



INSTALLATION
& OPERATION MANUAL

RACE ENERGY

BCM100-12 Battery Charger





IMPORTANT SAFETY INSTRUCTIONS

■ **SAVE THESE INSTRUCTIONS** — This manual contains important safety and operating instructions for the battery charger.

■ **ALL BATTERY CHARGERS**

- 1) CAUTION — To reduce risk of injury, charge only lead acid or sealed gel cell type rechargeable batteries. Other types of batteries may burst causing personal injury and damage.
- 2) Do not expose battery charger to rain or snow.
- 3) Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
- 4) Do not disassemble battery charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- 5) To reduce risk of electric shock, disconnect battery charger from batteries and AC supply before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

■ **AC BATTERY CHARGERS**

1) WARNING — RISK OF EXPLOSIVE GASES.

i) WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT EACH TIME BEFORE SERVICING EQUIPMENT IN THE VICINITY OF THE BATTERY, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.

ii) To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary marking on these products and on engine.

2) PERSONAL PRECAUTIONS

i) Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

ii) Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

iii) Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.

iv) If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

v) NEVER smoke or allow a spark or flame in vicinity of battery or engine.

vi) Work carefully around batteries to reduce the risk of dropping any metal tool onto the battery. If the battery is shorted, it could cause a spark or short-circuit battery or other electrical parts that could cause an explosion.

vii) Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.

viii) NEVER charge a frozen battery.

ix) If it is necessary to remove a battery from service, always disconnect the ground terminal from the battery first. Make sure all accessories are off, so as not to cause an arc.

x) Be sure area around battery is well ventilated.

xi) Clean battery terminals with a proper terminal cleaning tool. Be careful to keep corrosion from coming in contact with eyes.

xii) Study all battery manufacturers' specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.

xiii) Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.

3) BATTERY CHARGER LOCATION

i) Never place battery charger directly above battery; gases from battery will corrode and damage charger.

ii) Never allow battery acid to drip on battery charger when reading gravity or filling battery.

4) CONNECTION PRECAUTIONS

i) Connect and disconnect DC output connections only after setting battery charger switch to off position.

■ GROUNDING AND AC POWER CORD CONNECTION INSTRUCTIONS — The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

■ DANGER — Never alter the AC cord or plug provided. If it will not fit the outlet, have the proper cord installed by a qualified electrician. Improper connection can result in a risk of an electric shock.



INTRODUCTION

An all new Current Mode switching design offers increased power and reliability in a compact package. Extra input and output filtering reduce EMI to extremely low levels. Reliability features include an input fuse, thermal shutdown, current limiting and output short circuit shutdown with automatic recovery. The BCM100-12 Battery Charger supplies 13.8 VDC from a 110 VAC power source to continuously float charge the battery.

BCM100-12 Specifications

■ Input Voltages

Nominal (ip)	110Vac
Actual	105-125Vac
Input Amps (max)	16.2
Input Fuse (slow blow)	MDA- 20
Input Frequency	45-65Hz

■ Output Voltages

Nominal (op)	12Vdc
Actual	13.8 +/- 0.05Vdc
Output Crowbar	16.0 +/-0.5Vdc
Output Amps (cont)	100
Output Amps (max)	100

■ General

Noise on Input	< 50 milli-Volts
Noise on Output	< 50 milli-Volts
Transient Response	< 1 V for 50% surge
Efficiency	> 80 % @ maximum output
Temp. Range	-25 to +40 deg. C @ maximum output
Isolation	Input-Output, Input-Case & Output-Case 1500VDC
Isolation	Output-Case 500VDC
Length	17.0 in / 43.2 cm
Width	8.2 in / 20.8 cm
Height	3.5 in / 8.9 cm (without carrying handle)
Clearance	4 Inches (10 cm) all around
Material	Marine Grade Aluminum
Finish	Red, Green, Blue or Black. Other colors available.
Fastenings	18-8 Stainless
Weight	14.4 lb / 6.5 kg

Designed and manufactured by:

RACE ENERGY 

8128 River Way, Delta, B.C., V4G 1K5, Canada

Toll free 800. 668. 3884

www.raceenergy.net

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Specifications are subject to change without notice.



INSTALLATION

■ MOUNTING

Mount the unit in a DRY location. Allow at least 4 inches of clearance around the extrusion for adequate cooling.

■ POWER CONNECTION

The unit is supplied with a 5 foot power cable. This should normally be adequate to connect to a source of power. If you must extend the power cable be sure to use a 3 conductor grounded type extension cable with 20 amp capacity. For hard wiring to a source of power, cut off the plug, and strip the wires as necessary. The wire colours are

110 VAC
Brown - AC Hot
Blue - AC Neutral
Green - Ground

All connections should be made inside an appropriate junction box. The maximum current draw from the 110 VAC supply is 16.2 amps, so a 20 amp circuit breaker should be used in the circuit panel to feed power to the power supply.

■ OUTPUT CONNECTIONS

The output is supplied through two #6AWG cables terminated with 3/8" ring connectors. The red wire has to be connected to the positive (+) terminal of your device while the black wire has to be connected to the negative (-) terminal of your device.



OPERATION

Turn the switch on the side of the unit on to energize the outputs. The green indicator light will glow to indicate the proper operation of the unit.



TROUBLESHOOTING

If the load exceeds the continuous rating for too long a period, the temperature sensor inside the unit will turn off the output. After the unit cools sufficiently, it will automatically come back on. If this happens frequently, remount the unit for increased airflow so it cools better.



LIMITED WARRANTY

1. The equipment manufactured by Race Energy, (the "Warrantor") is warranted to be free from defects in workmanship and materials under normal use and service.
2. This warranty is in effect for:
 - a. 3 Years from **date of purchase** by the end user for standard products offered in our catalog.
 - b. 2 Years from **date of manufacture** for non-standard or OEM products
 - c. 1 Year from **date of manufacture** for encapsulated products.
3. Race Energy will determine eligibility for warranty from the date of purchase shown on the warranty card when returned within 30 days, or
 - a. The date of shipment by Race Energy, or
 - b. The date of manufacture coded in the serial number, or
 - c. From a copy of the original purchase receipt showing the date of purchase by the user.
4. In case any part of the equipment proves to be defective, the Purchaser should do the following:
 - a. Prepare a written statement of the nature of the defect to the best of the Purchasers knowledge, and include the date of purchase, the place of purchase, and the Purchasers name, address and telephone number.
 - b. Call Race Energy at 800-668-3884 and request a return material authorization number (RMA).
 - c. Return the defective part or unit along with the statement at the Purchasers expense to the Warrantor; Race Energy, 8128 River Way, Delta, B.C., V4G 1K5, Canada.
5. If upon the Warrantor's examination the defect proves to be the result of defective material or workmanship, the equipment will be repaired or replaced at the Warrantor's option without charge, and returned to the Purchaser at the Warrantor's expense by the most economical means. Requests for a different method of return or special handling will incur additional charges and are the responsibility of the Purchaser.
6. Race Energy reserves the right to void the warranty if:
 - a. Labels, identification marks or serial numbers are removed or altered in any way.
 - b. Our invoice is unpaid.
 - c. The defect is the result of misuse, neglect, improper installation, environmental conditions, non-authorized repair, alteration or accident.
7. No refund of the purchase price will be granted to the Purchaser, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so.
8. Only the Warrantor shall perform warranty service. Any attempt to remedy the defect by anyone else shall render this warranty void.
9. There shall be no warranty for defects or damages caused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion except for equipment specifically stated to be waterproof.
10. No other express warranty is hereby given and there are no warranties that extend beyond those described herein. This warranty is expressly in lieu of any other expressed or implied warranties, including any implied warranty of merchantability, fitness for the ordinary purposes for which such goods are used, or fitness for a particular purpose, or any other obligations on the part of the Warrantor or its employees and representatives.
11. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any person or persons, or damage to property, or loss of income or profit, or any other consequential or resulting damage which may be claimed to have been incurred through the use or sale of the equipment, including any possible failure of malfunction of the equipment, or part thereof.
12. The Warrantor assumes no liability for incidental or consequential damages of any kind.



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POWER CONVERSION SOLUTIONS FOR MOTORSPORTS

