smart-battery-solutions.de

Power wherever you want

UNIPOWER LIGHT

USER MANUAL

Contents

1. General information

Please read the safety instructions completely before using the battery for the first time and follow the instructions carefully! Pay special attention to paragraphs with this **warning sign**.

Use of the system must be supervised until you have tested and verified all applications. Incorrect operation or connection can result in serious injury or death. To protect yourself from heat or high voltage, you should take measurements before touching. Incorrect operation or incorrect connection always creates the risk of fire and explosion. When working with the battery, make sure that you do not wear any jewelry, such as rings or watches, which can cause a short circuit.

2. Safety and warning notices for using the battery

o The battery must not be dismantled, opened or crushed.
o Do not expose the battery to heat or fire. Prolonged direct sunlight should be avoided.
o Keep the battery out of the reach of children.
o The battery must not be short-circuited.
o The battery must not be subjected to mechanical shocks that cause temporary or permanent deformation of the housing.
o If a cell leaks, the liquid must not come into contact with the skin or get into the eyes. If contact occurs, wash affected area with plenty of water and seek medical attention.
o No chargers other than those specifically designed for use with the equipment may be used.
o Always observe the plus (+) and minus (-) polarity markings on cells, batteries and equipment. Correct use must be ensured.
o Cells from different manufacturers, capacities or sizes and designs must not be mixed within one device.
o Keep the battery as clean and dry as possible.
o If the battery terminals become dirty, clean them with a dry, clean cloth.
o The battery must be charged before use. Always use the correct charger. The manufacturer's instructions or the information in the device instructions for correct charging must always be observed.
o Do not charge the battery for a long time when not in use.
o The battery may only be used in the application for which it is intended.
o If possible, remove the battery from the application when not in use.

3. Charger safety and warning notices

Before starting the charging process, observe the warning and safety instructions in the separately enclosed operating instructions for the charger.
o Only use the designated chargers to charge the battery.
o Using an unsuitable charger can lead to malfunctions and result in a reduced battery life. There is also a risk of fire and explosion.
o The charging process will stop automatically as soon as the battery is charged. Overloading is therefore impossible.
o When the charging process is complete, it is advisable to first disconnect the charger from the mains socket and then from the battery.
o Do not expose the charger to any form of moisture (water, rainwater, snow) during the charging process.
o Never carry out the charging process in rooms where moisture could condense on the charger.
o Beware of condensation. Condensation may form if the charger is brought from a cold to a warm room. In this case, the use of the charger must be postponed until the condensation has evaporated. This can take several hours.
o Never carry the charger by the mains cable or the charging cable.
o Never pull on the power cord to unplug the charger from the outlet.
o Do not subject cables and plugs to pressure. Excessive stretching or kinking of cords, pinching a cord between a wall and window frame, or placing heavy objects on a cord or plug could result in electric shock or fire.
o Lay the mains cable and the attached charging cable in such a way that nobody can step on it or trip over it. Ensure that both cables are not exposed to any other harmful influences or loads.
o Do not operate the charger if the power cord, charging cord, or plugs attached to cords are damaged. Damaged parts must be replaced immediately by the authorized specialist dealer.
o Do not use or disassemble the charger if it has received a hard blow, been dropped, or has been otherwise damaged. Take the damaged charger to an authorized dealer for repair.
o The charger must not be used by small children.
o Do not disassemble or modify the charger.
o Do not cover the charger or place objects on the device while charging.
o Never short-circuit the poles of the charging plug with metal objects.
o Make sure the power cord is firmly plugged into the power outlet.
o Do not touch the connectors with wet hands.
o Do not use the charger connector and/or the power plug when they are wet or dirty. Clean the connectors with a dry cloth before plugging them in.

4. Specifications:

Battery system 10S7P	
Electrical Data	
Cell type	Samsung_INR_18650_35E
Nominal capacity	23.45Ah
Nominal voltage	36V
Energy	844.2Wh
Over Voltage Shutdown	43.5V *(once first cell reaches 4.35V)*
Under Voltage Shutdown	29V *(once first cell reaches 2.9V)*
Loading parameters	
End-of-charge voltage	42V
Recommended charging current	6A
Shutdown by BMS	>12A
Overtemperature shutdown by BMS	45°C
Undertemperature shutdown by BMS	0°C
Unloading parameters	
End-of-discharge voltage	30V
Max. discharge-current	25A
Shutdown 1 by BMS	>30A (>3s)
Shutdown 2 by BMS	>35A (>1s)
Shutdown 3 by BMS	>61A (>0.1s)
Shutdown analog	Ca. 140A (sofort)
Redundant fuse	60A
Overtemperature shutdown by BMS	60°C
Undertemperature shutdown by BMS	-20°C
Auxiliary voltage	
Voltage	12.3V (±3%)
Power	24W
Mechanical data	
Length	323mm
Width	75mm
Height	230mm (with contacting, without strap)
Weight	5.82kg (±3%)
Storage	
Recommended temperature range	0°C bis 25°C
Recommended state of charge	30% bis 60%
Shelf life (after undervoltage shutdown)	1 month
Protection class	
IP 65	The product meets the requirements for the protection class IP 65

5. Charge battery

The battery pack may only be charged with the designated 6A charger (ST Charger STC-8253LC) and under supervision. Do not charge under circumstances that are not specified in the operating instructions. Non-compliance immediately leads to the loss of the warranty and exclusion of liability on the part of Smart Battery Solutions GmbH.

6. Battery start-up

6.1. Correct insertion of the battery into the holder

First place the battery in the battery box - the cable outlet must be on the right side (in the direction of travel).

Close the front of the battery box and lock on the outside by pushing the lock barrel towards the battery. It must engage audibly. The battery box should no longer open by itself. The battery is secured against removal. The lock may not be in the correct position. Repeat process.

6.2. Connection and commissioning

NEVER switch on the battery before closing the plug connection!

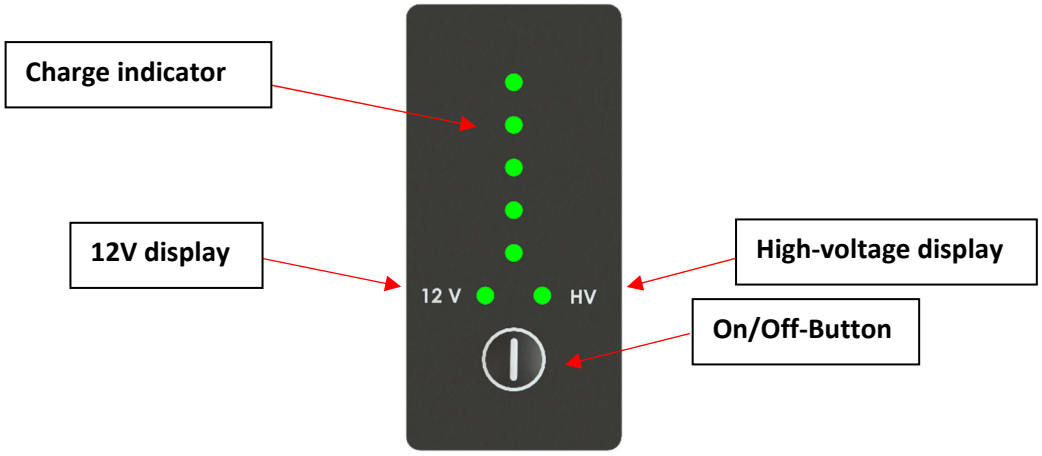

fig.: Membrane keyboard

If the HV indicator lights up, the battery must be switched off first, otherwise there is a risk of short circuits/contact fires, which can damage the battery and electrical system.

6.3. Charge indicator

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

state of charge	LED status
>97%	5 LEDs light up
>90% to 97%	LEDs 1-4 light up, LED 5 flashes
>80% to 90%	LEDs 1-4 light up
>70% to 80%	LEDs 1-3 light up, LED 4 flashes
>60% to 70%	LEDs 1-3 light up
>50% to 60%	LEDs 1-2 light up, LED 3 flashes
>40% to 50%	LEDs 1-2 light up
>30% to 40%	LEDs 1 lights up, LED 2 flashes
>20% to 30%	LED 1 lights up
>10% to 20%	LED 1 flashes
0% to 10%	No LED lights up

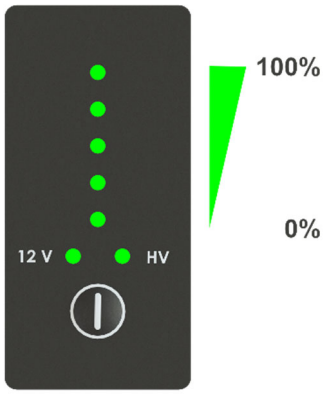

fig.: Charge indicator

In addition, the LEDs generate different signals in the following applications:

- If an error is detected, all LEDs flash at the same time
- If there was an error in the last 10 hours, this is output. Then the LEDs go out

Now first connect the battery to the blue-black plug on your cargo bike - the plug snaps into place. Now you can press the button on the membrane keyboard to switch on the electrical system.

short press	t < 2s:	Charge status is displayed. Output voltage is not unlocked.
long press	t >2-4s:	Output voltage enabled - HV LED lights up
super long press	t >4s:	Output voltage deactivated - HV LED goes out; (BMS in sleep mode)

7. Instructions for the optimal use of the battery

Protect the battery immediately after disconnecting it from the charger or the 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 and check the charge status regularly. If necessary, charge the battery to 70%.
Store the battery in a cool, dry place where it will be protected from damage and unauthorized access. In order to achieve an optimal service life of the battery, it should be stored at a temperature of 18°C to 23°C and a humidity level of 0 to 80%. The state of charge should be more than 30%.
If the battery is completely discharged, charge it again as soon as possible.

8. Warranty

Smart Battery Solutions GmbH provides a warranty for this product provided it is installed and operated as described in these instructions and instructions for use and as intended for the intended use. The guarantee/warranty on this product is immediately void if the product is installed or operated in any way other than intended. Non-compliance immediately leads to the loss of the warranty and exclusion of liability on the part of *Smart Battery Solutions GmbH*.

9. Disposal

Lithium-ion batteries are marked with the symbol of the crossed-out garbage can (see illustration).

The symbol reminds end users that batteries should not be disposed of 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. Suitable measures against short circuits are e.g.:

- Insert the batteries in their original packaging or in a plastic bag
- mask the poles,
- Embed in dry sand

Batteries should only be disposed of when they are discharged. In this way short circuits and the unwanted generation of heat are avoided

You can find more information at:
http://www.grs-batterien.de/

UBA registration number: 819101005
Status: 21-12-2021