

Battery charger ULG 36-08



Operation manual

Preface to operation manual:

With this charging station you have decided for an advanced manufactured technology. The following features distinguish this charging stations from other similar technologies.

- Pulse charging with discharging pulse (NiCd/NiMh)
- Delta-Peak-Shutdown (NiCd/NiMH)
- Automatic transition to preservation mode after full charge
- Detection of defect batteries by electronic charging surveillance
- Effective charging current from 0,1 - 3,5 Ampere
- Protection of wrong polarity by acoustic signal
- Visualization of error message in case of max. charging time exceeding
- Charging of deep-discharged batteries (NiCd/NiMH)
- Error message in case of battery short-circuits
- Monitoring battery temperature
- Separate switched-mode power supply for each battery compartment
- Optical visualization of charging status
- Programmable adapter system

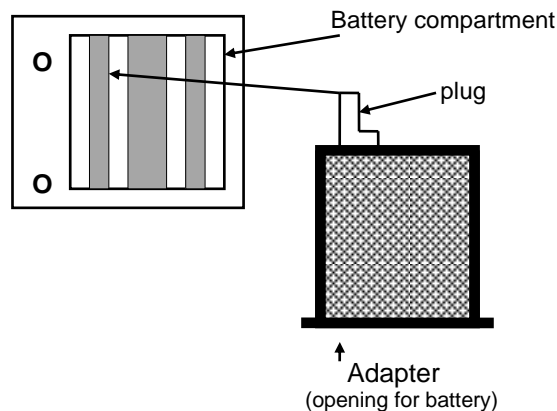
Safety instructions:

- ! The device may only be connected to 115V/60Hz AC voltage power grids.
- ! Only charge batteries that have been approved by the producer with a corresponding adapter. Never use other types of batteries or adapter!
- ! In industrial institutions it is important to follow the accident protection regulations of the industrial employer's insurance association for electrical systems.
- ! Never change the battery charger constructional or open it.
- ! Do not use the battery charger in potentially explosive areas.
- ! Defective fuses must only be replaced by the equal Types.
Only instructed or trained personnel are allowed to make changes at the battery charger.
- ! The device must only be operated in dry rooms.
- ! Ensure that there is sufficient ventilation for the device. During operation the ventilation slits at the device must be open. Otherwise the resulting heat accumulation would destroy internal electrical components.
- ! When the outside temperature changes from cold to warm, wait until room temperature is reached, before switching on the device.
- ! Defective batteries are hazardous waste. Hazardous waste must be disposed of according to applicable regulations. Hand over the defective batteries to your distributor, who is responsible for correct disposal.

First Steps:

- Remove the device from the package and put it on a fixed base.
- Connect the device with a protective contact socket by the power cable, which is part of the delivery.
- Slide the charging adapter (accessories) in the corresponding battery compartment (Picture 1). Do not use force when inserting it. Slight pressure is sufficient to fix the adapter into the battery compartment.
- Ensure that the plug at the adapter is tend to the left side of the battery compartment.

Picture 1:



Switching on:

After fixing all necessary adapter into the battery compartments, switch on the device with a main power switch installed on its back. The device initialize a functional check after switching it on. For that reason all optical indicator lamps are lighting up. After 2 seconds the red indicator lamps switches off and the green indicator lamps make visible, that the battery compartments are operation-ready.

Charging:

After inserting the battery into the battery compartment, the green indicator lamp should switching off and the red lamp should switching on. The automatic charging process starts in this moment. While charging, the internal battery temperature is permanent controlled by the battery charger. Obviously the function of permanent control of battery temperature is depending on a suitable technology installed in the battery.

Inserting an overheated battery into the battery compartment leads to a stop of the charging process. The charging process will start again once the battery has cooled down on a normal temperature level. This procedure extends the charging time. If the temperature exceeds preset limit values during the charging process, it will be interrupted.

To prevent increased temperatures, you should not insert warm batteries into the battery compartment. A battery for example being discharged under extreme pressure should not be directly charged.

With the Delta-peak-detection (NiCd/NiMh) the device directly disconnect the battery from charging current, if the battery reached its maximal capacity. Consequently, overcharge is excluded.

This means, that it is not necessary to remove a full-charged battery of the battery compartment.

After reaching the batteries maximal capacity, the corresponding battery compartment switches into preservation mode. This balances the self-discharge caused by the internal resistance of the battery and maintains the battery in an optimal charge condition.

You can recognize the availability of battery by the flashing green indicator-lamp.

The green indicator-lamp signals that the battery is full charged and in preservation mode.

Always make sure that the respective battery is charged in combination with the intended adapter. Failure to observe may resulting damage to the batteries (danger of explosion)!

An additional information:

Should you charge older batteries (NiCd/NiMh) which have been charged with conventional battery charger before, a memory-effect that eventually have already occurred will be completely eliminated after repeated charging.

GREEN INDICATOR-LAMP IS SWITCHING ON	I – OPERATION-READY (THERE IS NO BATTERY INSIDE THE BATTERY COMPARTMENT)
GREEN INDICATOR-LAMP IS FLASHING	I – BATTERY IS FULL-CHARGED PRESERVATION MODE
RED INDICATOR-LAMP IS SWITCHING ON	I – BATTERY IS CHARGING
RED INDICATOR-LAMP IS FLASHING	I – s. CHAPTER TROUBLESHOOTING

Safety system:

The device is equipped with an extensive safety system.

After switching on the supply voltage the device controls the electronic components of the charging technology by performing a self-test to localize errors. A simultaneous flashing of the red LED starts, if the determined parameters are not conform to the saved parameters. In this case the respective battery compartment will be completely interlocked for safety of the battery.

All these system controls occur parallel to the charging process. The described indication and shut down will occur, if the self-test is not positive.

Error messages (Error codes)

Errors, concerning the battery, will be showed by a slow flashing of the red LED. Until removal of the battery, the battery compartment is locked. After removing the battery an acoustic signal shows the sort of error and the battery compartment is ready for operation. The following error codes describe possible errors:

Error code	Error description
1 x Signal tone	Break inside the battery / no voltage potential establishment
2 x Signal tone	Temperature element has no contact
3 x Signal tone	Initial charging time exceeded / resuscitation not possible
4 x Signal tone	Charging time exceeded
5 x Signal tone	The battery becomes too warm
6 x Signal tone	Ident line or TM connection defect
7 x Signal tone	NTC-break during charging process
8 x Signal tone	TM content not correct
9 x Signal tone	For NiCd/NiMH more than 20 cells have been detected

Troubleshooting:

Error	Cause	Solution
After the device is switched on not all indicator lamps are lighting up	There is an error inside the device	Please contact our customer service
After inserting the battery a signal tone sounds	the adapter used is not compatible with battery type	Use an adapter that is compatible with the battery
	The inserted battery is defect	Exchange the defect battery
After inserting the battery the red indicator-lamp is flashing	the adapter used is not compatible with battery type	Use an adapter that is compatible with the battery
	A thermoelement in the battery is defect	Exchange the defect battery
After near to 100 min the red indicator-lamp is flashing	The maximal charging time is exceeded	Exchange the defect battery
Despite full charge level, the battery does not bring highest performance	One or multiple cells of the battery are defect	Exchange the defect battery

Technical Data:

Battery voltage:	1,2V -24V NiCd– and NiMH-batteries 3,6V -36V Li-Ion– and Li-Po-batteries 2V - 24V PB - accumulator
Charging Current:	0,1 - 3,5 Ampere (effective)
Input:	115V AC 50-60Hz, 0,48KW
Cooling:	Fan control, thermal controlled
Protection Class:	IP20
Dimensions/weight:	ULG36-08 530 x 310 x 320 (WxHxD in mm), 19 kg

(We reserve the right to introduce technical changes without prior notice!)



Notes: