

# **MRC-188 INDRA Terminal, Intelligent (TI) Power Supply**



## **Operation Manual**

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## Revision History

Version	Description of Change	Effective Date
REV: A	Initial Release	MAR 09 2006
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# 1 ABOUT THIS MANUAL

This manual has been prepared by McDowell Research, an Ultralife Company, for the purpose of providing the user information necessary to understand and maintain the MRC-188 INDRA Terminal, Intelligent (TI) Power Supply.

## 1.1 Symbols Used

The symbols shown in this section appear throughout this manual, the first one shown being the *NOTE* symbol, below, which is self-explanatory.



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**NOTE:** *Note statements contain important information that may affect how you use this product.*

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The other symbols represent *important safety advice*, and they appear throughout this manual in the form of *WARNINGS* and *CAUTIONS* against possible hazards to people or equipment, respectively. These safety *WARNINGS* and *CAUTIONS* must be followed at all times. They are flagged by use of a triangular alert icon shown just to the left of the cautionary advice given, as shown below:



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**WARNING:** *Warning statements mean danger. They identify practices, procedures or conditions such as high voltage that could result in injury or loss of life and which, therefore, require extreme care before proceeding.*

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**CAUTION:** *Caution statements denote a hazard. They identify practices, procedures or conditions that could result in damage to or destruction of this product or other equipment or property.*

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McDowell Research assumes no liability for the customer's failure to comply with these *WARNINGS* and *CAUTIONS*.

## 1.2 General Safety Instructions



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**WARNING:** This manual contains important safety and operating instructions for the MRC-188. Before using the MRC-188, read all instructions in this manual and cautionary markings, if any, on the device. Specifically:

- Do not operate the MRC-188 if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified repair technician for servicing.
- Use of an attachment not recommended or sold by McDowell Research may result in risk of fire, electric shock, or personal injury.
- To reduce risk of damage to electric plug or cord, pull by plug rather than cord when disconnecting charger.
- Make sure cord(s) is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not operate the charger with damaged cable or connector—replace it immediately.
- Do not disassemble the MRC-188; take it to a qualified repair technician when service or repair is required.
- If there are any questions regarding maintenance or safety-of-use issues pertaining to the MRC-188, please contact our service department at:

Service Department  
McDowell Research, an Ultralife Company  
(PHONE) (315) 332-7100 (FAX) (315) 331-7800  
(Email) [service@mcdowellresearch.com](mailto:service@mcdowellresearch.com)

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## 2 PRODUCT DESCRIPTION

The MRC-188 is a battery box that will support the following equipment:

- ◆ Radio
- ◆ Rechargeable and non-rechargeable batteries

### 2.1 Equipment Provided

Each unit is shipped with the following:

Equipment	Quantity
MRC-188 Operational Manual	1
MRC-188 INDRA Terminal, Intelligent (TI) Power Supply	1

### 2.2 Physical Description

The MRC-188 dimensions are as follows:

Dimension	Measurement
Length	5.5 inches
Width	5.3 inches
Height	3.0 inches
Weight	1 lb. (without battery)

### 2.3 External Components

The MRC-188 consists of the following external components.

- ◆ Two connectors
- ◆ One valve

## 3 OPERATION

The subsequent sections will list in chronological order how to operate the MRC-188 safely and efficiently.

### 3.1 Connections and Start-up

Refer to Figure 1 while following the directions below:

1. Unlatch the battery box and open the lid.
2. Insert a battery into the battery box and connect the battery connector to the battery.
3. Close the lid and latch the battery box.



Figure 1 MRC-188 Connectors

### 3.2 Controls and Indicators

There are no controls or indicators on the MRC-188.

## 4 MAINTENANCE

Maintenance for the MRC-188 is described in the following sections.

### 4.1 Serviceable Parts

The MRC-188 has NO user serviceable parts.

### 4.2 Cleaning

Cleaning of the MRC-188 is described in the following sections.

#### 4.2.1 Dirt and Dust

All components external to the MRC-188 can be cleaned with a water-dampened, non-abrasive cloth. Allow to air dry; or wipe dry with a clean, dry non-abrasive cloth.

#### 4.2.2 Oils and Grease

All external components of the MRC-188 can be cleaned with a mild soap/water solution dampened a non-abrasive cloth once the power source has been removed. Rinse with a water dampened non-abrasive cloth and allow to air dry; or wipe dry with a clean, dry non-abrasive cloth.

### 4.3 Corrective Maintenance

The MRC-188 has NO user serviceable parts. Units requiring corrective maintenance should be sent to McDowell Research for repair. Contact information is provided in the next chapter.

## 5 CUSTOMER ASSISTANCE

### 5.1 Warranty Information

#### Warranty Statement

**4 years for equipment shipped after May 1, 2004.**

**3 years for equipment shipped prior to May 1, 2004.**

McDowell Research warrants to its customers that the products it manufactures and sells will be free from defects in materials and workmanship for a period of four (4) years for equipment shipped after May 1, 2004.

This warranty shall not apply to any defect, failure or damage caused by improper use or inadequate maintenance and care. McDowell shall not be obligated to provide service under this warranty to repair, service, or modify these products.

In order to obtain service under this warranty, customers must return a failed unit to McDowell with a description of the failure, contact information (in case questions arise and to speed up processing of guarantee claims) and finally a return shipping address. McDowell will return any failed unit at McDowell's cost.



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**NOTE:** *This warranty does not apply to batteries supplied by McDowell Research. All batteries supplied by McDowell Research are warranted for 90 days from date of shipment.*

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### 5.2 Contact/Return Information

Please call (315) 332-7100 to obtain an RMA number prior to returning any failed unit(s) to:

McDowell Research, an Ultralife Company  
2000 Technology Parkway  
Dock "X"  
Newark, New York 14513  
Phone: (315) 332-7100  
Fax: (315) 331-7800

Online RMA requests can be located and submitted at:  
[http://www.mcdowellresearch.com/rma\\_form.php](http://www.mcdowellresearch.com/rma_form.php) or  
[service@mcdowellresearch.com](mailto:service@mcdowellresearch.com)

## 6 SPECIFICATIONS

**Table 1: Physical Characteristics**

Dimension	Measurement
Width	5.3 inches
Length	5.5 inches
Height	3.0 inches
Weight	1 lb. (without battery)

**Table 2: Environmental Characteristics**

Dimension	Measurement
Storage Temperature	-60° C to +75° C
Operating Temperature	-50° C to +55° C
Relative Humidity	95%
Storage Altitude	55,000 ft.
Operating Altitude	27,000 ft.
Immersion	10 ft.
Battery – User Option (Purchase Separately)	BA-5590, MRC-2590, BB-590, BB-390, BB-2590

**Table 3: Electrical Characteristics**

Dimension	Measurement
DC Input Range	11 to 36 VDC
AC Input Range	95 to 265 VAC, 47 to 440 Hz
Output Voltage	29.5 V DC, 3 amps continuous output and 5 amps peak surge