



A Benny Lee Company

# PRODUCT USER GUIDE

## RU1-548-BMS Rack Mount Power Supply Owners Guide

*(These instructions are intended for use by a technician familiar with electronic products)*

- Build-in smart charging, low voltage disconnect, diode isolation
- Power Factor Correction (PFC) saves energy costs
- Bi-color Led light indicator
- Monitors external battery back-up for optimal charging and maintenance
- Seamless transfer to battery back-up when AC power fails
- 3 year warranty



### DESCRIPTION

The Model RU1-548-BMS is a complete power supply and battery management system. Smart Charging and battery protecting Low Voltage Disconnect maintain and prevent battery failures caused by over-charging and excessively deep discharging. Dual Schottky diodes provide smooth transfer to battery power and auto-revert to AC mains power that is seamless and glitch less. The Smart Charger is designed to auto-charge and maintains Gelled electrolyte (Gel-Cell) and liquid electrolyte lead-acid 48 volt batteries up to 30 Amp Hour. The charger is a constant monitoring charger for the charging and maintenance of fixed location UPS, emergency lighting systems, and telecommunications battery backup systems.

The charger is protected against over loading by deep discharge smart circuitry with auto shut down due to over-voltage, over-temperature, short circuit and reverse polarity.

Switch mode circuit design provides high efficiency, compact size, cool operation and high reliability. Dual color red/green LED provides a visual indication of charger status. The bicolor LED will show the following conditions:

- Red light: charging process
- Bi-color flash: in the transition period between charging and full charge
- Green light: battery is fully charged and the charger is in float mode
- Green light flashing: poor connection from charger to battery (check connections)

Green LED on left hand side of front panel shows output power.

The Model RU1-548-BMS incorporates an automatic Low Voltage Disconnect that monitors battery voltage and disconnects the load when the battery voltage drops below 42 VDC. The LVD has been adjusted and calibrated at the factory for correct voltage disconnects and re-connect. No adjustment is required.

After the AC main power is restored and the battery is recharging, the LVD will reconnect the load when the battery voltage exceeds 50 volts.

## **SPECIFICATIONS**

Operational DC Voltage.....	55.2 VDC
Voltage Disconnect.....	42 VDC
Low Voltage RE-Connect .....	50 VDC
Maximum Output Current .....	6.3 Amps
Maximum Charger Current .....	2 Amps
AC Input voltage range (switch selectable) .....	90-130 or 180-260 VAC
Max inrush current, single cycle .....	35 Amps
Input frequency range.....	47-63 Hz
Typical Efficiency .....	80 %
Short Circuit protection .....	Fold back Limiting
Overload Protection (operates) .....	typical 105-110 %
Over Temperature .....	>195 F (90 C) auto output shutdown
Working Temperature range.....	+14 F to +113 F (-10 C to +45 C)
Storage Temperature .....	-4 F to +185 F (-20 C to +85 C)

## **GENERAL APPLICATION NOTES AND WARNINGS**

The individual user should take care to determine, prior to use or installation, whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, DuraComm makes no representation or warranty as to the merchantability, suitability or fitness of these units for any specific application.

The precision regulated power supplies operate internally from voltages in excess of 300 volts. In rare cases, voltage spikes or transients on the AC power line, or overheating, may cause a component failure in the power supply. Overloading the output will cause the over current feature to operate. In either case, the cause must be determined and corrected. Failures require investigation as to cause and/or repair of the unit.

**THERE ARE NO USER SERVICEABLE PARTS INSIDE. HAZARDOUS VOLTAGES EXIST INSIDE THE UNIT. SERVICE AND REPAIR MUST BE REFERRED TO QUALIFIED FACTORY PERSONNEL.**

## **INSTALLER NOTES**

**NOTE:** DO NOT block any of the cooling vents on the sides and always allow adequate ventilation by not installing the unit inside tightly closed spaces. Physical mounting position is not critical but the cooling vents and the load controlled cooling fan must not be blocked.

**NOTE:** The DC outputs are **NOT** referenced to the chassis. The RU1 System can be used either positive or negative ground.

## **AC MAIN OPERATING INPUT VOLTAGE**

The AC input is switch-selectable for 90 to 130 VAC, or 180 to 260 VAC. Maximum efficiency is realized with input voltages above 180 VAC. Linear de-rating to ~85% @ 90 VAC is recommended for AC inputs less than 180 VAC

## **CONDUCTOR PRETREATMENT**

All kinds of copper conductors can be clamped without treatment. DO NOT solder tin stranded conductors. The solder yields and fractures under high pressure. The result is increased contact resistance and excessive temperature rise. Additionally, corrosion has been observed due to the fluxes. Notch fractures at the transition from the rigid tinned part to the flexible conductors are also possible. Ferrules can be used as a protection when wiring stranded conductors. Copper ferrules prevent the current transfer from being influenced by dissimilar metals and remove the risk of corrosion. Always use the correct tool to crimp the ferrule.

## **RECOMMENDED COPPER WIRE SIZE FOR CURRENT CAPACITY**

(Insulated Wire, Single Conductor in free air)

<b><u>Current Level in Amperes</u></b>	<b><u>Wire Size</u></b>
<7 AMPERES	20 AWG Up to 5 feet 18 AWG Up to 10 feet
14 AMPERES	18 AWG Up to 5 feet 16 AWG Up to 10 feet
20 AMPERES	16 AWG Up to 5 feet 14 AWG Up to 10 feet
30 AMPERES	14 AWG Up to 5 feet 12 AWG Up to 10 feet
40 AMPERES	12 AWG Up to 5 feet 10 AWG Up to 10 feet
50 AMPERES	10 AWG Up to 5 feet 8 AWG Up to 10 feet
70 AMPERES	8 AWG Up to 5 feet 6 AWG Up to 10 feet
100 AMPERES	6 AWG Up to 5 feet 4 AWG Up to 10 feet

## **LIMITED WARRANTY**

*DuraComm warrants to the initial end user, each power supply manufactured by DuraComm to be free from defects in material and workmanship, when in normal use and service for a period of three years from the date of purchase, from an authorized DuraComm dealer.*

*Should a product manufactured by DuraComm fail or malfunction due to manufacturing defect, or faulty component, DuraComm, at its option, will repair or replace the faulty product or parts thereof, which, after examination by DuraComm, prove to be defective or not operational according to specifications in effect at the time of sale to the initial end user. The product that is replaced or repaired under the provisions of this warranty, will be warranted for the remainder of the original warranty period, only, and will not extend into a new three year warranty period.*

*The limited warranty does not extend to any DuraComm product which has been subject to misuse, accidental damage, neglect, incorrect wiring not associated with manufacture, improper charging voltages, or any product which has had the serial number removed, altered, defaced, or changed in any way.*

*DuraComm reserves the right to change, alter, or improve the specifications of its products at any time, and by so doing, incurs no obligation to install or retrofit any such changes or improvements in or on products manufactured prior to inclusion of such changes.*

*DuraComm requires any product needing in or out of warranty service to be returned to DuraComm. All requests for warranty service must be accompanied by proof of purchase, such as bill of sale with purchase date identified. DuraComm is not responsible for any expenses or payments incurred for the removal of the product from its place of use, transportation or shipping expenses to the place of repair, or return expenses of a repaired or replacement product to its place of use.*

*The implied warranties which the law imposes on the sale of this product are expressly LIMITED, in duration, to the three (3) year time period specified herein. DuraComm will not be liable for damages, consequential or otherwise, resulting from the use and operation of this product, or from the breach of this LIMITED WARRANTY.*

*Some states do not allow limitations on the duration of the implied warranty or exclusions or limitations of incidental or consequential damages, so said limitations or exclusions may not apply to you. This warranty gives you specific legal rights which vary from state to state.*

*This warranty is given in lieu of all other warranties, whether expressed, implied, or by law. All other warranties, including WITHOUT LIMITATION, warranties of merchantability and fitness or suitability for a particular purpose, are specifically excluded. DuraComm reserves the right to change or modify its warranty and service programs without prior notice.*

## **DuraComm® Corporation**

6655 Troost Avenue  
Kansas City, MO 64131  
Phone (816) 472-5544 Fax (816) 472-0959  
[www.duracomm.com](http://www.duracomm.com)