Connect the matching end of the optional DATA cable (XTR-232 or XTR-USB) to the connector marked DATA on the Xtrema Balancer and the other end to your computer RS-232 or USB port. Run the terminal program and select the correct com port. Refer to the full instructions for the commands and detailed operation.

BALANCED CHARGING with Xtrema OPERATION

Please go online and download the full operators manual by going to http://www.TMEnet.com/downloads.htm

LIMITED WARRANTY

The Xtrema is warranted to the original purchaser for 3 years from the date of purchase to be free from defects in material and workmanship. During this period Tejera Microsystems Engineering Inc. will repair or replace, at their discretion, the defective unit. Warranty is not transferable and is therefore limited to the original purchaser of the unit, This warranty does not apply to any unit which has been abused, improperly installed, improperly used, used for purposes other than those purposes for which the unit was designed, handled roughly, damaged in shipment, nor to any unit which has been altered or repaired by unauthorized personnel. Under no circumstances will the buyer be entitled to incidental or consequential damages. Warranty coverage also requires proof of purchase date unless ordered direct from the manufacturer. This Limited Warranty gives you specific legal rights; you may also have other rights which vary from state to state.

WARRANTY PROCEDURE:
A minimum charge of $4.85 to cover shipping and handling is required on all returned units after the first 30 days, and should be enclosed with the unit. Be sure to enclose your Bill of Sale as proof of purchase with the unit. (A legible photocopy is acceptable.) In the event that the work is not covered under the warranty, TME will attempt to contact the owner unless special instructions or a credit card number are received with the unit.

FREE LIFETIME UPDATES: The Xtrema Balancer carries free firmware updates for the life of the product. For your convenience, downloadable updates will be made available online at www.theXtrema.com or www.TMEnet.com . Activate your warranty online to receive product updates and upgrades! Go to: www.TMEnet.com/register A special data cable will be required for your computer to connect to the Xtrema (not included) Alternately you may return the unit to us with $4.85 for return shipping to be updated at no charge.

REPAIRS:
For out of warranty repairs the standard repair fee per unit is up to 50% of the current list price plus $4.85 shipping and handling charges. You may prepay by check, MO, VISA, MASTER CARD or DISCOVERY

ALL RETURNS MUST BE SENT TO: Tejera Microsystems Engineering, Inc., 11705 Boyette Rd #418, Riverview, Florida 33569 carefully pack and ship the unit via the post office, UPS or FED EX, fully insured and prepaid. The Xtrema Balancer, BIM and associated cables are designed, programmed, packaged and tested in the USA with custom components manufactured in China and Taiwan.

Xtrema BALANCER QUICK START

Instructions (V1.0.x) (rev 2/8/2008)

- Three modes of operation- Stand alone, PC Interface and Integrated Xtrema Charger (via optional XTR-232, XTR-USB and XTR-BIM accessories)
- Supports all lithium batteries M1/Lipo, Li Manganse via jumper select
- LED indicator reports cell imbalance in 10 mv. Increments while balancing!
- FREE firmware updates for life!
- Fully automatic balancing up to 6s cells prevents over and under Li cell voltages
- Advanced DSP software Balances cells to within +/- 5 mv.
- FAST .420 Amps per cell peak discharge rate!
- Reverse current polarity protection!
- Connector is standard .100" spacing with .025" square pins in cell voltage order
- Monitor individual cell voltage via PC interface.
- Adds integrated balancing to the Xtrema (with optional XTR-BIM) automatically supporting up to 4 series or parallel packs in any order!
- Programmable Max Volts from 3.000V to 4.200V in 1 mv steps via PC interface.
- Programmable Minimum voltage from 2.800V to 3.100V in 1 mv steps via PC interface
- Programmable Balanced discharge to any voltage from 3.000V to 4.200V in 1 mv steps via PC interface
- Fast opto isolated 100 kHz I2C interface for advanced users and OEM applications.
- Many more PC controllable features!

NOTE: The CD packed with your Xtrema has the full operators manual with photos and illustrations. The latest full manual and FREE firmware updates can be downloaded at http://www.TMEnet.com/downloads.htm **Please sign up to be notified of future updates.**

INTRODUCTION

Congratulations, you have purchased the most advanced and feature rich Lithium balancer on the market. It is the first ever balancer to feature three modes of operation; Stand Alone, PC Controlled and Xtrema balanced charging.

REALITY CHECK: Even though every effort has been made to provide safe reliable operation with our products, electronic products can and DO FAIL. DO NOT rely solely on balancing equipment while charging. Lithium batteries can spontaneously ignite. **Supervision when charging Lithium batteries is mandatory.**

PRECAUTIONS - WARNINGS - PLEASE READ ALL OF THESE!

- **DO NOT CONNECT the balancer DIRECTLY to the Xtrema Charger without the Balancer Interface Module - BIM in between.** The BIM has opto-isolators needed for both reverse polarity protection and because the expansion port ground is at a different potential than the (-) battery lead. Plugging the balancer direcly into the Xtrema without the BIM will void your warranty
- **DO NOT USE** the balancer with the Xtrema if the 10 pin ribbon cable is loose or frayed. Always check all connections!
- **DO NOT LEAVE** the balancer connected to the battery for long periods after balancing. A tiny amount of power drain is always present.
- **DO NOT CHARGE Lithium Polymer / ION batteries unattended. Ever!**
- **DO NOT CHARGE** inside a **vehicle**
- **DO NOT CHARGE** in **direct sunlight**
- **DO NOT CHARGE** when ambient **temperature** is very **HIGH or LOW**.
- **DO NOT CHARGE** when Li battery pack is **hot** or **near flames**

STAND ALONE OPERATION

For normal Li Polymer, Li Manganese and in general most Li Ion batteries the Jumper settings may be left at the default settings If you will be balancing M1 cells (A123 Systems) you must move the jumper from the default horizontal position to a vertical position across jumper option 4 before connecting the balancer. (See jumper settings below.)

Connect the balancer to your lithium pack aligning the negative end of the balance connector on your battery with the pin on the balancer labeled **BLK (-)**. After a few seconds you will see the corresponding number of LED's flash at least once.

If the pack is out of balance the LED's corresponding to cells with the highest voltage will blink until those cells are reduced to the lowest cell. The **STATUS** LED will also blink while balancing indicating how far out of balance your pack actually is. After a 5 second pause the LED will blink once for every 10 mv of imbalance up to 200 mv.
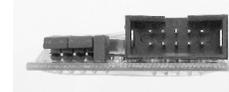
Ex: one blink = 10 -19mv. imbalance, two blinks = 20 -29mv, 9 blinks = 90 - 99mv etc. Over 200 mv imbalance will cause the **STATUS** LED to blink continuously.

When the battery is balanced, the display will simply stop blinking. If at least once cell of the battery is below the minimum acceptable cell voltage the STATUS LED will come on for 5 seconds and the unit will then shut down. If all available cell LED's blink together in unison then they are all over the maximum voltage and the balancer will bring them down until they are balanced at the max voltage. NOTE: maximum and minimum voltage are either jumper selectable or finely adjustable via the PC interface.
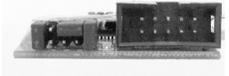
Jumper settings:

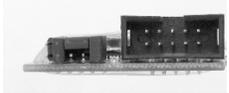The following is the board edge view of jumpers

Default settings:

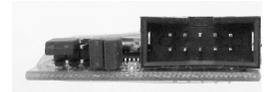JUMPER 5 - RUN/UPDATE (ON = UPDATE refer to FULL instructions for update info.)

JUMPER 4 - LIPO/M1 SELECT (ON= M1 min=2.8V, max=3.6V, OFF=Li Polymer, Manganese etc. min=3.0V, max = 4.2V (default))

JUMPER 3 - FUTURE USE

JUMPER 2 - XTREMA BALANCER PRIMARY/SECONDARY (ON=SECONDARY, OFF=PRIMARY (default))

JUMPER 1 - FUTURE USE – SPARE JUMPER

PC CONTROLLED OPERATION

You will need our optional Xtrema Data Cable to communicate with your PC. (part number XTR-USB or XTR-232) This is the same cable used to connect the Xtrema charger to you PC. Prior to operation download the free XTRBalancer program and the full balancer instructions at our web site