

SPECIAL LANGUAGE DEFINITIONS

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of serious injury.

ATTENTION

Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to assemble or operate the product correctly can result in damage to the product, personal property, and cause serious or fatal injury.

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Flex Innovations, Inc. For up-to-date product literature, please visit our website at www.flexinnovations.com and click on the support tab for this product.

WARNING

This product is not intended for use by children under 14 years without direct adult supervision. Failure to exercise caution while using this product and comply with the following warnings could result in product malfunction, excessive heat, fire, and injury and/or property damage.

WARNING

Never leave charger unattended. Always ensure the battery you are charging meets the specifications of this charger and that the charger settings are correct. Never exceed maximum charge rate for your battery and verify these settings with your battery's collateral materials.

Failure to comply with any of the above warnings may result in excessive heat, fire, damage to property and serious personal injury. Please contact Flex Innovations or an authorized retailer with compatibility questions.

FEATURES

- Intuitive TOUCH SCREEN interface with large graphical display.
- AC/DC operation (110-240VAC, 11-14VDC)
- 80 Watts charging power (up to 10A)
- 10 Watts (up to 2.0A) discharging power
- Charges LiPo (1-6S), LiFe (1-6S), Llon (1-6S), NiMH (1-16C), NiCd (1-16C), Pb (1-10C)
- Automatic Li balance charge cell detection
- USB power output port (2.1A) for powering any USB device.
- 10 pre-programmed memories and 8 user-programmable memory slots
- Programmable DC power supply function
- Servo tester/driver

SPECIFICATIONS

Charge Current: 0.1-10.0A

Discharge Current: 0.1-2.0A

Charge Power: 80W

Discharge Power: 10W

Balance Current: 350mAh

Balance Tolerance: ±0.01V

Pb Battery Voltage Range: 2.0-20.0V

Discharge Profile: LiXX 2.0-4.2V/cell

Dimensions: 146x148x58mm

Weight: 593g

INCLUDED ITEMS

- AC Power Cord
- DC Power Adapter Cord
- EC3 Charge Lead
- EC5 Charge Lead
- Dean's Ultra Charge Lead
- JST Charge Lead
- Futaba® Charge Lead
- JST-XH Balance Connector
- Traxxas Charge Lead

SAFE CHARGING GUIDELINES AND PRECAUTIONS

- Always monitor the charging area and have a fire extinguisher readily available.
- Always use only high-quality, rechargeable batteries with compatible chemistries.
- Never attach your charger to both an AC and a DC power source simultaneously.
- Never attempt to dismantle the charger or use a damaged charger.
- Never connect any cables to the charger that have been pinched or shorted.
- Never connect more than one battery pack to this charger at a time.
- Never attempt to charge a battery pack containing multiple chemistries.
- Never attempt to charge dead, damaged or wet battery packs.
- Never overcharge batteries, use a charge or discharge current rate which exceeds the safe level of the battery, or attempt to charge or discharge a battery if it is hot.
- Never charge batteries in extremely hot or cold places or place in direct sunlight.
- Always end the charging process if the battery becomes hot to the touch or swells.
- Always connect the charge cable to the charger first, then connect the battery to avoid short circuit between the charge leads.
- Always match the red (+) leads and negative (-) leads correctly and never reverse the terminals for any reason.
- Always keep the charger and battery away from flammable/combustible objects.
- Never connect the charger to an automobile battery while the vehicle is running.
- Always disconnect the battery after charging, and disconnect the charger from the power source when not in use.

GETTING STARTED

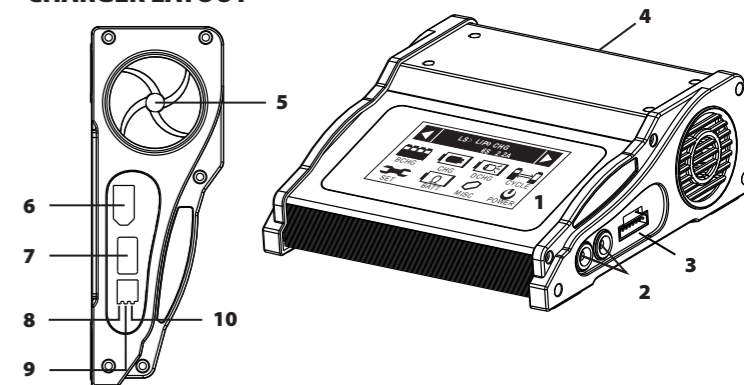
USE WITH AC POWER

This charger features a built-in switching AC power supply that delivers power by connecting the included AC power cord to a 110 or 220VAC outlet. To use the charger with AC power, simply connect the power cord first to the charger, then connect to an AC outlet. There is no external power switch on the charger, so as soon as power is supplied, the unit will power up and the screen will illuminate bright green.

USE WITH DC POWER

This charger can also be powered by a portable 12V DC power source for use when no AC power is available. It is best to use a clean DC power source whose output is filtered to remove unwanted electrical noise. Plug the DC power cord into the charger, then connect the DC power cord's alligator clips directly to the output terminals on the 12V DC power source. **ALWAYS MATCH POLARITIES AND NEVER ALLOW THE TWO INPUT LEADS TO SHORT WHEN CONNECTED TO THE POWER SOURCE.** For best performance from the charger, the DC power source must be capable of delivering at least 7.2A while maintaining 11 volts DC.

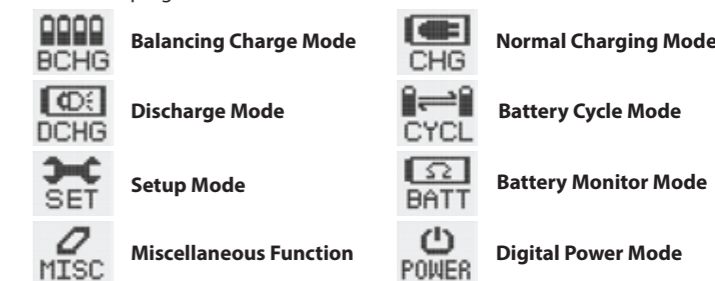
CHARGER LAYOUT



- LCD Touch Screen
- 4.0mm Output Jacks
- JST-XH Balance Adapter Port
- AC Power Input Port
- Cooling Fan
- DC Power Input Port
- 5V/2.1A USB Output Port
- Servo/ESC PWM Output Port
- Temperature Sensor Port (optional)
- Serial Bus Connection Port

HOME SCREEN ICONS

Pressing the corresponding icons on the screen will enter the charger into its various modes and programs. The main icons used below enter the main function menus.



LS>LiPo BCHG AUTO 2.2A Enter current stored memory profile

Select stored memory profile

CHARGE MODE

Select the desired charging mode from the main menu. Balance charging (BCHG) is only for LiXX chemistry packs and ensures that each cell in the battery is charged to the same voltage and capacity for optimal performance and pack longevity.

Normal charge mode (CHG) does not employ the charger's internal balance function during charge. It is not recommended for LiXX batteries unless an external balancer is used in conjunction with the charger.



- If in balance charge mode, plug the balance board into the charger, then plug the battery's balance plug into the corresponding port on the balance board.
- Connect the charge leads first to the charger, and then to the battery. **ENSURE CORRECT CHARGE LEAD POLARITY.**
- Touch either the **BCHG** or **CHG** icon on the home screen to enter the desired charge function.
- Touch the bars at the top of the screen to set the battery type, cell count, and current. Use the up and down arrows to scroll through the menu options for each parameter.
- Press **START** to confirm these settings. Press **START** again to initiate the charging process. Once charging begins, the data screen to the left will display to provide live charging parameter information.
- Press **STOP** at any time to terminate the charging process.

DISCHARGE MODE

Discharge mode serves to reduce the voltage of LiXX packs for safe long-term storage as well as monitor battery health for NiXX and Pb battery chemistries.



- Connect the charge leads first to the charger, and then to the battery. **ENSURE CORRECT CHARGE LEAD POLARITY.**
 - Touch the **DCHG** icon on the home screen to enter the discharge function.
 - Touch the bars at the top of the screen to set the battery type, cell count, and current. Use the up and down arrows to scroll through the menu options for each parameter.
 - Press **START** to confirm these settings. Press **START** again to initiate the discharge process. Once discharging begins, the data screen to the left will display to provide live discharge parameter information.
 - Press **STOP** at any time to terminate the discharging process.
- NOTE:** The discharge mode will give battery's capacity from a full charge (including LiXX), similar to a single cycle of the battery.

BATTERY CYCLE MODE (NiXX ONLY)

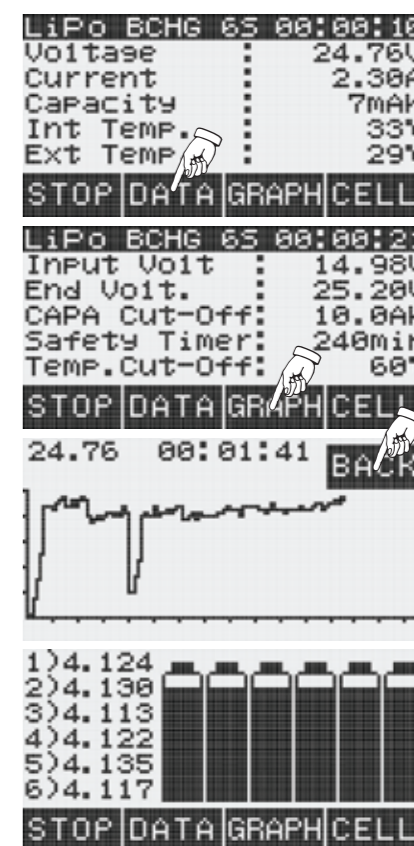
Use the cycle mode to complete a full discharge and recharge cycle to determine the capacity and health of NiCd and NiMH packs.



- Connect the charge leads first to the charger, and then to the battery. **ENSURE CORRECT CHARGE LEAD POLARITY.**
 - Touch the **CYCL** icon on the home screen to enter the discharge function.
 - Touch the bars at the top of the screen to set the battery type, cell count, and current. Use the up and down arrows to scroll through the menu options for each parameter.
- NOTE:** Verify the proper cycle (charge/discharge) is selected in the user setup menu. The first cycle defaults to charge to guard against permanent damage to the battery pack.
- Press **START** to confirm these settings. Press **START** again to initiate the discharge process. Once discharging begins, the data screen to the left will display to provide live discharge parameter information.
 - Press **CYCLE** to view the results of each cycle.
 - Press **STOP** at any time to terminate the cycle process.

ADDITIONAL CHARGING DATA

In each of the three previous modes, additional battery data is available to measure the performance and health of your battery.



- From the charging or discharge process screen, utilize **DATA**, **GRAPH**, and **CELL** buttons at any time for detailed information.
- Press **DATA** for in-depth metrics about the process profile that is active. Press **DATA** again to return to the normal process screen.
- Press the **GRAPH** button to view a graphical depiction of the battery's total voltage over time. Current cell voltage and elapsed time are displayed along the top. Press **"BACK"** to return to the previous screen.
- Press the **CELL** button from any screen to view the individual cell voltages for the battery in process. **THIS FUNCTION IS NOT APPLICABLE TO BATTERY CYCLE MODE, ONLY BALANCE CHARGE, CHARGE, AND DISCHARGE.**

CHARGER SETUP MODE

The charger setup menu allows full customization of every parameter within the charger from the interface (contrast, lighting, sounds) to specific parameters related to the performance of the charger and its various battery program settings.

Once in the menu, to select an item, simply press it. The BACK and NEXT buttons scroll through the pages, and the up and down arrows increase or decrease values for the highlighted selection. Touch the SET icon on the home screen to enter the charger setup menus. The ranges for setting values are as follows:

USER SETUP (1/5)

- Back Light : 50% → 20-80%
- LCD Contrast : 50 → 30-60
- Button Sound : ON → on/off
- Buzzer Sound : OFF → on/off
- Max Out Watt : 80W → 50-80W

USER SETUP (2/5)

- Input Cut : 10.0V → 10.0-14.0VDC
- Safety Timer : 240min → 10-600 min
- Int. Cut-Off : 79% → 50-80°C
- Temp. Cut-Off : 68% → 50-80°C
- Max Out CAPA : 10.0AH → 500mAh-50Ah

USER SETUP (3/5)

- Nixx Cycle Mode : C→D → C→D/C→D
- Nixx Cycle Cnt : 2 T → 1-5 cycles
- Cycle Wastetime : 5Min → 5-60 min
- NiMH DeltaV : 7mV → 5-25mV
- NiCd DeltaV : 10mV → 5-25mV

USER SETUP (4/5)

- LiPo CHG Cut : 4.20V → 4.00-4.25V
- LiPo DCHG Cut : 3.20V → 3.00-4.00V
- LiFe CHG Cut : 3.60V → 3.50-3.70V
- LiFe DCHG Cut : 2.00V → 1.80-3.30V
- Pb CHG Cut : 2.40V → 2.00-2.50V

USER SETUP (5/5)

- Pb DCHG Cut : 1.50V → 1.20-2.00V
- NiMH DCHG Cut : 1.00V → 0.80-1.50V
- NiCd DCHG Cut : 0.80V → 0.50-1.50V
- LiIo CHG Cut : 4.10V → 4.00-4.15V
- LiIo DCHG Cut : 3.10V → 3.00-3.90V

SAVE CHARGING PROFILE

There are 18 memory slots available to store charge settings, 8 (M11-M18) of which are customizable by the user. These can be recalled from the main menu without having to configure settings every time.

- When in the charging setup menu, save current charger configuration settings by pressing SAVE instead of START.
- Navigate to the desired memory bank, and press SAVE again to commit the profile to that memory slot.

NOTE: On the home screen, the letters LS in the memory select ribbon denotes "last selected". This means that the memory item preceded by LS was the last memory item used.

From the home screen, use the left and right arrows to navigate the memory profiles. Once the desired selection is visible, press the bar to enter the configuration.

BATTERY MONITOR MODE (LiXX ONLY)

View individual cell resistance and voltage parameters.

ADDITIONAL FUNCTIONS

In addition to normal charging functions, the Potenza C80 features standard 5W/2.1A USB power output and PWM output functions.

- Touch the **BATT** icon on the home screen to enter the battery monitor menu.
- Select the appropriate lithium battery chemistry to properly display the data by pressing the second button on the bottom row. The cell type defaults to LiPo.
- Press the IR icon to view each cell's internal resistance.
- Press the BALA icon to balance the cells. The process will stop automatically when finished. Press STOP at any point to abort the process.
- Press BACK to exit back to the main charging menu.

- Touch the **MISC** icon on the home screen to enter the USB power and PWM test output function sub-menu.
- Press the USB icon to view the USB monitor page. Power is applied automatically when a USB cable is connected to the port. Press BACK to exit to the previous sub menu.
- Press the SERVO icon to view the PWM output test page.

NOTE: It is not necessary to be in this menu for the USB port to power a connected device. This function is for monitoring only.

- Touch MAX OUT PPM and MIN OUT PPM to restrict the upper and lower limits, using the up and down arrows to change the output value for each.
- Press the current output value towards the bottom to adjust the actual pulse width output.
- Press AUTO to enter an automatic sweep between the MAX and MIN values. Press MANU to return to manual mode and EXIT to exit to the previous menu.

DIGITAL POWER MODE

In digital power mode, the charger can provide 1.0V-28.0VDC output power through the 4.0mm jacks with a maximum output of 80W.

- Touch the **POWER** icon on the home screen to enter the digital power mode menu.
- Touch each of the menu options to select, and use the up and down arrows to increase or decrease their values. Ranges are: **VOLTAGE OUTPUT:** 1.0-28.0V **CURRENT:** 1.0A-10.0A **MAX WATTAGE:** 10-80W **RUN TIME:** 1-600 min
- Press START to save the settings and begin digital power mode

WARNING

The programmable power supply mode should not be used to directly charge batteries of ANY chemistry. Improper use will cause excessive heat or FIRE. Failure to comply may result in excessive heat, fire, damage to property and serious personal injury.

TROUBLESHOOTING GUIDE

Error Message	Possible Cause/Recommended Action
REVERSE POLARITY	Ensure correct polarity correction between power supply and charger, and charger and battery.
PROCESS INTERRUPTED	Ensure all power connections are correct.
OUTPUT SHORT CIRCUIT	Output short circuit. Break all battery connections and examine charge leads and battery for damage.
INPUT VOLTAGE ERROR	Input voltage outside of normal range. Ensure that input voltage is between 11.0 and 18.0v.
CHARGER FAILURE	Charger electronics require repair.
BATTERY LOW VOLTAGE	Battery voltage is lower than value setting in charger for type. Adjust settings and ensure battery is not damaged.
BATTERY HIGH VOLTAGE	Battery voltage is higher than value setting in charger for type. Adjust settings and ensure battery is not damaged.
CELL LOW VOLTAGE	Individual lithium cell voltage too low. Pack may be damaged; inspect and/or replace pack.
CELL HIGH VOLTAGE	Individual lithium cell voltage too high. Pack may be damaged; inspect and/or replace pack.
CELL CONNECT ERROR	Balance port connection error. Ensure that balance leads are connected properly to charger and battery; if correct, inspect for pack damage.
CHARGER OVERHEATING	Disconnect battery, power off charger and allow to cool for a minimum of 20 minutes.
-OVER POWER-	Power exceeded In digital power mode.
-MAX CURRENT-	Current exceeded in digital power mode.
-SAFETY TIMER-	Maximum safe charge time limit exceeded. Ensure correct charger configuration and restart charging.
-MAX CAPACITY-	Maximum battery capacity limit exceeded. Break all charging connections and set battery in a safe location for monitoring.
-MAX EXT. TEMP-	External temperature exceeded. Break all charging connections, power off, and allow battery to cool.

BATTERY VOLTAGE REFERENCE TABLE

	Battery Type					
	LiPo	LiFe	Li-Ion	NiMH	NiCd	Pb
Standard Voltage (volts per cell)	3.70	3.30	3.60	1.20	1.20	2.00
Maximum Voltage (volts per cell)	4.20	3.60	4.10	1.60	1.60	2.45
Minimum Voltage (volts per cell)	3.00	2.00	3.00	1.00	0.85	1.75

FCC CLASS B NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Modifications: Any modifications made to this device that are not approved by Flex Innovations, Inc. may void the authority granted to the user by the FCC to operate this equipment.

LIMITED WARRANTY

Warranty Coverage - Flex Innovations, Inc. and its authorized resellers ("Flex") warrant to the original purchaser that the product purchased (the "Product") it will be free from defects in materials and workmanship at the date of purchase.

Outside of Coverage - This warranty is not transferable and does not cover: (i) Products with more than 45 days after purchased date; (ii) Damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance; (iii) Modification of or to any part of the Product; (iv) Product not compliant with applicable technical regulations; (v) Shipping damage; (vi) Cosmetic damage

OTHER THAN THE EXPRESS WARRANTY ABOVE, FLEX MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

Purchaser's Solution - Flex's sole obligation and purchaser's sole and exclusive remedy shall be that Flex will, at its option, either (i) service, or (ii) replace, any Product determined by Flex to be defective. Flex reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Flex. Proof of purchase is required for all warranty claims. **SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.**

Limitation of Liability - FLEX SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF FLEX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Further, in no event shall the liability of Flex exceed the individual price of the Product on which liability is asserted. As Flex has no control over use, setup, assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law - These terms are governed by Florida law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. **FLEX RESERVES THE RIGHT TO MODIFY THIS WARRANTY AT ANY TIME WITHOUT PRIOR NOTICE.**

Questions & Assistance - For customer support in your region, visit: <http://www.flexinnovations.com/index.php/reseller-sub>

Inspection or Services - If this Product needs to be inspected or serviced and is compliant in the region you live and use the Product in, please contact your regional Flex authorized reseller. Pack the Product securely using a shipping carton. Please note that original boxes needs to be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Flex is not responsible for merchandise until it arrives and is accepted at our facility.

Warranty Requirements - For Warranty consideration, you must include your original sales receipt verifying the proof of purchase date. Provided warranty conditions have been met, your Product will be replaced free of charge. Shipping charges are as follow: to Flex by customer, Flex out it is by Flex. Service or replacement decisions are at the sole discretion of Flex.

COMPLIANCE INFORMATION FOR THE EUROPEAN UNION

CE Declaration of Conformity (In accordance with ISO/IEC 17050-1)

Product(s): Potenza C80 AC/DC 80 Watt Multi-Chemistry Charger
Item Number(s): FPZC0080

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the EMC Directive 2004/108/EC, LVD Directive 2006/95/EC and RoHS 2011/65/EU Annex II:

EN 55014-1:2006+A1:2009+A2:2011;
EN 55014-2:1997+A1:2001+A2:2008;
EN 61000-3-2:2006+A1:2009+A2:2009;
EN 61000-3-3:2008

EN 60335-1:2012;
EN 60335-2-29:2004+A2:2010;
EN 62233:2008

Instructions for disposal of WEEE by users in the European Union
This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collections point for the recycling of waste and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where to drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.



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