

# INTERNATIONAL STANDARD

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

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# INTERNATIONAL STANDARD

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Part 3: Equipment**

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## CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references .....	9
3 Terms and definitions .....	12
4 General requirements .....	15
4.1 Environmental conditions .....	15
4.1.1 General .....	15
4.1.2 Ambient air temperature .....	15
4.1.3 Temperature rise .....	15
4.1.4 Vibration.....	15
4.2 Degree of protection.....	16
4.3 Nameplates and labels .....	16
4.4 Voltage and frequency variations.....	16
4.5 Electromagnetic compatibility .....	17
4.6 Terminations .....	17
5 Generators and motors.....	17
5.1 General.....	17
5.2 Voltage regulation of generators.....	17
5.2.1 General .....	17
5.2.2 DC generators .....	18
5.2.3 AC generators .....	18
5.3 Generators for special purposes.....	19
5.3.1 DC generators .....	19
5.3.2 AC generators .....	19
5.4 Parallel operation of general service generators – AC generators.....	19
5.4.1 Reactive load sharing .....	19
5.4.2 Load sharing .....	19
5.4.3 Flywheel effect for a.c. generators.....	19
5.4.4 Excitation of a.c. generators .....	20
5.5 Mechanical features (generators and motors).....	20
5.5.1 Entry of water.....	20
5.5.2 Accumulation of moisture and condensation .....	20
5.5.3 Balance .....	20
5.5.4 Shaft currents.....	20
5.5.5 Terminals .....	21
5.6 Lubrication (generators and motors).....	21
5.7 Prime movers .....	21
5.7.1 General .....	21
5.7.2 Speed governing characteristics .....	21
5.7.3 Flywheel effect .....	22
5.8 Cyclic irregularity .....	22
5.9 Lubrication (prime movers).....	22
5.10 Running speed .....	23
5.11 Testing.....	23

6	Transformers for power and lighting .....	23
6.1	General .....	23
6.2	Winding arrangement .....	24
6.3	Terminals .....	24
6.4	Cooling arrangement .....	24
6.5	Voltage regulation .....	24
6.6	Tests .....	24
7	Switchgear and controlgear assemblies .....	25
7.1	Service conditions .....	25
7.2	Definitions .....	25
7.3	Locking facilities .....	25
7.4	Low-voltage switchgear and controlgear assemblies .....	25
7.4.1	General .....	25
7.4.2	Temperature rise .....	25
7.4.3	Circuits .....	25
7.4.4	Marking of parts .....	26
7.4.5	Design and construction .....	26
7.4.6	Barriers between generator sections .....	28
7.4.7	Internal electrical circuits and connections .....	28
7.4.8	Design verification .....	29
7.5	Switchgear and controlgear in the range above 1 kV up to and including 35 kV .....	30
7.5.1	General .....	30
7.5.2	Service conditions .....	30
7.5.3	Ratings .....	30
7.5.4	Design and construction .....	30
7.5.5	Degree of protection provided by enclosures .....	30
7.5.6	Circuit breakers, switches and fuses .....	30
7.5.7	Earthing and short-circuiting .....	31
7.5.8	Protection against live parts .....	31
7.5.9	Internal wiring .....	31
7.5.10	Auxiliary systems .....	31
7.6	Instruments for assemblies .....	31
7.6.1	General .....	31
7.6.2	Instrument for a.c. generators .....	32
7.6.3	Instrument for d.c. power sources .....	32
7.6.4	Instruments measuring the insulation level to earth .....	32
7.6.5	Design of instruments .....	32
7.6.6	Transformers provided for instrumentation, protection and control circuits .....	33
7.6.7	Selection of protective devices .....	33
7.6.8	Synchronizing devices .....	33
7.6.9	Speed governor .....	33
8	Semiconductor converters .....	33
8.1	General .....	33
8.2	Internal wiring .....	34
8.3	Cooling arrangements .....	34
8.4	Accessibility .....	34
8.5	Service conditions .....	34

8.6	Application .....	35
8.6.1	Forced cooling.....	35
8.6.2	Effects from and on the supply or load system.....	35
8.7	Diagrams.....	35
8.8	Converter transformers.....	35
9	Secondary cells and batteries.....	36
9.1	General.....	36
9.2	Types of batteries.....	36
9.2.1	General .....	36
9.2.2	Valve-regulated acid batteries (VRLA) .....	36
9.2.3	Nickel-cadmium batteries .....	36
9.3	Charging facilities.....	36
9.4	Ventilation of secondary battery compartments .....	37
10	Luminaires .....	37
10.1	General.....	37
10.2	Luminaires for hazardous areas .....	37
11	Heating and cooking appliances .....	37
11.1	Construction.....	37
11.2	Isolation of supply to galley.....	37
12	Resistance trace heating .....	37
13	Communication.....	38
13.1	General.....	38
13.2	Safety requirements .....	38
13.3	External communication systems.....	38
13.4	Internal communication .....	38
13.4.1	General .....	38
13.4.2	Public address and general alarm systems .....	38
13.4.3	Other internal communication requirements.....	39
13.5	Safety and maintenance .....	39
14	Underwater systems and appliances.....	40
14.1	General.....	40
14.2	Fixed diving systems .....	40
14.3	Temporary diving systems.....	40
15	Control and instrumentation.....	40
15.1	General .....	40
15.2	General requirements .....	40
15.2.1	Operation.....	40
15.2.2	Reliability.....	40
15.2.3	Stability.....	41
15.2.4	Repeatability and accuracy .....	41
15.2.5	Segregation .....	41
15.3	Adjustments.....	41
15.4	Accessibility.....	41
15.5	Replacement .....	41
15.6	Non-interchangeability .....	41
15.7	Cooling air .....	41
15.8	Mechanical load on connecting devices .....	41
15.9	Mechanical features of cabinets.....	42

15.10	Shock and vibration absorbers .....	42
15.11	Internal wiring .....	42
15.12	Cable connections .....	42
15.13	Sensors .....	42
15.13.1	Performance .....	42
15.13.2	Response time .....	42
15.13.3	Reliability .....	42
15.14	Computer-based systems .....	42
15.14.1	Safety applications .....	43
15.14.2	Hardware modularity .....	43
15.14.3	Memory .....	43
15.14.4	Ancillary devices .....	43
15.14.5	Power supplies .....	43
15.14.6	Computer communications .....	43
15.14.7	Monitoring and fault diagnosis .....	44
15.14.8	Man-machine interface .....	44
15.14.9	Software .....	45
15.14.10	Precautions against design failures .....	45
15.14.11	Testing .....	45
15.14.12	Manuals .....	45
15.14.13	Spares .....	46
16	Accessories .....	46
16.1	General .....	46
16.2	Enclosures .....	46
16.3	Switches .....	46
16.4	Socket-outlets and plugs .....	47
17	Portable equipment .....	48
Annex A (informative)	Alternative method of power generation .....	49
Bibliography	.....	55
Figure A.1	PV Power generating system – Major functional elements, sub-systems and power flow diagram .....	50
Figure A.2	Power generating system – Major functional elements .....	51
Figure A.3	CCVT operating principle block diagram .....	53
Figure A.4	Micro turbine typical block diagram .....	54
Table 1	Limits of cyclic irregularity .....	22
Table 2	Clearance and creepage distances for assemblies not verified by testing .....	27

# INTERNATIONAL ELECTROTECHNICAL COMMISSION

## MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

### Part 3: Equipment

#### FOREWORD

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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 third edition cancels and replaces the second edition published in 2007. This edition constitutes a technical revision.

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

- a) Table 4 in the previous edition of IEC 61892-3 regarding type testing has been deleted. Information regarding environmental conditions, including requirements to vibration, is now given in Clause 4;
- b) for liquid immersed transformers requirement for overheating alarm and shut down has been added;



- c) requirements for low voltage switchgear and controlgear have been rewritten, based on IEC 61439-1 and IEC 61439-2. Only additional requirements to those given in IEC 61439 are given in the standard;
- d) requirements to low voltage circuit breakers, switches, contactors and fuses have been added;
- e) requirement for subdivision of high voltage switchboard has been added;
- f) requirements for luminaires have been deleted and replaced with reference to IEC 60598 series and IEC 60092-306;
- g) requirements for heating and cooking appliances have been deleted and replaced with reference to IEC 60335 series;
- h) requirement for portable equipment has been added.

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

FDIS	Report on voting
18/1241/FDIS	18/1256/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 the 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 stability 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.

## 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 utilisation of electrical energy for all purposes in offshore units which are being 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 Organisation (IMO), a guide for future regulations which may be prepared and a statement of practice for offshore unit owners, constructors and appropriate organisations.

This standard is based on equipment and practices which are in current use but it is not intended in any way to impede the 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 3: Equipment

#### 1 Scope

This part of IEC 61892 contains provisions for electrical equipment 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.

This standard applies to equipment in 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 (a.c. and d.c. voltages are nominal values).

This standard sets requirements for equipment, which are additional to the requirements given in the product standard for the relevant equipment.

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

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 height 56 mm and higher – Measurement, evaluation and limits of vibration severity*

IEC 60044-1, *Instrument transformers – Part 1: Current transformers*

IEC 60065, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60076-1, *Power transformers – Part 1: General*

IEC 60076-5, *Power transformers – Part 5: Ability to withstand short circuit*

IEC 60076-6, *Power transformers – Part 6: Reactors*

IEC 60076-7, *Power transformers – Part 7: Loading guide for oil-immersed power transformers*

IEC 60076-8, *Power transformers – Part 8: Application guide*

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

IEC 60076-12, *Power transformers – Part 12: Loading guide for dry-type power transformers*

IEC 60092-306:2009, *Electrical installations in ships – Part 306: Equipment – Luminaires and lighting accessories*

IEC 60146-1-1:2009, *Semiconductor converters – General requirements and line commutated converters – Part 1-1: Specification of basic requirements*

IEC/TR 60146-1-2:2011, *Semiconductor converters – General requirements and line commutated converters – Part 1-2: Application guide*

IEC 60146-1-3:1991, *Semiconductor converters – General requirements and line commutated converters – Part 1-3: Transformers and reactors*

IEC 60146-2:1999, *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 60309-4, *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 60332-1-2:2004, *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 (relevant parts), *Household and similar electrical appliances*<sup>1</sup>

IEC 60519-10, *Safety in electroheat 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 2-1: Particular requirements – 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*

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<sup>1</sup> "Relevant parts" are those parts of the standards which are relevant for use on mobile and fixed offshore units.

IEC 60598-2-6, *Luminaires – Part 2: Particular requirements – Section 6: Luminaires with built-in transformers for filament lamps*

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 60622:2002, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Sealed 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 60896-11:2002, *Stationary lead-acid batteries – Part 11: Vented types – General requirements and methods of tests*

IEC 60896-21:2004, *Stationary lead-acid batteries – Part 21: Valve regulated types – Methods of test*

IEC 60896-22:2004, *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 60947-2:2006, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*

IEC 60947-3:2008, *Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units*

IEC 60947-4-1:2009, *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 61131-1, *Programmable controllers – Part 1: General information*

IEC 61131-2, *Programmable controllers – Part 2: Equipment requirements and tests*

IEC 61378-1:2011, *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/TR 61641:2008, *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 61869-3, *Instrument transformers – Part 3: Additional requirements for inductive voltage transformers*

IEC 61892-1:2010, *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 61892-7, *Mobile and fixed offshore units – Electrical installations – Part 7: Hazardous areas*

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

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

IEC 62271-100:2008, *High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers*

IEC 62271-102:2001, *High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches*

IEC 62271-106:2011, *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 62271-201:2006, *High-voltage switchgear and controlgear – Part 201: AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

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

IMO, *Code of Safety for Diving Systems*

### 3 Terms and definitions

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

#### 3.1

##### **computer-based system**

system that consists of one or more programmable electronic devices with the connections, peripherals and software necessary to automatically carry out specified functions

Note 1 to entry The following types of programmable devices could form part of a computer system: mainframe, mini-computer, micro-computer, programmable logic controller.

#### 3.2

##### **converter**

device for changing one or more characteristics associated with electric energy