# HST-BL-2830MS & HST-BL-2830MS-USA





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### 1. Basic information\_

#### 1.1. Purpose of this document

This information has been written with the intention of being read, understood and adhered to in all in all aspects by those who bear responsibility for this battery charger. The information contained in this document is important for avoiding workplace mishaps

The information contained in this document is important for avoiding workplace mishaps and ensuring problem-free operation.

If, despite this, problems are encountered, then please contact us; we would be pleased to help you.

#### 1.2. Intended use

Intended use includes the following:

- Observing all information in the operating instructions, and
- complying with the inspection and maintenance tasks

The universal quick charger serves to recharge Ni-MH and Li-Ion batteries with a capacity of 9.6 V - 28.8 V and 1.2 Ah - 3.0 Ah.

#### 1.2.1. Improper use

We bear no liability for damage or operating problems resulting from noncompliance with these operating instructions or improper use.

#### 1.3. Warranty and liability

Warranty and liability claims for personal and property damage are excluded if they occur as the result of one or more of the following:

- Unintended usage of the charger
- Improper installation, placement into service, operation and maintenance of the device
- Operation of the device in case of defective safety equipment or improperly mounted or non-functional safety and protection equipment
- Failure to comply with the information contained in this document regarding transport, storage, installation, placement into service, operation, and maintenance of the device
- Unauthorized structural modifications of the device
- Improperly performed repair work
- Catastrophic events beyond human control and acts of God

Copyright

This document is intended only for the owner and personnel authorized to operate the tool.

It contains the relevant rules and information, which may not be:

- duplicated
- distributed or
- otherwise shared, either in whole or in part

The copyright for these operating instructions remains with HS-Technik GmbH.

Address of the manufacturer:



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## 2. Basic safety information

#### 2.1. Information contained in this document

- A basic prerequisite for safety-compliant handling and problem-free operation is knowledge of the basic safety information and safety regulations.
- Also be sure to observe all local rules and regulations.

#### 2.2. Owner responsibilities

The owner is obligated to only allow persons who are familiar with basic work safety and accident prevention rules and who have been briefed on proper workplace handling to work at this workplace. The safety-conscious work of personnel must be verified at regular intervals.

#### 2.2.1. Personnel responsibilities

All persons who are tasked with working at this workplace are obligated, before beginning with work, to observe the basic regulations covering work safety and accident prevention.

#### 2.2.2. Personnel training

Only personnel that have been trained and briefed in advance may work at this workplace.

Personnel responsibilities for installation, placement into service, operation, maintenance and repair must be clearly defined.

Personnel still to be trained may only work at this workplace under the supervision of someone who is trained and experienced.



The device is designed using state-of-the-art technology and according to recognized safety standards.

Nonetheless, operating the device can entail the risk of life-threatening injury to the user, third parties or property.

- The workplace is only to be used:
- For intended purposes
- If it is in proper and safe working condition

#### 2.3. Electrical hazards



Only allow work to be carried out by electrical specialist. Regularly check the electrical equipment. Rectify loose connections immediately.

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- Keep your work area in good condition
- A disorderly work area can result in an accident
- Take environmental factors into account
   Do not expose the charger station to rain.
   Do not use the charger station in a humid or wet environment.
   Ensure that there is sufficient illumination.
   Do not use the charger station in the proximity of flammable liquids or gases.
- Keep children away Do not allow other persons to touch the device or cable; keep them away from your work area.
- User the correct device Do not use the charger station for purposes and work for which it was not intended.
- Do not misuse the cable
   Do not pull the plug out of the power socket by the cable.
   Protect the cable against heat, oil and sharp edges.
- Maintain your device with care
   Keep your charger station clean in order to work better and more safely.
   Regularly inspect the cable and, in case of damage, have it replaced by a qualified expert. Keep the device dry and free of oil and grease.
- Pull out the mains power plug when not in use and before maintenance.
- Inspect your device for damage Before using the charger station, the protective equipment or damaged parts must be tested to ensure problem-free functionality according to their intended purpose.

Check whether moving parts function properly and determine whether or not they jam, whether any parts are broken, whether all other parts are flawless, are correctly installed and whether all factors that could influence operation of the device are OK. Damaged protection equipment, switches and other parts should be properly repaired or replaced by a customer service center.

- Protect yourself against electric shock Avoid any body contact with grounded parts, e.g. pipes, radiators, stoves, refrigerators.
- Replacement parts
   For repair and maintenance, only original replacement parts obtained from HS-Technik
   GmbH may
   be used.



EXPLOSION HAZARD!

Do not open batteries or the battery charger, and protect them against jolts, heat and fire. Do not toss used batteries in a fire or dispose of them in regular garbage.

- Defective batteries
   Do not use the battery charger with any defective batteries and vice versa.
- Symbols

Observe the symbols marked on the power rating plate of the battery charger, charging current 3.0 A.

• Dismantling

Do not disassemble either the battery or the battery charger.



Protect the battery charger against metal objects, as there is a risk of short circuiting. The ventilation slits on the battery charger must also be protected against metal and/or metal shavings.

#### 2.3.2. Observing the line voltage



CAUTION! Adhere to the correct line voltage.

Using a higher voltage than is specified can lead to serious injuries of the operator and cause damage to the device itself.

In case of doubt, do not connect the device and first verify the line voltage.

#### 2.4. Structural modifications

No changes, extensions or modifications may be carried out on the device without the approval of the manufacturer. All modifications require written confirmation by HS-Technik GmbH. Immediately replace device parts that are not in flawless condition.

Only use original replacement parts.

#### 2.5. Cleaning and disposal of the device

Handle and dispose of the substances and materials utilized in a proper manner, especially when cleaning with solvents.

Only use the charger station in dry rooms.

All ventilation slits must be unobstructed. Place the device as far away as possible from
 exposure to heat and solar energy, as an ambient temperature of more than 35° C can lead to substantially longer charging times.

Prior to connecting the device, the specifications on the type plate concerning

 line voltage, frequency and current consumption must be observed. Once the mains power cable has been inserted in the power socket, the charger station is operationally ready. Nothing else needs to be switched on.

#### 3.1. Operation

Left red LED (light-emitting diode)

If the device has been connected to the mains power supply, the left LED lights up red. The battery charger is operating properly.

If there is a fault, the left LED blinks red. This indicates a malfunction of the battery charger – continuing the charging operation is not possible! A new battery or one that has not been used for a lengthy period only provides its maximum output after approx. five charge and discharge cycles.



#### CAUTION!

Care must always be taken to ensure the correct polarity +/-.

#### CAUTION!

When charging two batteries consecutively, it is recommended to allow the charger to cool down between charges.



There is no OEM concern with the charger remaining plugged and a fully charged battery residing in the charger following full charge levels. If the battery is fully charged on the charger, no charging current flows; result, the charging process has stopped.

#### 3.2. Charging process

The inserted battery is checked for voltage, temperature, short circuits and reverse polarity. Before beginning charging, the safety elements (bi-metallic or NTC) are checked via the temperature contact. If the safety elements in good condition, the right LED lights up green and the charging process starts with the special battery surge protection (ADAS)<sup>®</sup>. What is special about this charging process is the detection of the state of charge. By modifying the charging current, both the rise in the battery's internal pressure and the rise in charging voltage are prevented.

Green blinking lamp (right LED)

The battery is fully charged and the battery charger switches automatically to maintaining charge.

Thanks to this charging process, the battery is treated sparingly and always kept completely charged.

The battery can remain for an indefinite time period in the battery charger without being damaged.

Overcharging is impossible.

Red blinking lamp (right LED)

The safety elements are not OK or the battery is too hot or too cold.

In this case, the battery should be removed from the battery charger until it has reached an appropriate temperature.

Red continuous light (right LED) The battery is defective.

Legend to symbols

LED left, red				
Red LED lights up	— O	Battery charger is connected to mains power supply and ready for charging		
Red LED blinks	Wi	Battery charger is defective		
Right LED, multicolored				
LED lights up green		Charging process begins		
LED blinks green	<b>100%</b>	Battery is fully charged		
LED lights up red		Battery is defective		
LED blinks red		Battery is too hot or too cold		

#### 3.3. Charging times

The durations of the charging times are shown in the following table. The charging time depends on the stage of discharge of the battery.

Battery type	Nominal capacity (Ah)	Max. charging time
Ni-MH/Li-Ion	1.4	35 min
Ni-MH/Li-Ion	1.7	40 min
Ni-MH/Li-Ion	2.0	50 min
Ni-MH/Li-Ion	2.4	70 min
Ni-MH/Li-Ion	2.6	65 min
Ni-MH/Li-Ion	3.0	75 min



#### WARNING!

If there is a fault in the battery charger, the left LED blinks red. This signals a battery charger malfunction. With new batteries or those that haven't been used for a longer time period, it is possible that they do not attain their nominal capacity. In this case the occurrence is not faulty but instead normal. The full capacity is attained after approx. 5 charge/discharge cycles.

The battery charger monitors the temperature of the battery pack. Therefore, batteries that have a temperature above 40°C or less than 5°C will not be charged.

The battery charger was built to handle Ni-MH and Li-Ion batteries. Ni-MH batteries can generate more heat in their cells, which is in this case not faulty but instead normal.

# 4. Technical data\_\_\_\_\_

Connection: Charging current per box:	220 – 240 volts / 50-60 Hz 3 A	USA=110V
Output:	9.6 V – 28.8 V	
Discharge current:	30 mA	
Charging time:	max. 75 min at 3.0 Ah battery	
Switch-off criteria:	$-\Delta U$ , temperature termination	

4.1. Dimensions

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Size (W x H x D ):	82 x 90 x 150 mm
Weight:	ca. 0.5 kg

#### 4.2. Additional characteristics

- Universal quick charger for 9.6 V- 28.8V battery pack
- Battery defect detection
- Battery surge protection
- Microprocessor-controlled charging Charging time 30-75 min., depending on the capacity of the battery (1.4 Ah - 3.0 Ah)
- Automatic voltage detection
- for Ni-MH / Li-Ion battery packs
- Reverse polarity protection
- Charging current 1.8 A 3.0 A

Declaratior	Declaration of EU conformity				
We hereby o Directives list Any modific and void.	We hereby declare that the devices stated below comply with the relevant EC Directives listed below with regard to the design and construction type. Any modifications to the devices without our consent render this declaration null and void.				
Manufacture	Manufacturer:				
Company: Address: Tel.: Fax:	HS-Technik GmbH Im Martelacker 12 D-79588 Efringen-Kirchen, Germany +49 7628-9111-0 +49 7628-9111-90				
Device desc	cription:				
	Universal quick charger for charging Ni-MH and Li-Ion batteries from 9.6 V – 28.8 V and 1.2 Ah – 3.0 Ah.				
Model name	Model name:				
	HST-BL-2830MS & HST-BL-2830MS-USA				
Applicable I	EU guidelines:				
	89 / 336 EEC – Electromagnetic Compatibility Directive 73 / 23 EEC – Low Voltage Directive EN60335, EN55014, EN55014-2:98 , EN61000-3-2 + A12:97+A1, A2:99				
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