INTERNATIONAL STANDARD

IEC 61892-1

First edition
2001-12

Mobile and fixed offshore units – Electrical installations –

Part 1: General requirements and conditions

Unités fixes et mobiles en mer –
Installations électriques –

Partie 1:
Prescriptions et conditions générales

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 1: General requirements and conditions

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.
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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.
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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 61892-1 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

The text of this standard based on the following documents:

FDIS	Report on voting
18/916/FDIS	18/920/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.

Annex A is for information only.

IEC 61892 consists of the following parts, under the general title: *Mobile and fixed offshore units – Electrical installations*:

Part 1: General requirements and conditions

Part 2: System design[1]

Part 3: Equipment

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1 Under consideration. Before IEC 61892-2 is published, reference is made to IEC 60092-201.

Part 4: Cables[2]

Part 5: Mobile units

Part 6: Installation

Part 7: Hazardous areas

The committee has decided that this publication remains valid until 2006. At this date, in accordance with the committee's decision, the publication will be

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- withdrawn;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

[2] Under consideration. Before IEC 61892-4 is published, reference is made to IEC 60092-35X-series.

INTRODUCTION

IEC 61892 forms a series of International Standards intended to enable 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 offshore units which are used for the purpose of exploration or exploitation of petroleum resources.

This part of IEC 61892 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, a guide for future regulations which may be prepared and a statement of practice for offshore unit owners, 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.

The ultimate aim has been to produce a set of International Standards exclusively for the offshore petroleum industry.

In this part of IEC 61892, references are made to other parts of the standard, which are still in preparation. Such references are marked with footnotes. A footnote indicates which current standard should be used until the part under preparation is published.

MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 1: General requirements and conditions

1 Scope

This part of IEC 61892 contains provisions for electrical installations in mobile and fixed units used in the offshore petroleum industry for drilling, production, processing and for storage purposes including pipeline, pumping or 'pigging' stations, compressor stations and exposed location single buoy moorings.

It applies to all installations, whether permanent, temporary, transportable or hand-held, to a.c. installations up to and including 35 000 V and d.c. installations up to and including 1 500 V.

This standard does not apply either to fixed equipment for medical purposes or to the electrical installations of tankers.

NOTE For medical rooms see IEC 60364-7-710

2 Normative references

The following referenced documents are indispensable for the application 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 (all parts), *Rotating electrical machines*

IEC 60079-0:1998, *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements*
Amendment 1 (2000) [1]

IEC 61892-3:1999, *Mobile and fixed offshore units – Electrical installations – Part 3: Equipment*

IEC 61892-7:1997, *Mobile and fixed offshore units – Electrical installations – Part 7: Hazardous areas*

IMO-110E, *The International Convention of Safety of Life at Sea* (SOLAS)

3 Definitions

For the purposes of this part of IEC 61892 the following definitions apply.

NOTE The definitions included in this part are those having general application in the IEC 61892 series. Definitions applying to particular apparatus or equipment are included in the other parts of IEC 61892.

3.1
accessible (as applied to equipment)
condition applied to an object or device that can be inadvertently touched or approached nearer than a safe distance by any person. It is applied to objects not suitably guarded or insulated

3.2
accessible (as applied to wiring methods)
not concealed

[1] There exists a consolidated version including IEC 60079-0 (1998) and its amendment 1 (2000).

3.3
accessory
any device, other than a luminaire (see IEC 61892-3) associated with the wiring and current-using appliances of an installation; for example, a switch, a fuse, a plug, a socket-outlet, a lampholder, or a junction box

3.4
appropriate authority
governmental body with whose rules a unit is required to comply

3.5
bond
connection of non-current-carrying parts to ensure continuity of electrical connection, or to equalize the potential between parts

3.6
degree of protection of enclosures
designation to indicate the degree of protection, consisting of the characteristic letters IP followed by two numerals (the "characteristic numerals") indicating conformity with the conditions stated in tables 1 and 2 below

NOTE The enclosures referred to in the various parts of IEC 61892 are those as defined in IEC 60529.

3.7
distribution board
assembly of one or more overcurrent protective devices for the control and distribution of electrical power to final subcircuits

3.8
earth
general mass of the metal structure or hull of the unit

NOTE In the U.S.A. and Canada "ground" is used instead of "earth".

3.9
earthed
connected to the general mass of the structure or hull of the unit in such a manner as will ensure at all times an immediate discharge of electrical energy without danger

3.10
essential services
services essential for the navigation, steering or manoeuvring of the mobile unit, or for the safety of human life, or for special characteristics of the unit (for example special services)

3.11
final subcircuit
portion of a wiring system extending beyond the final overcurrent protective device of a board

3.12 Frequency

3.12.1
cyclic frequency variation
periodic deviation in frequency during normal operation such as might be caused by regularly repeated loading

$$\text{Cyclic frequency variation} = \frac{\pm(f_{max} - f_{min}) \times 100}{2\, f_{nominal}} \%$$

3.12.2
frequency tolerance
maximum departure from nominal frequency during normal operation conditions excluding transient and cyclic frequency variations

NOTE Frequency tolerance is a steady state tolerance and includes variations caused by loads and governor characteristics. It also includes variations due to environmental conditions.

3.12.3
frequency transient
sudden change in frequency which goes outside the frequency tolerance limits and returns to and remains inside these limits within a specified recovery time after initiation of the disturbance (time range: seconds)

3.13 Insulation

3.13.1
basic insulation
insulation applied to live parts to provide basic protection against electric shock

NOTE Basic insulation does not necessarily include insulation used exclusively for functional purposes.

3.13.2
supplementary insulation
independent insulation applied in addition to basic insulation in order to provide protection against electric shock in the event of a failure of basic insulation

3.13.3
double insulation
insulation comprising both basic insulation and supplementary insulation

3.13.4
reinforced insulation
single insulation system applied to live parts which provides a degree of protection against electric shock equivalent to double insulation under the conditions specified in the relevant IEC standard

NOTE The term "insulation system" does not imply that the insulation must be one homogeneous piece. It may comprise several layers which cannot be tested singly as supplementary or basic insulation.

3.14
live
a conductor or circuit is live when a difference of potential exists between it and earth

3.15
petroleum
complex mixture of hydrocarbons that occurs in the earth in liquid or gaseous forms

3.16
point (in wiring)
any termination of the fixed wiring intended for the attachment of a luminaire or for connecting to the supply a current-using appliance

3.17
section board
switchgear and controlgear assembly for controlling the supply of electrical power to other section boards, distribution boards, or final subcircuits

3.18 Spaces

3.18.1
accommodation spaces
spaces used for public spaces, corridors, lavatories, cabins, offices, crew quarters, hospitals, game and hobby rooms, pantries containing no cooking appliances and similar spaces

3.18.2
machinery spaces
spaces containing propelling machinery, boilers, oil fuel units, steam and internal combustion engines, hydrocarbon process equipment, water treatment and handling equipment, drilling and associated equipment, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air-conditioning machinery, and similar spaces and trunks to such spaces

3.18.3
public spaces
portions of the accommodation used for halls, dining rooms, lounges, and similar permanently enclosed spaces

3.18.4
service spaces
spaces used for galleys, pantries containing cooking appliances, lockers and store-rooms, workshops other than those forming part of machinery spaces, and similar spaces and trunks to such spaces

3.19 Voltages

3.19.1
safety voltage
voltage which does not exceed 50 V a.c. r.m.s. between conductors, or between any conductor and earth, in a circuit isolated from the supply by means such as a safety isolating transformer, or convertor with separate windings

voltage which does not exceed 50 V d.c. between conductors, or between any conductor and earth, in a circuit which is isolated from higher voltage circuits

NOTE 1 Consideration should be given to the reduction of the limit of 50 V under certain conditions, such as wet surroundings or exposure to heavy seas.

NOTE 2 The voltage limit should not be exceeded either at full load or no load, but it is assumed, for the purpose of this definition, that any transformer or convertor is operated at its rated supply voltage.

3.19.2
voltage tolerance
maximum departure from nominal user voltage during normal operating conditions, excluding transient and cyclic voltage variations

NOTE Voltage tolerance is a steady state tolerance and includes voltage drop in cables and voltage regulator characteristics. It also includes variations due to environmental conditions.

3.19.3
voltage unbalance tolerance
difference between the highest and lowest phase to phase voltage

3.19.4
cyclic voltage variation
periodic voltage deviation (max. to min. r.m.s. values) of the nominal voltage, such as might be caused by regularly repeated loading

$$\text{Cyclic voltage variation} = \frac{\pm(U_{max} - U_{min}) \times 100}{2\,U_{nominal}} \%$$