

Operating Instructions MULTiCharger **LN-5014**

! These operating instructions are an integral part of this product containing important information and safety notes. They should be kept in a safe place and available for reference.

1. Specification

Input voltage	11 – 15 V	Charge termination method	Delta-Peak for NiCd and NiMH
Cell count, Battery type	1 – 14 cells NiCd		Constant current / constant voltage for Li-Po and Li-Io
	1 – 14 cells NiMH	Battery Cycling	max. 5 cycles, ending charged or discharged
	1 – 5 cells Li-Po or Li-Io		2 lines, 16 characters, illuminated
	1 – 6 cells lead-acid	LCD	
Charge current	0.1 A – 5 A		
Discharge current	0.01 A – 1 A		
Trickle charge current	0 – 250 mA		

2. CE- Conformity Declaration

MULTIPLEX Modellsport GmbH & Co. KG declares that the MULTiCharger LN-5014 conforms with the following harmonised EU directives: EN 50081, EN 50082, EN 55014, EN 55022

3. Safety notes

- ! Read the instructions before using the charger for the first time
- ! Do not open the case, and do not modify the unit in any way
- ! Use the charger to recharge Li-Ion / Li-Polymer, Pb, NiCd or NiMH batteries
- ! Observe the battery manufacturer's charging instructions for all battery types
- ! Use the charger only to recharge packs consisting of cells of the same type and capacity
- ! Do not attempt to charge two battery packs simultaneously
- ! Do not recharge packs which are hot to the touch; allow them to cool down to ambient temperature first
- ! Do not connect charger and battery with reverse polarity
- ! Do not leave the charger operating unsupervised
- ! The charger may become hot when operating - take care when touching the unit
 - ▷ Do not cover the charger; provide adequate cooling
 - ▷ Do not subject the chargers LCD display screen to direct sunshine
- ! Keep the charger, battery and cables well away from flammable or temperature-sensitive objects
- ! Protect the charger from moisture

4. Features

<ul style="list-style-type: none"> ➤ Automatic charge / discharge cycles ➤ Lightweight, compact, easy to transport ➤ Strong aluminium case 	<ul style="list-style-type: none"> ➤ Error messages for out-of-range input voltage, incorrect connection or reversed polarity at input or output, poor battery state and internal errors
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5. Button functions

BATTERY TYPE button

When you press this button, the currently set battery type - NiCd, NiMH, Li-Po / Li-Io or Pb (lead-acid) - starts to flash.

While the battery type is flashing, further pressing of the BATTERY TYPE button will switch to the next battery type in the following sequence (NiCd → NiMH → Li-Io / Li-Po → Pb → NiCd → ...).

If you press another button (or no button), the battery type ceases to flash after about five seconds.

Holding this button pressed in, the current charge settings are displayed for about three seconds.

ENTER / START button

If you press this button briefly, the variable value in the current menu starts flashing.

Press the ENTER button again, the next variable value starts to flash.

If you press no button for about three seconds, the value ceases flashing.

Holding this button pressed in starts the charge process or if charging is occurring, stops the charge process.

INC/DEC buttons

With these buttons the flashing values can be increased or decreased, or charging/discharging modes are selected as per the flow charts.

**Refer to the flow chart diagrams for step by step directions
on what button to press for each function.**

For discharging or cycling batteries, please note the Discharge Current capabilities chart in this manual. This function is only practical for lower voltage and lower capacity packs such as used for Tx and Rx power.

6. Programming for NiCd mode or NiMH mode

Select Battery type

Select the type of battery, NiCd or NiMH with the battery type button.

Charge current

In this menu the charge current can be set within the range 0.1 A to 5 A in increments of 50mA using the INC and DEC buttons.

Discharge current (Note Discharge Current capabilities chart in this manual)

In this menu the discharge current can be set within the range 0.1A to 1A using the INC and DEC buttons.

Final discharge voltage

In this menu the termination voltage for the discharge process can be set within the range 0.1 V to 16.8 V.

Charge / Discharge cycles (Cycle)

In this menu you can set the values and method of the charging / discharging cycles.

C->D charge to discharge = ending with discharged battery

D->C discharge to charge = ending with fully charged battery

Number of cycles: 1 to 5

Press and **hold down** the ENTER button to start the charging/discharging or cycling process.

7. Programming for LiPo and Lilo mode

You can use the unit to charge a maximum of five Lithium cells. The combined charge method of constant current and constant voltage ensures that your Lithium-Ion and Lithium-Polymer batteries are fully charged every time. The unit starts by charging at a constant current. As soon as the pack reaches a cell voltage of about 4 V the charger switches over to constant voltage. The constant voltage charge process is terminated when the charge current falls below 100 mA. This ensures that the battery is fully charged at the end of the charge process.

Battery type

In this menu the battery type Li-Po or Li-Io can be selected using the INC and DEC buttons.

NOTE: take care to select the correct battery type!

The maximum voltage for Lithium batteries is as follows: 4.1 V per cell for Lithium-Ion (Li-Io) batteries, 4.2 V per cell for Lithium-Polymer (Li-Po) batteries. The difference in voltage makes it extremely important to select the correct battery type (Li-Po or Li-Ion) with great care, and to check the setup before starting the charge process. If you select the wrong battery type, the pack may be damaged or ruined, and could even explode.

Battery capacity

In this menu the capacity of the battery to be charged can be set within the range 100 mAh to 5000 mAh in increments of 50 mAh using the INC and DEC buttons.

Voltage for Lithium Ion batteries (Li-Io)

In this menu the nominal voltage of the battery to be connected for charging and discharging can be set using the INC and DEC buttons. Possible values are 3.6 V, 7.2 V, 10.8 V, 14.4 V and 18.0 V.

Voltage for Lithium-Polymer batteries (Li-Po)

In this menu the nominal voltage of the battery to be connected for charging and discharging can be set using the INC and DEC buttons. Possible values are 3.7 V, 7.4 V, 11.1 V, 14.8 V and 18.5 V.

Discharge current (Note Discharge Current capabilities chart in this manual)

In this menu the desired discharge current can be set within the range 0.1 A to 1 A using the INC and DEC buttons.

Charge current

For safety reasons the charger always uses the 1 C value as the charge current for Lithium cells (Li-Po or Li-Io). The current is calculated from the battery capacity you have entered.

Example for a Li-Po cell of 1500 mAh capacity: 1 C = 1500 mAh, charge current = 1.5 A

Press and **hold down** the ENTER button to start the charging/discharging or cycling process

8. Programming for Lead-Acid battery mode

Charge current

In this menu the charge current can be set within the range 0.1A to 5A in increments of 100mA using the INC and DEC buttons.

Battery Voltage

In this menu the voltage of the battery to be charged can be set within the range of 2V through 12V in increments of 2V using the INC and DEC buttons.

Discharge current (Note Discharge Current capabilities chart in this manual)

In this menu the discharge current can be set within the range of 0.01A to 1A using the INC and DEC buttons.

Press and **hold down** the ENTER button to start the charging or discharging process.

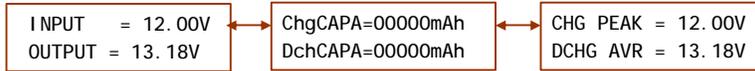
9. Screen displays

Displays during charging or discharging

Display after charge termination

END 030:00 00000 NC 100mA 10.75V	Pressing the ENTER button while this message is displayed returns you to the main menu.
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Display of current values



This information is available for the last battery charged if you hold the BATTERY TYPE button pressed in for longer than three seconds, after a charge or discharge process.

You can switch between the three windows using the INC and DEC buttons.

If you do not press any button for longer than about three seconds, the screen reverts to the normal display.

5014 Discharge Current Capabilities	
Battery Voltage	Max. Discharge Current
1...5	1.00
6	0.83
7	0.71
8	0.63
9	0.55
10	0.50
11	0.45
12	0.41
13	0.38
14	0.35
15	0.33
16	0.31
17	0.29

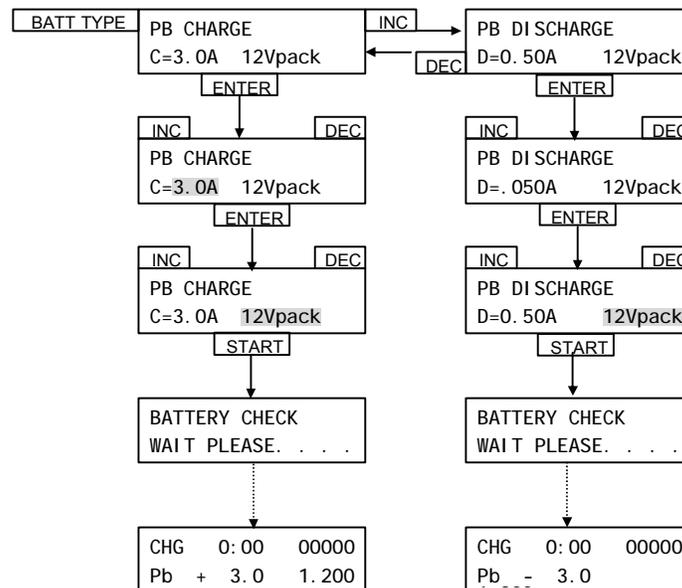
10. Error messages

INPUT BATTERY VOLTAGE ERROR	Input voltage below 11.0 V or above 15.0 V
OUTPUT BATTERY REVERSE POLARITY	Battery connected to the charger with reversed polarity
CHECK THE BATT. OPEN CIRCUIT	Break in charge circuit
NO BATTERY	No battery connected to the charger's output
OUTPUT CIRCUIT PROBLEM	Internal error in charger

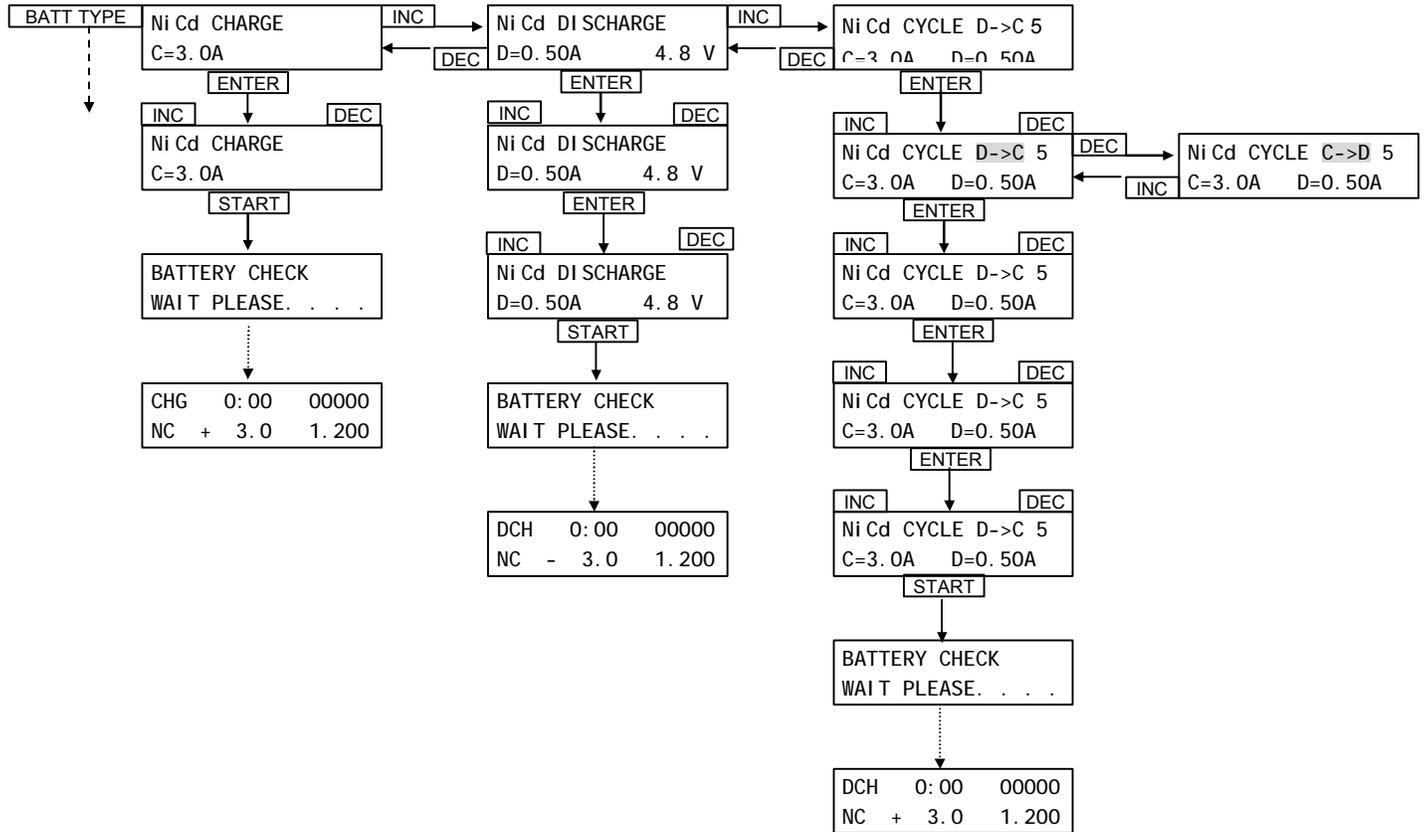
Programming flow charts for MULTCharger LN-5014

Note: Flow chart for the Pb or Lead acid battery appears first due to space constraints in this manual

1 PB



2 NiCd and NiMH (Screen Menu for NiMH will show NiMH)



3 LiPo & Lilo

