

INSTALLATION & OPERATION MANUAL

BCH10 Battery Charger



IMPORTANT & SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS — this user guide contains important safety and operating instructions for the battery charger.

BATTERY CHARGER PRECAUTIONS

1. Do not expose the battery charger to rain or snow unless it is a sealed model.
2. 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.
3. Do not disassemble the battery charger; return it to the manufacturer or an authorized service center when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect the battery charger from the battery and the power source before attempting any maintenance or cleaning.
5. Never place battery charger directly above battery; gases from battery will corrode and damage battery charger.
6. Never allow battery acid to drip on the battery charger.

BATTERY SAFETY

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 USER GUIDE AND FOLLOW THE INSTRUCTIONS EXACTLY.
 - ii. To reduce risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review the cautionary marking on these products.
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 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
 - v. If acid enters eye, immediately flood eye with running cold water for at least 1 minutes and get medical attention immediately.

- vi. NEVER smoke or allow a spark or flame in the vicinity of a battery.
- vii. Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit the battery or other electrical part that may cause a fire or explosion.
- viii. 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 shortcircuit current high enough to melt metal, causing a severe burn.
- ix. NEVER charge a frozen battery.
- x. If it is necessary to remove a battery from service, always remove grounded terminal from battery first. Make sure all accessories connected to the battery are off, to prevent an arc when reconnecting the new battery.
- xi. Be sure area around battery is well ventilated.
- xii. Clean the battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- xiii. Study all the battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.

Introduction

The BCH10 Step Down series of Battery Chargers supply up to 10 amps of charging current at 12, 24, 36 or 48 volts from any higher voltage between 20 and 80 volts DC for use in automotive, heavy equipment, marine, industrial, rail or alternative energy environments. The output voltage is configured to allow permanent connection to the battery. All surface mount high frequency design offers higher reliability, higher efficiency (more than 91%), more power (up to 544 watts at 48 VDC Out) and minimum size.

The unit has reverse input protection, reverse battery connection protection, and output overvoltage protection and features spark free connection to the battery. Smart Ideal Diode output circuitry prevents any reverse current flowing from the battery back into the converter.

Specifications

Input					
Model	BCH10-12	BCH10-24	BCH10-32	BCD10-36	BCH10-48
Input Volts VDC	20 - 80	30 - 80	40 - 80	45 - 80	60 - 80
Input Fuse	CB61F15A - 15 Amp Surface Mount				
Output					
Nominal VDC	12	24	32	36	48
Actual	13.6	27.2	36.3	40.8	54.4
Output Amps	10 Amps				
Dissipation	12 Watts				
Efficiency	91.9%	95.8%	96.8%	97.1%	97.8%
Output Fuse	CB61F15A - 15 Amp Surface Mount				
Electrical					
Input Ripple & Noise	< 100 mV Peak to Peak				
Output Ripple & Noise	< 50 mV Peak to Peak				
Regulation (Line & Load)	< +/- 0.5%				
Mechanical					
Dimensions	4.85 in / 12.3 cm Long x 4.13 in / 10.5 cm Wide (incl. mounting flanges) x 1.03 in / 2.6 cm High				
Clearance	1.0 in / 2.5 cm all around				
Weight	0.62 lb / 0.28				
Material and Finish	Marine grade aluminum with red anodize cover / black anodize chassis				
Mounting	Wall or shelf mount				
Connections	Pluggable Phoenix Combi-Com four position terminals				
Environmental and Safety					
Operating Temperature Range	25°C to +40°C @ maximum				
Humidity	0 - 95% Relative Humidity (non-condensing) with standard conformal coating				
Audible Noise	None				
Typical Service Life	10 years (87,600 hrs)				
Isolation	Any input or output to case (1500 VDC). Input to output - common negative				
Warranty	Three years parts and labor				

* Specifications subjects to change without notice.

Installation

MOUNTING

Mount the unit in a DRY location on any convenient surface using #8 screws.

POWER CONNECTION

The unit is equipped with a terminal strip for easy connection. Markings on the unit indicate the proper wire connections.

IN +	Input Positive
IN -	Input Negative
BATT -	Battery Negative
BATT +	Battery Positive

Operation

The unit will operate whenever power is connected. The ON led will be illuminated whenever power is connected to the charger. The CHARGE led will be illuminated whenever the charger is charging the battery. It will turn off when the charging current drops below approximately 1 amp.

Troubleshooting

If the ON led is not illuminated, check with a voltmeter for voltage between the IN + and IN - connections. If there is power, check to make sure the connections are not reversed. Positive should be on the outer terminal (terminal 1). If the connections are correct and the ON led still is not illuminated, the input fuse may be blown. Remove the cover by unscrewing the four cover screws under the base and lift it off. Be careful not to lose the two light pipes for the leds. With the input and output disconnected, check the fuse with a good ammeter. If the fuse is good, then the unit is damaged and must be returned for repair. If the fuse is blown, then contact your dealer to have it replaced.

If the CHARGE led does not come on, check to make sure the battery connections are not reversed. Positive should be on the outer terminal (terminal 4). If the connections are correct and the CHARGE led still is not illuminated, the output fuse may be blown. Follow the instructions above to remove the cover and check the output fuse. If the fuse is good, then the unit is damaged and must be returned for repair. If the fuse is blown, then contact your dealer to have it replaced.

Limited Warranty

1. The equipment manufactured by Analytic Systems Ware (1993) Ltd. (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. Analytic Systems 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 Analytic Systems, 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 Analytic Systems at 800-668-3884 or 604-946-9981 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; Analytic Systems Ware (1993) Ltd., 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. Analytic Systems 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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