



***MACH4 Micro Series
Advanced Battery Charging System
Quad
Instructional Manual***

Introduction:

Thank you for your choice in purchasing a Core SWX MACH4 Micro Charger. The charger is designed to provide you a safe and reliable charging platform for your battery packs. This product is at the pinnacle of technological advancements, offering the features and performance of several different products, making it the most advanced charging product in the industry.

Please read this manual to help understand and capitalize on the features of this charger.

Features:

- Complete battery management system for your battery packs
- On-board LCD to monitor the battery packs' smart battery data
- TEST mode to determine battery health and recharge performance
- Micro USB for Firmware upgrades and communication to a PC battery management application (future release)
- SafeFly mode charges the connected packs to up to 30% or discharge to under 30% to meet safe Li-Ion battery shipment requirements
- Cross-compatible battery charging for RED®, Anton/Bauer®, IDX® and most Li-Ion battery packs*
- 90w DC 4-pin XLR power supply to power most cameras.
- Battery Power Supply mode, parallels all the on-board battery packs to provide continuous power via XLR output

*contact Core SWX for confirmation of battery pack compatibility.

Operation:

- Insert included AC power cord to the rear of the unit and flip adjacent switch to ON(-)
- LCD will illuminate, initially displaying Title Screen and Firmware version. Immediately thereafter displaying FOUR empty charge positions
- Connect a battery pack to any of the charge positions. The charger addresses all packs independently and simultaneously, so it doesn't matter which bay a battery pack is connected to.
- Corresponding bay LED will flash RED to Green, until battery pack connected is fully analyzed. Once fully analyzed, and communicating with the charger, the charger will begin to charge.

LED Indication Guide:

<u>Battery State</u>	<u>LED Indication</u>	<u>Battery State</u>	<u>LED Indication</u>
No Battery Connected	No LED Indication	Discharge Done	Flash Green
Evaluate Battery	Flash RED/GRN	Re Charge	Solid RED
Charging	Solid RED	Re Charge Completed	Solid GRN
Charging Done	Solid GRN	SafeFly	Flash RED
Discharging(Test Mode or SafeFly Mode)	Flash RED	SafeFly Done	Flash Green

Multifunction Display:

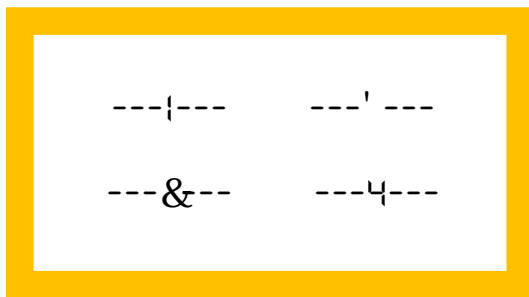
The LCD on the front of the MACH4 Micro charger provides charge function status, selected battery data and reactionary feedback when pressing the onboard membrane button console.

Multifunction Display Phases:

Launch: Displaying Title Screen and Firmware version



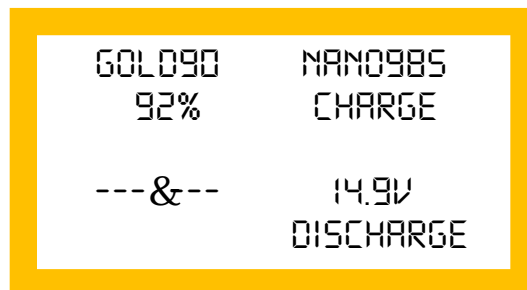
Home Screen(no battery packs connected)



Corresponding Charge Bays



Home Screen(battery packs connected)



If the battery pack is deemed "Smart"(communicates with the charger based on various installed protocols), the top line will display battery name. If the pack is not communicating smart battery data, then the charger will display battery voltage. The lower line displays charging status.

Display **Battery Pack Data Screen** when pressing **Select/OK Button** on **Membrane Switch Console**

GUIDE

Battery Name	% Charged	Voltage
S/N	Date of Manuf.	Temp
Actual Capacity	Cycles	
Design Capacity		

EXAMPLE

HCPRIMES	58%	15.8V
S/N 685	OCT16	24C
ACTUAL 13.1AH	20CYCLES	
DESIGN 13.2AH		

Pressing the Select/OK Button when on the Home Screen toggles through the Battery pack data of each battery pack, in the order from Position 1 to Position 4, each time the Select/OK Button is pressed. Should the pack not be “smart,” or not communicating data (only displaying voltage on Home Screen), the battery pack will be skipped over.

**This charger is cross-compatible amongst many brands of battery packs. Battery Name data is dependent on the battery pack manufacturer populating the battery name data field of the battery pack’s storage. In the event it is not populated, the battery pack’s name may not display, or may display inaccurately. The charger will only display the data supplied by the battery pack.

Battery Prioritizing:

As battery packs become fully charged, the MACH4 Micro charger does a comparison of the packs to determine which pack has the least amount of battery cycles. This feature allows the operator to immediately know which pack to select from the charger, to keep the battery pack inventory in equal usage.

This is illustrated with brackets highlighting the <<FULL>> charge status on the Home Screen below the corresponding battery. Only one battery pack will be highlighted when multiple are fully charged, unless multiple fully charged packs have the same cycle count. This feature is only available on “smart” battery packs. Any packs displaying just voltage, are not considered in the prioritizing.

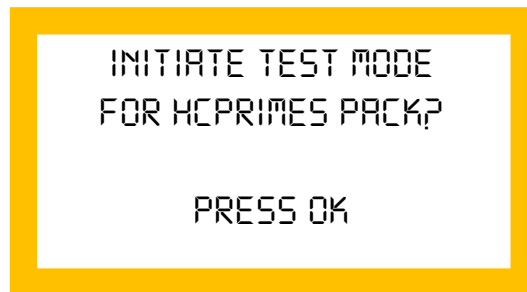
GOLO90	NAN0985
<<FULL>>	CHARGE
HCPRIMES	14.9V
FULL	DISCHARGE

Test Mode:

MACH4 Micro chargers have a Test mode function which performs full charge-discharge-full charge routine, which will identify the capacity of the battery and indicate any performance issues, such as low battery voltage indicating a shorted cell or a cell imbalance condition.

Test times will vary based on battery condition and watt hour rating. For example, a 98wh pack will require 6-7 hours to complete the diagnostic test.

*To initiate **Test Mode**, press the **TEST Button** on the **Membrane Console** when on the **Battery Pack Data Screen** of the desired pack you want to run a test on.*



*To confirm, press the **Select/OK Button** to start **TEST** mode on the selected pack.*

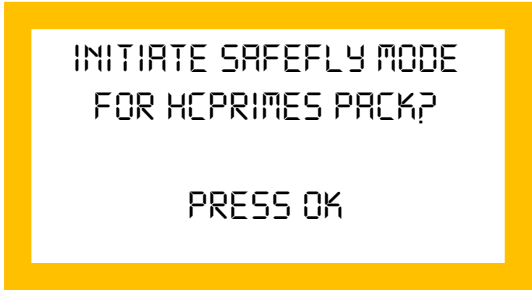
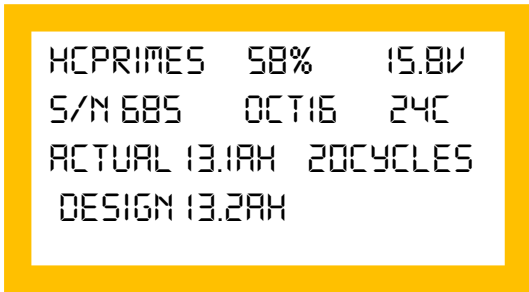
***You will have 5 seconds to press Select/OK to confirm Test mode. Should the TEST button be pressed inadvertently, the LCD will revert back to the Home Screen after the 5 second prompt.*

SafeFly Mode:

MACH4 Micro chargers have a **SAFEFLY** mode function which will either charge or discharge all connected packs or a selected pack, based on the battery packs state-of-charge(SOC), to 30% SOC. This 30% SOC level is to meet regulatory requirements for safe Lithium Ion battery pack air transport.

Times will vary based on battery condition and watt hour rating. For example, a fully charged 98wh pack will require 2 hours to discharge to 30% **SAFEFLY** status.

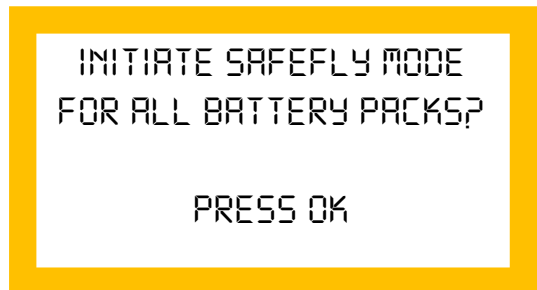
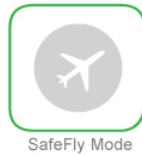
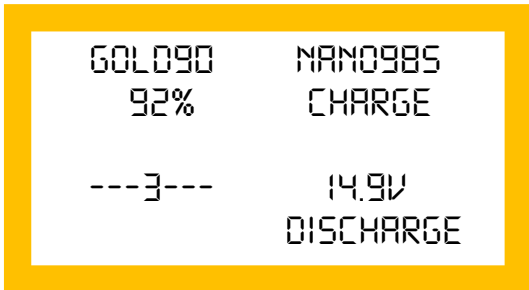
*To initiate **SAFEFLY Mode** for **ONE pack**, press the **SAFEFLY Button** on the **Membrane Console** when on the **Battery Pack Data Screen** of the desired pack you want to put in **SAFEFLY** status.*



To confirm, press the **Select/OK Button** to start **SAFEFLY** mode on the selected pack.

****You will have 5 seconds to press Select/OK to confirm SAFEFLY mode. Should the SAFEFLY button be pressed inadvertently, the LCD will revert back to the Home Screen after the 5 second prompt.**

To initiate **SAFEFLY Mode** for **ALL packs**, press the **SAFEFLY Button** on the **Membrane Console** when on the **Home Screen**.



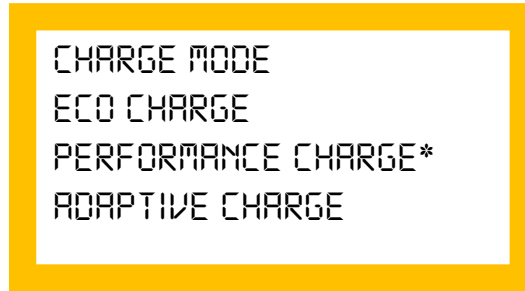
To confirm, press the **Select/OK Button** to start **SAFEFLY** mode on the selected pack.

****You will have 5 seconds to press Select/OK to confirm SAFEFLY mode. Should the SAFEFLY button be pressed inadvertently, the LCD will revert back to the Home Screen after the 5 second prompt.**

Adaptive Charge Control(ACC):

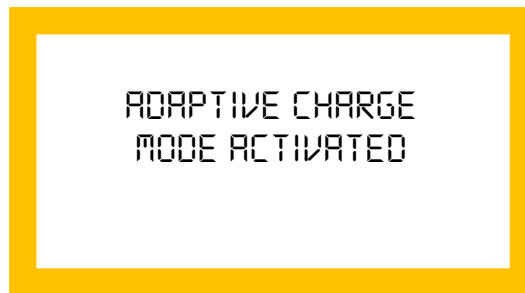
Core SWX's new Adaptive Charge algorithm's can improve battery longevity and performance up to 30% over the life of the pack. The new ACC algorithm evaluates the battery pack based on age, cycle count, and last full charge capacity, to determine the appropriate charge routine for the pack. While in charge mode, the charger continually monitors the pack for feedback during the charge process to adjust as needed. This process insures top performing packs are charged as fast as possible, while older packs are charged efficiently while accounting for changes in cell performance overtime to minimize degradation and capacity loss.

To access the **Charge Mode** menu., press the **ACC Button** on the **Membrane Console** when on the **Home Screen**.



By **DEFAULT** the charger is setup to charge in Performance mode which is Mach4 4A charge speed.

Press the **Select/OK Button** to toggle the asterisk(*) to a different mode, and Long press(hold for 3-4 seconds the **Select/OK Button** to confirm.

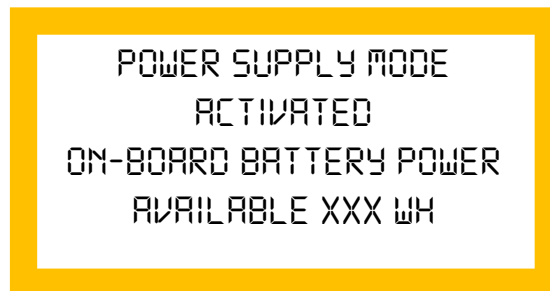


DC Power Supply Function:

MACH4 Micro chargers have an integrated 90w DC power supply built into the charger to power most equipment from AC mains.

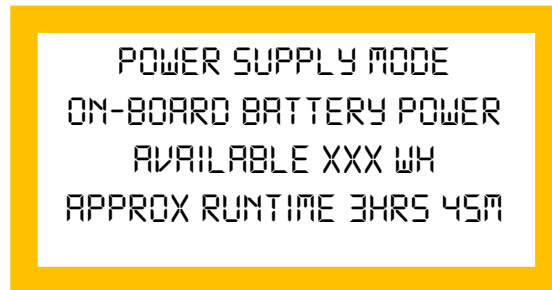
To initiate **Power Supply Mode**, on the rear of the charger, next to the panel 4pin XLR, there is a toggle switch, that should be switched to the POWER SUPPLY position.

This will immediately discontinue any charge, discharge, TEST, or SAFELY function, and will provide 90w(16VDC) DC power to the XLR.



The LCD will reflect the Power Supply mode as well as provide a Total WH available aggregate of the battery packs connected to the charger. When battery packs are connected during Power Supply Mode,

it serves as a UPS (uninterrupted power supply) function. Should AC power be interrupted, the Power Supply Function will immediately, and without loss of power, switch to the on-board battery power.



When no AC is present, but battery packs are connected, the LCD will also reflect available Runtime based on the draw/current load of the equipment connected.

VoltBridge Wireless Function:

MACH\$ Micro chargers have a Bluetooth Low Energy(BLE) transceiver which communicates with Apple iPads and Android tablets utilizing the Voltbridge Fleet Management app. The additional functionality allows you to wirelessly monitor all battery packs connected to the charger as well as manage charge function.

Upon downloading the app from the Apple iTunes or Google Play Store, click the menu icon on the top left of the landing page, and press "Scan for BLE." Once scan is complete, the chargers within range will populate in the list to pair. Once paired, full functionality should be available.

Specifications:

MACH4 Micro Q(Quad Charger):

Dimensions: H: 4.25" L: 12.17" W: 9.25"
Weight: 5.3lbs.

Electrical Data:

Input Voltage: 90~240VAC, 50/60Hz
Quick Charge Current: 3.0A per channel
Discharge Current: 2.0A
DC output: 90w, 16VDC

Operational Temperature Range:

-0°C to +40°C (-32°F to +104°F)

Notes on Use:

- **WARNING!** Risk of electric shock. Do not remove cover, no user serviceable parts inside the product. Disassembling the product may void the warranty.
- **WARNING!** Risk of electric shock. Always check cables for signs of damage. Damaged cables can cause personal injury and/or damage the equipment.
- While operating the charger do not place any objects in front of ventilation slots or fan on the rear of the charger.
- **WARNING!** It is the responsibility of the local organization to ensure that the product is periodically checked for electrical safety in accordance with local regulations.
- **WARNING!** An increase in temperature is normal during operation. During discharge operation, the area on the top of the charger, to the rear may get very hot. This is marked by a warning. Be mindful of touching this area during operation.
- **CAUTION!** This product must be connected to a power supply of the same voltage (V) and current (A) as indicated on the product. Refer to the technical specifications for the product.
- **CAUTION!** AC Mains plug or appliance coupler is to be used as a power disconnect device; make sure it is readily accessible.
- **CAUTION!** The product must be grounded during operation

There is a fuse within the AC receptacle which can be replaced only with the same type and rating.

Warranty:

This product is warranted to the Original Purchaser against all defects in material and or workmanship for the period herein.

The warranty period shall be, 3 years for parts and labor, unless otherwise noted. Core SWX agrees to pay equal return freight costs to return the product the same method it was received. In the event of an issue, purchaser agrees to the below RMA procedure.

Procedure:

1. Go to <http://www.coreswx.com/repairsreturns> and fill out the online form
2. Print the RMA number confirmation, and ship the product needing service to Core SWX, LLC. along with RMA number confirmation, and copy of bill of sale.
3. All shipments must be done either through UPS or FEDEX, and insured if necessary
4. Core SWX, LLC. is not responsible for any lost shipments.

Core SWX reserves the right to repair or replace any defective product under warranty after Core SWX determines which is more practical.

If Core SWX receives defective product for warranty repair and they are found to be defective as a result of misuse or other damage, not caused by normal wear and tear, Core SWX will notify the customer of an estimate of repair. Customer will incur costs. There are no further warranties, either expressed or implied, including warranties of merchantability or fitness for a particular purpose that has any bearing upon this transaction.



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