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colour inside

Electrical installations in ships – Part 202: System design – Protection

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL INSTALLATIONS IN SHIPS –

Part 202: System design – Protection

FOREWORD

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International Standard IEC 60092-202 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 1:1996. This edition constitutes a technical revision.

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

This document: **Clause/subclause No. and heading**	**Previous document:** **Corresponding clause/subclause No., remark**
1 Scope	1, No change
2 Normative references	2, Updated
3 Definitions	3, Several definitions changed and added
4 General requirements	4, Text changed
4.1 General	New clause/subclause
4.2 Basic protection	New clause/subclause
4.3 Studies and calculations	New clause/subclause
5 Electrical load study	New clause/subclause
6 Short-circuit current calculations	5, Heading change
-	5.1, Text changed and moved to new Clause 6
-	5.2, Text deleted, for DC-Systems reference to IEC 61660-1 added
7 Protection discrimination study	New clause/subclause
7.1 General	New clause/subclause
7.2 Current selectivity	New clause/subclause
7.3 Time-current selectivity	New clause/subclause
8 Characteristics and choice of protective devices with reference to short-circuit rating	6, Text completely revised and extended
8.1 General	6.1
8.2 Protective devices	New clause/subclause
8.3 Rated short-circuit breaking capacity	6.2
8.4 Rated short-circuit making capacity	6.3
8.5 Co-ordinated choice of protective devices with regard to discrimination requirements	6.4, Heading changed, new text
9 Choice of protective devices with reference to overload	7
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14 Protection against under- and over-frequency	New clause/subclause

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

FDIS	Report on voting
18/1538/FDIS	18/1542/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, 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 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

The IEC 60092 series~~: Electrical installations in ships~~ includes international standards for electrical installations in sea-going ships, incorporating good practice and co-ordinating as far as possible existing rules.

These standards form a code of practical interpretation and amplification of the requirements of the International Convention ~~on~~ 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, ship builders and appropriate organizations.

ELECTRICAL INSTALLATIONS IN SHIPS –

Part 202: System design – Protection

1 Scope

This part of IEC 60092 is applicable to the main features of the electrical protective system to be applied to electrical installations for use in ships.

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 92-301:1980, *Electrical installations in ships - Part 301: Equipment - Generators and motors*~~

~~IEC 363:1972, *Short-circuit current evaluation with special regard to rated short-circuit capacity of circuit-breakers in installations in ships*~~

IEC 60909 (all parts), *Short-circuit currents in three-phase a.c. systems*

IEC 60909-0, *Short-circuit currents in three-phase a.c. systems – Part 0: Calculation of currents*

IEC TR 60909-1, *Short-circuit currents in three-phase a.c. systems – Part 1: Factors for the calculation of short-circuit currents according to IEC 60909-0*

IEC 60947-2:~~1989~~ 2006, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*
IEC 60947-2:2006/AMD1:2009
IEC 60947-2:2006/AMD2:2013

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61363-1, *Electrical installations of ships and mobile and fixed offshore units – Part 1: Procedures for calculating short-circuit currents in three-phase a.c.*

IEC 61660-1, *Short-circuit currents in d.c. auxiliary installations in power plants and substations – Part 1: Calculation of short-circuit currents*

IEC 62271-100, *High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers*

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Edition 5.0 2016-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical installations in ships – Part 202: System design – Protection

Installations électriques à bord des navires – Partie 202: Conception des systèmes – Protection



IEC 60092-202:2016-09(en-fr)

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IEC 62271-100, *High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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INSTALLATIONS ÉLECTRIQUES À BORD DES NAVIRES –

Partie 202: Conception des systèmes – Protection

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Cette cinquième édition annule et remplace la quatrième édition parue en 1994 et l'Amendement 1:1996. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

Le présent document: **N° d'article/de paragraphe et intitulé**	**Document précédent:** **N° d'article/de paragraphe, remarque**
1 Domaine d'application	1, Aucune modification
2 Références normatives	2, Mis à jour
3 Définitions	3, Modification et ajout de plusieurs définitions
4 Exigences générales	4, Texte modifié
4.1 Généralités	Nouvel article/Nouveau paragraphe
4.2 Protection principale	Nouvel article/Nouveau paragraphe
4.3 Études et calculs	Nouvel article/Nouveau paragraphe
5 Étude de charge électrique	Nouvel article/Nouveau paragraphe
6 Calculs des courants de courts-circuits	5, Intitulé modifié
-	5.1, Texte modifié et déplacé vers un nouvel Article 6
-	5.2, Texte supprimé, pour les systèmes à courant continu ajout de la référence à l'IEC 61660-1
7 Étude de sélectivité des protections	Nouvel article/Nouveau paragraphe
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Le texte de cette norme est issu des documents suivants:

FDIS	Rapport de vote
18/1538/FDIS	18/1542/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 60092, publiées sous le titre général *Installations électriques à bord des navires*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de cette publication ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "http://webstore.iec.ch" dans les données relatives à la publication recherchée. A cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

INTRODUCTION

La série IEC 60092 comprend des normes internationales relatives aux installations électriques à bord des navires pour la navigation maritime, comprenant les règles de bonne pratique et coordonnant entre elles, dans la mesure du possible, les règles existantes.

Ces normes constituent un code pour l'interprétation pratique et le renforcement des exigences de la Convention internationale sur la sauvegarde de la vie humaine en mer, un guide pour l'établissement des futures réglementations susceptibles d'être rédigées et un énoncé de la pratique en vigueur destiné aux armateurs, aux constructeurs de navires et aux organismes compétents.

INSTALLATIONS ÉLECTRIQUES À BORD DES NAVIRES –

Partie 202: Conception des systèmes – Protection

1 Domaine d'application

La présente partie de l'IEC 60092 s'applique aux principales caractéristiques du système de protection électrique à appliquer aux installations électriques à bord des navires.

2 Références normatives

Les documents suivants sont cités en référence de manière normative, en intégralité ou en partie, dans le présent document et sont indispensables pour son application. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60909 (toutes les parties), *Courants de court-circuit dans les réseaux triphasés à courant alternatif*

IEC 60909-0, *Courants de court-circuit dans les réseaux triphasés à courant alternatif – Partie 0: Calcul des courants*

IEC TR 60909-1, *Courants de court-circuit dans les réseaux triphasés à courant alternatif – Partie 1: Facteurs pour le calcul des courants de court-circuit conformément à la CEI 60909-0*

IEC 60947-2:2006, *Appareillage à basse tension – Partie 2: Disjoncteurs*
IEC 60947-2:2006/AMD1:2009
IEC 60947-2:2006/AMD2:2013

IEC 61140, *Protection contre les chocs électriques – Aspects communs aux installations et aux matériels*

IEC 61363-1, *Installations électriques à bord des navires et des plates-formes mobiles et fixes en mer – Partie 1: Évaluation des courants de court-circuit en c.a. triphasé*

IEC 61660-1, *Courants de court-circuit dans les installations auxiliaires alimentées en courant continu dans les centrales et les postes – Partie 1: Calcul des courants de court-circuit*

IEC 62271-100, *Appareillage à haute tension – Partie 100: Disjoncteurs à courant alternatif*