

# TEKIN

ELECTRONICS, INC.

## BC 100L PEAK DETECTION CHARGER LINEAR CONSTANT CURRENT AND PULSE

### GENERAL

\*\*\* The Tekin BC 100L is a special charger designed to extract the maximum possible voltage from nickel cadmium cells. A super mosfet and other changes allow 10 amps output current. A selector switch allows both linear and pulse output. This results in more power from SCR cells for stock class racing, and more capacity and life from SCE cells. Your SCE cells won't burn out after just a few runs. They will run longer on a charge and last longer, as well as put out more voltage.

\*\*\* The unit has adjustable constant current charge rates from .5-10 amps. This allows all batteries from 50-4000 mah capacity and 4-7 cell to be charged. 8 cell transmitter packs may also be charged to near full capacity.

\*\*\* Built in output jacks and selector switch to monitor charge volts and amps with external voltmeter.

\*\*\* Current adjustment knob won't get bumped once you set it, and yet is easy to adjust.

\*\*\* Calibrated amps dial is accurate enough to eliminate need for meter.

\*\*\* The Tekin BC 100L is a simple (on the outside), compact and reliable unit with no probes or adjustments to worry about.

### POWER SUPPLY

**For Charging 6 to 8 Cell Packs:** A 12 volt automotive battery is recommended. If charging 7-8 cells it is recommended to connect a 12 volt battery charger to the 12 volt battery while charging to maintain the highest supply voltage. A 4 - 10 amp automotive battery charger may also be used, but sometimes causes problems due to voltage spikes or dropouts. If the 12 volt battery is installed in an automobile be careful not to let the wires or heatsink on the top of the charger short to the auto ground or the fuse may blow. CB or homemade power supplies may be okay as long as they do not put out over 14.5 volts under load, and do put out at least 3 amps, or whatever current you wish to charge at.

**For charging 4 to 5 Cell Packs:** You must use the dropping resistor supplied (see drawing on back), otherwise the charger can overheat. Connect into the POS (red) wire. If your power supply is adjustable you may turn it down to 10 volts and not use the resistor. You will still get a full charge. 4 cell packs must be charged at 4 amps max or the charger can overheat. They may be peaked at 8 amps for a few minutes.

### FAST CHARGING

\*\*\* First connect the charger to the power supply. The 12 volt supply should always be connected first and disconnected last. Be sure to check polarity, red clip is pos. (+), and black clip is neg. (-).

\*\*\* Connect charger to the battery pack, be sure to observe polarity.

\*\*\* Push the start button and hold for at least 5 seconds to clear the charger's memory. The light should begin glowing solid or flickering just a little, indicating a fast charge.

\*\*\* Charge current can be adjusted by turning the knob. 1200 mah sub-C type cells should be charged at 4 - 4.5 amps. 1700 mah sub-C type cells should be charged at 3.5 - 4 amps. SCR type cells should be charged at 8 amps if it's a 6-7 cell pack, otherwise 5.5 amps on 4 cell. 500 mah AA type cells should be charged at 1 amp. (CAUTION: Not all transmitter batteries can be fast charged. It is best to check the battery for excessive warmth while charging.) When charging transmitter batteries it's best to make an adaptor and connect the nicad pack directly without going through the charge jack on the transmitter.

\*\*\* When the batteries are done charging the light will go out. If the trickle switch is set to the On position the charger will slow charge. The slow charge rate will be 100-350 ma, and is proportional to the fast rate. If the output switch is set to the SCE position the slow charge will be linear constant current, and the light will not blink or come on. If the output switch is set to SCR the slow charge will be pulsed and the light will blink.

\*\*\* If the batteries are fast charging and you wish to go to the slow rate just disconnect the nicad pack for 5 seconds and plug back in.

\*\*\* If you are charging a pack that has just been completely discharged, the unit may shut off in the first 3 minutes of charging. This is due to false peak of the batteries, and not a charger problem. Just press the button to resume charging.

\*\*\* If you wish to monitor the charging volts and amps you may do so by connecting an external voltmeter to the front panel jacks. Set the voltmeter to the 20 volt scale. Select volts or amps on the front panel switch of the charger. **Do not set voltmeter to amps scale.** When reading amps you must multiply the reading to get the correct figure. If the charge pulse switch is set to .5-5 amps multiply the reading by 10 (.3 volts = 3 amps). If the output selector switch is set to 1-10 amps SCR then multiply the reading by 20. (.3 volts = 6 amps)

### OTHER INFORMATION

\*\*\* The heatsink will become warm in operation, use caution.

\*\*\* Adaptor wires for the output should be no more than 7 inches long and made of silicone battery pack wire (18 gauge or larger). If you use alligator clips they should be insulated and one lead should be 2 inches longer than the other to help prevent shorts.

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\*\*\* The heatsink is electrically live (hot) and must not be allowed to short to any wires or the automobile ground or the fuse may blow.

\*\*\* **DO NOT** use a fuse rated higher than 15 amps. If you do and the charger is hooked up backward, damage **WILL** result. (Replacement part #853)

\*\*\* **DO NOT** connect an electric motor to the charger or the mosfet transistor will be damaged.

\*\*\* A good indication that the battery is fully fast charged is that it will become slightly warm.

\*\*\* Stay at least 4 feet away from where transmitters are being operated as they can false trip the peak detector.

### COMPETITION BATTERY CHARGING

\*\*\* First of all start off with a totally discharged battery pack. This is best accomplished by placing a 30 ohm resistor on the entire pack and leaving it on at least overnight, 1 week is best.

\*\*\* When charging a battery that has been totally discharged, it is best to put it on the charger and let it trickle charge 15-20 minutes before fast charging.

\*\*\* If you connect a totally dead battery pack to the charger the fast charge may not start when the button is pressed. In this case turn the trickle switch on and set to 8 amps in order to get enough voltage in the battery to start charging. Then turn the trickle back off if you want.

\*\*\* **For SCE (1700 mah) type cells** - first charge the battery at the 4 amp rate until it peaks out, use the 5A linear setting. For maximum run time leave the pack on charge at the slow rate for 2-4 hours. For more voltage take the pack off after charging and let cool 20-30 minutes. Then repeak at 4 amps until warm. Repeat this 3 times. Just before racing charge the pack at 6-8 amps for maximum power off the line. The cells should be a little warm.

On SCE type cells a 2 step charge is best. The pack is initially charged at the 4 amp linear setting to get maximum capacity. It should then be recharged at the 10 amp pulse setting for maximum voltage. Repeak at 8 amps.

\*\*\* **For SCR type cells** - charge at the 9 amp rate then disconnect cells after pack peaks out. Switch the trickle switch off.

\*\*\* About 5 minutes before the race put the pack back on at the 8 amp rate. Repeak it once or twice until the cells are very warm. This will extract the maximum voltage and capacity from the cell. Run once and then place the 30 ohm resistor back on for at least 24 hours.

\*\*\* **Trickle Charging** - There is a new trickle on/off switch. When the trickle is on and the output switch is set to 1/2-5A SCE linear the trickle will be linear (but the light will blink slowly to indicate operation). When set to 1-10 amp SCR the trickle will be pulsed.

\*\*\* **New Battery Warning;** Brand new battery packs may exhibit unusual voltage characteristics the first time they are fast charged, there may be erratic voltage and no peak. This can cause the charger to overcharge the batteries. For this reason you should manually monitor the battery the first charge and take it off charge if it becomes excessively hot.

### TROUBLESHOOTING

Almost all problems are caused by poor or loose connections that trip the peak detector when the wires are bumped or moved. You must make certain the charger is well connected to the battery pack. Any connectors should be clean (use motor spray) and tight. Alligator clips are best clipped to a piece of multi-strand flexible wire so the teeth can sink in.

A 12 volt battery is the best overall power supply. When using a 12 volt car battery charger or power supply sometimes line surges or dropouts will cause problems.

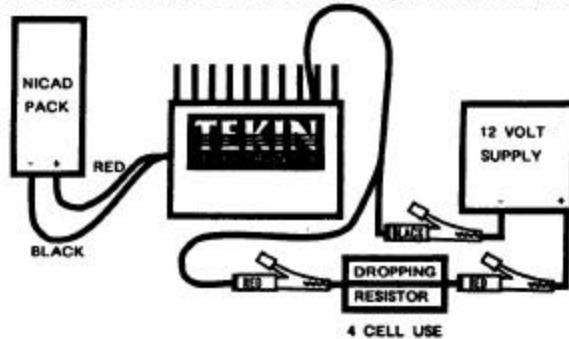
If the unit slow charges, but will not fast charge when the button is pressed, the output wires may be shorted or hooked up backwards.

Be very careful not to hook up the charger backwards as the fuse may blow. You can replace the fuse yourself with a 15 amp unit.

If the power supply, battery, fuse, and all connections all check out okay and the charger either stays on or off all the time, or blows fuses, then the mosfet transistor inside of the charger may have been damaged. This can happen if the unit is shorted, overheated or connected to an improper power supply. If you wish you may replace the transistor yourself. (Part #854)

If it should ever be necessary to return unit to factory for repair be sure to enclose a note stating nature of problem, return address, shipping instructions and any special instructions. Most repairs are shipped back out within 2 days, C.O.D. Please allow up to 2 weeks for shipping.

If the heatsink on the top of the charger becomes excessively warm, then reduce the charge current slightly, reduce the power supply voltage, or use a small fan on the heatsink.



### WARRANTY

TEKIN ELECTRONICS, INC. guarantees this battery charger to be free from factory defects in materials and workmanship for a period of 120 days from date of purchase, verified by sales receipt. This warranty **does not cover:** suitability for specific application, components worn by use, application or reverse or improper voltage, tampering, misuse or shipping. Our warranty liability shall be limited to repairing unit to our original specifications. Because we have no control over the installation or use of this product, in no case shall our liability exceed the original cost of the product. By the act of using this battery charger the user accepts all resulting liability. Batteries and other equipment damaged in connection with the use of this device are not covered. We reserve the right to modify the provisions of this warranty without notice.

Thank You and Good Racing!

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