

# **INSTRUCTION MANUAL**

**Important! Read Instruction Before Use  
16X3 Is Designed For Expert Users Only**

## ***16X3-Pro<sub>v2.5</sub>*** ***Ni-Cd & Ni-MH Maintenance System***

VEESC Pulse Charge, Discharge & Cycle  
Convenient TX/RX maintenance charging  
INDI Multitasking Full Charge Detection Algorithm  
Minus Delta Voltage Full Charge Termination Method  
Automatic Voltage Drop Threshold 0mV-70mV  
Pulse Count 16-Bit Analog to Digital Converter  
65536 Steps Ultra High Resolution Counter  
Up to 4 Amps Conditioning Discharging Current  
0.5-6.5 Amps Adjustable Charging Current  
Auto Detect Smart Lockout Timer  
16-Bit Digital Signal Processing

***Just race,  
no games!***

***www.integy.com***

**MICROPROCESSOR BASED 16-BIT DIGITAL CHARGER**

## Operation

Thank you for purchasing the 16X3-Prov2.5, it is the smallest and most accurate battery maintenance system ever developed. The Ni-MH and Ni-Cd are considered high maintenance batteries that require regular discharge cycles to prevent voltage depression. Crystalline formation which causes capacity loss is mainly generated by the nickel plate in both Ni-Cd & Ni-MH. The INDI 16X3-Prov2.5 is a complete battery management system designed to get the best performance out of your battery packs. 16X3-Prov2.5 is equipped with VESC Pulse CHARGE for all Ni-Cd and Ni-MH cells, DISCHARGE mode for emptying batteries before storage and CYCLE mode for battery maintenance. The INDI 16X3-Prov2.5 will operate from a 12 volt automobile battery or any 110-120V AC outlet with a minimum of 2 amps capacity. It will operate with less amperage, but the charge current will be limited to the maximum capacity of the supply. If the power source is not rated for at least 50% of the charge current set on the INDI 16X3, the charge may terminate early.

**CAUTION:** If you use an automotive battery as the power source, make sure you have good ventilation. Lead-acid batteries release explosive hydrogen gas when they are being charged.

If an overload occurs or improper connection is made, the fuse will blow. In this case, disconnect the power and send the unit to a service center for repair. NEVER attempt to repair or open the charging unit, the unit contains no user replaceable part.

The INDI 16X3-Prov2.5 is equipped with six optimized charge, cycle & discharge profiles. You can select the different modes by pressing the start button differently. Each time the start button is pressed, the charger waits 2 seconds to see which mode you would like to select. You may select the 6 different charge modes as follow:

### Mode 1, VESC Repeak

#### Press Once:

This mode will repeak your battery pack. This mode has a timer logout of approx. 30s, the red LED would start flashing when the peak detector is activated. When fast charge is completed, the unit goes back to trickle charge with green LED flashing. The unit looks for a voltage drop of 0.07V if the fast charge duration is less than 15 minutes. It will then progressively look for a lower voltage drop of 0.05V, 0.03V then 0.01V. Use this mode for recharging before a race only. Always observed pack temperature during charging, when the temperature becomes too hot, disconnect the charging.

### Mode 2, VESC Ni-Cd Charge

#### Press 2 Times:

This (coldstart) mode is the ultimate charge profile for high power Ni-Cd like Sayno RC2000 and RC2400. The unit will go through a sequence of fast charge and automatic repeak, the battery pack is maintained at ready-to-race condition at all time. (Unit will switch the red LED fast charge on from time to time) When your pack is fully charged, it's temperature should be slightly warm

### Mode 3, VESC Ni-MH Charge

#### Press 3 Times:

This (coldstart) mode will discharge the battery pack at 4 amp and then automatically switch to fast charge, red LED will change from solid to flashing, a voltage drop of 0.07V during the first 15 minutes will cause fast charge to stop. The unit will then progressively look for a lower voltage drop of 0.05V, 0.03V and eventually 0.00V (Unit will switch the red LED fast charge on from time to time)

### Mode 4, Discharge 4A

#### Press 4 Times:

This mode will perform an automatic 4A discharge. The cutoff voltage is 3.6V to prevent internal cell reversal. Never discharge smaller than Sub-C batteries.

### Mode 5, MEMORY ERASER

#### Press 5 Times:

This cycle mode effectively reduce crystalline structure buildup with Ni-Cd and Ni-MH cells. The unit first discharge the packs, fully charge the pack and then recondition the pack by deep discharge it completely. The entire operation is fully automated and require no user intervention. The process takes 2-3 hours and it is suggested the user do not leave the unit and battery unattended during this operation.

### Mode 6, Partial Charge

#### Press 6 Times:

This mode will partial charge most sub-C size Ni-MH pack for long term storage, it puts approx 800mAh of capacity back into the pack. This is especially helpful to maintain Ni-MH pack capacity & run-time.

## Safety Precautions

1. Do not leave the battery and charger unattended while in use.
2. Do not operate the charger near water.
3. It is the users responsibility to follow battery mfg. suggested charging rate. Users must also closely monitor the pack temperature during fast charging. Overcharging may occur if the 16X3 malfunction or, when user does not follow battery mfg. recommended charge rate.
4. Never connect the charger to an automobile while its engine is running.
5. This charger is not intended for use by unsupervised children.
6. This charger is designed for R/C car high power Ni-Cd battery only.
7. When charging, also monitor the temperature of the charger. If the unit becomes too hot, disconnect the unit.

## Warranty and Repair

Your INDI charger is guaranteed against workmanship and manufacturing defects for a period of 30 days from the original date of purchase. This warranty is limited to the original purchaser of the charger and is not transferable. Warranty repair will not cover units which have been modified or serviced by an unauthorized service center.

Include your complete name and address information inside the box, and write address on the outer label/return address area. Also, include a brief summary of the difficulty. Also, include a phone number where you can be reached during the day time. Send the unit to: Integy Inc. 1140 Centre Dr #E, City of Industry CA 91789.

To receive warranty service, include your original dated sales receipt to verify your proof-of-purchase date. Providing that warranty conditions have been met, your charger will be repaired free of charge. Any return freight for non-warranty repairs will be charged to the customer. For non-warranty repairs, please advise us of the payment method you prefer to use. Specify Visa or MasterCard, or we can return C.O.D. with extra \$6 cod fee. If you prefer to use a credit card, include your card number and expiration date.

In no case shall our liability exceed the product's original cost. We reserve the right to modify the provisions of this warranty without notice.

Because Integy Inc. has no control over the use of the charger, no liability may be assumed nor will liability be accepted for any damage resulting from using this product. Every INDI charger is thoroughly tested and cycled before leaving our distribution facility and is, therefore, considered operational. By the act of operating this charger, the user accepts all resulting liability.