DURATRAX® IntelliPeak™ DIGITAL PULSE CHARGER

Congratulations on your purchase of the IntelliPeak™ Digital Pulse Charger by DuraTrax®! Offering peak charging technology for nickel-cadmium batteries and specialized peak charging technology for nickel-metal hydride batteries, the IntelliPeak Digital Pulse Charger also provides discharging and cycling features, plus an easy to see LCD readout for viewing of important battery data. Features such as this make it easy to see why the IntelliPeak Digital Pulse Charger is the leader in battery charging technology.

SPECIAL FEATURES

- "Negative DeltaV" (-ΔV) peak detection for NiCds, plus advanced "Zero DeltaV" (0ΔV) peak detection technology specifically for NiMHs, for full charges without overcharging
- 8-bit 4MHz CPU with 8K ROM, 1K RAM, 1-channel 16-bit analog-to-digital converter
- Built-in Artificial Intelligence to eliminate false peaks
- High efficiency P-Channel MOSFET drive transistors
- 11-15V DC input
- Incredibly small, detachable, 12 volt 7 amp AC power supply with built-in cooling fan for at-home use
- Output: 4-7 cells on DC, 4-8 cells on AC
- Adjustable fast charge current: 0.5-6.5 amps
- 8-bit pulse width modulated charge current
- 100mA trickle charge
- 10 and 2 amp fixed discharge rates, selectable by switch
- Cycle functions: Select a single discharge/charge cycle for periodic pack conditioning, or continuous "auto-repeat" cycles for reviving batteries that have developed a memory or for breaking in a new pack
- Four multi-function, high intensity LEDs and audible tones for easy set-up
- Four-digit, seven-segment Liquid Crystal Display shows battery voltage, charge current, and charging and discharging capacity in mAh (milli-Amp hours)
- Twin built-in miniature fans keeps charger cool, increasing efficiency and lifespan
- Reverse polarity and overload protection
- Capable of charging transmitter batteries

IMPORTANT PRECAUTIONS

- Charge only nickel-cadmium or nickel-metal hydride rechargeable batteries. Damage may occur from other types of batteries.
- Do not use automotive type battery chargers to power the charger.
- Do not allow water, moisture or foreign objects into the charger.
- Do not cover the air intake holes on the charger. This will cause the charger to overheat.
- Do not charge batteries containing fewer than 4 cells
- Always connect the power source first.
- Do not use a cable longer than 30cm to connect the charger with the batteries.
- Do not leave the charger unattended while charging. **Disconnect the battery immediately if the charger becomes hot.** Allow the charger or battery to cool down before reconnecting.
- Keep out of reach of children.
- Do NOT discharge cells smaller that sub-C size cells.

Unlike most other chargers, the IntelliPeak Digital Pulse Charger is capable of charging both nickel-cadmium (NiCd) and nickel-metal hydride (NiMH) battery chemistries, as identified by this symbol. Look exclusively for battery chargers with this symbol to handle both NiCd and NiMH charging needs.

IMPORTANT CARE AND HANDLING INSTRUCTIONS FOR NIMH BATTERIES

While similar in appearance to sub-C NiCd batteries, NiMH batteries have a different internal chemistry and require a different charging method. The IntelliPeak Digital Pulse Charger incorporates two separate peak detection technologies: Negative DeltaV (-ΔV) for NiCd batteries, and Zero DeltaV (0ΔV) for NiMH batteries. When either a NiCd or NiMH battery is placed in peak charge mode, the Digital Pulse Charger automatically detects the battery chemistry being charged. In turn, the charger automatically activates either the -ΔV or 0ΔV detection system to match the respective battery. This advanced technology allows the Digital Pulse Charger to charge either chemistry type at higher rates, because the peak detection cutoff circuitry is more sensitive to voltage changes on the battery under load.

It is important not to allow NiMH batteries to overheat while being charged. Heat can adversely affect the performance of NiMH batteries. The Zero DeltaV technology is designed to allow for high rate, 6.5A fast charge without adverse heating of the NiMH battery. If overheating is observed, however, disconnect the battery from the charger immediately and reduce the charge rate for future charging needs. Also, do not deep cycle NiMH batteries. Permanent damage could result. Store NiMH packs with some voltage remaining on the cells. Use a NiMH battery pack no more than three cycles per day, with a two to three hour break in-between for cooling. More frequent use is likely to overheat the pack.

DC INPUT POWER

If using a DC power supply or 12V DC battery for input power, connect the DC adapter cord (included) to the lead exiting the rear of the charger. Attach the red alligator clip to the positive (+) terminal on the power supply, and the black alligator clip to the negative (-) terminal. It's best to use a clean DC power source whose output is filtered to remove unwanted electrical noise. Disconnect the DC input adapter cord from the charger when not in use.

AC INPUT POWER

The IntelliPeak Digital Pulse Charger accepts DC input voltage only. To draw power from a 110V AC source, plug the white connector exiting the rear of the charger directly into the white connector located in the rear of the AC power supply. Plug the power supply into a 110V AC outlet. Do not attempt to connect the charger directly to 110V AC power, as permanent damage to the charger will result.

OUTPUT LEAD

The output lead (included) has a standard style connector at one end, with the opposite wire ends stripped so a small portion of bare wire is showing. Insert the red, positive (+) wire into the red spring loaded terminal on the front of the charger. Install the black, negative (-) wire into the black spring loaded terminal. These terminals allow virtually any other charge leads to easily be connected to the charger if so desired. **CAUTION: Make sure wire strands never make connection between the red and black terminals!** Failure to do so could result in a short circuit condition, causing the permanent damage to the charger and/or battery.

SLOW CHARGING

The IntelliPeak Digital Pulse Charger offers a slow 100mA trickle charge rate for charging a new battery or topping off a previously charged battery. Connect the battery to the charge lead on the front of the charger. The green SLOW CHARGE LED should automatically begin to flash, indicating trickle charge is in progress. A 1500mAh battery should reach full charge in approximately 15 hours using this charge method.

PEAK CHARGING

This unit has a high-rate fast charge to recharge a partially discharged battery, with circuitry designed to monitor pack voltage and automatically terminate fast charge when full charge is reached. Select the desired charge rate using the PEAK CHARGE AMPS adjustment knob. Connect the battery to the charge lead on the front of the charger. The charger will automatically detect the number of cells in the battery. The green SLOW CHARGE LED should automatically begin to flash, indicating trickle charge is in progress. Push the MODE SELECT button once to start peak charging. The red PEAK CHARGE LED should light, and the charger will beep once to confirm peak charge is in progress. When this LED begins to flash the battery is approaching peak charge. This should soon be followed by occasional flashing of the STATUS LED, where each flash represents instantaneous moments when actual battery voltage is starting to decline, thus indicating the battery has reached peak and the charger will soon return to slow charge automatically.

WARNING: Do not leave charger unattended during fast charge. If the battery or charger become hot at any time, disconnect the battery from the charger immediately! Failure to do so may cause permanent damage to the charger and battery, and may cause bodily harm. Reduce the charge rate for future charging needs.

Do NOT charge 4 or 5 cell batteries at a rate greater than 4.5A, as this could cause excessive heating in the charger itself.

DISCHARGING

Discharging removes charge from a battery for storage or conditioning purposes. The IntelliPeak Digital Pulse Charger is capable of discharging at either a 10 amp or 2 amp rate. First, select which discharge rate is desired using the switch located on

the bottom of the charger. The 10 amp rate can be used for fast discharges, but is typically not recommended for batteries having a capacity rating of 1500mAh or less. The 2 amp rate provides a more gentle, slow discharge and can be used on sub-C batteries of all capacities. Connect the battery to the lead on the front of the charger. Push and hold the MODE SELECT button for two seconds. The charger will beep two times, and the amber DISCHARGE LED will light, confirming discharge is in progress. When the battery is finished discharging, the charger will automatically switch to slow charge mode.

The IntelliPeak Charger has a fixed, non-adjustable discharge cutoff voltage setting of 2.60V. If a specific discharge cutoff value other than 2.60V is desired, monitor the pack voltage during discharge with the built-in LCD display and manually terminate discharge at such point as desired. This step must be followed during all cycling functions as well if a different cutoff voltage is desired.

WARNING: Do NOT discharge cells which are smaller than sub-C size. The discharge current rate of the IntelliPeak is too high for smaller cells such as A, AA, and AAA size, in addition to the wiring used to assemble such packs. Failing to avoid this will likely cause permanent damage to the cells and/or wiring in the battery packs, and possibly the equipment in which the battery is installed.

SINGLE CYCLING

Use the single cycling feature to conduct a single discharge/charge cycle for periodic pack conditioning of regularly used batteries. Select the desired charge rate using the Peak charge amps adjustment knob. Select the desired discharge rate using the switch located on the bottom of the charger. Then, connect the battery to the charge lead on the front of the charger. Push the MODE SELECT button twice. The amber DISCHARGE LED will light and the charger will beep three times to confirm single cycling is in progress. When discharge is complete, it will automatically switch to peak charging, confirmed by the red PEAK CHARGE LED and a single beep. This LED will flash when the battery nears peak charge, after which the charger will automatically return to slow charge as indicated by the flashing green SLOW CHARGE LED.

AUTO-REPEAT CYCLING

Auto-repeat cycling lets you conduct repeated discharge/charge cycles for deep pack conditioning to break in new packs or revive older or unused packs which may have developed memory. Select the desired charge rate using the PEAK CHARGE AMPS adjustment knob. Select the desired discharge rate using the switch located on the bottom of the charger. Then, connect the battery to the charge lead on the front of the charger. Push the MODE SELECT button twice and hold it down for two seconds. The amber DISCHARGE LED will light and the charger will beep four times to confirm auto-repeat cycling is in progress. After the battery has finished discharging it will automatically switch to peak charge mode, confirmed by the red PEAK CHARGE LED and a single beep. When this LED begins to flash, the battery is approaching peak charge. This should soon be followed by occasional flashing of the STATUS LED, where each flash represents instantaneous moments when actual battery voltage is starting to decline, thus indicating the battery has reached peak and the charger will soon return to slow charge automatically. Once peak charge has completed, the charger will automatically repeat this entire discharge/charge process. To end this function, the user must push the MODE SELECT button or disconnect battery from the charger.

To discharge the battery for storage, allow the battery to cycle the desired amount of times and then push the MODE SELECT button until the orange DISCHARGE LED lights. This will start discharge mode only. To peak charge the battery, wait until the last desired cycle is over and then push the MODE SELECT button until the red PEAK CHARGE LED lights.

LED DISPLAY

Condition	Discharge LED (Yellow)	Fast Charge LED (Orange)	Slow Charge LED (Green)	Status LED (Red)
No Battery	OFF	OFF	OFF	ON
Slow Charging	OFF	OFF	OFF: When battery is < 3V Flash: Slow Charging	On: Normal Flash: Bad battery connection Off: Weak power supply
Fast Charging	OFF	ON: Battery is charging Flash: Battery is near peak	OFF	On: Battery voltage is increasing or stable Off: Battery voltage is decreasing
Discharging	ON	OFF	OFF	ON

LIQUID CRYSTAL DISPLAY

Selectable by slide switch on the left side of the charger, three important types of data can be viewed on the built-in LCD. Slide the switch into one of the three pre-set positions to view the respective data on screen. OUTPUT AMPS displays the charge current (in amps) being delivered to the battery. OUTPUT VOLTAGE displays the voltage at the point where the battery is connected to the charger.

The CAPACITY IN MAH selection displays how much capacity (in milli-Amp hours) is being delivered to – or removed from the battery. This is useful for determining how much capacity has been delivered to the battery during fast charge (a function of charge time multiplied by charge rate). Also useful during discharge, data shown on the LCD indicates how much capacity the battery maintained in storage (a function of discharge time multiplied by discharge rate). Comparing the measured discharge capacity data to the rated capacity of the battery (as listed in “mAh” somewhere on the battery) can help determine the overall condition of the battery and its ability to retain charge properly. Typically, a new battery should be able to store anywhere from 90-100% of its rated capacity. A battery’s ability to hold charge will typically decrease with use and/or age where, at some point, replacement will be necessary. The CAPACITY IN MAH function on the IntelliPeak Digital Pulse Charger can help to properly evaluate the condition of a battery.

TRANSMITTER BATTERIES

The IntelliPeak Digital Pulse Charger is capable of charging 9.6V transmitter batteries. This is best accomplished when using 110V AC input through the AC power supply, or DC input power of greater than 12V but less than 15V. Connect the appropriate adapter (not included) into the spring terminals on the front of the charger. **CAUTION: Failure to recognize proper polarities will cause permanent damage to the battery and/or radio!** Turn the PEAK CHARGE AMPS adjustment knob down to 0.5 amps to allow the batteries to peak charge. Charging at a higher amperage can cause permanent damage to the transmitter batteries. Do not allow standard capacity TX batteries to remain in slow charge mode in excess of 1 hour after peak charge has been reached, as overheating of the battery might occur. **Note: If your transmitter has a diode in the charge circuit, it may be necessary to remove this diode to allow your transmitter to receive a full charge with this IntelliPeak charger. In addition, the battery will NOT accept a discharge with the diode in the circuit. Removal of the diode will allow a full charge and discharge.**

WARNING: Do NOT discharge transmitter batteries with the IntelliPeak Charger. The discharge current rate is too high for such smaller cells and the wiring which is used to assemble such packs. Failing to avoid this will likely cause permanent damage to the cells and/or wiring in the battery packs, and possibly the equipment in which the battery is installed.

SPECIFICATIONS

Input Voltage:	11-15V DC
Output:	4-7 cells DC, or 4-8 cells with AC power supply
NiCd Fast Charge:	0.5-6.5A
NiMH Fast Charge:	0.5-6.5A
Trickle Charge Rate:	100mA
Discharge Rate:	10 or 2 amps selectable
Discharge Cutoff Voltage:	2.60V fixed
Battery Types:	Nickel-cadmium (NiCd) & nickel-metal hydride (NiMH)
LCD:	Four 1/2" tall seven-segment digits
Case Size:	5.38" x 2.25" x 4.0"
Weight:	16.6 oz. (without power supply)
Part Number:	DTXP4130

WARRANTY

DuraTrax warrants this product to be free from defects in materials and workmanship for a period of 1 year from the date of purchase. During that period, we will repair or replace , at our option, any product that does not meet these standards. You will be required to provide proof or purchase date (receipt or invoice). If during the 1 year period, your DuraTrax product shows defects caused by abuse, misuse, or accident, it will be repaired or replaced at our option, at a service charge not greater than 50% of the current retail price. Be sure to include your daytime telephone number in case we need to contact you about your repair. This warranty does not cover components worn by use, application of reverse voltage, cross connections, poor installation, subjection of components to foreign materials, any alterations to wires, or tampering. In no case shall our liability exceed the original cost of the product.

Your warranty is voided if...

A. You allow any wires to become frayed which could cause a short
B. You tamper with any of the electronic components.
C. You exceed minimum or maximum cell specifications for the battery pack.
D. You allow water, moisture, or any foreign material to enter the charger case.
E. You apply reverse voltage by connecting the battery pack backwards.

Under no circumstances will the purchaser be entitled to consequential or incidental damages. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. If you attempt to disassemble or repair this unit yourself it may void the warranty.

For service to your DuraTrax product, either in or out of warranty, send it post paid and insured to:

Hobby Services
1610 Interstate Drive
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Internet Address: www.duratrax.com