Multi Battery Charger Manual

Imprint

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Multi Channel Systems MCS GmbH

Aspenhaustraße 21

72770 Reutlingen

Germany

Phone +49-71 21-909 25 - 0
Fax +49-71 21-909 25 -11

sales@multichannelsystems.com
www.multichannelsystems.com

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1 Important Safety Advices

Do not use the device without supervision! Batteries are inflammable!

Warning: Make sure to read the following advice prior to install or to use the device and the software. If you do not fulfill all requirements stated below, this may lead to malfunctions or breakage of connected hardware, or even fatal injuries.

Warning: Obey always the rules of local regulations and laws. Only qualified personnel should be allowed to perform laboratory work. Work according to good laboratory practice to obtain best results and to minimize risks.

The product has been built to the state of the art and in accordance with recognized safety engineering rules. The device may only

- be used for its intended purpose,
- be used when in a perfect condition.
- Improper use could lead to serious, even fatal injuries to the user or third parties and damage to the device itself or other material damage.

Warning: The device and the software are not intended for medical uses and must not be used on humans. MCS assumes no responsibility in any case of contravention.

Malfunctions which could impair safety should be rectified immediately.

High Voltage

Electrical cords must be properly laid and installed. The length and quality of the cords must be in accordance with local provisions.

Only qualified technicians may work on the electrical system. It is essential that the accident prevention regulations and those of the employer's liability associations are observed.

Each time before starting up, make sure that the mains supply agrees with the specifications of the connected computer. Check the USB cord for damage each time the site is changed. Damaged cords should be replaced immediately and may never be reused. Check the leads for damage. Damaged leads should be replaced immediately and may never be reused. Do not try to insert anything sharp or metallic into the vents or the case. Liquids may cause short circuits or other damage. Keep the device and the power cords always dry. Do not handle it with wet hands.

Requirements for the installation

Make sure that the device is not exposed to direct sunlight. Do not place anything on top of the device, and do not place it on top of another heat producing device. Never cover the housing, not even partially, so that the air can circulate freely. Otherwise, the device may overheat.

1.1 Guarantee and Liability

The general conditions of sale and delivery of Multi Channel Systems MCS GmbH always apply. The operator will receive these no later than on conclusion of the contract.

Multi Channel Systems MCS GmbH makes no guarantee as to the accuracy of any and all tests and data generated by the use of the device or the software. It is up to the user to use good laboratory practice to establish the validity of his findings.

Guarantee and liability claims in the event of injury or material damage are excluded when they are the result of one of the following.

- Improper use of the device.
- Improper installation, commissioning, operation or maintenance of the device.
- Operating the device when the safety and protective devices are defective and/or inoperable.
- Non-observance of the instructions in the manual with regard to transport, storage, installation, commissioning, operation or maintenance of the device.
- Unauthorized structural alterations to the device.
- Unauthorized modifications to the system settings.
- Inadequate monitoring of device components subject to wear.
- Improperly executed and unauthorized repairs.
- Unauthorized opening of the device or its components.
- Catastrophic events due to the effect of foreign bodies or acts of God.

1.2 Operator's Obligations

The operator is obliged to allow only persons to work on the device:

- who are familiar with the safety at work and accident prevention regulations and have been instructed how to use the device;
- are professionally qualified or have specialist knowledge and training and have received instruction in the use of the device;
- have read and understood the chapter on safety and the warning instructions in this manual and confirmed this with their signature.

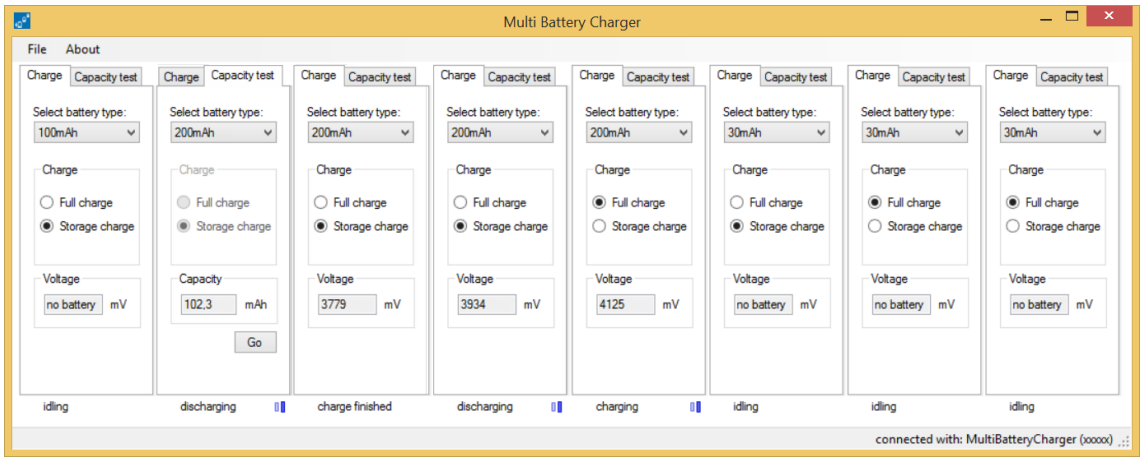
It must be monitored at regular intervals that the operating personnel are working safely. Personnel still undergoing training may only work on the device under the supervision of an experienced person.

2 Welcome to the Multi Battery Charger

The Multi Battery Charger MBC-08 provides eight ports for controlling and charging batteries used with the advanced wireless W2100-System from Multi Channel Systems MCS GmbH.

Charge the 30 mAh, 100 mAh, 200 mAh and > 300 mAh Lithium storage batteries to full charge or storage level. Run a capacity test to estimate the efficiency of the battery.

Operate the Multi Battery Charger connected to the computer with the "Multi Battery Charger" software or connect the MBC-08 to an external power unit to use the device in stand-alone mode without software control.



3 Setting up the Multi Battery Charger

Do not use the device without supervision! Batteries are inflammable!

3.1 Operating the Multi Battery Charger with Software Control

For software control a connection to any computer that meets the following software requirements with USB 2.0 port is needed.

3.2.1 Software Installation

System Requirements

Software: One of the following Microsoft Windows ® operating systems is required: Windows 10, 8.1 or Windows 7 (32 or 64 Bit), English and German versions supported. Other language versions may lead to software errors.

Hardware: You can operate the MBC-08 device with any computer with an USB 2.0 port.

Install the Multi Battery Charger software from the provided CD or download the software from the MCS web site.

Start the MultiBatteryChargerX.X.X.exe and follow the instructions of the installation wizard.

The software and the actual driver are installed automatically.

3.3.2 Hardware Installation

Setup the Multi Battery Charger

1. Operation of the MBC-08 with software control

Connect the USB 2.0 port on the left side panel of the Multi Battery Charger via USB 2.0 high speed cable (A - Micro B) to an USB 2.0 port of the computer. As soon as the device is connected the LEDs light up in relation to the last software configuration.

2. Operation of the MBC-08 as stand alone device

Connect the USB 2.0 port on the left side panel of the Multi Battery Charger via USB 2.0 high speed cable (A - Micro B) to an external charging device, for example a mobile phone battery charger.

Connect the batteries for charging to full or storage level. Use the respective ports appropriate to the capacity to the batteries and the configuration of the Multi Battery Charger. Running a capacity test needs software control.

Important: Please do not connect more than four batteries with 100 mAh or more for charging at the same time if the MBC-08 is connected to the computer!

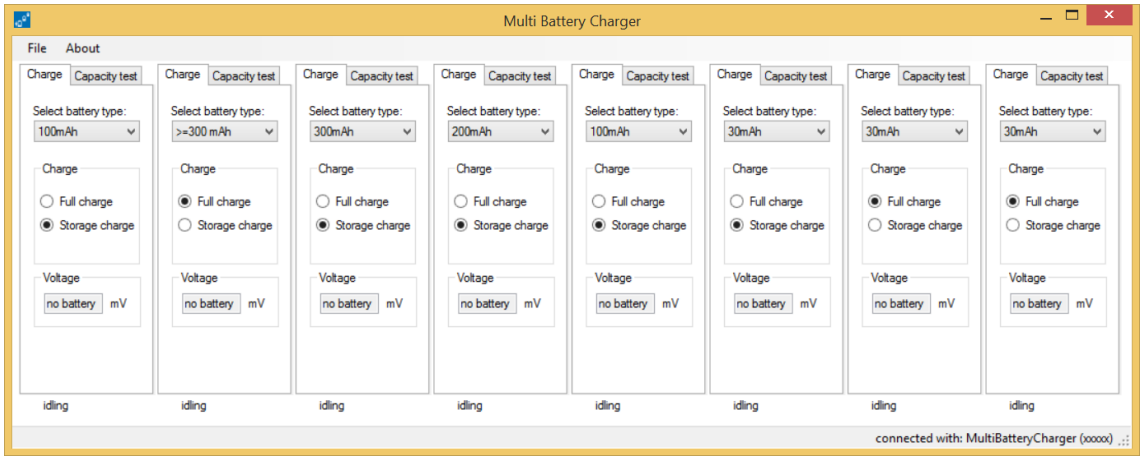
If the MBC-08 is connected to an external charging device it depends on the power of the recharger how many batteries can be recharged in parallel.

Safety precaution: Automatical stop of the Multi Battery Charger if the voltage exceed a level of 4.2 V, if the voltage level stays unchanged for more than 5 minutes and at the latest after 8 hours in use.

4 Multi Battery Charger Software

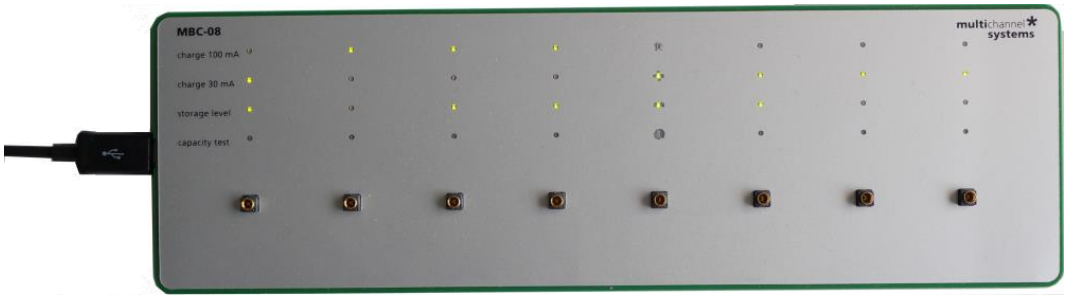
Doubleclick the Multi Battery Charger button or select the software from the file menu to open the Multi Battery Charger software.

Main Menu



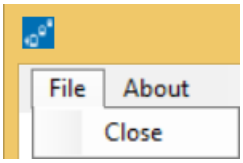
To operate eight ports of the Multi Battery Charger independently, the software provides eight windows with "Charge" and "Capacity test" tab each.

In relation to the configuration of the software in the screenshot above the respective LEDs on the device are lighted up, please see the photo below.



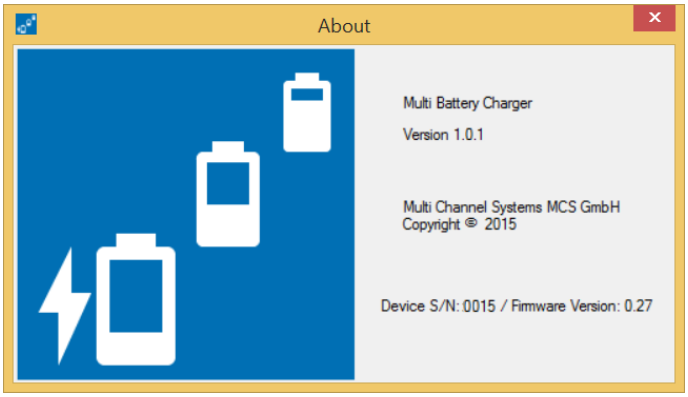
The software settings are permanent. If you operate the Multi Battery Charger without software, the last software configuration is reloaded.

File



Use the "File" menu to close the software.

About

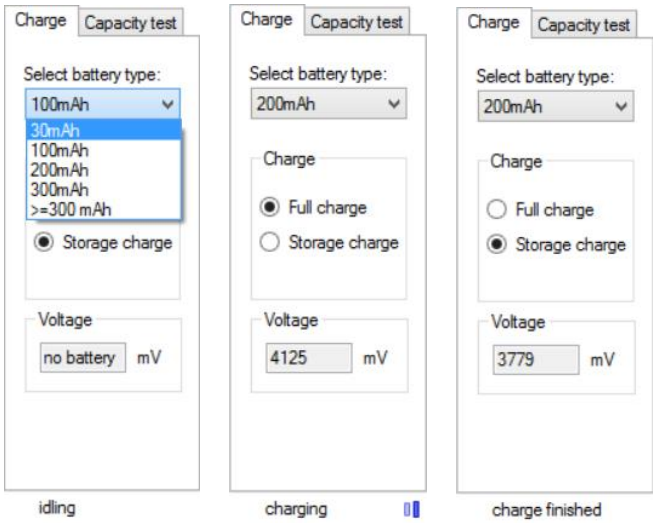


The "About" dialog shows the version number of the actual Multi Battery Charger software and firmware version. Additionally the serial number of the Multi Battery Charger device is displayed.

4.1 Battery Ports

Each of the eight battery ports can be operated individually. Use the "Charge" tab for charging a battery, use the "Capacity test" tab for the test.

4.1.1 Charge



Please select the type of the battery before the battery is connected. Select in the "Charge" window the mode "Full charge" or "Storage charge" via radio button. In the "Voltage" window the state is displayed. In the footer below the actual working phase is indicated, for example "idling" if no battery is connected, "charging" or "discharging" together with blue status bars, when working.

Connect the selected battery. In the "Voltage" window the actual charge level in mV is displayed.

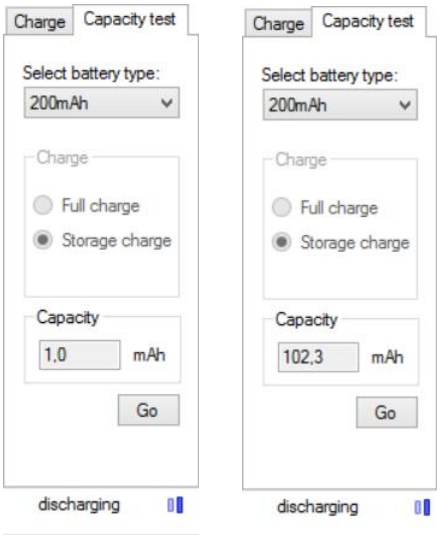
If the charging process is finished, you find the message in the footer. On the device the LED for the battery type is flashing fast and the LED for the storage level is permanent green, if "Storage charge" is selected. In "Full charge" mode the green LED is off.

Disconnect the battery from the device and connect it again, if further processes should be started. The LED for the battery type will twinkle very fast and stop and get off after a while, when the battery is disconnected.

Table: Status of the LEDs on the MBC-08 in "Charge" mode and 100 mAh battery connected.

Charge Mode	**Charging**	**Charge finished**
LED is green: Charge 100 mA green	LED flashes slow	LED flashes fast
LED is green: Charge 300 mA green	off	Off
LED is green: Storage level green	off	Off
LED is green: Capacity Test green	off	off

4.1.2 Capacity Test



Run a "Capacity Test" to control the efficiency of the battery. How long will the battery last?

Select the battery type from the drop down menu and click the "Go" button under the "Capacity" Window. The actual level is displayed in mAh.

The red LED for the capacity test is flashing slowly during the test is running and off after finishing the test.

The "Capacity Test" needs three steps:

1. The battery is fully charged first.
2. After that, the battery is completely discharged with a discharge current of 30 or 100, 200 or 300 mA, depending on the battery type selected. The time, which is needed to discharge the battery, is measured.
3. The battery is charged again to full charge or storage charge level, as selected.

The result of the capacity test is displayed in mAh in the "Capacity" window, but it is not stored persistently.

Important: In dependency of the number of batteries which are discharged when the capacity test is running, the Multi Battery Charger device may heat up.

Do not use the device without supervision! Batteries are inflammable!

Table: Status of the LEDs on the MBC-08 in "Capacity test" mode and 100 mAh battery connected.

Capacity test	**Error / Timeout**	**Recharging or Discharging**	**Charging**	**LED flashes**
LED is green: Charge 100 mAh	flashing	LED flashes slow	LED flashes slow	LED flashes fast
LED is green: Charge 30 mAh	flashing	off	off	Off
LED is green: Storage level	flashing	off: full charge on: storage charge	off: full charge on: storage charge	off: full charge on: storage charge
LED is red: Capacity test	flashing	LED flashes slow	off	Off

5 Contact Information

Local retailer

Please see the list of official MCS distributors on the MCS web site.

User forum

The Multi Channel Systems User Forum provides the opportunity for you to exchange your experience or thoughts with other users worldwide.

Newsletter

If you have subscribed to the Newsletter, you will be automatically informed about new software releases, upcoming events, and other news on the product line. You can subscribe to the list on the MCS web site.

www.multichannelsystems.com