IEC 61892-3

Edition 4.0 2019-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Mobile and fixed offshore units – Electrical installations –
Part 3: Equipment

Unités mobiles et fixes en mer – Installations électriques –
Partie 3: Équipement

IEC 61892-3:2019-04(en-fr)

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MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 3: Equipment

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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International Standard IEC 61892-3 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 2012. This edition constitutes a technical revision.

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

a) the previous voltage limitations have been removed;
b) Clause 4 has been completely rewritten, giving general requirements as to relevant electrical equipment;
c) requirements concerning pyrotechnic fault current limiters have been added;
d) requirements as to gas insulated switchgear have been added;

e) the requirement concerning the isolation of supply to galley has been moved to IEC 61892-2;

f) requirements concerning control and instrumentation have been rewritten, based on changes in IEC 61892-2.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
18/1651/FDIS	18/1667/RVD

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

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

A list of all the parts in the IEC 61892 series, published under the general title *Mobile and fixed offshore units – Electrical installations*, can be found on the IEC website.

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

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- withdrawn,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

INTRODUCTION

IEC 61892 forms a series of International Standards for safety in the design, selection, installation, maintenance and use of electrical equipment for the generation, transmission, storage, distribution and utilization of electrical energy for all purposes in offshore units which are used for the purpose of exploration or exploitation of petroleum resources.

This part of IEC 61892 incorporates and coordinates, as far as possible, existing rules and forms a code of interpretation, where applicable, of the requirements of the International Maritime Organization (IMO), and constitutes a guide for future regulations which may be prepared and a statement of practice for offshore unit owners, designers, installers and appropriate organizations.

This document is based on solutions and methods which are in current use, but it is not intended to impede development of new or improved techniques.

In this revision, voltage limitations have been removed. However, voltage limitations may be given in the referenced equipment standards. The removal of voltage limitations is considered necessary due to the interconnection of, and supply from shore to offshore units. In such cases, transmission voltages up to 132 kV AC and 150 kV DC are used and higher voltages are being planned.

The IEC 61892 series aims to constitute a set of International Standards for the offshore petroleum industry, but it is not intended to prevent their use beyond petroleum installations.

MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 3: Equipment

1 Scope

This part of IEC 61892 is applicable to electrical equipment in mobile and fixed offshore units including pipeline, pumping or "pigging" stations, compressor stations and single buoy moorings, used in the offshore petroleum industry for drilling, production, accommodation, processing, storage and offloading purposes.

It applies to all installations, whether permanent, temporary, transportable or hand-held, to AC installations and DC installations without any voltage level limitation. Referenced equipment standards may give voltage level limitations.

This document specifies requirements such as those concerning

– enclosures, with regard to material, marking (nameplates and labels), ventilation, earthing, EMC and short-circuit rating of components, and
– specific requirements related to use in an offshore unit, such as
  - generators and motors,
  - transformers,
  - switchgear and control gear assemblies,
  - instrumentation of power sources,
  - semiconductor converters,
  - secondary cells and batteries,
  - luminaires,
  - communication equipment,
  - control and instrumentation, and
  - accessories for accommodation and similar areas.

This document does not apply to

– fixed equipment for medical purposes,
– electrical installations of tankers, and
– control of ignition sources other than those created by electrical equipment.

NOTE 1 For medical rooms, IEC 60364-7-710 provides specific requirements. Requirements for tankers are given in IEC 60092-502.

NOTE 2 Specific requirements in relation to electrical equipment in hazardous areas are given in IEC 61892-7.

NOTE 3 Guidance on protection of non-electrical equipment can be found in ISO 80079-36, ISO 80079-37 and IMO 2009 MODU Code, 6.7.

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 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-14, *Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity*

IEC 60076 (all parts), *Power transformers*

IEC 60076-11, *Power transformers – Part 11: Dry-type transformers*

IEC 60146-1-1, *Semiconductor converters – General requirements and line commutated converters – Part 1-1: Specification of basic requirements*

IEC TR 60146-1-2, *Semiconductor converters – General requirements and line commutated converters – Part 1-2: Application guide*

IEC 60146-1-3, *Semiconductor converters – General requirements and line commutated converters – Part 1-3: Transformers and reactors*

IEC 60146-2, *Semiconductor converters – Part 2: Self-commutated semiconductor converters including direct d.c. converters*

IEC 60269-1, *Low-voltage fuses – Part 1: General requirements*

IEC 60269-3, *Low-voltage fuses – Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar applications) – Examples of standardized systems of fuses A to F*

IEC TR 60269-5, *Low-voltage fuses – Part 5: Guidance for the application of low-voltage fuses*

IEC 60282-1, *High-voltage fuses – Part 1: Current-limiting fuses*

IEC 60282-2, *High-voltage fuses – Part 2: Expulsion fuses*

IEC 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements*

IEC 60309-4, *Plugs, socket-outlets and couplers for industrial purposes – Part 4: Switched socket-outlets and connectors with or without interlock*

IEC 60331 (all parts), *Tests for electric cables under fire conditions – Circuit integrity*

IEC 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*

IEC 60335-1, *Household and similar electrical appliances – Safety – Part 1: General requirements*

IEC 60519-10, *Safety in electroheating installations – Part 10: Particular requirements for electrical resistance trace heating systems for industrial and commercial applications*

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

IEC 60598-1, *Luminaires – Part 1: General requirements and tests*

IEC 60598-2-1, *Luminaires. Part 2: Particular requirements. Section One: Fixed general purpose luminaires*

IEC 60598-2-2, *Luminaires – Part 2-2: Particular requirements – Recessed luminaires*

IEC 60598-2-5, *Luminaires – Part 2-5: Particular requirements – Floodlights*

IEC 60598-2-22, *Luminaires – Part 2-22: Particular requirements – Luminaires for emergency lighting*

IEC TR 60616, *Terminal and tapping markings for power transformers*

IEC 60622, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Sealed nickel-cadmium prismatic rechargeable single cells*

IEC 60623, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Vented nickel-cadmium prismatic rechargeable single cells*

IEC 60669 (all parts), *Switches for household and similar fixed-electrical installations*

IEC 60884 (all parts), *Plugs and socket-outlets for household and similar purposes*

IEC 60896-11, *Stationary lead-acid batteries – Part 11: Vented types – General requirements and methods of tests*

IEC 60896-21, *Stationary lead-acid batteries – Part 21: Valve regulated types – Methods of test*

IEC 60896-22, *Stationary lead-acid batteries – Part 22: Valve regulated types –Requirements*

IEC 60906 (all parts), *IEC system of plugs and socket-outlets for household and similar purposes*

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

IEC 60947-2, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*

IEC 60947-3, *Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units*

IEC 60947-4-1, *Low-voltage switchgear and controlgear – Part 4-1 Contactors and motor-starters – Electromechanical contactors and motor-starters*

IEC 61097 (all parts), *Global maritime distress and safety system (GMDSS)*

IEC 61378-1, *Converter transformers – Part 1: Transformers for industrial applications*

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

IEC 61439-2:2011, *Low-voltage switchgear and controlgear assemblies – Part 2: Power switchgear and controlgear assemblies*

IEC 61558 (all parts), *Safety of transformers, reactors, power supply units and combinations thereof*

IEC TR 61641:2014, *Enclosed low-voltage switchgear and controlgear assemblies – Guide for testing under conditions of arcing due to internal fault*

IEC 61800 (all parts), *Adjustable speed electrical power drive systems*

IEC 61869-2, *Instrument transformers – Part 2: Additional requirements for current transformers*

IEC 61869-3, *Instrument transformers – Part 3: Additional requirements for inductive voltage transformers*

IEC 61892-1:2019, *Mobile and fixed offshore units – Electrical installations – Part 1: General requirements and conditions*

IEC 61892-2, *Mobile and fixed offshore units – Electrical installations – Part 2: System design*

IEC 61892-5, *Mobile and fixed offshore units – Electrical installations – Part 5: Mobile units*

IEC 62040-2, *Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements*

IEC 62259, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Nickel-cadmium prismatic secondary single cells with partial gas recombination*

IEC 62262, *Degree of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

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

IEC 62271-102, *High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches*

IEC 62271-106, *High-voltage switchgear and controlgear – Part 106: Alternating current contactors, contactor-based controllers and motor-starters*

IEC 62271-200:2011, *High-voltage switchgear and controlgear – Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 62271-201:2014, *High-voltage switchgear and controlgear – Part 201: AC solid-insulation enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 62271-203:2011, *High-voltage switchgear and controlgear – Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV*

IEC TR 62778:2014, *Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires*

IEC 62395-1, *Electrical resistance trace heating systems for industrial and commercial applications – Part 1: General and testing requirements*

IEC 62485-2, *Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries*

IMO, *International Convention for the Safety of Life at Sea (SOLAS),* consolidated edition 2014

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61892-1 and the following 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

3.1
converter
device for changing one or more characteristics associated with electric energy

Note 1 to entry: Characteristics associated with energy are for example voltage, number of phases and frequency including zero frequency.

[SOURCE: IEC 60050-151:2001, 151-13-36, modified – The wording in brackets "(electric energy)" has been omitted from the term.]

3.2
trace heating
utilization of electric trace heater cables, pads, panels and support components, externally applied and used to raise or maintain the temperature of contents in piping, tanks and associated equipment

[SOURCE: IEC 60050-426:2008, 426-20-39]

3.3
electromagnetic compatibility
EMC
ability of an apparatus or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment

[SOURCE: IEC 60050-161:2018, 161-01-07]

3.4
emergency switchboard
switchgear and controlgear assembly which is normally supplied by the main switchboard but which, in the event of failure of the main electrical power supply system, is directly supplied by the emergency source of electrical power or the transitional source of emergency power and is intended to distribute and control electrical energy under emergency conditions