INTERNATIONAL STANDARD

IEC 60092-504

Third edition
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Electrical installations in ships –

Part 504:
Special features – Control and instrumentation

Installations électriques à bord des navires –

Partie 504:
Caractéristiques spéciales – Conduite et instrumentation

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL INSTALLATIONS IN SHIPS –

Part 504: Special features – Control and instrumentation

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

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 third edition cancels and replaces the second edition, published in 1994, and constitutes a technical revision.

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

FDIS	Report on voting
18/889/FDIS	18/890/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 3.

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

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

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

The contents of the corrigendum of January 2011 have been included in this copy.

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 in seagoing ships.

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 a guide for future regulations which may be prepared and as a statement of practice for use by shipowners, 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 – Control and instrumentation

1 Scope

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

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60092. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60092 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)*

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

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

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

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

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

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

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

IEC 60092-201, *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, *Man-machine interface (MMI) – Actuating principles*

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

IEC 60533, *Electrical and electronic installations in ships – Electromagnetic compatibility*

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: Testing and measurement techniques – Section 2: Electrostatic discharge immunity test. Basic EMC Publication*

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

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

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

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

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

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

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

IMO Assembly Resolution A.830 (19)1995, *Code on Alarms and Indicators* [1]

NOTE Other informative IMO documents are referenced within the text of this standard.

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1 See IMO 867E:1996, *Code on Alarms and Indicators,* 1995