



DPC: 23 / 30446874 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 07 June 2023

Origin: International

Latest date for receipt of comments: 23 August 2023

Project No. 2021/03047

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

Interested committees:

Title: BS IEC 61892-3 Mobile and fixed offshore units - Electrical installations

Part 3: Equipment

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

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

**WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD.
THIS DRAFT IS NOT CURRENT BEYOND 23 August 2023**

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <http://standardsdevelopment.bsigroup.com>

Responsible Committee Secretary: **Mr Michael Peace (IET) (BSI)**
Direct tel: **01438 765566**
E-mail: **michaelpeace@theiet.org**

 **Documents**
Document Sharing Hub

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
------------------	------------------------

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.	



18/1835/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:

IEC 61892-3 ED5

DATE OF CIRCULATION:

2023-06-02

CLOSING DATE FOR COMMENTS:

2023-09-22

SUPERSEDES DOCUMENTS:

18/1748/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 8,SC 8A,SC 8B,TC 14,TC 17,SC 17A,SC 17C,SC 18A,TC 20,TC 21,TC 22,SC 22E,SC 22F,SC 22G,SC 22H,SC 23H,TC 31,SC 31J,TC 64,TC 65,SC 65A,SC 65B,SC 65C,SC 65E,TC 73,TC 77,TC 80,TC 88,TC 94,TC 99,TC 120,TC 121,SC 121A,SC 121B

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

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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 3: Equipment

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

Copyright © 2023 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

Documents
AVA Document Sharing Hub

CONTENTS

1		
2	CONTENTS	2
3	FOREWORD	6
4	INTRODUCTION	8
5	1 Scope	9
6	2 Normative references	9
7	3 Terms and definitions	13
8	4 General requirements	16
9	4.1 General	16
10	4.2 Access for maintenance, operation and inspection	16
11	4.3 Access to interface	16
12	4.4 Documentation	16
13	4.5 Nameplates and labels	16
14	4.6 Signal lamps	17
15	4.7 Component and wiring identification (inside cabinet)	17
16	4.7.1 Marking of components inside cabinet	17
17	4.7.2 Internal wiring and marking of supplier's standard equipment	17
18	4.7.3 Marking of internal wiring in project specific parts of equipment	17
19	4.7.4 Marking of AC busbars	17
20	4.7.5 Marking of DC busbars	17
21	4.7.6 Marking of earth bars	17
22	4.8 Enclosures/material	18
23	4.9 Cabinet doors	18
24	4.10 Protection against direct contact	18
25	4.11 Protection against fluid leakage	18
26	4.12 Ventilation/cooling by air	18
27	4.13 Cooling by liquids	19
28	4.13.1 General	19
29	4.13.2 Forced cooling systems	19
30	4.14 Earthing	19
31	4.14.1 General	19
32	4.14.2 PE bar	20
33	4.14.3 IE bar	20
34	4.14.4 IS bar	22
35	4.14.5 Voltage and current transformers	22
36	4.15 Electromagnetic compatibility and interference prevention means	22
37	4.16 Termination of external cables/terminal design	22
38	4.17 Internal wiring and terminations	23
39	4.18 Control voltage	23
40	4.19 Components' short-circuit rating	23
41	4.20 Protection from condensation	23
42	5 Generators and motors	24
43	5.1 General	24
44	5.2 Voltage regulation of generators	24
45	5.2.1 General	24
46	5.2.2 DC generators	24
47	5.2.3 AC generators	24

48	5.3	Generators for special purposes	25
49	5.3.1	DC generators	25
50	5.3.2	AC generators	25
51	5.4	Parallel operation of general service generators – AC generators	25
52	5.4.1	Reactive load sharing	25
53	5.4.2	Active load sharing	26
54	5.4.3	Flywheel effect for AC generators	26
55	5.4.4	Excitation of AC generators	26
56	5.5	Mechanical features (generators and motors)	26
57	5.5.1	Cooling by liquid	26
58	5.5.2	Accumulation of moisture and condensation	26
59	5.5.3	Balance	26
60	5.5.4	Shaft currents	27
61	5.5.5	Terminals	27
62	5.6	Lubrication (generators and motors)	27
63	5.7	Prime movers.....	27
64	5.7.1	General	27
65	5.7.2	Speed governing characteristics	27
66	5.8	Cyclic irregularity	28
67	5.9	Lubrication (prime movers)	29
68	5.10	Running speed.....	29
69	6	Transformers	29
70	6.1	General.....	29
71	6.2	Winding arrangement.....	29
72	6.3	Terminals.....	29
73	6.4	Cooling arrangement	30
74	6.5	Liquid-immersed transformers not hermetically sealed	30
75	6.6	Voltage regulation.....	30
76	7	Switchgear and controlgear assemblies	30
77	7.1	General.....	30
78	7.2	Definitions	31
79	7.3	Locking facilities	31
80	7.4	Low-voltage switchgear and controlgear assemblies	31
81	7.4.1	General	31
82	7.4.2	Circuits	31
83	7.4.3	Design and construction	31
84	7.4.4	Design verification	33
85	7.5	Switchgear and controlgear in the range above 1 kV to 52 kV	33
86	7.5.1	General	33
87	7.5.2	Service conditions	33
88	7.5.3	Design and construction	33
89	7.5.4	Circuit-breakers, switches and fuses	34
90	7.5.5	Earthing and short-circuiting	35
91	7.5.6	Protection against contact with live parts	35
92	7.6	Switchgear and controlgear above 52 kV	35
93	7.6.1	General	35
94	7.6.2	Service conditions	35
95	7.6.3	Design and construction	35
96	7.6.4	Use of insulating gases d.....	35

97	7.6.5	Gas pressure and density monitoring	36
98	7.6.6	Tightness.....	36
99	7.6.7	Power connection	36
100	7.6.8	Equipment handling	36
101	7.7	Instruments for assemblies	36
102	7.7.1	General	36
103	7.7.2	Instrument for AC generators.....	36
104	7.7.3	Instrument for DC power sources.....	37
105	7.7.4	Instruments for UPS (uninterruptible power supply)	37
106	7.7.5	Instruments measuring the insulation level to earth	37
107	7.7.6	Design of instruments	37
108	7.7.7	Transformers provided for instrumentation, protection and control circuits.....	38
109			
110	7.7.8	Synchronizing devices	38
111	7.7.9	Speed governor	38
112	8	Semiconductor converters	38
113	8.1	General.....	38
114	8.2	Cooling arrangements.....	38
115	8.3	Service conditions.....	38
116	8.4	Application	39
117	8.4.1	Forced cooling	39
118	8.4.2	Effects from and on the supply or load system	39
119	8.5	Converter transformers	39
120	9	Secondary cells and batteries	40
121	9.1	General.....	40
122	9.2	Types of batteries	40
123	9.2.1	General	40
124	9.2.2	Valve regulated acid batteries (VRLA)	40
125	9.2.3	Nickel-cadmium batteries.....	41
126	9.2.4	Vented lead-acid batteries	41
127	9.2.5	Li-ion batteries.....	41
128	9.2.6	Molten salt batteries	41
129	9.2.7	Technology not described above	41
130	9.3	Charging facilities	41
131	9.4	Ventilation of secondary battery compartments	42
132	10	Luminaires.....	42
133	11	Heating and cooking appliances	42
134	12	Resistance trace heating	42
135	13	Communication.....	42
136	13.1	General.....	42
137	13.2	Safety requirements.....	43
138	13.3	External communication systems	43
139	13.4	Internal communication	43
140	13.4.1	General	43
141	13.4.2	Public address and general alarm systems	43
142	13.4.3	Other internal communication requirements	44
143	13.5	Safety and maintenance	44
144	14	Control and instrumentation.....	45
145	14.1	General.....	45

146	14.2	Segregation	45
147	14.3	Accessibility	45
148	14.4	Replacement	45
149	14.5	Non-interchangeability	45
150	14.6	Cooling air	45
151	14.7	Mechanical load on connecting devices	45
152	14.8	Mechanical features of cabinets	46
153	14.9	Shock and vibration absorbers	46
154	14.10	Internal wiring	46
155	14.11	Cable terminations	46
156	14.12	Sensors	46
157	14.13	Reliability	46
158	14.14	Hardware modularity	46
159	14.15	Ancillary devices	46
160	14.16	Power supplies	46
161	14.17	Testing	47
162	14.18	Spares	47
163	15	Accessories for accommodation and similar areas	47
164	15.1	General	47
165	15.2	Switches	47
166	15.3	Socket-outlets and plugs	47
167		Bibliography	49
168			
169		Figure 1 – Typical example of PE, IE and IS bars with earth loop	21
170		Figure 2 – Typical example of PE and combined IE and IS bars without earth loop	21
171			
172		Table 1 – Earth conductors for enclosures	20
173		Table 2 – Limits of cyclic irregularity	28
174			
175			

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MOBILE AND FIXED OFFSHORE UNITS –
ELECTRICAL INSTALLATIONS –

Part 3: Equipment

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.
- 2) The formal decisions or agreements of 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC [had/had not] received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch> [and/or] www.iso.org/patents. [IEC/IEC and ISO] shall not be held responsible for identifying any or all such patent rights.

IEC 61892-3 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)

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

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

230
231 Full information on the voting for its approval can be found in the report on voting indicated in
232 the above table.

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

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

238 The committee has decided that the contents of this document will remain unchanged until the
239 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
240 specific document. At this date, the document will be

- 241 • reconfirmed,
- 242 • withdrawn,
- 243 • replaced by a revised edition, or
- 244 • amended.

245

246

247

INTRODUCTION

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

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

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

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

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

266

267

MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 3: Equipment

1 Scope

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

- enclosures, with regard to material, marking (nameplates and labels), ventilation, earthing, EMC and short-circuit rating of components, and
- specific requirements related to use in an offshore unit, such as
 - generators and motors,
 - transformers,
 - switchgear and control gear assemblies,
 - instrumentation of power sources,
 - semiconductor converters,
 - secondary cells and batteries,
 - luminaires,
 - communication equipment,
 - control and instrumentation, and
 - accessories for accommodation and similar areas.

This document does not apply to

- fixed equipment for medical purposes,
- electrical installations of tankers, and
- control of ignition sources other than those created by electrical equipment.

NOTE 1 For medical rooms, IEC 60364-7-710 provides specific requirements. Requirements for tankers are given in IEC 60092-502.

NOTE 2 Specific requirements in relation to electrical equipment in hazardous areas are given in IEC 61892-7.

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.

- 311 IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*
- 312 IEC 60034-14, *Rotating electrical machines – Part 14: Mechanical vibration of certain machines*
313 *with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity*
- 314 IEC 60076 (all parts), *Power transformers*
- 315 IEC 60076-11, *Power transformers – Part 11: Dry-type transformers*
- 316 IEC 60146-1-1, *Semiconductor converters – General requirements and line commutated*
317 *converters – Part 1-1: Specification of basic requirements*
- 318 IEC TR 60146-1-2, *Semiconductor converters – General requirements and line commutated*
319 *converters – Part 1-2: Application guide*
- 320 IEC 60146-1-3, *Semiconductor converters – General requirements and line commutated*
321 *converters – Part 1-3: Transformers and reactors*
- 322 IEC 60146-2, *Semiconductor converters – Part 2: Self-commutated semiconductor converters*
323 *including direct d.c. converters*
- 324 IEC 60269-1, *Low-voltage fuses – Part 1: General requirements*
- 325 IEC 60269-3, *Low-voltage fuses – Part 3: Supplementary requirements for fuses for use by*
326 *unskilled persons (fuses mainly for household or similar applications) – Examples of*
327 *standardized systems of fuses A to F*
- 328 IEC TR 60269-5, *Low-voltage fuses – Part 5: Guidance for the application of low-voltage fuses*
- 329 IEC 60282-1, *High-voltage fuses – Part 1: Current-limiting fuses*
- 330 IEC 60282-2, *High-voltage fuses – Part 2: Expulsion fuses*
- 331 IEC 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General*
332 *requirements*
- 333 IEC 60309-4, *Plugs, socket-outlets and couplers for industrial purposes – Part 4: Switched*
334 *socket-outlets and connectors with or without interlock*
- 335 IEC 60331 (all parts), *Tests for electric cables under fire conditions – Circuit integrity*
- 336 IEC 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test*
337 *for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW*
338 *pre-mixed flame*
- 339 IEC 60335-1, *Household and similar electrical appliances – Safety – Part 1: General*
340 *requirements*
- 341 IEC 60519-10, *Safety in electroheating installations – Part 10: Particular requirements for*
342 *electrical resistance trace heating systems for industrial and commercial applications*
- 343 IEC 60529, *Degrees of protection provided by enclosures (IP Code)*
- 344 IEC 60598-1, *Luminaires – Part 1: General requirements and tests*

- 345 IEC 60598-2-1, *Luminaires. Part 2: Particular requirements. Section One: Fixed general*
346 *purpose luminaires*
- 347 IEC 60598-2-2, *Luminaires – Part 2-2: Particular requirements – Recessed luminaires*
- 348 IEC 60598-2-5, *Luminaires – Part 2-5: Particular requirements – Floodlights*
- 349 IEC 60598-2-22, *Luminaires – Part 2-22: Particular requirements – Luminaires for emergency*
350 *lighting*
- 351 IEC TR 60616, *Terminal and tapping markings for power transformers*
- 352 IEC 60622, *Secondary cells and batteries containing alkaline or other non-acid electrolytes –*
353 *Sealed nickel-cadmium prismatic rechargeable single cells*
- 354 IEC 60623, *Secondary cells and batteries containing alkaline or other non-acid electrolytes –*
355 *Vented nickel-cadmium prismatic rechargeable single cells*
- 356 IEC 60669 (all parts), *Switches for household and similar fixed-electrical installations*
- 357 IEC 60884 (all parts), *Plugs and socket-outlets for household and similar purposes*
- 358 IEC 60896-11, *Stationary lead-acid batteries – Part 11: Vented types – General requirements*
359 *and methods of tests*
- 360 IEC 60896-21, *Stationary lead-acid batteries – Part 21: Valve regulated types – Methods of test*
- 361 IEC 60896-22, *Stationary lead-acid batteries – Part 22: Valve regulated types –Requirements*
- 362 IEC 60906 (all parts), *IEC system of plugs and socket-outlets for household and similar*
363 *purposes*
- 364 IEC 60945, *Maritime navigation and radiocommunication equipment and systems – General*
365 *requirements – Methods of testing and required test results*
- 366 IEC 60947-2, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*
- 367 IEC 60947-3, *Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors,*
368 *switch-disconnectors and fuse-combination units*
- 369 IEC 60947-4-1, *Low-voltage switchgear and controlgear – Part 4-1 Contactors and*
370 *motor-starters – Electromechanical contactors and motor-starters*
- 371 IEC 61097 (all parts), *Global maritime distress and safety system (GMDSS)*
- 372 IEC 61378-1, *Converter transformers – Part 1: Transformers for industrial applications*
- 373 IEC 61439-1:2011, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*
- 374 IEC 61439-2:2011, *Low-voltage switchgear and controlgear assemblies – Part 2: Power*
375 *switchgear and controlgear assemblies*
- 376 IEC 61558 (all parts), *Safety of transformers, reactors, power supply units and combinations*
377 *thereof*

- 378 IEC TR 61641:2014, *Enclosed low-voltage switchgear and controlgear assemblies – Guide for*
379 *testing under conditions of arcing due to internal fault*
- 380 IEC 61800 (all parts), *Adjustable speed electrical power drive systems*
- 381 IEC 61869-2, *Instrument transformers – Part 2: Additional requirements for current*
382 *transformers*
- 383 IEC 61869-3, *Instrument transformers – Part 3: Additional requirements for inductive voltage*
384 *transformers*
- 385 IEC 61892-1:2019, *Mobile and fixed offshore units – Electrical installations – Part 1: General*
386 *requirements and conditions*
- 387 IEC 61892-2, *Mobile and fixed offshore units – Electrical installations – Part 2: System design*
- 388 IEC 61892-5, *Mobile and fixed offshore units – Electrical installations – Part 5: Mobile units*
- 389 IEC 62040-2, *Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility*
390 *(EMC) requirements*
- 391 IEC 62259, *Secondary cells and batteries containing alkaline or other non-acid electrolytes –*
392 *Nickel-cadmium prismatic secondary single cells with partial gas recombination*
- 393 IEC 62262, *Degree of protection provided by enclosures for electrical equipment against*
394 *external mechanical impacts (IK code)*
- 395 IEC 62271-100, *High-voltage switchgear and controlgear – Part 100: Alternating current circuit-*
396 *breakers*
- 397 IEC 62271-102, *High-voltage switchgear and controlgear – Part 102: Alternating current*
398 *disconnectors and earthing switches*
- 399 IEC 62271-106, *High-voltage switchgear and controlgear – Part 106: Alternating current*
400 *contactors, contactor-based controllers and motor-starters*
- 401 IEC 62271-200:2011, *High-voltage switchgear and controlgear – Part 200: AC metal-enclosed*
402 *switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*
- 403 IEC 62271-201:2014, *High-voltage switchgear and controlgear – Part 201: AC solid-insulation*
404 *enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including*
405 *52 kV*
- 406 IEC 62271-203:2011, *High-voltage switchgear and controlgear – Part 203: Gas-insulated*
407 *metal-enclosed switchgear for rated voltages above 52 kV*
- 408 IEC TR 62778:2014, *Application of IEC 62471 for the assessment of blue light hazard to light*
409 *sources and luminaires*
- 410 IEC 62395-1, *Electrical resistance trace heating systems for industrial and commercial*
411 *applications – Part 1: General and testing requirements*
- 412 IEC 62485-2, *Safety requirements for secondary batteries and battery installations – Part 2:*
413 *Stationary batteries*
- 414 IMO, *International Convention for the Safety of Life at Sea (SOLAS)*, consolidated edition 2014

3 Terms and definitions

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

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

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

3.1

converter

device for changing one or more characteristics associated with electric energy

Note 1 to entry: Characteristics associated with energy are for example voltage, number of phases and frequency including zero frequency.

[SOURCE: IEC 60050-151:2001, 151-13-36, modified – The wording in brackets "(electric energy)" has been omitted from the term.]

3.2

trace heating

utilization of electric trace heater cables, pads, panels and support components, externally applied and used to raise or maintain the temperature of contents in piping, tanks and associated equipment

[SOURCE: IEC 60050-426:2008, 426-20-39]

3.3

electromagnetic compatibility

EMC

ability of an apparatus or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment

[SOURCE: IEC 60050-161:2018, 161-01-07]

3.4

emergency switchboard

switchgear and controlgear assembly which is normally supplied by the main switchboard but which, 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 under emergency conditions

3.5

extra-low voltage

ELV

voltage which does not exceed 50 V AC RMS or 120 V DC between conductors, or between any conductor and earth

Note 1 to entry: Information about protection by extra-low voltage is given in IEC 60364-4-41.

3.6

SELV

SELV system

electric system in which the voltage cannot exceed the value of extra-low voltage:

- under normal conditions and
- under single fault conditions, including earth faults in other electric circuits

459 Note 1 to entry: SELV is the abbreviation for safety extra-low voltage.

460 [SOURCE: IEC 826-12-31, modified – The abbreviated term "SELV" has been added.]

461 **3.7**

462 **inverter**

463 electric energy converter that changes direct electric current to single-phase or polyphase
464 alternating currents

465 [SOURCE: IEC 151-13-46]

466 **3.8**

467 **low-voltage switchgear and controlgear assembly**

468 combination of one or more low-voltage switching devices together with associated control,
469 measuring, signalling, protective, regulating equipment, with all the internal electrical and
470 mechanical interconnections and structural parts

471 [SOURCE: IEC 61439-1:2011, 3.1.1, modified – The second term "ASSEMBLY" has been
472 omitted.]

473 **3.9**

474 **main switchboard**

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

477 **3.10**

478 **rectifier**

479 electric energy converter that changes single-phase or polyphase alternating electric currents
480 to unidirectional current

481 [SOURCE: IEC 151-13-45]

482 **3.11**

483 **secondary cell**

484 cell which is designed to be electrically recharged

485 [SOURCE: IEC 482-01-03, modified – The note to entry has been deleted.]

486 **3.12**

487 **semiconductor device**

488 device the essential characteristics of which are due to the flow of charge carriers within one
489 or more semiconductor materials

490 [SOURCE: IEC 151-13-63]

491 **3.13**

492 **software**

493 program, procedures and associated documentation pertaining to the operation of a computer
494 system and including both the application (user) program and the operating system (firmware)
495 program

496 **3.14**

497 **VRLA**

498 **valve regulated lead acid battery**

499 secondary battery in which cells are closed but have a valve which allows the escape of gas if
500 the internal pressure exceeds a predetermined value

501 Note 1 to entry: The cell or battery cannot normally receive additions to the electrolyte.