

INTERNATIONAL STANDARD

**Mobile and fixed offshore units – Electrical installations –
Part 6: Installation**

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IEC 61892-6:2007

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions	9
4 Equipment earthing and bonding.....	10
4.1 General.....	10
4.2 Earthing of exposed conductive parts.....	11
4.3 Equipotential bonding	12
4.4 Bonding connections.....	12
4.5 Connections to the unit structure.....	12
4.6 Protection against galvanic corrosion.....	13
4.7 Metal coverings of cables	13
4.8 Cable racks and cable tray.....	14
4.9 Ductings of heating, ventilation, air-condition (HVAC) and vessels.....	14
5 Cables and wiring	15
5.1 General	15
5.2 Installation.....	15
5.3 Cable-runs.....	16
5.4 Cable cleating and strapping.....	16
5.5 Joints and tappings.....	16
5.6 Cable ends	16
5.7 Cable termination	17
5.8 Cable ladders and trays	18
5.9 Cables and wiring for interconnection of equipment.....	18
6 Generators and motors.....	19
6.1 General	19
6.2 Installation.....	19
7 Transformers.....	19
7.1 General	19
7.2 Installation and location	19
7.3 Isolation of windings	20
8 Switchgear and controlgear assemblies	20
8.1 General	20
8.2 Location	20
8.3 Insulating mats	20
8.4 Passageways in front of switchgear and controlgear assemblies	21
8.5 Space at the rear and passageways.....	21
8.6 Positions of section and distribution boards.....	21
9 Semiconductor converters.....	21
10 Secondary cells and batteries	21
10.1 Location	21
10.2 Access	23
10.3 Electrical installation in secondary battery compartments	23
10.4 Protection against corrosion.....	23

10.5	Fixing and supports	23
10.6	Protection of circuits from secondary batteries	23
10.7	Additional requirements for valve regulated lead acid (VRLA) type batteries	24
10.8	Protection against electric shock.....	24
10.9	Identification labels or marking	24
11	Luminaires.....	25
11.1	General	25
11.2	Degree of protection and safety requirements	25
11.3	Discharge lighting of voltage above 250 V	25
11.4	Emergency and escape lighting.....	25
11.5	Navigation aid system	25
12	Heating and cooking appliances.....	26
12.1	Guarding of combustible materials	26
12.2	Position of controlgear and switchgear	26
12.3	Mounting of space-heating appliances	26
13	Trace and surface heating	26
13.1	General	26
13.2	Trace heating cables	26
13.3	Marking	27
13.4	Protection.....	27
13.5	Requirements for installation in hazardous areas	27
13.6	Mechanical protection.....	27
13.7	Junction boxes	27
14	Control and instrumentation	27
14.1	General	27
14.2	Layout	27
14.3	Labelling.....	27
14.4	Labels	28
14.5	Display colours	28
14.6	Protection against fluid leakage	28
14.7	Protection from condensation.....	28
14.8	Protection during installation period	28
14.9	Sensors.....	28
14.9.1	Location of sensors.....	28
14.9.2	Temperature sensors.....	28
14.9.3	Pressure sensors.....	28
14.9.4	Enclosure	28
14.9.5	Testing and calibration.....	29
14.10	Measurements and indications.....	29
14.10.1	Instrument similarity	29
14.10.2	Direction of scale values.....	29
14.10.3	Scale division	29
14.10.4	Automatic control sequence.....	29
14.10.5	Centralized control.....	29
14.11	Controls.....	29
14.11.1	Direction of motion	29
14.11.2	Control levers	29
14.11.3	Identification.....	30

14.12 Alarm system.....	30
15 Communication.....	30
16 Lightning protection	30
16.1 General	30
16.2 Protection against primary structural damage.....	30
16.3 Air terminals	31
16.4 Down conductors.....	31
16.5 Protection against secondary damage.....	31
17 Test of completed installation.....	32
17.1 General	32
17.2 Inspections and tests.....	32
17.3 Insulation-testing instruments	32
17.4 Insulation resistance.....	33
17.4.1 Wiring.....	33
17.4.2 Generators and motors	33
17.4.3 Switchboards, section boards and distribution boards.....	33
17.5 Generators	34
17.6 Switchgear	34
17.7 Lighting, heating and galley equipment.....	34
17.8 Communication systems	34
17.9 Emergency and safety systems.....	34
17.10 Earthing.....	34
17.11 Voltage drop.....	34
17.12 Requirements of International Convention and regulations	34
18 Documentation	35
18.1 General	35
18.2 Equipment.....	35
18.3 Testing.....	35
18.4 Maintenance.....	35
Annex A (informative) Performance test	36
Bibliography.....	38
Table 1 – Sizes of protective-earthing (PE) conductors and earthing connections.....	14
Table 2 – Enclosure-gland type	17
Table 3 – Location of batteries versus charging current	22
Table 4 – Test voltages	33

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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

This second edition cancels and replaces the first edition published in 1999. This edition constitutes a technical revision.

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

- a) clauses regarding installation of cables have been added;
- b) the clause regarding secondary cells and batteries have been modified to give requirements also to installation of valve regulated (VRLA) type batteries;
- c) an informative annex regarding testing of installation has been added.

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

FDIS	Report on voting
18/1065/FDIS	18/1071/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 61892 series, 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 publication will remain unchanged until the maintenance result date indicated on the IEC web site 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.

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

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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.

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MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 6: Installation

1 Scope

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

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 750 V (a.c. and d.c. voltages are nominal values).

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

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 60079-14:2002, *Electrical apparatus for explosive gas atmospheres – Part 14: Electrical installations in hazardous areas (other than mines)*

IEC 60447:2004, *Basic and safety principles for man-machine interface – Actuating principles*

IEC 60502-1:2004, *Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 1: Cables for rated voltages of 1 kV ($U_m = 1,2$ kV) up to 3 kV ($U_m = 3,6$ kV)*

IEC 60502-2:2005, *Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 2: Cables for rated voltages from 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)*

IEC 60623:2001, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Vented nickel-cadmium prismatic rechargeable single cells*

IEC 60825 (all parts), *Safety of laser products*

IEC 60896-11:2002, *Stationary lead-acid batteries – Part 11: Vented types – General requirements and methods of test*

IEC 61892-1, *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 61892-3, *Mobile and fixed offshore units – Electrical installations – Part 3: Equipment*

IEC 61892-4, *Mobile and fixed offshore units – Electrical installations – Part 4: Cables*

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

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

3 Terms and definitions

For the purposes of this document the terms and definitions given in IEC 61892-1 through IEC 61892-7 and the following apply.

3.1

appropriate authority

governmental body and/or classification society with whose rules a unit is required to comply

3.2

bonding

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

3.3

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

3.4

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

3.5

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

3.6

equipotential bonding

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

3.7

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.

3.8

extraneous conductive part

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

3.9

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

3.10

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

3.11

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 converter 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 converter is operated at its rated supply voltage.

3.12

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

3.13

valve-regulated battery cell

a secondary cell which is closed under normal conditions but which has an arrangement which allows the escape of gas if the internal pressure exceeds a predetermined value. The cell cannot normally receive addition to the electrolyte

3.14

vented (secondary) battery cell (Syn. open (secondary) cell)

a secondary cell having a cover provided with an opening through which gaseous products may escape

NOTE The opening may be fitted with a venting system.

3.15

gastight sealed (secondary) cell

a secondary cell which remains closed and does not release either gas or liquid when operated within the limits and temperature specified by the manufacturer. The cell may be equipped with a safety device to prevent dangerously high internal pressure. The cell does not require addition to the electrolyte and is designed to operate during its life in its original sealed state

4 Equipment earthing and bonding

4.1 General

4.1.1 This clause 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.