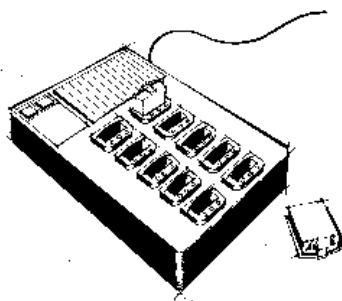


Hand Held Products, Inc.

Dolphin Multiple Battery Charger™

User's Guide



Release 1.0

P/N: 80010110

 **HAND HELD
PRODUCTS®**

Information Management in the Palm of Your Hand.

Dolphin Multiple Battery Charger™

User's Guide

Release 1.0 (October 1998)
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Chapter 1

Introduction

The Dolphin Multiple Battery Charger provides intelligent battery management for 10 Dolphin battery packs.

Intelligent Battery Charging

The battery charging circuitry is intelligent and can sense changes in temperature and voltage. The Dolphin Multiple Battery Charger charges the battery rapidly, when the Dolphin Multiple Battery Charger senses that the battery pack is fully charged, the charging rate drops to a trickle charge. The trickle charge keeps the battery pack at full capacity. This charging method protects the battery from being damaged by overcharging. The Dolphin Multiple Battery Charger can charge 10 battery pack simultaneously with individual charge control circuitry for each of the 10 battery pocket locations.

Chapter 2

Getting Started

Setting Up The Dolphin Multiple Battery Charger

The Dolphin Multiple Battery Charger should be setup on any dry, stable surface.

You must connect the Dolphin Multiple Battery Charger to a power source for any type of operation.

HHP recommends that you leave the Dolphin Multiple Battery Charger connected to its power source at all times, so that it is always ready to use.

Supplying Power To The Dolphin Multiple Battery Charger

Locate the AC power cord that came with your Dolphin Multiple Battery Charger. Plug the power cord into the Dolphin Multiple Battery Charger Universal wide input voltage AC input, then plug the power cord into a wall socket.

Depress the GREEN Power Switch located in the bottom left-hand corner of the top panel. The GREEN power LED will illuminate and the charger will undergo a self diagnostic test.

CAUTION: *Using a non-HHP power cord will void your warranty and can result in serious damage to the Dolphin Multiple Battery Charger circuitry.*

Inserting The Dolphin Battery Pack Into The Charger

Place the Dolphin Battery Pack in the charging pocket of the Dolphin Multiple Battery Charger. Let the Dolphin Battery Pack glide down into the charging pocket until it stops. Asserting a downward and forward motion, apply enough pressure to latch the Dolphin Battery Pack in the charging pocket. Once the Dolphin Battery Pack is properly seated, the orange status LED for that particular pocket will illuminate.

Charging Batteries In The Dolphin Multiple Battery Charger

The Dolphin Multiple Battery Charger is designed to charge a NiMH rechargeable battery pack. When a battery is inserted into the Dolphin Multiple Battery Charger, the unit will start charging the battery at the highest rate possible. This state is indicated by a steady orange status LED.

When the Dolphin Multiple Battery Charger senses that the battery pack is fully charged, the charging rate drops to a trickle charge and the GREEN status LED illuminates. The trickle charge keeps the battery pack at full capacity. A dead battery will charge to full capacity in approximately three hours. This charging method protects the battery from being damaged by overcharging.

The Dolphin Multiple Battery Charger's status LEDs indicate the current charging status of the Dolphin Battery Pack. The following chart shows a summary of each charging state.

Status LED's	Meaning
ORANGE	Battery is being charged at maximum charge rate.
GREEN	Battery charging is complete and battery is ready for service. Battery remains in trickle charge until removed.
RED	Error was encountered during charging.

Figure 5: Dolphin Multiple Battery Charger LED

Battery Temperatures

If possible, bring your rechargeable NiMH battery packs to room temperature before recharging them; temperature has a marked effect on charging. The recommended temperature range is 10° to 35° C.

Caution: Do not attempt to recharge any battery pack in the Dolphin Multiple Battery Charger that is not manufactured by HHP especially for this device. To do so will void your warranty can damage the Dolphin Multiple Battery Charger.

Servicing The Battery Pack

The Condition and Calibrate cycle is used to update the Battery Pack Data Record stored in the Dolphin Battery Pack. This cycle will record battery conditions during a charge and discharge cycle and store these values in the battery pack. These values will be used to minimize errors associated with rechargeable batteries such as battery wear out, voltage depression, and self discharge. As a general rule, battery packs should be calibrated once a month.

To service the battery packs, simply insert all the batteries that require servicing into the charging pockets and press the yellow "Condition and Calibrate" button located below the POWER button on the Dolphin Multiple Battery Charger.

The Dolphin Multiple Battery Charger will then totally discharge and fully recharge the battery pack, automatically. This cycle requires approximately 8 hours to complete. The ORANGE status LED will begin to flash in sync with the LED associated with the "Condition and Calibrate" switch. Any batteries inserted after the "Condition and Calibrate" switch has been depressed will receive a standard charge.

Because the Dolphin Multiple Battery Charger is accumulating battery pack information during the entire "Condition and Calibrate" cycle, it is important not to remove the battery until the cycle has been completed. A complete cycle is indicated by a GREEN status LED. Once all batteries have completed the "Condition and Calibrate" cycle, the FLASHING LED associated with the "Condition and Calibrate" switch will turn off. At this point, if desired, another "Condition and Calibrate" cycle can be initiated.

Chapter 3

Dolphin Multiple Battery Charger Features

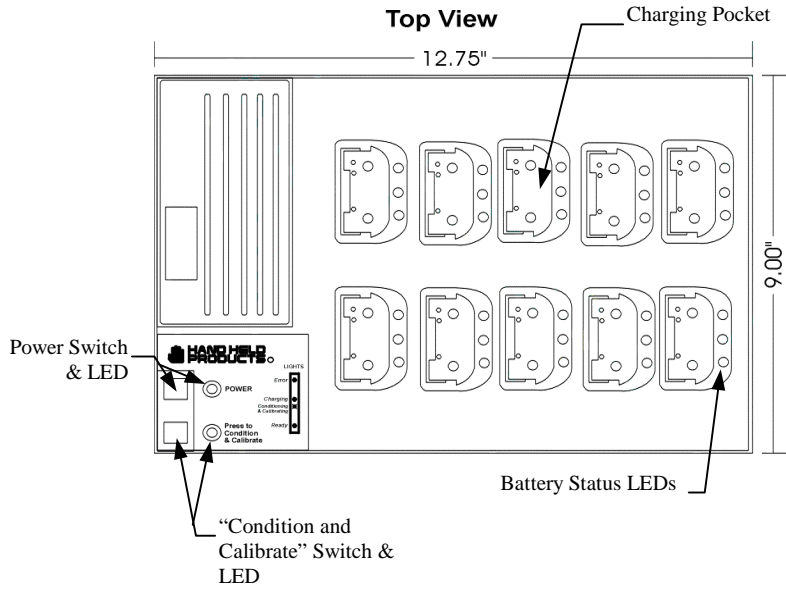
The Dolphin Multiple Battery Charger provides the following basic features.

- The Dolphin Multiple Battery Charger is capable of independently charging as many as 10 Dolphin Battery Packs.
- The Dolphin Multiple Battery Charger is designed to charge 3.6V NiMH rechargeable battery packs. A two-level charging algorithm switches from fast charge to trickle charge when the battery is fully charged. This method provides rapid charging without overcharging.
- The Dolphin Multiple Battery Charger incorporates a “Condition and Calibrate” cycle used to correct errors associated with rechargeable batteries.

Chapter 4

Top Panel Layout

This section contains information regarding features located on the top panel of the Dolphin Multiple Battery Charger.



Chapter 4

Troubleshooting

If you encounter problems with your Dolphin Multiple Battery Charger, first, please go through the list of problems and solutions in this chapter. If problem persist, please contact Hand Held Products Technical Support.

Problem	Issue
The 'CHARGING' LED does not come on when I insert a battery pack into the Dolphin Multiple Battery Charger	Check the power connections on the Dolphin Multiple Battery Charger. Also check to ensure the POWER switch is ON and the battery pack is properly seated.
The RED status "ERROR" LED comes ON during charging.	Attempt to charge the battery in another pocket location. If the RED "ERROR" LED follows the battery, then the problem is associated with the battery pack. If the RED "ERROR" LED stays with the pocket then the problem is associated with the charging circuitry.
The RED "ERROR" LED remains ON, without a battery in the charging pocket.	An error occurred during the self diagnostic test for that particular pocket location. Refer problem to Hand Held Products Technical Support.

Chapter 5

Warranty

Who Is Covered By The Warranty

The Dolphin terminal and HomeBase offered by Hand Held Products, Inc. (HHP) are both covered with a one-year limited warranty. Hand Held Products, Inc. extends this warranty only to the first end-user of the product. This warranty is non-transferable.

What's Covered By The Warranty

This warranty covers the Dolphin terminal and HomeBase and warrants them to be free from defects in materials and workmanship, under normal use and service, for a period of one year from date of purchase by the first end-user.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND FREEDOM FROM INFRINGEMENT. Neither HHP nor its marketing agents shall be liable for any direct, indirect, consequential, or incidental damages resulting from the use, results of use, or inability to use this product.

No one is authorized to change, add to, or otherwise alter this Warranty without the express written permission of an officer of HHP.

What's Not Covered By The Warranty

This Warranty does not cover software, or damage to the product caused by modification, alteration, misapplication, misuse of, or physical abuse to the product; or damage due to repair or service to the product by anyone other than an Authorized HHP Service Center. This Warranty also excludes any damage to the product caused by circumstances outside of HHP's control, such as, but not limited to, lightning or fluctuation in electrical power.

How Problems Should Be Handled

Should the Dolphin terminal or HomeBase prove to be defective within one year of date of purchase, return the product, as described in the RMA procedures below, and we will, at our option, repair or replace the product, to whatever extent HHP deems necessary to restore the product to proper operating condition, without any charge to you.

Return Information

If you purchased the product from an Authorized Hand Held Products Reseller, contact the Reseller with the unit's serial number. Your Reseller will contact Hand Held, on your behalf, to arrange for the unit to be serviced.

If you purchased the product directly from Hand Held, or have been instructed by your Reseller to contact Hand Held directly, call the Customer Services Department in your area to request a Repair Maintenance Authorization (RMA) number. *Note: An RMA number is not needed for service at the Europe, the Middle East, Africa or United Kingdom repair facilities.*

North and South America, Asia, Pacific Rim

(TEL)+1-(704)-537-1444

(FAX)+1-(704)-566-9904

Europe, Middle East and Africa :

(TEL)+31-40 24 24 486

(FAX)+31-40 24 25 672

The United Kingdom :

(TEL)+44 (0) 7000 426343

(FAX)+44 (0) 7074 426343

You must have an RMA number to receive service from the repair facility for North and South America, Asia and the Pacific Rim. Failure to obtain an RMA number before shipping your product to this repair facility can delay the processing of your repair request.

When calling for service at any of our repair facilities, please be prepared to give the following information:

- Product's type and serial number
- Brief description of problem
- Dated Proof-of-Purchase

Place the product in its original packaging with a copy of your original invoice and ship the product prepaid to the appropriate address below:

North and South America, Asia, Pacific Rim

Hand Held Products
Customer Services Department
7510 East Independence Blvd., #100
Charlotte, NC 28227-9411

RMA Number: _____

Europe, Middle East and Africa :

Hondsruglaan 87D
5602 JA Eindhoven
The Netherlands

The United Kingdom :

Wessex House
Oxford Road
Newbury Berkshire, RG14 1PA
United Kingdom

If your equipment is still covered under the initial end-user's product warranty, please notify the Customer Services Representative when you call. Please include a copy of the original invoice in the package to avoid possible service delays. For your protection, we recommend you insure any equipment being sent to HHP.

After repair or replacement of the equipment, Hand Held Products will ship the product, at our cost, to your location. Non-warranty repairs will be returned, at the customer's expense, unless otherwise requested. Units currently under a service agreement will be shipped per the service agreement.

Please make note of the RMA number (if required) before shipping and the product's serial number for future reference.

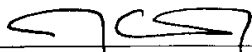


How To Extend Your Warranty

Hand Held Products offers a variety of extended service plans on our hardware products. These agreements offer continued coverage for your equipment after the initial warranty expires. For more information, contact Hand Held or your Authorized Reseller.

Appendix I

Declaration of conformity

DECLARATION OF CONFORMITY		
<i>EC declaration of conformity for: 89/336/EEC EMC Directive</i>		
1. Product Identification		
Product name	: Multiple Battery Charger	
Line of business	: Auto ID	
Model/type	: N/A	
Version	: N/A	
Additional information	: N/A	
2. Manufacturer		
Name	: Hand Held Products, Inc.	
Address	: 7510 E. Independence Blvd. #100 Charlotte, North Carolina 28227-9411	
Country	: United States Of America	
Authorized by manufacturer	: Corporate Body: Fleuri Kets V B.V. Kaatsheuvel The Netherlands	Trading as: Hand Held Products Europe Hondsruglaan 87d 5628 DB Eindhoven The Netherlands
3. Test lab		
Name	: Instrument Specialties	
Address	: Delaware Water Gap, Pennsylvania 18327-0136	
Country	: United States of America	
4. Applied standards		
<u>Product Standard</u>	<u>Basic Standard (Test Specification)</u>	<u>Description</u>
EN 55022:1995	EN 55022:1995	Conducted/Radiated Emissions
EN 50082-1	EN 61000-4-2:1995 EN 61000-4-4:1995 IEC 801-3:1984	Electrostatic Discharge Electrical Fast Transient Radiated RF EM Field
5. Test report		
EMC Test Report #64655		
6. Declaration		
We, mentioned at point 2, declare on our own full responsibility that the product mentioned at point 1 complies with the directive 89/336/EEC. This is based upon testing of a sample of the product mentioned at point 1, performed by the test lab mentioned at point 3, according to the harmonized standards corresponding to article 10 (1) of the directive 89/336/EEC. These standards are mentioned at point 4. The results of the tests are given in the report mentioned at point 5.		
7. Authentication		
Signature in behalf of authorized company mentioned at point 2 :		
		
J.H. Cottrell Jr., Managing Director, Hand Held Products Europe		
Date : 6 th October 1998 Place : Charlotte, USA		