

INTERNATIONAL STANDARD

IEC
61892-6

First edition
1999-02

Mobile and fixed offshore units – Electrical installations –

Part 6: Installation

*Unités mobiles et fixes en mer –
Installations électriques –*

*Partie 6:
Installation*

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For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams*.

* See web site address on title page.

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Commission Electrotechnique Internationale
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MOBILE AND FIXED OFFSHORE UNITS –
ELECTRICAL INSTALLATIONS –****Part 6: Installation**

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 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 61892-6 has been prepared by IEC technical committee 18:
Electrical installations of ships and of mobile and fixed offshore units.

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

FDIS	Report on voting
18/854/FDIS	18/861/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.

Annex A is for information only.

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

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

Part 3: Equipment

Part 4: Cables

Part 5: Mobile units

Part 6: Installation

Part 7: Hazardous areas

INTRODUCTION

IEC 61892 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 offshore units which are used for the 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 laid down by the International Maritime Organization, and constitutes 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. Footnotes are attached to such references. A footnote indicates which current standard should be used until the part in preparation is published.

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WITHDRAWN

MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 6: Installation

1 Scope

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

This standard applies to equipment in all installations, whether permanent, temporary, transportable or hand-held, to a.c. installations up to and including 15 000 V, and d.c. installations up to and including 1 000 V.

This standard does not apply to electrical installations in rooms used for medical purposes, or in tankers.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61892. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 61892 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

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

IEC 60092-203:1985, *Electrical installations in ships – Part 203: System design – Acoustic and optical signals*

IEC 60092-301:1980, *Electrical installations in ships – Part 301: Equipment – Generators and motors*

IEC 60092-350:1988, *Electrical installations in ships – Part 350: Low-voltage shipboard power cables – General construction and test requirements*

IEC 60092-352:1997, *Electrical installations in ships – Part 352: Choice and installation of cables for low-voltage power systems*

IEC 60092-401:1980, *Electrical installations in ships – Part 401: Installation and test of completed installation*
Amendment 1 (1987)

IEC 60447:1993, *Man-machine interface (MMI) – Actuating principles*

IEC 60825-1:1993, *Safety of laser products – Part 1: Equipment classification, requirements and user's guide*

IEC 61892-3: – *Mobile and fixed offshore units – Electrical installations – Part 3: Equipment*
(to be published)

ISO 8468:1990, *Ship's bridge layout and associated equipment – Requirements and guidelines*

3 Definitions

For the purpose of this part of IEC 61892, the following definitions apply.

3.1

bond

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

3.2

earth

general mass of the structure or hull of a unit

NOTE – In the USA and Canada "ground" is used instead of "earth".

3.3

earthed

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

3.4

electric surface heating

heat generated in the surface layer of a body to be heated by electrical means in order to raise or maintain its temperature

3.5

electric surface heating system

system of electric surface heating devices together with any controls, thermal insulation and protective cladding designed to meet a specified electric surface heating requirement

3.6

emergency switchboard

switchgear and controlgear assembly which is normally supplied by the main switchboard but, 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 to the emergency services for all electrical consumers essential for the safety of the crew and the unit under emergency conditions

3.7

equipotential bonding

electrical connection putting various exposed conductive parts and extraneous conductive parts at a substantially equal potential

3.8

exposed conductive part

conductive part which can readily be touched and which is not normally alive, but which may become alive under fault conditions

NOTE – Typical exposed conductive parts are walls of enclosures, operating handles, etc.

3.9

extraneous conductive part

conductive part not forming a part of the electrical installation and liable to propagate a potential, including earth potential

3.10

main switchboard

switchgear and controlgear assembly which is directly supplied by the main source of electrical power and is intended to distribute and control electrical energy to the unit's services

3.11

primary structural damage

damage which can result from lightning strike to units which do not provide a path of low resistance to earth for the passage of lightning currents, for example units of non-metallic construction or those having substantial non-metallic members

3.12

safety voltage (extra low 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; a 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 use of equipment operating at less than 50 V under certain conditions, such as wet surroundings, exposure to heavy seas or powerful water jets where direct contact with live parts is involved.

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.

3.13

secondary damage

damage to units or to their electrical installations which can result as an indirect consequence of a lightning strike to a unit or to its immediate vicinity. A path to earth of low resistance may not prevent secondary damage which may occur as a result of high values of induced or resistance drop voltages produced by the passage of lightning currents

3.14

secondary battery Syn. (rechargeable) battery; storage battery (USA)

two or more secondary cells connected together and used as a source of electric energy.

4 Equipment earthing and bonding

4.1 General

4.1.1 This clause 4. Equipment earthing and bonding contains mainly provisions for earthing of exposed conductive parts and bonding of extraneous conductive parts, various other bonding connections and a table for sizes of earth-continuity conductors and earthing connections.

4.1.2 All metallic parts of a unit, that are not normally current-carrying parts, shall be designated as either an exposed conductive part or an extraneous conductive part.

- a) Exposed conductive parts shall be connected to earth under the specific conditions for each type of system earthing:
- for TT- and IT-systems, the exposed conductive parts shall be connected directly to earth;
 - for TN-S systems, the exposed conductive parts shall be connected to the protective conductor, which is connected to earth at the neutral point of the distribution system.

NOTE 1 – For the definition of TT-, IT- and TN-S-systems, see IEC 60364-3.

NOTE 2 – Earth or an equipotential bonding system may be the steel structure or the hull of a unit.