IEC 60092-504

Edition 4.0 2016-09
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

Electrical installations in ships –
Part 504: ~~Special features~~ –
Automation, control and instrumentation

IEC 60092-504:2016-09 RLV(en)

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ELECTRICAL INSTALLATIONS IN SHIPS –

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FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60092-504 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

This fourth edition cancels and replaces the third edition published in 2001. This edition constitutes a technical revision.

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

a) the part title has been changed, the term “Automation” was added;
b) the contents of the corrigendum of January 2011 have been included;
c) a new subclause 5.1 “General” with general requirements for type testing has been added;
d) Table 1 contents aligned with current version of document IACS Req. 1991/Rev. 5, 2006;
e) the revised IMO Resolution A.1021(26), Code on alerts and indicators:2009 has been taken into account;
f) IMO Resolution MSC.302(87) has been taken into account. As a consequence, the term “alert” has been used where the generic term applies. This concerns, in particular, the text in 8.4 and 9.3;
g) a new subclause 8.2.4: The revised IMO Resolution MSC.145(77), Performance standards for water level detectors on bulk carriers:2003 has been taken into account;
h) subclause 9.1 about fire detection and alarm systems has been completely revised, IMO Resolution MSC.98(73) (FSS Code) with amendment MSC.292(87): 2010 has been taken into account;
i) a new subclause 9.2 “Bilge systems” has been added;
j) the subclauses 9.4 “Automatic control installations for electrical power supply” and 9.5 “Automatic starting installations for electrical motor-driven auxiliaries” have been completely revised;
k) Clause 10 “Computer based systems” has been completely revised;
l) a new subclause 10.3.6 about wireless data communication has been added;
m) a new subclause 10.5 about remote access has been added.

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

FDIS	Report on voting
18/1539/FDIS	18/1545/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 of the IEC 60092 series, 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 website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

IEC 60092 forms a series of international standards ~~intended to ensure safety in the design, selection, installation, maintenance and use of electrical equipment for the generation, storage, distribution and utilization of electrical energy for all purposes~~ for electrical installations in sea-going ships, incorporating good practice and coordinating, as far as possible, existing rules.

~~This part of IEC 60092 also incorporates and co-ordinates, as far as possible, existing rules and forms a code of interpretation, where applicable, of the requirements of the International Maritime Organization, and serves as~~ 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~~, and by constructors and appropriate organizations~~.

~~This standard is based on equipment and practices which are in current use, but it is not intended in any way to impede development of new or improved techniques.~~

ELECTRICAL INSTALLATIONS IN SHIPS –

Part 504: ~~Special features –~~ Automation, control and instrumentation

1 Scope

This part of IEC 60092 ~~deals with~~ specifies electrical, electronic and programmable equipment intended for automation, control, monitoring, ~~alarm~~ alert, and safety and protection systems for use in ships.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)* (available at www.electropedia.org)

IEC 60068-2-1, *Environmental testing – Part 2: Tests – Test~~s~~ A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2: Tests – Test~~s~~ B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2: Tests – Test~~s~~ Fc: Vibration (sinusoidal)*

IEC 60068-2-30, *Environmental testing – Part 2: Tests – Test~~s~~ Db ~~and guidance~~: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-52, *Environmental testing – Part 2: Tests – Test~~s~~ Kb: Salt mist, cyclic (sodium chloride solution)*

~~IEC 60092 (all parts), *Electrical installations in ships*~~

IEC 60092-101:1994, *Electrical installations in ships – Part 101: Definitions and general requirements*
IEC 60092-101:1994/AMD1:1995

IEC 60092-201:1994, *Electrical installations in ships – Part 201: System design – General*

IEC 60092-202, *Electrical installations in ships – Part 202: System design – Protection*

~~IEC 60092-204, *Electrical installations in ships – Part 204: System design – Electric and electrohydraulic steering gear*~~

IEC 60092-302, *Electrical installations in ships – Part 302: Low-voltage switchgear and controlgear assemblies*

~~IEC 60092-375, *Electrical installations in ships. Shipboard telecommunication cables and radio-frequency cables. General instrumentation, control and communication cables*~~

~~IEC 60092-376, *Electrical installations in ships – Part 376: Shipboard multicore cables for control circuits*~~

~~IEC 60092-401, *Electrical installations in ships – Part 401: Installation and test of completed installation*~~

IEC 60092-501, *Electrical installations in ships – Part 501: Special features – Electric propulsion plant*

IEC 60092-502, *Electrical installations in ships – Part 502: Tankers – Special features*

IEC 60447, *Basic and safety principles for man-machine interface ~~(MMI)~~, marking and identification – Actuating principles*

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 60945, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and ~~measurement~~ measuring techniques – Electrostatic discharge immunity test. ~~Basic EMC Publication~~*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test. ~~Basic EMC Publication~~*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and ~~measuring~~ measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61355-1, *Classification and designation of documents for plants, systems and equipment – Part 1: Rules and classification tables*

IEC 62443 (all parts), *Industrial communication networks – Network and system security*

ABS publication, *Guidance notes on the application of ergonomics to marine systems (2014-02)*

CISPR 16-1-1, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus*

CISPR 16-2-1, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-1: Methods of measurement of disturbances and immunity – Conducted disturbance measurements*