



# Ω Omega™ 5 Station Battery Charger

## Class 2 Power Supply

### Instruction Manual

In the USA, contact Zefon at 1-800-282-0073.

To contact Zefon outside the U.S., dial +1 (352) 854-8080 or email at [ZefonCS@zefon.com](mailto:ZefonCS@zefon.com).

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*The Professionals Choice  
for Air Sampling Equipment*

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Manufactured by

**ZEFON INTERNATIONAL, INC.**

5350 SW 1st Lane • Ocala, FL 34474 USA



# Ω Omega™ 5 Station Battery Charger

## Class 2 Power Supply

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## Instruction Manual

### WARNING

THIS MANUAL MUST BE CAREFULLY READ BY ALL INDIVIDUALS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THE PRODUCT. Like any piece of complex equipment, this instrument will perform as designed only if it is used and serviced in accordance with the manufacturer's instructions. OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUSTAIN SEVERE PERSONAL INJURY OR DEATH.

The warranties made by Zefon International with respect to the product are voided if the product is not used and serviced in accordance with the instructions in this manual. Please protect yourself and others by following them. We encourage our customers to write or call regarding this equipment prior to use or for any additional information relative to use or repairs.

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The charger must be packed in a suitable shipping container with suitable packaging to avoid damage. Damage resulting from improper packaging or damage in shipment is not covered by the warranty.

## Troubleshooting

The Omega 5 Station Battery Charger is designed to provide years of reliable service. If a charger failure is suspected, follow the “Troubleshooting Guidelines,” TABLE 5-1.

**Table 5-1. Troubleshooting Guidelines**

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Charger does not operate at all	Loose power cord	Check connections at rear panel
	Bad power supply	Replace power supply, P/N 03914
	Circuit board failure	Board must be replaced. Send in for repair.
LED fails to light on one output	Bad battery pack	Try another pack or move the pack to another output; replace any bad battery pack.
	Failed output cord	Cord needs to be replaced. Send in for repair.
Battery pack will not operate for its specified duration	Failed batteries	Replace the pack
In all of the above cases, and for any other failures, the Omega 5 Station Battery Charger may be returned to Zefon for repair.		

### WARNING

**RISK OF FIRE OR ELECTRICAL SHORT:** For connection to a supply not in the USA or Canada, use an attachment plug adapter of the proper configuration for the power outlet.

## Repair Procedures

When a failed component is located that cannot be replaced in the field, please contact Zefon to arrange repair service.

In the USA, contact Zefon at 1-800-282-0073. To contact Zefon outside the USA, dial +1 (352) 854-8080 or email ZefonCS@zefon.com.

## Important Safety Instructions

### SAVE THESE INSTRUCTIONS.

### WARNING

#### RISK OF EXPLOSION, FIRE OR ELECTRICAL SHOCK:

- Operate ONLY in a non-hazardous location known to be free of combustible gases and vapors.
- Zefon Omega 5 Station Battery Chargers are designed for indoor locations; do not use outdoors.
- Do not use where the risk of entry by liquids or foreign substances exists.
- Do not use where the temperature is excessive; 5 Station Battery Chargers are designed to be operated within the range of 50 to 86°F (10 to 30°C).
- Do not use without proper ventilation. Do not allow materials, especially combustible materials, to accumulate around the equipment and block the flow of cooling air.
- The chargers must be connected to a properly grounded power source. If power line transients or disturbances are suspected, an inexpensive transient suppressor (available at any computer store) may be helpful.
- The output cables must be connected to the appropriate Zefon/MSA battery pack. When unused, they must be isolated from any power source.
- Replace charger cables if they become frayed or damaged.
- Remove charger from power supply whenever improper operation is suspected. It must be examined by a qualified technician prior to being returned to service.
- Failure to follow all instructions can result in serious injury or death.

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## Chapter 5, Maintenance

### Introduction

This section provides instructions and procedures for the care and repair of the Omega 5 Station Battery Charger. As with any piece of electronic equipment, the Omega 5 Station Battery Charger will perform as designed only if it receives proper maintenance.

The simple procedures necessary to service this product are detailed in the following pages. The Charger will function properly only if it is serviced in accordance with these instructions by authorized and trained individuals with the required skills, tools, and materials.

#### ▲ WARNING

**Use only genuine Zefon replacement parts when performing any maintenance procedures described in this manual. Failure to do so may seriously impair product performance and may void all warranties and approvals. Repair or alteration of the Omega 5 Station Battery Charger beyond the procedures described in this manual or by anyone other than an Zefon authorized service person could cause the charger to fail to perform as designed, and persons who rely on this product for their safety could sustain severe personal injury or death.**

### Cleaning and Routine Care

The charger case should be cleaned periodically with a soft, damp cloth.

### Storage and Shipment

The 5 Station Battery Charger can be stored in a safe, dry place when not in use. Care should be taken to ensure storage area temperature is within the limits listed in the Section 2, "Performance Specifications".

If the battery charger is being returned for repairs, a battery pack normally used with the charger should be included in the container (but disconnected from the charger).

Normal Charging

There are five independent charge controllers, each connected to an output. Power is applied to the output connector through a diode to prevent battery discharge through the Charger. Current through the battery pack is sensed through a small series resistor. If it exceeds approximately 15 milliamperes, the LED for that output illuminates.

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# Chapter 1, Safety Information

## Introduction

This section provides necessary safety information for users of the Omega 5 Station Battery Charger. For your protection, read this section completely before using this instrument. If you do not understand any part of this manual or related documents, contact Zefon for an explanation prior to using this product.

### ⚠ WARNING

Battery packs must be recharged in a non-hazardous location that is free of combustible gases or vapors.

Dispose of used battery packs in accordance with applicable health and safety regulations.

Use only genuine Zefon replacement parts when performing any maintenance procedures described in this manual. Failure to do so may seriously impair product performance and may void all warranties and approvals. Repair or alteration of the 5 Station Battery Charger beyond the procedures described in this manual or by anyone other than a Zefon authorized service person could result in the charger failing to perform as designed. Additionally, persons relying on this product for their safety could sustain severe bodily injury or death.

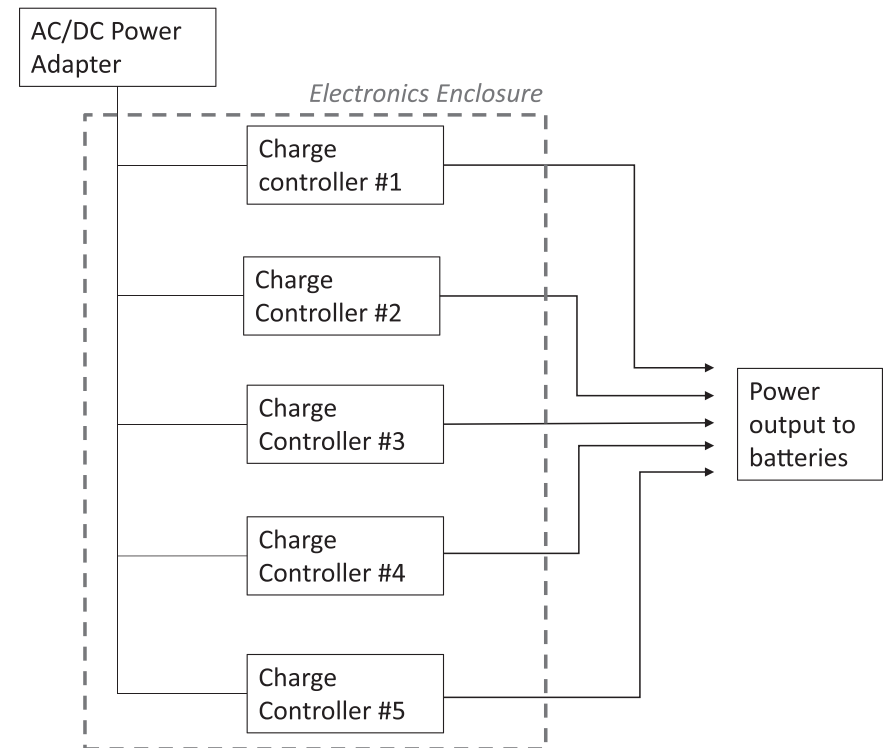
### ⚠ CAUTION

This battery charger is designed for use only with battery packs compatible with the Omega system. These battery packs will be identified by a prominent omega ( $\Omega$ ) symbol, matching the symbol on the charger. Use with other battery packs may result in damage to the battery pack and the charger.

# Chapter 4, Theory of Operation

## Introduction

This section describes the internal operation of the Omega 5 Station Battery Charger. The Charger includes a common power supply and five separate charge controllers.



**Figure 4-1. Block Diagram**

AC power is supplied to the power adapter, which in turn powers the internal circuit board. Omega-compatible batteries are charged by the five individual controllers on the board.

Charging Battery Packs

Rechargeable battery packs can be recharged while either connected to their instruments or separately. If the battery pack is connected to its instrument, the instrument must be turned OFF to allow the pack to charge properly.

Only Omega-compatible battery packs can be recharged using the Omega 5 Station Battery Charger.

Connect the charger OUTPUT plug to the battery pack CHARGER jack. Properly maintained battery packs will completely recharge within 16 hours. The pack may be disconnected after that time. No damage will result to the battery if it remains connected to the proper battery charger.

 **WARNING**

**RISK OF EXPLOSION OR FIRE:** Operate only in a non-hazardous location known to be free of combustible gases and vapors.

Using With Nickel-Cadmium Batteries

Nickel-cadmium batteries exhibit, to varying degrees, a behavior known as “memory.” When they are used repeatedly in a shallow-discharge application, they gradually appear to lose capacity and do not perform well in full-discharge use.

For example, if an instrument having an initial eight-hour battery capacity is repeatedly used for one hour at a time and recharged after each use, the battery may not operate for the expected eight hours when eight hours of operation is demanded. Batteries used in Zefon battery packs are designed to minimize this “memory” effect. However, it may not be completely eliminated. The “memory” effect is a temporary condition that is remedied by discharging the battery pack until the LO BATT LED is activated. Then, recharge the pack following the procedures outlined in the instruction manual.

Performance

This instrument was tested during manufacture and found to perform within the limits of the specifications contained in this manual. However, damage in shipment, storage, or other factors could degrade performance.

Verify proper operation of this equipment before placing it into service.

Zefon Portable Instrument Warranty

1. Warranty -

ITEM	WARRANTY PERIOD
Omega 5 Station Battery Charger	Two years (Zefon will support product for five years after production ends)

This warranty is valid only if the product is maintained and used in accordance with Seller’s instructions and/or recommendations. The Seller shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from physical abuse or misuse of the product. No agent, employee or representative of the Seller has any authority to bind the Seller to any affirmation, representation or warranty concerning this product. Seller makes no warranty concerning components or accessories not manufactured by the Seller, but will pass on to the Purchaser all warranties of manufacturers of such components.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF. SELLER SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.**

2. **Exclusive Remedy** - It is expressly agreed that Purchaser’s sole and exclusive remedy for breach of the above warranty, for any tortious conduct of Seller, or for any other cause of action, shall be the repair and/or replacement at Seller’s option, of any equipment



or parts thereof, which after examination by Seller is proven to be defective. Replacement equipment and/or parts will be provided at no cost to Purchaser, F.O.B. Seller's Plant. Failure of Seller to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.

3. **Exclusion of Consequential Damages** - Purchaser specifically understands and agrees that under no circumstances will Seller be liable to Purchaser for economic, special, incidental or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of nonoperation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against Seller.

Repair service is available for this product.

In the USA, contact Zefon at 1-800-282-0073. To contact Zefon outside the USA, dial +1 (352) 854-8080 or email [ZefonCS@zefon.com](mailto:ZefonCS@zefon.com).

## LED Operations

### ⚠ WARNING

**Do not attempt to recharge any product that does not display the Omega ( $\Omega$ ) symbol. An explosion, fire hazard, or damage to the product and/or battery charger could result.**

The output connector is used to connect the charger to an Omega-compatible pump battery pack.

The indicator lamp is lit while a battery pack charges. Once the pump is plugged in, the LED will continuously be illuminated. The charger will switch to a slower rate (trickle charge) after 16 hours of charging and flash on and off. The indicator lamp powers OFF if:

- No battery pack is connected
- Battery pack has failed.





# Chapter 3, Operating Instructions

## Introduction

This section provides instructions for using the Omega 5 Station Battery Charger. It should be read very carefully before using this instrument.

### WARNING

**Do not use this product without fully reading and understanding the entire operating instructions and this entire manual. You must also read and understand all of the labels, cautions, warnings, instructions, and literature which are supplied with this equipment. Failure to do so can result in property damage, severe personal injury, or death.**

## Unpacking

Examine the shipping carton for external damage. If evidence of damage exists, notify the carrier immediately. An examination of the unopened package and its contents may be required by the carrier. If, after opening the carton, hidden shipping damage is evident, save the packing materials and notify the carrier.

The charger warranty does not cover shipping damage. However, if shipping damage is found, please contact Zefon for assistance in filing a damage claim and/or resolving any problems.

Carefully unpack the Omega 5 Station Battery Charger. Do not discard any packing material until the contents have been verified against the packing slip and the "Included Items" listed in TABLE 2-2. If possible, save packing material until instrument performance is verified. This material is useful if the instrument must be returned for examination or repair.

## Features

The Omega 5 Station Battery Charger contains:

- Output connectors
- Output cords
- An indicator lamp for each station.
- A power jack for the AC adapter.

# Chapter 2, General Information

## Introduction

This section provides general information about the Omega 5 Station Battery Charger, including:

- Performance specifications
- Instrument part numbers
- Accessory item part numbers.

The information provided in "Uses and Limitations" is very important for proper use of the Omega 5 Station Battery Charger. It should be read carefully and fully understood.

When properly used, the Omega 5 Station Battery Charger recharges any Zefon/MSA battery pack displaying the Omega ( $\Omega$ ) symbol. Any combination of Omega-compatible battery packs may be charged simultaneously. A unique power-limiting design provides output short circuit protection. It turns power OFF to any shorted output, limiting energy available to generate a spark. This feature and the insulating plastic case provide maximum operator safety.

## Charger Description

The Omega 5 Station Battery Charger supplies a well regulated, constant current for optimal charging of all Zefon/MSA battery packs displaying the Omega ( $\Omega$ ) symbol. The charger senses a resistor built into every Omega-compatible battery pack and adjusts its output current accordingly. Correct charging current is assured for every Omega-compatible battery pack.

## Battery Descriptions

The Omega 5 Station Battery Charger is only specified for use with Zefon/MSA battery packs displaying the Omega ( $\Omega$ ) symbol. The Omega symbol is located near the charging jack on Omega-compatible battery packs.

### CAUTION

**Use with other battery packs or instruments can result in damage to the battery charger, the battery pack, and the instrument.**

# Performance Specifications

Performance of the Omega 5 Station Battery Charger is summarized in TABLE 2-1. These specifications are subject to the limitations listed in the accompanying notes. Other specifications are listed in TABLE 2-2.

Table 2-1. Performance Specifications

<b>OUTPUT CURRENT:</b>	Output Voltage	9.0 VDC maximum load
	Output Current per Channel	400 mA maximum
<b>OUTPUT PROTECTION:</b>	Output current is limited to a safe value in the event an output plug shorts	
	Any output terminal may be short-circuited to any other output terminal without damage to the charger	
	Output protection is present within the PCB circuitry	
	All 5 outputs can be used at the rated value simultaneously	
	Output protection is provided for each output independently	
<b>STORAGE TEMPERATURE RANGE:</b>	32 to 104°F (0 to 40°C) Non-condensing atmosphere	
	Ambient temperature for optimal charging of Zefon battery packs is 20°C ±10°C	

# Uses And Limitations

The Omega 5 Station Battery Charger provides an efficient and reliable method of recharging a variety of Omega-compatible, rechargeable battery packs. It will not charge non-Omega battery packs.

The Omega 5 Station Battery Charger is intended for dry, indoor use only. It is not intended for outdoor use or where exposure to water, conductive liquids or dusts may occur.

When recharging batteries, take care to limit their maximum internal temperature. Battery packs recommended for use with the Charger are constructed to recharge properly if ambient temperature is between 50 and 86°F (10 and 30°C).

Never use the Omega 5 Station Battery Charger to recharge a battery pack that does not have the Omega (Ω) symbol. Doing so can result in damage to the charger and/or battery pack. In some cases, release of battery chemicals or explosion could occur.

Table 2-2. General Specifications

<b>MAINS VOLTAGE AND FREQUENCY:</b>	115/230 VAC
	47 to 63 Hz
<b>STORAGE TEMPERATURE:</b>	32 to 104°F (0 to 40°C)
<b>CASE MATERIAL:</b>	Electrically insulating Thermoplastic, UL 94HB
<b>DIMENSIONS:</b>	4.3" (11 cm) x 3.2" (8.1 cm) x 1.9" (4.8 cm)
<b>WEIGHT:</b>	0.5 lb (0.22 kg)
<b>ITEMS INCLUDED:</b>	NEMA 5-15P power cord
	Charger base
	Plug-in power supply