs generate different signals in the following situations:

- » If an error is detected, all 5 LEDs flash several times simultaneously. If this is the case, please contact an authorised specialist dealer or the factory support.



- » When switching into sleeping mode, the last error is displayed again if it has not been longer than 10 hours (active time).
- » The overheating temperature indicator signals a battery cell temperature that is higher than the maximum permissible charging temperature.



- » If the function button is pressed for 5 - 10 seconds, all LEDs light up to indicate that the battery is switched off when the button is released.
- » If the function button is pressed for >10 seconds in the case of an error code, the current state of charge is displayed.



5 Battery Functionality

5.1 Battery Management Systems (BMS)

The battery is equipped with a battery management system. The BMS monitors, regulates and protects the battery in certain operating states. The output voltage at the power contacts is only released when the battery is connected and activated and during the charging process. This counteracts an electric shock or short circuit when handling the battery. In sleeping mode, the system protects itself from deep discharge for a longer period of time by minimising energy consumption.

5.2 Error Detection

If the BMS is in active mode (not in sleeping mode), all critical parameters of the battery system are monitored cyclically for compliance with the specified critical values. If the BMS detects a fault, the system is switched off either immediately or after a certain time (depending on the detected fault). If a short-term, reversible fault is detected in the active state, the battery system first switches to the so-called IDLE mode.

5.3 Soc Charge Level Monitoring

The current state of charge (SoC) is displayed via the 5 LEDs on the battery display (see Chapter 4 - Operation and Display).



6 De- / Activation of the Battery and Outout Voltage

To activate the battery in the board and to release the output voltage, the battery must be in the battery compartment and the drive unit must be connected. Activation takes place by closing the battery compartment lid. If no further action is taken within 1 hour, the battery switches off automatically. To activate the battery again, the battery compartment must be opened and closed once more.

7 Technical Data

Nominal capacity	44.25Ah
Nominal voltage	50.4V
Energy	2230Wh
Recommended charging current	10A
Fast charging	25A
Dimensions	296mm x 80mm x 432mm
Weight	13.2 kg
Protection class	IP67 (dust- und waterproof)
Recommended storage temperature / humidity	0°C to 25°C / less than 65% humidity
Recommended charge level for storage	30% to 60%



8 Discharging Process

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During the discharge process, the battery voltage drops from the charge end voltage (100% SoC) to the discharge end voltage (0% SoC). Depending on the current, the remaining capacity decreases continuously. If the battery management system detects an error, a shutdown takes place as described in Chapter 5 - Battery functionality.

9 Loading Process

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The charging process is optimised for lithium-ion cells. The battery may only be charged with the included CAN charger. During the charging process, the BMS communicates with the charger and thus regulates the charging process. If the battery management system detects an error, a shutdown takes place as described in Chapter 5 - Battery functionality.



10 Storage and Maintenance Instructions



Danger

- » Do not immerse the battery in water or clean it with a water jet.
- » Keep the battery clean. If necessary, clean it carefully with a damp, soft cloth.
- » Clean the plug pins from time to time.
- » If the battery is no longer functional, please contact an authorised specialist dealer or Aerofoils GmbH.
- » Protect the battery immediately after disconnecting it from the charger or application. Neither moisture nor foreign particles (e.g. metal splinters, small nails, shavings or other conductive metals) may penetrate the battery.
- » Do not expose the battery to moisture (water, rainwater, snow, etc.) during storage.
- » To avoid deep discharge, charge the battery before storing it (see Section 4.4) and check the charge level at least every 2 months. Store the battery in a cool and dry place where it is protected from damage and unauthorised access. Direct exposure of the battery to the sunlight should be avoided.
- » To achieve optimum battery life, the battery should be stored at a temperature of 18°C to 23°C and a humidity of 0 to 65%. The charge level should be between 30% and 60%.
- » If the battery is completely discharged, charge it as quickly as possible to at least the storage voltage.
- » A defective battery is a potential hazard and must be disposed of or repaired. It must not be used or stored.



11 Transport Instructions

Danger

The battery is subject to the requirements of dangerous goods legislation. Undamaged batteries can be transported by private users on the road without further requirements.

When transported by commercial users or by third parties (e.g. air transport or freight forwarding), special requirements for packaging and labelling must be observed (e.g. regulations of the ADR). If necessary, a dangerous goods expert should be consulted when preparing the battery for transport.

Only ship the battery if the casing is undamaged. Tape open contacts and pack the battery so that it does not move in the packaging. Inform your parcel service that the battery is a dangerous good. Please also observe any additional national regulations.

If you have any questions about transporting the battery, please contact an authorised dealer or Aerofoils GmbH factory support: www.aerofoils.de/support

Transport Regulations

Lithium batteries are subject to the following dangerous goods regulations and exemptions therefrom - as amended from time to time:

- » Class 9
- » UN 3480: LITHIUM-IONEN-BATTERIES (including lithium-ion polymer batteries)
- » Tunnel-Catagory E
- » Special- and packaging-regulations:
- » ADR, RID: 188, 230, 310, 348, 360, 376, 377, 636, P903, P908, P909, LP 903, LP904
- » IATA: A88, A99, A154, A164, A181, A182, A183, A185, A201, P965, P966, P967, P968, P969, P970
- » IMDG Code: 188, 230, 310, 360, 376, 377, P903, P908, P909, LP903, LP904



12 Instructions for Disposal



Danger

Batteries must not be disposed of together with household waste, but must be collected separately.

Used batteries must be returned (free of charge) to the point of sale or to a disposal system (industry, trade).

To prevent short circuits and associated heating, lithium batteries must never be stored or transported unprotected in bulk.

Do not handle badly damaged batteries with bare hands as electrolyte may leak out and cause skin irritation. Store defective batteries in a safe place outdoors. If necessary, tape off the terminals and inform your dealer or the manufacturer. They will help you to dispose of your battery properly.

According to the European Directive 212/19/EU, electrical appliances that are no longer usable and according to the European Directive 26/66/EC, defective or used rechargeable batteries must be collected separately and recycled in an environmentally friendly way.



Suitable measures against short circuits are e.g. :

- » Place the batteries in their original packaging or in a plastic bag.
- » Tape off the power contacts.
- » Embed in dry sand.

Subject to change without notice.



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