

Operating Instruction Lithium-Ion-Battery

LITHIONATOR[®] 167

Nominal Capacity C1:	see Label
Nominal Voltage:	see Label
Charge Voltage:	see Label (Constant voltage only!)
Maximum Discharge Current:	2 x C1 in A
Nominal Temperature:	20 °C



Consider Operating Instruction and place it visible at the place of charge.

Work only at batteries after supervisonal training.

Consider local safety advises.

Because of lack of applicable standards consider EN 50272-3 and EN 50272-2



Wear safety goggles while working on batteries.



Only use approved transportation and lifting devices.



Dangerous voltage.

Avoid touches and short circuits.

Attention! Metal parts and battery the battery itself can have a voltage. Therefore place no foreign parts or tools to the battery.

1. Taking into Operation

Check the battery for mechanical damages. The battery connector must be connected safe and with the right polarity. Otherwise the battery, the vehicle or the charger can be destroyed. The battery must be recharged. The torque for the terminal connector screw is 12 Nm.

Operation

1.1 Discharge

The battery can be discharged until the final discharge voltage (see label) is reached. If the final discharge voltage is reached, or if the lowest tolerable voltage of one cell inside the battery is reached, the electronic completes the discharge. The battery is re-activated by connection to a charger.

1.2 Charging

The battery is charged with the given charge voltage (see label) with constant voltage (CV). The maximum charge current is $\frac{1}{2} C1$. If the battery is fully charged the electronic switches the charge off and the green LED is "On". **Attention:** The trial to use a constant current charge (CC) can damage the charger or the electronic in the battery.

During the charge the electronic balances the individual cells to charge them equal and to avoid an overcharge of individual cells. As lower the charge current is - therefore the charge time is longer - as more effective the balancing is and as more capacity can be withdrawn on the next discharge.

Display

The LED's of the battery are signaling:

Red LED "On":	Battery is on charge.
Yellow LED "Blinking":	Temperature out of range.
Green LED "On":	Battery is fully charged.
Green LED "Blinking" (10s):	Battery is ready for use.

Maintenance

There is no maintenance necessary.

Care

Batteries have to be kept clean. If cleaning is required this must be carried out by wet cloth only and without any additives like solvents.

Storage

If the batteries have to be taken out of operation for more than 4 weeks they must be stored in semi-charged condition. Ideal is a state of charge of 40 % to 75 %. This measure is necessary to protect the battery cells from unnecessary aging.

Troubles

In case of troubles the customer service must be called.