



ABYC A-28 July 2019

**Electrical Division Standard
Electrical Component Project
Technical Committee**

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ABYC reviews each standard at least every five years at which time it may be reaffirmed, revised, or withdrawn. ABYC welcomes any written comments on the Standards and Technical Information Reports.

ABYC A-28

GALVANIC ISOLATORS



Origin and Development

ABYC published the first edition of A-28, *Galvanic Isolators* in 1997 and corrections were issued in 1998, 2001, 2003, 2004, and 2008. In 2014, A-28 was revised and permanently relocated to the Electrical Component Project Technical Committee (PTC). The 2019 version of A-28, *Galvanic Isolators* is the work of the Electrical Component PTC.

Electrical Component Project Technical Committee

This list represents the membership at the time the committee was balloted.

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Membership on a committee shall not in and of itself constitute an endorsement of ABYC or any document developed by the committee on which the member serves.

This standard, which is the result of extended and careful consideration of available knowledge and experience on the subject, was developed under procedures accredited as meeting the criteria for American National Standards and is intended to provide minimum performance requirements. The Project Technical Committee that approved the standard was balanced to ensure that individuals from competent and concerned interests have had an opportunity to participate.

ABYC's Project Technical Committee (PTC) meetings are open to the public. All inquiries regarding standards activity, interpretations, or meeting attendance should be directed to the ABYC Technical Department at comments@abycinc.org.

ABYC and its committees do not "approve" or "endorse" any item, construction, or proprietary device.

Request for Interpretations

Upon written request the Electrical PTC will render an interpretation of any requirement of the standard. The request for interpretation should be clear and unambiguous. Requests should be presented to the PTC in a manner in which they may be answered in a "Yes" or "No" fashion.

The committee reserves the right to reconsider any interpretation when or if additional information that might affect it becomes available to the PTC. Persons aggrieved by an interpretation may appeal to the Committee for reinterpretation

Summary of Revisions

This list indicates revisions to the standard when compared with the previously published version. It is not intended to be used independently of the standard. It should be used for informational purposes and as a guide to the official requirements contained in this standard. It is the responsibility of the user to read and understand the complete standard.

The main changes in A-28, *Galvanic Isolators* in this revision as compared with the previous edition dated 7/14, are:

- Scope and Purpose were combined
- Units of Measure section was added
- Status monitor references and requirements were removed

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A-28 GALVANIC ISOLATORS

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 and/or installed after July 31, 2020.

28.1 SCOPE

This standard applies to the qualification and installation of galvanic isolators used on boats equipped with alternating current (AC) shore power systems operating at frequencies of 50 or 60 Hz, and less than 600 V, wired in accordance with [ABYC E-11, AC & DC Electrical Systems on Boats](#) and [ABYC TE-12, Three Phase AC Electrical Systems on Boats](#).

NOTE: Boats with metal in contact with water are subject to galvanic corrosion when connected to shore power as a result of connection to the common AC grounding conductor. This connection will affect the vessel's cathodic protection system. The use of a galvanic isolator may reduce these effects.

28.2 UNITS OF MEASURE

Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate.

28.3 REFERENCES

The following references form a part of this standard. Unless otherwise noted the latest version of referenced standards shall apply.

28.3.1 ABYC - American Boat & Yacht Council, Inc, 613 Third Street, Suite 10, Annapolis, MD 21403. Phone: (410) 990-4460. Fax: (410) 990-4466. Website: www.abycinc.org

[ABYC C-1500, Ignition Protection Test for Marine Products \(formerly UL-1500\)](#)
[ABYC E-11, AC & DC Electrical Systems on Boats](#)
[ABYC E-2, Cathodic Protection](#)

28.3.3 SAE - Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096. Phone: (724) 776-4970. Fax: (724) 776-0790. Website: www.sae.org

SAE J1171 *External Ignition Protection of Marine Electrical Devices*

28.3.5 UL - Underwriters Laboratories Marine Department, PO Box 13995, 12 Laboratory Drive, Research Triangle Park, NC 27709. Phone: (919) 549-1400. Website: www.ul.com

UL 310 *Electrical Quick Connect Terminals*
UL 1059 *Terminal Blocks*

28.4 DEFINITIONS

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

28.4.1 AC Grounding Conductor (green, or green with yellow stripe) - a conductor, not normally carrying current, used to connect the metallic non-current carrying parts of AC electrical equipment to the AC grounding bus, engine negative terminal or its bus, and to the source ground.

NOTE: This may be referred to as the ground (green, or green with yellow stripe) conductor in AC electrical system.

28.4.2 Effective Ground-Fault Current Path - an intentionally constructed, permanent, low-impedance electrically conductive path designed and intended to carry current under ground-fault conditions from the point of a ground fault on a wiring system to the electrical supply source and that facilitates the operation of the overcurrent protection device.