

Luminator Cap Lamp

Technical data sheet



Technical Specifications

Head Piece	
Width	64 mm
Depth	65 mm
Weight	< 160 g
Cable length	1.6 m
Ingress Protection	IP 68
Battery Pack	
Type	LiFePO ₄
Width	119 mm
Height	111 mm
Depth	41 mm
Weight	<600 g
Ingress Protection	IP 68
Run Time	>36 h
Emergency light [after 8 h shift]	100 h
Charge rack [voltage under load]	4.9 – 5.5 V
Light	
Working Light Narrow Beam	4°
Intensity	6,000 cd
Peripheral Light	120°
Intensity	3 cd
Walking Light	10°
Intensity	4 cd
Correlated Color Temperature [CCT]	4,000 K
Color Rendering Index [CRI]	>93 %

Approvals

Head Piece	
IECEX	Ex ia I Ma Ex ia IIC T4 Ga -20° C ≤ Ta ≤ +60° C
ATEX	I M1 Ex ia I Ma II 1G Ex ia IIC T4 Ga -20° C ≤ Ta ≤ +60° C
SANS	Ex ia I/IIC T4 -20° C ≤ Ta ≤ +60° C

Battery type

The Luminator uses LiFePO₄ batteries which is the safest type of a lithium-ion battery. It will never explode or catch fire. The capacity is 9000 mAh at an internal voltage of 3.2 V.

Battery life

The battery cycle life is specified to be about 1000 discharge/charge cycles. After that the battery capacity is still at around 80 % of the nominal capacity. If the Luminator gets charged on a daily basis instead of letting the battery run flat these numbers can even be improved.

The battery of the Luminator is protected against deep discharge. There is no risk to damage the battery by letting it run flat.

Battery storage

In case the Luminator is not being used for a longer time it is advisable to have the batteries at a charge level of about 50 %. This is a general rule for all lithium-ion batteries to prevent from degradation of the electrodes.

Charge voltage

The charge rack needs to supply a constant voltage.

The maximum charge voltage is 7 VDC. Exceeding this value will result in an irreparable damage due to blown safety fuses.

The nominal charge voltage is 5 VDC. Be aware of the fact that for some power supplies there is a difference between open-circuit voltage and the voltage with load. If necessary adjust the voltage of the power supply up in order to counteract this voltage drop. Typical open-circuit voltages might be in the range between 5.5 and 6.0 V depending on the power supply.

If microcontroller-based so called smart-chargers are being used make sure to configure them to constant voltage (CV) mode and adjust the voltage to the levels given above.

Charge current

The charge current will be regulated by the Luminator itself.

It is not possible to over-charge the Luminator and to damage it by charging it for an extended time.

The maximum charge current of the Luminator is limited to 1 A. For the layout of your charging rack calculate with 1.1 A for each lamp. As an example: When you plan to use a rack with 51 charging points make sure that the power supply of the rack can supply at least $51 \cdot 1.1 \text{ A} = 56.1 \text{ A}$. In this case you would chose a power supply that can at least deliver 60 A.

Charge time

A fully flat battery is designed to be re-charged within 10 h.

A Luminator that was in use for one shift of about 12 h can be re-charged within 4 h.

If for some reasons the electrical parameters of the charger (voltage, current) are insufficient the charge time of the Luminator might increase significantly or it might even not be charged at all. To give an example: a charge voltage of 4.9 V instead of 5.0 V might reduce the charge current down to 500 mA and the charge time would increase to 7 h.

If the charger is equipped with status indicators, like LEDs or a display, check that it uses correct thresholds. Charging currents above 100 mA refer to "charging" everything below that down to 0 mA means "done".

Charger contacts

The Luminator can be charged with standard "key" chargers that are available worldwide. The "key" is the minus contact.

Make sure the contacts of the charger as well as of the Luminator are always clean. Dust and dirt would increase the contact resistance which would decrease the charge voltage as a consequence.