

A-31 BATTERY CHARGERS and INVERTERS

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Based on ABYC's assessment of the existing technology, and the problems associated with achieving the goals of this standard, ABYC recommends compliance with this standard for all boats, associated equipment, and systems manufactured after July 31, 2006.

31.1. PURPOSE

This standard is a guide for the design, construction, and installation of permanently installed marine alternating current (AC) battery chargers, power inverters and inverter/chargers.

31.2 SCOPE

This standard applies to:

- a. permanently installed 85 to 265 volt AC powered marine non-rotating battery chargers that supply current at a potential of 50 volts DC or less and to
- b. permanently installed, non-rotating, marine power inverters and
- c. inverter/chargers supplying less than 300 volts AC at a frequency of 50 or 60 Hertz.

NOTE: This standard does not apply to devices intended to supply DC loads without a battery.

31.3 REFERENCED ORGANIZATIONS

ABYC - American Boat & Yacht Council, Inc. 3069 Solomons Island Road, Edgewater, MD 21037. Phone: 410-956-1050. Fax: 410-956-2737. Web site: www.abycinc.org

ANSI - American National Standards Institute, 11 West 42nd St, 13th Floor, New York, NY 10036. Phone: 212-642-4900. Web site: www.ansi.org

CFR - Code Of Federal Regulations. May be obtained from the U.S. Coast Guard, 2100 Second St. S.W., Washington, DC 20593. Phone: 202-593-0001 or from the U.S. Government Printing Office Bookstore: <http://bookstore.gpo.gov>. Also available from ABYC in *Rules and Regulations for Small Craft*.

NEMA - National Electrical Manufacturer's Association, 1300 North 17th St, Suite 1847, Rosslyn, VA 22209. Phone: 703-841-3200. Fax: 703-841-5900. Web site: www.nema.org

SAE - Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096. Phone: 724 776-4841. Web site: www.sae.org

UL - Underwriters Laboratories, POB 13995, 12 Laboratory Drive, Research Triangle Park, NC 27709. Phone: 919-549-1400. Web site: www.ul.com.

31.4 DEFINITIONS

For the purposes of this standard, the following definitions apply.

AC Grounding Conductor (green) - A conductor, not normally carrying current, used to connect the metallic non-current carrying parts of electrical equipment to the AC system and engine negative terminal, or its bus, and to the shore AC grounding conductor through the shore power cable.

Battery Charger - A device designed primarily to charge and maintain a battery, or batteries, supplying DC loads.

DC Grounded Conductor - A current carrying conductor connected to the side of the power source that is intentionally maintained at boat ground potential.

DC grounding conductor - A normally non-current carrying conductor used to connect metallic non-current carrying parts of direct current devices to the engine negative terminal, or its bus, for the purpose of minimizing stray current corrosion.

Inverter - A device, powered by batteries, designed primarily to provide AC current at a required voltage and frequency powered by batteries.

Inverter/charger - A device designed to supply either AC power to the vessel's electrical distribution system or to utilize the vessel's AC electrical distribution system to charge and maintain a battery or batteries supplying direct current (DC) loads. See [ABYC E-11 AC and DC Electrical Systems on Boats](#).

Pre-wired battery charger - Battery charger supplied with an AC cable with a standard NEMA 5-15 grounded AC plug and DC output cables equipped with appropriate overcurrent protection and ring terminals.

Readily Accessible - Capable of being reached quickly and safely for effective use under emergency conditions without the use of tools.