

# BX-212 Advance

## Computerized Nicad Charging System

### User's Manual

Thank you for purchasing the BX-212.

Misoperation of this equipment during rapid charging can be dangerous.

For safety's sake, read this manual thoroughly, and store it with the charger for future reference.

## 1. Notes on Usage

In this manual, warnings are classified into three levels as follows, depending on the severity of the danger posed by failure to observe the proper procedure in question.

### ! Danger

Failure to observe the matter discussed in such an item poses a serious threat of death or severe injury.

### ! Warning

Failure to observe the matter discussed in such an item poses a possibility of death or severe injury, and a large likelihood of damage to the equipment or property.

### ! Caution

Failure to observe the matter discussed in such an item poses a possibility of injury or damage to the equipment or property.

### ! Danger

- If the charging current for this charger is set incorrectly, the batteries may be damaged or may leak. Always set the charging current in accordance with the instruction manual provided with the battery. If you are uncertain of the proper charging current, contact the dealer where you purchased the battery.
- When using a car battery as the power supply, place the charger at a distance from the car. If the charger is placed in the engine compartment or in the car itself, a short circuit could be dangerous.
- To prevent serious injury in the unlikely event of an accident, do not put your face near a battery that is being charged.
- Do not set up the charging equipment in such a way that it is within the reach of children.
- If a battery leaks during charging, do not let the liquid come into contact with your eyes. Blindness could result. If you do get the liquid in your eyes, flush your eyes with a large amount of water and then contact a doctor immediately.
- Do not store or transport this equipment together with batteries. Doing so creates a risk of creating a short circuit or starting a fire.
- When cleaning this charger, use a non-flammable cleaning solution. Disconnect the power supply and any batteries before cleaning the charger. Failure to do so could cause a fire.
- Sparking may occur when connecting or disconnecting the power supply or a battery. Remove any flammable or ignitable materials from the vicinity before connecting or disconnecting the power supply or a battery.

### ! Warning

- Do not disassemble this unit.
- The only batteries that can be charged by this unit are nicad batteries with a normal delta peak and Kondo Hydropack batteries. Other types of batteries, such as dry cells, sealed batteries, nickel hydride batteries, and lithium ion batteries cannot be charged by this unit.
- The supply voltage for this unit is 10 to 24V DC. Use either a 10-amp or higher stabilized power supply that meets the ??? (and bears the mark), or a 35Ah or higher battery. Never connect this unit to a normal household (100V AC) power outlet.
- This unit may become hot even while charging a battery normally. If this unit is sitting on a plastic sheet while charging, the heat from the unit may melt the plastic. Place this unit on a nonflammable material during use.
- If the power cord is frayed or damaged, do not use this unit until the cord is replaced or repaired.
- The delta peak may be difficult to reach if the nicad batteries are new or have not been used for an extended period of time.

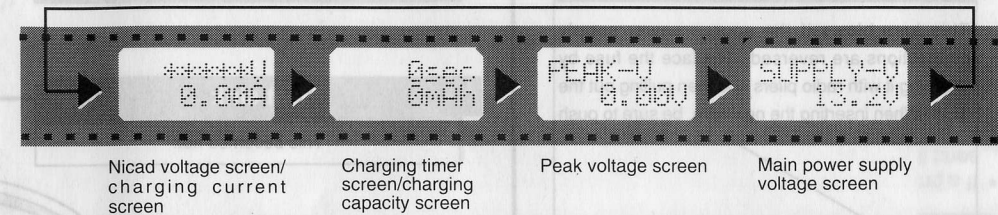
### ! Caution

- Do not use this unit if it becomes wet. Send it in for repairs.
- Do not use the unit if a foreign object (especially a metallic object) is inserted through the slits on the side of this unit until such object is removed.
- After confirming that a battery has been charged completely, disconnect it from the charger. Do not discharge it.
- Be certain to use a 15A fuse. Other fuses will not provide the proper protection.
- Keep the charger out of direct sunlight and at a temperature of 5°C to 40°C while charging.
- Do not set up this unit near water or in a very humid location.
- Do not charge batteries while they are still warm after being discharged (used). Batteries can be charged once they have cooled to room temperature.
- Do not charge batteries for transmitters/receivers (even large-capacity batteries) at 1.8A or more. The leads on these batteries are thin, so they can become dangerously hot if they are forced to carry a large amount of current.
- Do not connect this charger to its source power supply while the battery to be charged is connected. Doing so can blow the fuse and place a load on the source power supply.
- Shorting the terminals on the source power supply with the output terminals while charging is in progress will damage the internal circuitry of the charger.

## 2. Explanation of LCD Screens

Pressing the Select button changes the display as shown below.

(The displays shown are those that appear when there is no nicad battery connected.)



(Charging can be started by pressing the Start button, no matter which screen is displayed.)

### 2-1. Nicad Voltage/Charging Current Screen

#### Charging capacity safety timer cancellation indicator

This indicator does not normally appear. The charger's timer is programmed to halt charging when the charged capacity becomes constant. When charging a 5000 mAh nicad with eight or fewer cells, hold down both the Select button and the Start button when connecting the source power supply. After a moment, this indicator will appear, indicating that the safety timer has been cancelled.

#### Peak cancellation timer

This indicator appears while the cancellation timer (100 seconds) is in operation and has not detected instability in the pin voltage after the start of charging. During this interval, the charging operation is not cut off even if the current adjustment control is turned, varying the voltage.

#### Nicad terminal voltage

This value indicates the voltage during charging. The voltage gradually increases as charging continues. Because the indicated value is updated frequently, this display can be used to check for voltage instability, etc.

#### Charging current

This value indicates the charging current. This value is set by turning the charging current adjustment knob.

#### High-speed charging

This indicator appears when the charging monitor lamp is red and the charging operation is initiated. When the charging operation is completed, this indicator disappears.

### 2-2. Charging Timer/Charging Capacity Meter Display

#### Charging Capacity Meter

This value indicates how much the battery has been charged, based on the charging current that flows to the nicad battery and the amount of time that has elapsed. The unit of measure is the same as for the nicad capacity (mAh). Generally, when charging a battery that started with a remaining capacity of "0", this value becomes larger than the capacity indicated on the nicad cell, due to charging loss. This value can be used to compare the capacities of two different packs of the same type.

#### Charging timer

This value indicates the number of seconds that have elapsed since the start of charging.

\* The values on this screen remain even after charging is completed, but are reset when charging is started again.