



Edition 5.0 2018-10

# INTERNATIONAL STANDARD

Electrical installations in ships NDARD PREVIEW Part 101: Definitions and general requirements (standards.iten.ai)

> <u>IEC 60092-101:2018</u> https://standards.iteh.ai/catalog/standards/sist/65ec3675-e1b0-42de-90d3-514fa7134c66/iec-60092-101-2018





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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

# ELECTRICAL INSTALLATIONS IN SHIPS –

# Part 101: Definitions and general requirements

# FOREWORD

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International Standard IEC 60092-101 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

This fifth edition cancels and replaces the fourth edition published in 1994 and Amendment 1:1995. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) the applicability of the standard has been changed to 1 000 V AC and 1 500 V DC:
- b) the table for design temperature has been simplified;
- c) the clause regarding power supply system characteristics has been rewritten;
- d) information regarding pollution degree has been added in the clause regarding clearance and creepage distances;
- e) a clause regarding environmental impact has been added;

- f) the clause regarding classification test for materials has been deleted;
- g) the annex regarding flame-retardant test for cables has been deleted;
- h) the annex regarding test on bunched wires or cables under fire conditions has been deleted.

The text of this standard is based on the following documents:

FDIS	Report on voting
18/1617/FDIS	18/1631/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60092 series, published under the general title Electrical installations in ships, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed, iTeh STANDARD PREVIEW
- withdrawn,
- replaced by a revised edition, or •
- amended.

IEC 60092-101:2018

A bilingual version of this publication may be issued at a later date.

### INTRODUCTION

The IEC 60092 series includes international standards for electrical installations in sea-going ships, incorporating good practice and coordinating, as far as possible, existing rules. These standards form a code of practical interpretation and amplification of the requirements of the International Convention for the Safety of Life at Sea, a guide for future regulations which may be prepared and a statement of practice for use by ship-owners, shipbuilders and appropriate organizations.

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# ELECTRICAL INSTALLATIONS IN SHIPS –

# Part 101: Definitions and general requirements

#### 1 Scope

This part of IEC 60092 is applicable to electrical installations for use in ships.

The definitions and general requirements given in this part are applicable, unless otherwise indicated, to other parts of the IEC 60092 series.

# 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60034-30-1, Rotating electrical machines – Part 30-1: Efficiency classes of line operated AC motors (IE code) **Teh STANDARD PREVIEW** 

IEC 60079 (all parts), Explosive atmosphererds.iteh.ai)

IEC 60092-201, Electrical installations in ships-1 Part 201: System design – General https://standards.iteh.ai/catalog/standards/sist/65ec3675-e1b0-42de-90d3-

IEC 60092-305, Electrical installations in ships – Part 305: Equipment – Accumulator (storage) batteries

IEC 60092-504:2016, Electrical installations in ships – Part 504: Automation, control and instrumentation

IEC 60529, Degrees of protection provided by enclosures (IP Code)

IEC 60533, Electrical and electronic installations in ships – Electromagnetic compatibility (EMC) – Ships with a metallic hull

IEC 60664-1, Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests

IEC 60695-11-5, Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance

IEC 61439-1:2011, Low-voltage switchgear and controlgear assemblies – Part 1: General rules

# 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE Definitions included in this part are those having general application in IEC 60092. Definitions applying to particular apparatus or equipment which are only included within a single part of IEC 60092 are separately defined in that part only.

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#### 3.1

#### appropriate authority

governmental body and/or classification society whose rules a ship is required to comply with

# 3.2

#### ocean-going ship

ship not exclusively employed in the navigation of rivers or inland waters

# 3.3

#### essential services

services essential for the navigation, propulsion, steering or manoeuvring of the ship, or for the safety of human life, or for special characteristics of the ship (for example special services)

# 3.4

#### accessory

device, other than a luminaire (see IEC 60092-306), associated with the wiring and currentusing appliances of an installation ANDARD PREVIEW

EXAMPLE Switch, fuse, plug, socket-outlet, lampholder or junction box,

#### 3.5

#### bond

#### IEC 60092-101:2018

connection of non-tourrent-carrying parts/tonensure/continuity of delectrical connection, or to equalize the potential between parts/comprising.) for example, the armour or lead sheath of adjacent length of cable, the bulkhead, etc.

EXAMPLE Bulkhead and cables in a radio-receiving room.

# 3.6

#### earth

general mass of the metal hull of the ship

Note 1 to entry: In the USA, "ground" is used instead of "earth".

# 3.7

#### earthed

connected to the general mass of the hull of the ship in such a manner as will ensure at all times an immediate discharge of electrical energy without danger

Note 1 to entry: A conductor is said to be "solidly earthed" when it is electrically connected to the hull without a fuse-link, switch, circuit-breaker, resistor, or impedance, in the earth connection.

Note 2 to entry: In the USA. "grounded" is used instead of "earthed".

#### 3.8

#### basic insulation

insulation of hazardous-live-parts which provides basic protection

Note 1 to entry: This concept does not apply to insulation used exclusively for functional purposes

[SOURCE: IEC 60050-195:1998, 195-06-06]

### 3.9

#### supplementary insulation

independent insulation applied in addition to basic insulation, for fault protection

[SOURCE: IEC 60050-195:1998, 195-06-07]

#### 3.10

#### double insulation

insulation comprising both basic insulation and supplementary insulation

[SOURCE: IEC 60050-195:1998, 195-06-08]

#### 3.11

#### reinforced insulation

insulation of hazardous-live-parts which provides a degree of protection against electric shock equivalent to double insulation

Note 1 to entry: Reinforced insulation may comprise several layers which cannot be tested singly as basic insulation or supplementary insulation

[SOURCE: IEC 60050-195:1998, 195-06-09]

#### 3.12 live

# qualifies a conductive part intended to be energized in normal operation

Note 1 to entry: A live part may be temporarily dead when it is not energized. A neutral conductor is considered as live but earthing conductors are not.

# [SOURCE: IEC 60050-151:2001, 151-15-60] https://standards.iteh.ai/catalog/standards/sist/65ec3675-e1b0-42de-90d3-

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#### 3.13

#### maritime distribution board

switchgear and controlgear assembly which is supplied by a main or emergency switchboard, or distribution boards and is used to distribute and control energy to other distribution boards, final distribution boards or final sub circuits.

Note 1 to entry: The definition of section board has been replaced by distribution board.

#### 3.14

#### final subcircuit

that portion of a wiring system extending beyond the final overcurrent protective device of a board

# 3.15

#### point

<wiring> any termination of the fixed wiring intended for the attachment of a luminaire or for connecting to the supply a current-using appliance

#### 3.16

#### extra low voltage

voltage not exceeding the relevant voltage limit of extra low voltage (ELV)-band specified in IEC 61140

Note 1 to entry: The voltage band for ELV in IEC 61140 is equal or less than 50 V AC and equal and less than 120 V DC.

[SOURCE: IEC 60050-826:2004, 826-12-30; modified]

#### 3.17 materials

### 3.17.1

#### arc-resistant material

material is arc-resistant when it is not excessively damaged by the action of the repeated arcs that may occur at its surface under actual duty conditions

# 3.17.2

#### flame retardant material

material whereby flaming combustion is slowed, terminated or prevented

#### 3.17.3

#### fire resistant material

material able to withstand fire or give protection from it for a period of time

#### 3.17.4

#### non-combustible material

material not capable of undergoing combustion under specified conditions

Note 1 to entry: A material is classified as being non-combustible even if it is capable of combustion, provided that its heat of combustion is less than a defined amount.

# 3.18

# spaces

# iTeh STANDARD PREVIEW

# 3.18.1 **I** accomodation spaces

spaces used for public spaces sources, lavatories, cabins, offices, crew quarters, barber shops, isolated pantries and lockers, and similar spaces

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# 3.18.2 https://standards.iteh.ai/catalog/standards/sist/65ec3675-e1b0-42de-90d3-

#### cargo spaces

spaces used for cargo (including liquid cargo tanks) and trunks to such spaces

#### 3.18.3

#### hazardous area

area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of electrical equipment

Note 1 to entry: IEC 60079-10-1 specifies requirements to classification of hazardous areas in potential explosive gas atmospheres (see also IEC 60050-426:2008, 426-03-03, 426-03-04 and 426-03-05).

Note 2 to entry: For tankers, see IEC 60092-502.

Note 3 to entry: Hazardous spaces are also referred to as dangerous spaces.

[SOURCE: IEC 60050-426:2008, 426-03-01; modified]

#### 3.18.4

#### machinery spaces

all spaces containing propelling machinery, boilers, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air-conditioning machinery, and similar spaces; and trunks to such spaces

#### 3.18.5

#### public spaces

portions of the accommodation used for halls, dining-rooms, lounges, and similar permanently enclosed spaces

#### – 10 –