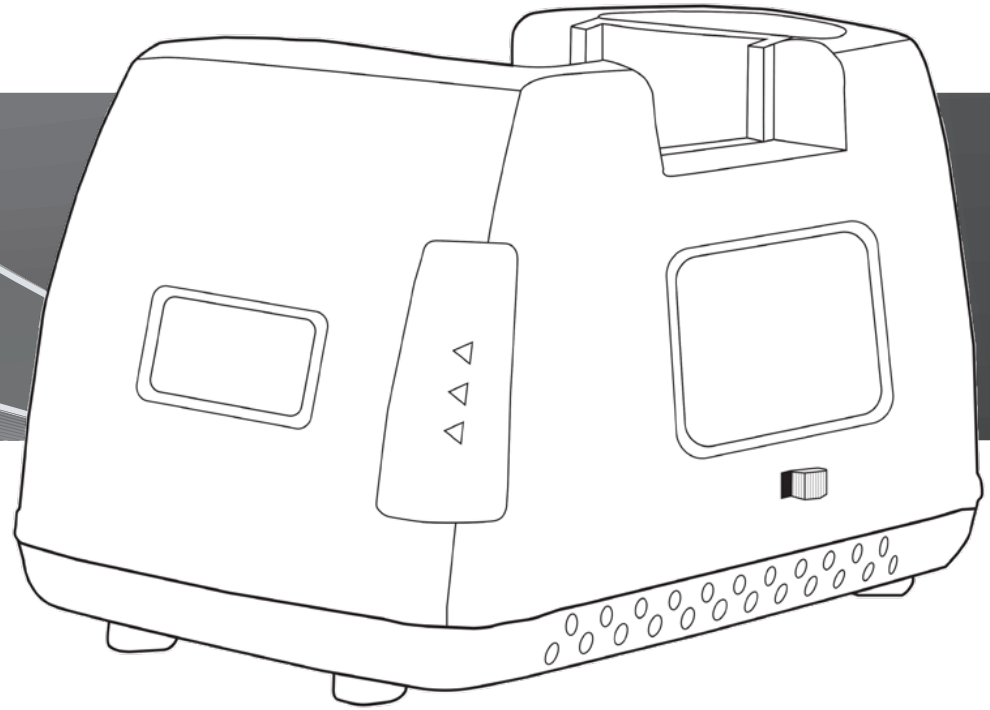
ENDURA™

Single Unit Calibrating Charger

CHARGES / CALIBRATES BATTERIES FOR KNG RADIOS



User Manual

Model: EC1C-BK2

ENDURA EC1C-BK2
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Introduction

Thank you for purchasing an Endura™ EC1C-BK2. This product is designed to be used as a standard desktop charger or to calibrate KNG radio Li-Ion batteries. The following batteries are compatible with EC1C-BK2:

- KAA0100 / KAA0101 / KAA0103
- BP0101LI / BP0101LIXT

Calibration Mode (CAL) is a selectable feature that enables you to "refresh" batteries that incorrectly display battery charge level on the radio. This condition is typically discovered when a fully charged and "healthy" battery is placed on the radio and the battery level icon shows less than full charge. Charge Only Mode (CHG) is selected when you simply want to charge a battery.

For replacement parts or accessories, contact a Power Products dealer, visit www.powerproducts.com, or call customer service at 800-529-1618.

Important

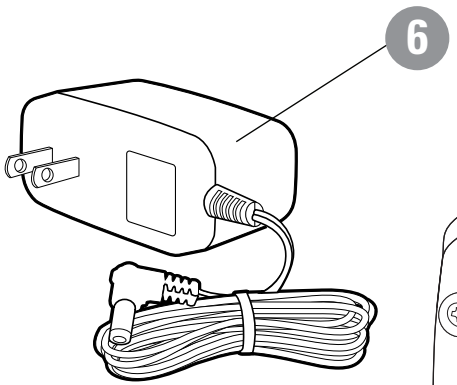
1. Read all Caution statements below and this User Manual before attempting to charge or calibrate a battery.
2. Always charge new batteries completely before initial use.
3. Recycle batteries when they can no longer be used. Do not discard unwanted batteries in the trash or incinerate. Batteries exposed to fire or excessive heat may explode.
4. KNG radio Li-Ion batteries may be recharged when partially or fully discharged.

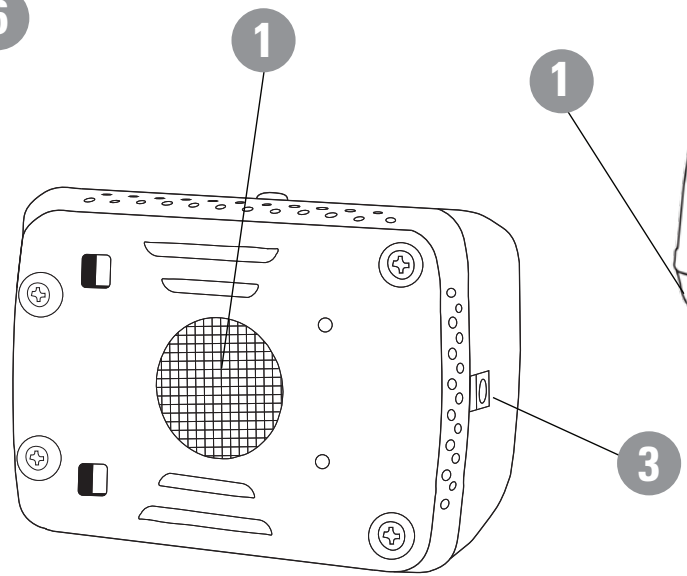
Caution

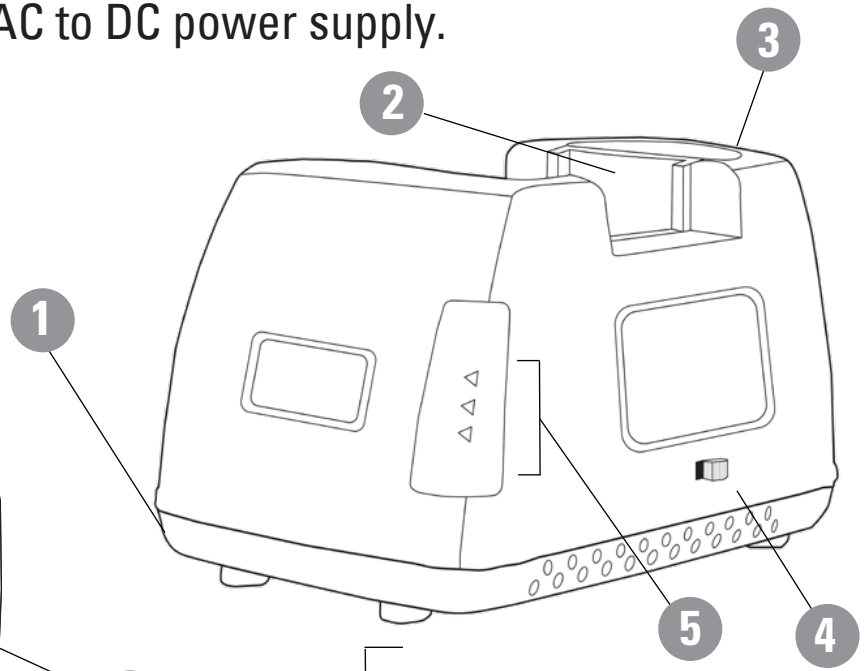
1. EC1C-BK2 is designed for charging or calibrating KNG radio Li-Ion batteries only. Do not use with other batteries or chemistries.
2. Use charger in areas protected from the weather. Do not expose the charger to rain, any liquids, or excessive moisture.
3. Do not attempt to charge a battery without the charging pod. If a replacement pod is needed, order TWP-BK2. Disconnect charger from the power source before installing, adjusting, or removing the charging pod.
4. Make sure contacts in charging pod and on the battery are clean. Do not allow wire or metal objects to touch contacts in charging pod or any internal part of the charger.
5. Do not remove the charger's housing or make any modification to the charger.
6. Use only the power supply provided with EC1C-BK2. If a replacement is required, see section **Accessories**. Use of other power supplies may damage the charger or batteries you may be attempting to charge.

EC1C-BK2 Features

1. Metal charger base with cooling fan vent (do not cover).
2. Charging pod.
3. DC power connection – back of charger.
4. Switch for selecting Calibration Mode or Charge Only Mode.
5. Charge status LED – illuminates green, red, or orange.
6. AC to DC power supply.







CHG - Charge Only Mode
CAL - Calibration Mode
PWR - Power On

Charging A Battery (Charge Only Mode)

1. Connect EC1C-BK2 to power with the power supply.
2. Set the switch on the side of the charger to Charge Only Mode (CHG).
3. Place the battery to be charged in the charging pod. The battery may also be charged while attached to the radio. The radio may be powered-on while in the charger when Charge Only Mode is selected.
4. When a battery is placed in the charging pod and while charging, the CHG LED will illuminate RED with no flashing to indicate normal charging.
5. If the CHG LED is red and flashes, a fault has been detected. The flash pattern represents a specific fault condition. If the CHG LED is orange and flashes, an advisement is being provided. See section **Fault Conditions & Advisements** for details.
6. When the battery is charged to 80% of capacity, the CHG LED will change to GREEN and begin to flash. It is recommended that the battery be charged to at least 80% capacity before use.

Charging A Battery (continued)

7. The CHG LED will illuminate GREEN with no flashing when the battery is fully charged.
8. After removing a fully charged battery, the CHG LED will illuminate ORANGE for a few seconds. Allow the CHG LED to go off before placing another battery in the charging pod.
9. The EC1C-BK2 is designed to charge batteries with a temperature monitoring circuit when the battery temperature is between 0°C and 45°C (32° F – 113° F); batteries outside this temperature will not be charged. When charging a battery, the ambient temperature should be 5°C - 40°C (41° F - 104° F).

Calibrating A Battery (Calibration Mode)

1. Connect EC1C-BK2 to power with the power supply provided.
2. Set the switch on the side of the charger to Calibration Mode (CAL).
3. Place the battery to be calibrated in the charging pod. If the battery is attached to the radio, **keep the radio powered-off** while calibrating.
4. The calibration process has three stages:
   - First, the battery is charged. The CAL LED illuminates RED until fully charged.
   - Second, the battery is discharged. The CAL LED illuminates ORANGE until fully discharged.
   - Third, the battery is charged. The CAL LED illuminates RED while charging, then illuminates GREEN to confirm calibration is complete.
5. Assuming a battery is fully discharged when inserted, a 3600 mAh battery will complete calibration in about 15 hours and a 2200 mAh battery in about 9 hours. A battery that is only partially discharged when inserted will complete calibration sooner.

Calibrating A Battery (continued)

6. If the CAL LED flashes RED, a fault has been detected. If it flashes ORANGE, you are receiving an advisement. The flash pattern indicates a specific condition. See section **Fault Conditions & Advisements** for details.
7. If the battery is removed before calibration is completed, the calibration process terminates. If the battery is then reinserted, the calibration process commences with the first stage.
8. If the mode selection switch is (accidently) changed from CAL to CHG before calibration is completed, the calibration process continues through the remaining stage(s) until calibration is completed. Removing the battery and sliding the mode selection switch to CHG is required to engage Charge Only Mode.
9. When calibrating a battery, the ambient temperature should be 5°C – 40°C (41°F – 104°F).

Fault Conditions & Advisements

When the charge status LED flashes RED, a fault condition exists. A fault condition requires immediate attention. When the status LED flashes ORANGE, you are receiving an advisement about the battery.

The flash patterns for fault conditions are as follows:

LED Pattern	Fault Description
Flashes RED 1 Time	Indicates (A) low voltage battery failure or (B) battery has a short circuit. If (A), the battery's voltage is below the minimum level required and cannot be charged. If (B), the battery is defective and should be recycled. This warning is provided after the pre-charge stage is completed.
Flashes RED 2 Times	Indicates battery contact is "open" and current is not passing through the (+) and (-) contacts on the battery. This warning is provided after the initial diagnostic stage is complete.
Flashes RED 3 Times	Battery temperature is 45°C (113° F) or above. Charging has terminated, remove battery from charger. Have battery checked by a qualified technician.

Fault Conditions & Advisements (continued)

LED Pattern	Advisement
Solid ORANGE (Battery removed.)	Brief reset period for charger after battery is removed. Allow the LED to go off before inserting another battery.
Flashes ORANGE / GREEN	Battery temperature remains at 0°C (32° F) or below after two hours of monitoring. Remove battery from charger and allow it to warm.
Flashes ORANGE 1 Time	Indicates battery is too cold when initially inserted. If the battery temperature is 0°C (32° F) or below, charging is delayed for up to two hours. Battery is monitored and charging resumes once it is above freezing. Monitoring terminates if the battery temperature remains below freezing for two hours.
Flashes ORANGE 2 Times	Indicates charging complete, but battery is under charged. Battery voltage is below minimum level required. This warning is provided after the rapid charging stage is complete.

Replacing A Charging Pod

The charging pod is made from quality materials and designed to provide years of service when properly used. Should replacement be necessary, follow these steps:

1. Unplug EC1C-BK2 from its power source.
2. The charging pod is secured to the base with a single screw. To remove, turn the locking screw on the bottom of the charging pod counter-clockwise until it no longer holds the pod. Lift the charging pod from the charging base.
3. Insert the replacement charging pod into the charger base and secure with the locking screw. Do not over tighten the screw.
4. Inspect the charging contacts to ensure they are clean and unobstructed.
5. Connect the power supply to the charger. You are now ready to charge or calibrate your KNG radio battery.

Warranty And Service During Warranty

EC1C-BK2 is made from high quality materials and designed to provide years of reliable service. The following warranty applies:

Power Products Unlimited, LLC (PPU) warrants this product to be free from defects in workmanship and materials for two-years from date of purchase by the end user. This warranty applies to the original purchaser and is void if the product has been altered, misused, damaged, neglected, or if repair is required because of normal wear and tear. This is the only warranty made by PPU. In no event will PPU, its affiliates, subsidiaries, related entities, or their respective directors, officers, or employees, be liable for any damages beyond repair or replacement as described above, including without limitation, indirect, incidental, or consequential damages. For service under warranty, return the product along with dated proof of purchase to the retailer where purchased or to Power Products. If returning directly to Power Products, follow these instructions:

- Send to Power Products – Warranty Service Department, 2170 Brandon Trail, Alpharetta, GA 30004. For your protection, we recommend you obtain proof of delivery for your shipment.
- Include with your product, dated proof of purchase, your name and daytime telephone number, and return address (street address only; return shipments cannot be made to a P.O.Box).
- All items sent become the property of Power Products and will not be returned.

Specifications

Dimensions (W x L x H)	96 x 131 x 87 mm / 3.8 x 5.2 x 3.3 inches
Weight	0.39 kg / 0.85 lbs. (charger only)
Compatible Chemistries	Li-Ion / LiPo
Ambient Operating Temperature	5° C - 40° C / 41° F - 104° F
Power Supply (TWC1-PS)	Input 100V – 240V AC / 50 Hz – 60 Hz / 0.5A
Charger Input	15V DC / 1.0A (minimum)
Charge Rate	800 mA (10.6V-13.5V)
Calibration Time*	15 hours (3600 mAh battery) / 9 hours (2200 mAh battery)
Approvals	FCC / UL (power supply)

Specifications subject to change without notice.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

*Assumes fully discharged battery. Calibration times will be shorter for a partially discharged battery.

Accessories

Part Number	Description	Information
TWC1-PS	Power supply. (Included with EC1C-BK2.)	UL listed. Input: 100-240V, 50-60Hz, 0.5A. Output: 15.0V, 1.0A.
TWP-BK2	Charging pod. (Included with EC1C-BK2.)	Includes fastening screw. For Li-Ion batteries only.
EC1C-MB2	Desktop bracket for holding two units.	Includes power supply for powering two units.

Endura Chargers By Power Products
Smart – Adaptable – Reliable™

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www.powerproducts.com