

# Operating Manual

# Intelligent Digital

# Battery Charger

## PST-DCN50-II

Microprocessor controlled, high-performance, all-purpose charger/discharger for 3-12 cells NiCd/NiMH, 1-4 series Li-ion/Li-polymer, 6V and 12V lead-acid (Pb) batteries and battery-pack. Charge current up to 2.5A.



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Thank you for choosing the Intelligent Digital Battery Charger/Discharger DCN50-II. You get a rapid charger/discharger that is computerized with a high performance microprocessor and specialized operating software. It can maintain your battery at its best condition and also control them safely.

Please read this entire operating manual completely and attentively as it contains a wide variety of specific programming and safety information.

## ● Special features

### -High-power and high-performance circuit

DCN50-II employs the circuit that has maximum output power of 50W .As a result it can charge or discharge up to 12 cells of NiCd/NiMH, 4 series of Li-ion/poly and 6/12V Lead-acid batteries with maximum current of 2.5A.

### - Optimized operating software

When charging or discharging,DCN50-1 has an 'AUTO' function that set the charging voltage automatically for NiMH/NiCd batteries , it can prevent from over-charging can lead to an explosion by users fault. Every program in the unit is controlled with mutual links and communicates for every possible error so it introduces a maximum safety. These can be set at users option.

### - Maximum safety

Delta-peak sensitivity: The automatic charge termination program works on the principle of the Delta-peak voltage detection. The charge monitors the voltage curve and assessment of the peak with the charging time increment. This indicates the terminal point of charging accurately.

Input power monitor: To protect the car battery using as input power from being damaged the voltage of it always monitored. If it drops below the lower limit the process will be ended automatically.

Fault condition protection: This device will not start operating when "battery polarity reverse", "battery wire opened" and "battery or terminals shorted".

## ● Exterior of the unit



## Warnings and safety notes

- ✧ **Be sure to understand the information of the battery to be charged or discharged accurately. If the program is set up incorrectly the battery can severely be damaged. Especially Lithium battery can cause a fire or an explosion by over-charging.**
- ✧ Never leave the charge unsupervised when it is connected to its power supply. If any malfunction is observed immediately terminate the process and refer to the operation manual.
- ✧ Keep away the unit from dust, damp, rain, heat direct sunshine and vibration. DO not drop it.
- ✧ The circuit of the unit is designed to be powered by a 12V DC only.
- ✧ This unit and the battery to charge or discharge should be set up on a head-resistant, non-inflammable and non-conductive surface. Never place them on a car seat, carpet or similar. Keep all the inflammable volatile materials well away from operating area.
- ✧ The outer case slots and fan serve to cool the charger so must not be covered or enclosed. Provide good ventilation.
- ✧ To avoid short-circuits between the charge lead, always connect the battery cable to the unit first and only then to the battery to be charged or discharged. Reverse the sequence when disconnecting.
  - The battery exceeds the limit of DCN50-II's specification.
  - Battery pack, which consists of different types of cell (including different manufacturers).
  - Battery, which is already fully charged or just slightly discharged.
  - Non-rechargeable batteries (Explosion hazard).
  - Batteries that require a different charge technique from NiCd, Nimh, Li-Ion, Li-Poly or Pb.
  - Faulty or damaged battery.
  - Battery fitted with an integral charge circuit or a protection circuit.
  - Batteries installed in a device, or which are electrically linked to other components.
  - Batteries that are not expressly stated by the manufacturer to be suitable for the currents the charger delivers during the charge process.

## ● General notes

### How to select charge current level?

This device provide four charge current levels(0.5A, 1.0A, 2.0A, 2.5A) for user select. The charge current level depend on the capacity of the battery-pack and the charge time you wanted. The maximum permissible charge current varies according to the battery type or its performance, and can be found in the information provided by the battery manufacturer. Generally, we suggest NIMH and NICD battery-pack use 0.2~0.3C(the nominal capacity of Battery-pack), Li-Ion/Poly battery-pack use 0.2~0.5C, Lead-Acid(Pb) battery use 0.1~0.2C. It is only allowed to charge batteries at rates higher than the standard charge current if they are expressly stated to be quick-charge capable. The charge current level is higher, the time you expend is shorter.

### When you need discharge?

- Some rechargeable batteries are said to have a memory effect. If they are partly used and recharged before the whole charge is drawn out, they 'remember' this and next time will only use that part of their capacity. This is a 'memory effect'. NiCd and NiMH batteries are said to suffer from memory effect. They prefer complete cycles; so you should discharge the battery-pack empty before charge. This device provide a fixed 0.5A discharge function for user select.
- The Lithium battery and Pb battery prefers a partial rather than a full discharge. Frequent full discharges should be avoided if possible.
- If you want check the battery-pack's capacity, you can select discharge function after you full charged this battery-pack.



### NiMH/NiCd battery program:

1) Connecting to the battery.

Connect the Red clip to the Positive terminal of the NiMH/NiCd battery, this terminal is usually marked '+' or marked in RED.

Connect the Black clip to the Negative terminal of the NiMH/NiCd battery, this terminal is usually marked '-' or marked in BLACK.

2) Plug the DC output terminal of adapter or car lighter in the Input power hole of the charger/discharger, the displays on the screen is as the left side, then select battery type carefully with MD button. (If not check the power supply and fuse in the main supply).

3) With ST button to confirm the battery type, and choose the function for charging with MODE(MD) button, The program circle is below with each press:

0.5A charging.

1.0A charging.

2.0A charging.

2.5A charging.

0.5A discharging.

0.5A charging.....

4) Start the Charging/Discharging program with S/T (Run/Stop) button while the function in the program you select is on the screen.

5) At the beginning of the Charging/Discharging program starting, the charger/discharger will test its condition at that time.

If there are some errors for connecting with the battery, the following errors displays will be on the screen:

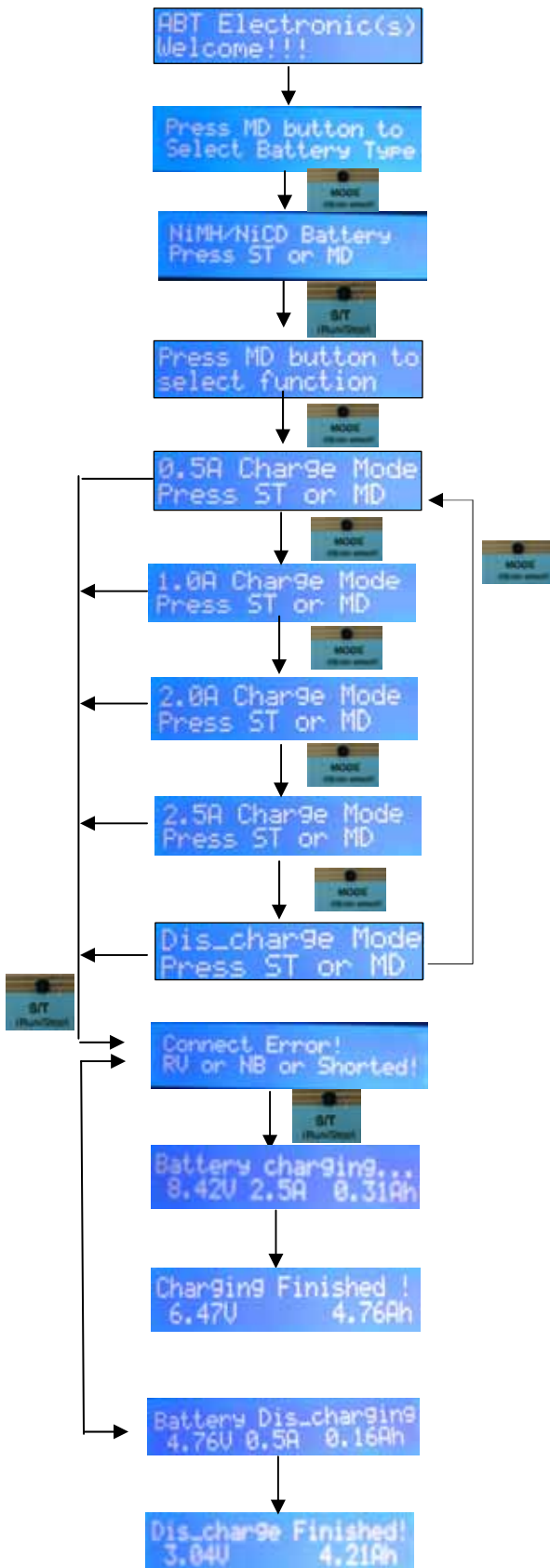
a The output is connected to a battery with incorrect polarity (Reverse polarity/RV) or shorted.

b. This will be displayed in case of disconnecting with the battery (No battery/NB) or the open circuit of the battery.

6) Resume the process with MODE(MD) button and start it by S/T (Run/Stop) button.

7) To pause/stop the charging/discharging process, press S/T (Run/Stop) button for more than 3 seconds (you can alter the charging current from 0.5A to 2.5A with MODE(MD) button), and you can resume the process with S/T (Run/Stop) button.

8) When the charging/discharging is finished, the audible sound indicates you the end of process

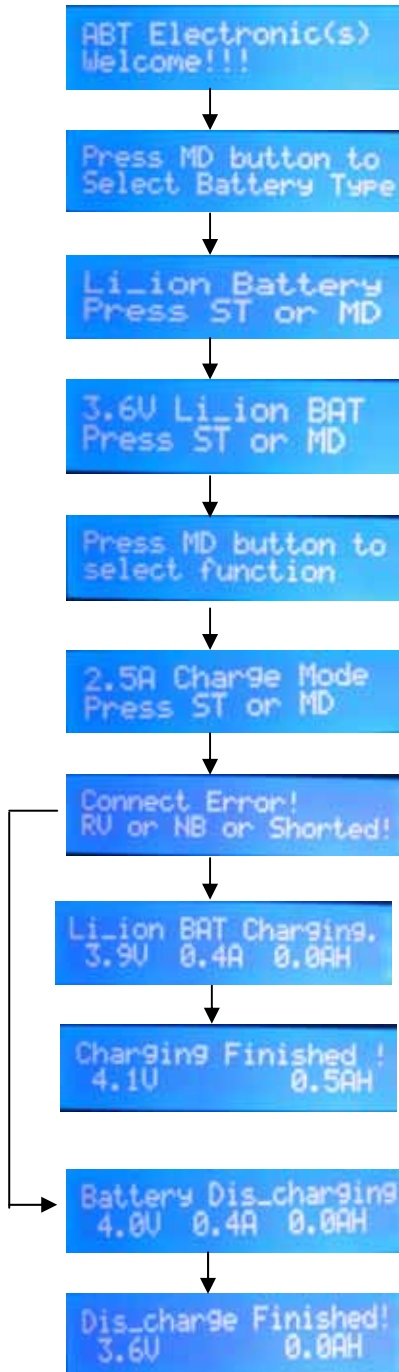


**Li-ion battery program:**

1) Connecting to the battery.

Connect the Red clip to the Positive terminal of the Li-ion battery, this terminal is usually marked '+' or marked in RED.

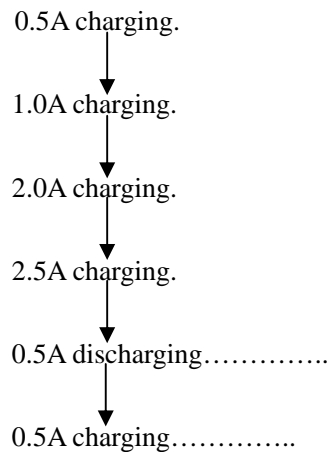
Connect the Black clip to the Negative terminal of the Li-ion battery, this terminal is usually marked '-' or marked in BLACK.



2) Plug the DC output terminal of adapter or car lighter in the Input power hole of the charger/discharger, the displays on the screen is as the left side, then select the battery type carefully with MD button.

(If not check the power supply and fuse in the main supply).

3) With ST button to confirm the battery type, and choose the function for charging with MODE(MD) button, The program circle is below with each press:



4) Start the Charging/Discharging program with S/T(Run/Stop) button while the function in the program you select is on the screen. (If not check the power supply and fuse in the main supply).

5) At the beginning of the Charging/Discharging program starting, the charger/discharger will test its condition at that time.

If there are some errors for connecting with the battery, the following errors displays will be on the screen: a The output is connected to a battery with incorrect polarity (Reverse polarity/RV) or shorted.

b. This will be displayed in case of disconnecting with the Battery (No battery/NB) or the open circuit of the battery.

6) Resume the process with MODE(MD) button and start it by S/T(Run/Stop) button.

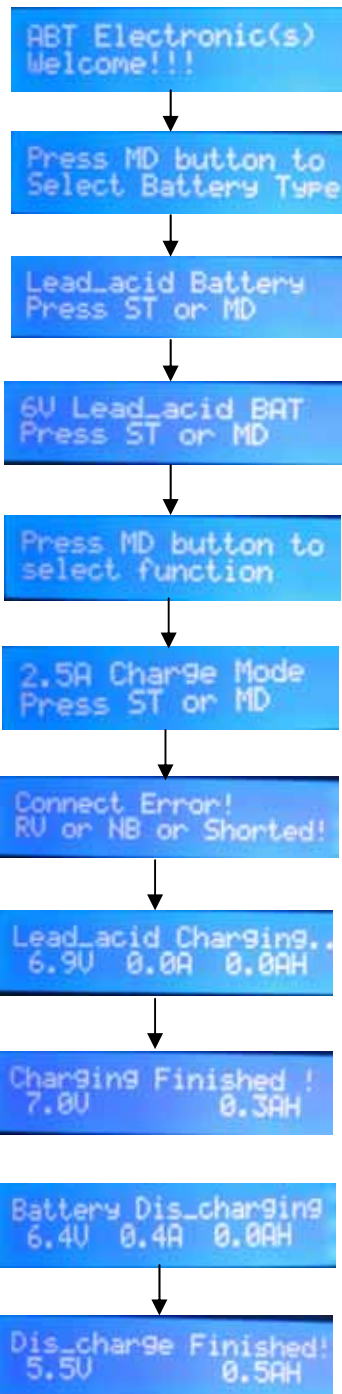
7) To pause/stop the charging/discharging process, press S/T(Run/Stop) button for more than 3 seconds (you can alter the charging current from 0.5A to 2.5A with MODE(MD) button), and you can resume the process with S/T(Run/Stop) button.

8) When the charging/discharging is finished, the audible sound indicates you the end of process.

**Lead-acid battery program:**

1) Connecting to the battery.

Connect the Red clip to the Positive terminal of the Lead-acid battery, this terminal is usually marked '+' or marked in RED.



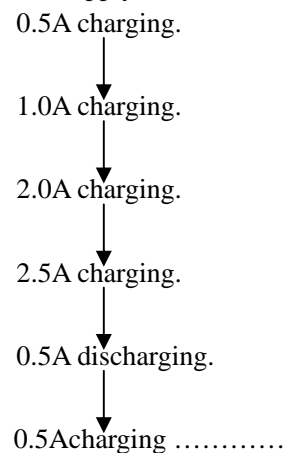
Connect the Black clip to the Negative terminal of the Lead-acid battery, this terminal is usually marked '-' or marked in BLACK.

2) Plug the DC output terminal of adapter or car lighter in the Input power hole of the charger/discharger, the displays on the screen is as the left side, then select the battery type carefully with MD button.

(If not check the power supply and fuse in the main supply).

3) With ST button to confirm the battery type, and choose the function for charging with MODE(MD) button. The program circle is below with each press: 2) Plug the DC output terminal of adapter or car lighter in the Input power hole of the charger/discharger, the displays on the screen is as the left side, then select the battery type carefully with MD button.

(If not check the power supply and fuse in the main supply).



4) Start the Charging/Discharging program with S/T (Run/Stop) button while the function in the program you select is on the screen.

5) At the beginning of the Charging/Discharging program starting, the charger/discharger will test its condition at that time.

If there are some errors for connecting with the battery, the following errors displays will be on the screen:

- a The output is connected to a battery with incorrect polarity (Reverse polarity/RV) or shorted.
  - b. This will be displayed in case of disconnecting with the battery (No battery/NB) or the open circuit of the battery.
- 4) Start the Charging/Discharging program with S/T (Run/Stop) button while the function in the program you select is on the screen.

6) Resume the process with MODE(MD) button and start it by S/T (Run/Stop) button.

7) To pause/stop the charging/discharging process, press S/T (Run/Stop) button for more than 3 seconds (you can alter the charging current from 0.5A to 2.5A with MODE(MD) button), and you can resume the process with S/T (Run/Stop) button.

8) When the charging/discharging is finished, the audible sound indicates you the end of process.

**Specifications:**

- Input voltage:10~18VDC.
- Output voltage range:3~20VDC.
- Charge current range:0.5~2.5A.
- Demensions:154X76X36mm.
- Suited battery standard:1-4 series Li-ion/poly,3~12cell in series NiMH/NiCd and 6V & 12V Lead-acid(Pb) battery packs..
- Max.input current:4.0A.
- Max.output power:.50W.
- Discharge current:0.5A.
- Weight:452g(No accessories).

**Warranty and service :**

-We warrant this product for a period of one year (12 months) from the date of purchase.During this period,we will repair or replace without service charge any product deemed defective due to material or operational defects.You will be required to present proof of purchase (invoice or receipt).This warranty does not cover the damage due to wear,overloading,incompetent handing or using of incorrect accessories.

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Dealer: <a href="http://www.PowerStream.com">http://www.PowerStream.com</a>
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