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Responsible committee: JPEL/18 Electrical installations of ships and of mobile and fixed offshore units

Interested committees:

Title: BS IEC 61892-1 Mobile and fixed offshore units - Electrical installations

Part 1: General requirements and conditions

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

PROJECT NUMBER: IEC 61892-1 ED5	
DATE OF CIRCULATION: 2023-06-02	CLOSING DATE FOR COMMENTS: 2023-09-22
SUPERSEDES DOCUMENTS: 18/1746/RR	

IEC TC 18 : ELECTRICAL INSTALLATIONS OF SHIPS AND OF MOBILE AND FIXED OFFSHORE UNITS	
SECRETARIAT: Norway	SECRETARY: Mr Arild Røed
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 2,TC 14,SC 18A,TC 20,TC 21,SC 21A,TC 22,TC 31,SC 31J,TC 64,SC 65A,SC 65B,TC 73,TC 77,TC 80,TC 88,TC 99,TC 120	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.
FUNCTIONS CONCERNED: ☒ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☒ SAFETY	

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Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Mobile and fixed offshore units - Electrical installations - Part 1: General requirements and conditions

NOTE FROM TC/SC OFFICERS:

MT 18 has revised the seven parts of the IEC 61892 series. There are several technical changes made in all seven parts. However, we would like to highlight that IEC 61892-7 has been restructured with separate clauses that deals with IEC 61892-10-1 and IEC 60079-14 respectively.

Note that in addition to this official committee draft, a red line version has been circulated separately.

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CONTENTS

1	CONTENTS	2
2	FOREWORD	4
3	INTRODUCTION	6
4	1 Scope	7
5	2 Normative references	7
6	3 Terms, definitions and abbreviations	8
7	4 General requirements and conditions	13
8	4.1 General	13
9	4.2 Acceptance of substitutes or alternatives	14
10	4.3 Additions and alterations	14
11	4.4 Environmental conditions	14
12	4.4.1 General	14
13	4.4.2 Ambient air temperature	14
14	4.5 Power supply system characteristics	15
15	4.5.1 General	15
16	4.5.2 AC distribution systems	15
17	4.5.3 DC distribution systems	18
18	4.6 Clearance and creepage distances	19
19	4.7 Insulation	19
20	4.8 Precautions against vibration and mechanical shock	19
21	4.9 Location of electrical equipment	19
22	4.10 Mechanical protection	20
23	4.11 Protection against heat, water, steam and oil	20
24	4.12 Protection against electrical shock	21
25	4.13 Electromagnetic compatibility EMC	21
26	4.14 Ignition source control	21
27	4.14.1 General	21
28	4.14.2 Emergency shutdown (ESD)	22
29	4.14.3 Emergency conditions due to drilling operations – Mobile drilling units	23
30	4.14.4 Manual electrical shutdown	23
31	4.15 Degree of ingress protection of equipment by enclosures	23
32	4.16 Environmental impact	26
33	Annex A (informative) Degree of ingress protection	27
34	Annex B (informative) Cold climate precautions	29
35	B.1 General	29
36	B.2 Emergency power source	29
37	B.3 Equipment	29
38	B.4 Cables and cable installations	29
39	B.5 Electrical trace heating systems	29
40	B.6 Lighting systems	30
41	B.6.1 General	30
42	B.6.2 Emergency lights	30
43	B.7 Electrical rotating machines	30
44	B.8 Explosion protected equipment	30
45	Annex C (informative) Specification of surface treatment and protective painting system	31

48	C.1	Objectives	31
49	C.2	General and specification	31
50	C.2.1	General	31
51	C.2.2	Atmospheric corrosivity categories for protective painting systems	31
52	C.2.3	Durability performance of a protective painting system	32
53		Bibliography	34
54			
55		Table 1 – Voltage characteristics	16
56		Table 2 – Frequency characteristics	17
57		Table 3 – Tolerances for DC system	18
58		Table 4 – Fast transients	19
59		Table 5 – Minimum requirements for the degree of ingress IP protection for mobile and	
60		fixed offshore units	24
61		Table A.1 – Degrees of protection against foreign objects indicated by the first	
62		characteristic numeral	27
63		Table A.2 – Degrees of protection against water indicated by the second characteristic	
64		numeral	28
65		Table C.1 – Description of typical atmospheric environments related to the estimation	
66		of corrosivity categories	32
67			
68			

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MOBILE AND FIXED OFFSHORE UNITS –
ELECTRICAL INSTALLATIONS –

Part 1: General requirements and conditions

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

This fifth edition cancels and replaces the fourth edition published in 2019-04. This edition constitutes a technical revision.

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

This list will be developed when preparing the CDV. See instead the red line version provided as a supplementary working document.

a) ...;

b)

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

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is **English**.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under 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.

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INTRODUCTION

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

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

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

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

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

159

160

MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 1: General requirements and conditions

1 Scope

This document is applicable to electrical installations and equipment in mobile and fixed offshore units, including pipeline, pumping or "pigging" stations, compressor stations and single buoy moorings, used in the offshore 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

- environmental conditions,
- power supply system characteristics,
- location of electrical equipment in units,
- protection against external performance influencing factors,
- protection against electrical shock, and
- ignition source control.

This document gives information and guidance on topics such as

- cold climate protection, and
- surface treatment and protective painting system.

This document does not apply to

- fixed equipment for medical purposes,
- electrical installations of tankers, and
- control of non-electrical ignition sources

NOTE 1 For medical rooms, IEC 60364-7-710 provides specific requirements.

NOTE 2 Requirements for tankers are given in IEC 60092-502.

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 60364-4-41, *Low-voltage installations – Part 4-41: Protection for safety – Protection against electric shock*

- 201 IEC 61000-2-4:2002, *Electromagnetic compatibility (EMC) – Part 2-4: Environment –*
202 *Compatibility levels in industrial plants for low-frequency conducted disturbances*
- 203 IEC 61892-2:2019, *Mobile and fixed offshore units – Electrical installations – Part 2: System*
204 *design*
- 205 IEC 61892-3, *Mobile and fixed offshore units – Electrical installations – Part 3: Equipment*
- 206 IEC 61892-5, *Mobile and fixed offshore units – Electrical installations – Part 5: Mobile units*
- 207 IEC 61892-6:2019, *Mobile and fixed offshore units – Electrical installations – Part 6: Installation*
- 208 IEC 61892-7:2019, *Mobile and fixed offshore units – Electrical installations – Part 7: Hazardous*
209 *areas*
- 210 ISO 8468, *Ships and marine technology – Ship's bridge layout and associated equipment –*
211 *Requirements and guidelines*
- 212 ISO 11064 (all parts), *Ergonomic design of control centres*
- 213 IMO, *International Convention for the Safety of Life at Sea (SOLAS)*, consolidated edition 2014
- 214 IMO, *2009 MODU Code, Code for the Construction and Equipment of Mobile Offshore Drilling*
215 *Units*, 2009, 2010 Edition

216 **3 Terms, definitions and abbreviations**

217 For the purposes of this document, the following terms and definitions apply.

218 ISO and IEC maintain terminological databases for use in standardization at the following
219 addresses:

- 220 • IEC Electropedia: available at <http://www.electropedia.org/>
- 221 • ISO Online browsing platform: available at <http://www.iso.org/obp>

222 **3.1 Terms and definitions**

223 **3.1.1**

224 **offshore unit**

225 construction, buoyant or non-buoyant, designed and built for installation or operation at an
226 offshore location

227 Note 1 to entry: Topside interface of subsea installed equipment which is an integral part of production and transport
228 systems assigned to fixed and floating offshore units, as well as a temporary interface to mobile offshore units, are
229 also considered as part of the offshore unit.

230 **3.1.2**

231 **fixed offshore unit**

232 buoyant or non-buoyant construction engaged in offshore operations including drilling,
233 production, storage, accommodation or support functions, and which is designed and built for
234 installation at a particular offshore location

235 Note 1 to entry: LNG production units and LNG storage and regasification unit terminals are also considered to be
236 fixed offshore units. FPSO/FSO on location is also considered as a fixed offshore unit. Floating LNG terminals and
237 FPSOs with detachable arrangements are also considered to be fixed offshore units.

3.1.3**mobile offshore unit**

buoyant construction engaged in offshore operations including drilling, production, storage, accommodation or support functions, not intended for service at one particular offshore site and which can be relocated without major dismantling or modification, for example barges, semisubmersible or jack-up unit and drill-ships

3.1.4**appropriate authority**

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

3.1.5**equipment**

single equipment or set of devices or equipments, or the set of main devices of an installation, or all devices necessary to perform a specific task

EXAMPLE Power transformer, equipment of a substation, measuring equipment.

[SOURCE: IEC 60076-1-1:2007]

3.1.6**IP****degree of protection of enclosure**

numerical classification according to IEC 60529 preceded by the symbol IP applied to the enclosure of electrical equipment to provide:

- protection of persons against contact with, or approach to, live parts and against contact with moving parts (other than smooth rotating shafts and the like) inside the enclosure,
- protection of the electrical equipment against ingress of solid foreign objects, and
- where indicated by the classification, protection of the electrical equipment against harmful ingress of water

Note 1 to entry: Explanation of the numerals used for classification of degree of protection is given in Tables A.1 and A.2.

[SOURCE: IEC 60076-1-1:2007, modified – Note 1 to entry has been added.]

3.1.7**primary distribution system**

system which is galvanically connected to the generator or, in offshore units with power supply from another unit or shore via cable, connected to the switchboard where the voltage regulation takes place

3.1.8**secondary distribution system**

system without galvanic connection to the generator or to the switchboard where the voltage regulation takes place

3.1.9**distribution board**

assembly containing different types of switchgear and controlgear associated with one or more outgoing electric circuits fed from one or more incoming electric circuits, together with terminals for the neutral and protective conductors, if required

[SOURCE: IEC 60439-1:2007, modified – The words "if required" have been added.]

3.1.10**main earth (reference earth)
ground**

part of the Earth considered as conductive, the electric potential of which is conventionally taken as zero, being outside the zone of influence of any earthing arrangement

Note 1 to entry: The concept "Earth" means the planet and all its physical matter.

Note 2 to entry: The general mass of the metal structure or hull of the mobile or fixed unit.

[SOURCE: IEC 195-01-01, modified: Synonymous term "main earth" added, Note 2 added]

3.1.11**earth, verb
ground, verb US**

to make an electric connection between a conductive part and a local earth

Note 1 to entry: The connection to local earth can be

- intentional, or
- unintentional or accidental

and can be permanent or temporary.

[SOURCE: IEC 195-01-08]

3.1.12**3.1.13****emergency service**

services required to allow safe shutdown of the unit and provide safety oriented services for the personnel on the unit during an emergency situation for a defined time

EXAMPLE Emergency shutdown system, emergency lighting, firefighting, alarm and telecommunication systems are examples of emergency services.

3.1.14**essential service**

services required to maintain the unit in a defined state of readiness and habitation for a period defined by the user for situations other than normal operation and without recourse to the emergency source of power except than in an emergency situation

EXAMPLE Services required to maintain the unit in a minimum comfortable condition of habitability, maintaining heading control thrusters for turret moored floating units and fuel transfer/bunkering operations are examples of essential services.

3.1.15**frequency****3.1.15.1****cyclic frequency variation**

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

$$\frac{\pm (f_{\max.} - f_{\min.}) \times 100}{2 f_{\text{nominal}}} \%$$

3.1.15.2**frequency tolerance**

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