

ICS 65.150
CCS B 94



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3594-2024

Replacing GB/T 3594-2007

**Technical requirements for power supplies of electronic
equipment of fishing vessels**

渔船用电子设备电源技术要求

Issued on: April 25, 2024

Implemented on: November 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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0 Note on the printed English title

The English title on the cover of the document is printed as Technical requirements for power supplies of electronic equipments of fishing vessles, with the word spacing lost in the digitised text. The spacing has been restored, the misspelling vessles has been corrected to vessels, and equipments has been given as equipment. No other word of the printed title has been altered.

1 Scope

The document specifies the technical requirements for direct current supply, alternating current supply, network supply, safety protection, electromagnetic compatibility, and earthing and polarity for power supplies of electronic equipment used on fishing vessels.

It applies to the design, production, trade and management of power supplies for fishing vessel electronic equipment such as vessel internet of things equipment, radio communication and navigation equipment, fishing aid instruments, on-board communication and alarm equipment, automatic control equipment and power conversion equipment.

2 Normative references

The content of the following documents constitutes indispensable provisions of this document through normative reference in the text. For dated references, only the version corresponding to that date applies; for undated references, the latest version, including all amendments, applies.

GB 4943.1-2022 Audio, video, information technology and communication technology equipment-Part 1: Safety requirements; GB/T 5465.2-2023 Graphical symbols for use on equipment-Part 2: Graphical symbols; IEC 60945:2002 Maritime navigation and radiocommunication equipment and systems-General requirements-Methods of testing and required test results.

3 Terms and definitions

The document lists no terms and definitions that require defining.

4 Requirements for direct current supply

Rated voltage: the rated voltage is selected from 12 V, 24 V, 36 V and 48 V.

Marking of the working voltage: where the working voltage covers more than one rated voltage, it is advisable to mark the range of the rated voltages, for example 12 V to 36 V.

5 Requirements for alternating current supply

Rated voltage and rated frequency: these are selected in combination from 110 V, 220 V and 380 V and from 50 Hz and 60 Hz.

Marking of the working voltage and frequency: where the working voltage and frequency cover more than one rated voltage and frequency, it is advisable to mark the ranges of the rated voltage and the rated frequency, for example 110 V to 220 V, 50 Hz to 60 Hz.

6 Requirements for network supply

Direct current supply input: a power supply with a direct current supply input complies with Clause 4.

Alternating current supply input: a power supply with an alternating current supply input complies with Clause 5.

Output voltage range: for a common power supply of a serial data instrument network on a fishing vessel, the direct current output voltage within the network varies within the range 9.0 V to 32.0 V. For a common power supply of an Ethernet network on a fishing vessel, the direct current output voltage within the network varies within the range 44.0 V to 57.0 V.

7 Safety protection requirements

Indication: a power supply, or equipment with a built-in power supply, has an indication of switching on and switching off.

Protection against hazardous voltage: a power supply, or equipment with a built-in power supply, involving hazardous voltage, taken as greater than 55 V, complies with 5.3 of GB

4943.1-2022.

Warning of hazardous voltage: a power supply, or equipment with a built-in power supply, involving hazardous voltage is marked with the graphical symbol required by 5036 of GB/T 5465.2-2023.

Measures on disconnection where hazardous voltage is involved: in a power supply, or equipment with a built-in power supply, involving hazardous voltage, no hazardous voltage is present internally 30 s after disconnection, apart from that of energy storage batteries.

Insulation characteristics: the clearance, the creepage distance and the electric strength of a power supply, or of equipment with a built-in power supply, comply respectively with 5.4.2, 5.4.3 and 5.4.9 of GB 4943.1-2022.

Permanent marking: a clear and corrosion resistant permanent marking is provided on the enclosure of the equipment, complying with F.3.2 of GB 4943.1-2022.

Earthing device: a firm and clearly marked earthing device is provided on the body of a power supply or of equipment with a built-in power supply, and the symbol is marked as required by F.3.6 of GB 4943.1-2022.

Protective devices: a power supply, or equipment with a built-in power supply, has overcurrent and overvoltage protective devices. Where direct current supply is used, a protective device against reversed supply polarity is added.

Environmental adaptability: a power supply, or equipment with a built-in power supply, complies with Clause 8 of IEC 60945:2002.

8 Electromagnetic compatibility requirements

Conducted interference and immunity to conducted interference: conducted interference complies with 9.2 of IEC 60945:2002 and immunity to conducted interference with 10.3 of IEC 60945:2002.

Radiated interference and immunity to radiated interference: radiated interference complies with 9.3 of IEC 60945:2002 and immunity to radiated interference with 10.4 of IEC 60945:2002.

9 Earthing and polarity requirements

Earthing: a power supply, or equipment with a built-in power supply, has earthing arrangements. The cross-sectional area of the earth conductor complies with Table 31 of GB 4943.1-2022, and where there is an earth terminal it complies with Table 32 of GB 4943.1-2022.

Polarity: where direct current supply is used, the negative pole of the supply may be earthed and the positive pole is not to be earthed.

A Relationship to previous standards

The document replaces GB/T 3594-2007, Technical requirements for power supplies of fishing vessel electronic equipment. Besides structural and editorial changes, the foreword lists the following technical changes: the requirements for direct current supply were changed; the requirements for alternating current supply were changed; requirements for network supply were added; the safety protection requirements were changed; the electromagnetic compatibility requirements were changed; and the earthing and polarity requirements were changed.

The standard was first published in 1983 as GB/T 3594-1983 and revised for the first time in 2007; this is the second revision.