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INTERNATIONAL STANDARD



**Low voltage electrical installations of buildings –
Part 7-712: Requirements for special installations or locations – Solar
photovoltaic (PV) power supply systems**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
712 Solar photovoltaic (PV) power supply systems installations	8
712.1 Scope.....	8
712.2 Normative references	9
712.3 Terms and definitions	10
712.30 Assessment of general characteristics.....	10
712.31 Purposes, supplies and structure.....	16
712.312 Types of distribution systems.....	16
712.4 Protection for safety	23
712.41 Protection against electric shock	24
712.410 Introduction	24
712.412 Protective measure: double or reinforced insulation	24
712.413 Fault protection.....	24
712.414 Protective measure: extra-low-voltage provided by SELV and PELV.....	25
712.42 Protection against thermal effects	25
712.421 Protection against fire caused by electrical equipment	25
712.43 Protection against overcurrent.....	26
712.432 Nature of protective devices	27
712.433 Protection against overload on the DC side current	27
712.434 Protection against short-circuit currents	31
712.44 Protection against voltage disturbances and electromagnetic disturbances	31
712.443 Protection against transient overvoltages of atmospheric origin or due to switching	31
712.444 Protection Measures against electromagnetic interference (EMI) in buildings influences.....	32
712.5 Selection and erection of electrical equipment.....	33
712.51 Common rules	33
712.511 Compliance with standards.....	33
712.512 Operational conditions and external influences.....	33
712.513 Accessibility	34
712.514 Identification.....	35
712.515 Prevention of mutual detrimental influence	36
712.52 Wiring systems.....	37
712.521 Types of wiring systems	37
712.522 Selection and erection of wiring systems in relation to external influences.....	40
712.523 Current-carrying capacities.....	41
712.524 Cross-sectional areas of conductors.....	41
712.525 Voltage drop in consumers installations.....	42
712.526 Electrical connections.....	43
712.527 Selection and erection of wiring systems to minimize spread of fire	44
712.528 Proximity of wiring systems to other services.....	44
712.529 Selection and erection of wiring systems in relation to maintainability, including cleaning.....	44
712.53 Isolation, switching and control.....	44
712.531 Devices for protection against indirect contact (fault protection) by automatic disconnection of supply	44

712.532	Devices for protection against thermal effects	47
712.533	Devices for protection against overcurrent.....	48
712.534	Devices for protection against transient overvoltages	49
712.536	Isolation and switching	51
712.54	Earthing arrangements and protective conductors and protective bonding conductors	52
712.542	Earthing arrangements	52
712.55	Other equipment.....	53
712.6	Inspection and testing	54
Annex A (informative)	PV installation information.....	57
Annex B (normative)	Calculation of $U_{OC\ MAX}$ and $I_{SC\ MAX}$	61
Annex C (informative)	Examples of signs	63
Annex D (informative)	Blocking diode	64
Annex E (informative)	Arc fault detection and interruption in PV arrays.....	68
Annex F (informative)	List of notes concerning certain countries.....	70
Bibliography	71
Figure 712.1 – PV installation – General schema – One array		
Figure 712.1	– General functional configuration of a PV installation.....	16
Figure 712.2 – PV installation – Example with several arrays.....		
Figure 712.2	– PV array diagram – single string case	17
Figure 712.3	– PV array diagram – multiple parallel string case	18
Figure 712.4	– PV array diagram – multiple parallel string case with array divided into subarrays.....	19
Figure 712.5	– PV array using a PCE with multiple MPPT DC inputs.....	20
Figure 712.6	– PV array using a PCE with multiple DC inputs internally connected to a common DC bus	21
Figure 712.7	– Example of a PV array diagram where strings are grouped under one overload protective device per group	29
Figure 712.8	– Example of an indication showing the presence of a photovoltaic installation on a building	35
Figure 712.9	– Examples of cables with reinforced protection	39
Figure 712.10	– PV string wiring with minimum loop area	40
Figure A.712.1	– Single string PV array	57
Figure A.712.2	– Parallel connected multi-string PV array.....	58
Figure A.712.3	– Unearthed PV array connected to the AC side via a PCE with transformer	59
Figure A.712.4	– Unearthed PV array connected to the AC side via a PCE without a transformer	59
Figure A.721.5	– Earthed PV array connected to the AC side via a PCE with transformer	59
Figure A.712.6	– Earthed PV array connected to the AC side via a PCE without a transformer, the transformer being separate	60
Figure C.712.1	– Example of sign required on PV array combiner boxes (712.514.102).....	63
Figure C.712.2	– Example of switchboard sign for identification of PV on a building	63
Figure D.712.1	– Effect of blocking diode at short circuit in PV string.....	65

Figure D.712.2 – Effect of blocking diode where there is an insulation fault on a PV installation with earthing on the DC negative side	66
Figure D.712.3 – Effect of blocking diode where there is a fault on a PV installation with earthing on the DC positive side	66
Figure E.712.1 – Examples of types of arcs in PV arrays	68
Table 712.1 – Calculation of the critical length L_{crit}	32
Table 712.2 – Minimum current rating of circuits	42
Table 712.3 – Requirements for different system types based on PCE isolation and PV array functional earthing	45
Table 712.4 – Minimum insulation resistance thresholds for detection of failure of insulation to earth	46
Table 712.5 – Response time limits for sudden changes in residual current	47
Table 712.6 – Rated current of automatic disconnecting device in the functional earthing conductor	48
Table 712.7 – Impulse withstand voltage U_w where no information is available.....	50
Table 712.8 – Disconnection device requirements in PV array installations.....	52
Table A.712.1 – PV DC configurations	58

ELECTROTECHNICAL COMMISSION

LOW VOLTAGE ELECTRICAL INSTALLATIONS ~~OF BUILDINGS~~ –

Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems

FOREWORD

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International Standard IEC 60364-7-712 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This second edition cancels and replaces the first edition, published in 2002. This edition constitutes a technical revision.

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

- a) The technical content has been extensively revised and expanded, taking into account experience gained in the construction and operation of PV installations, and developments made in technology, since the first edition of this standard was published.

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

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64/2154/FDIS	64/2163/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.

Attention is drawn to the co-existence of IEC 60364-7-712 and IEC 62548 standards. Both standards have been developed in close coordination by different technical committees.

A list of all parts in the IEC 60364 series, published under the general title *Low voltage electrical installations*, can be found on the IEC website.

The reader's attention is drawn to the fact that Annex F lists all of the “in-some-country” clauses on differing practices of a less permanent nature relating to the subject of this standard.

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

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INTRODUCTION

For the purpose of this part of IEC 60364 (IEC 60364-7-712), the requirements of the general parts 1 to 6 of IEC 60364 apply.

The IEC 60364-7-7XX parts of IEC 60364 contain particular requirements for special installations or locations which are based on the requirements of the general parts of IEC 60364 (IEC 60364-1 to IEC 60364-6). These IEC 60364-7-7XX parts are considered in conjunction with the requirements of the general parts.

The particular requirements of this part of IEC 60364 supplement, modify or replace certain of the requirements of the general parts of IEC 60364 being valid at the time of publication of this part. The absence of reference to the exclusion of a part or a clause of a general part means that the corresponding clauses of the general ~~requirements contained in parts 1 to 6 of IEC 60364~~ part are applicable (undated reference).

Requirements of other 7XX parts being relevant for installations covered by this part also apply. This part may therefore also supplement, modify or replace certain of these requirements valid at the time of publication of this part.

The clause numbering ~~appearing after 712 refers to the corresponding parts or clauses~~ of this part follows the pattern and corresponding references of IEC 60364. ~~Numbering of clauses does not, therefore, necessarily follow sequentially.~~ The numbers following the particular number of this part are those of the corresponding parts, or clauses of the other parts of the IEC 60364 series, valid at the time of publication of this part, as indicated in the normative references of this document (dated reference). If requirements or explanations additional to those of the other parts of the IEC 60364 series are needed, the numbering of such items appears as 712.101, 712.102, 712.103, etc.

Numbering of figures and tables takes the number of this part followed by a sequential number. For annexes, the numbering of figures and tables takes the letter of the annex, the number of the part and a sequential number.

In the case where new or amended general parts with modified numbering were published after this part was issued, the clause numbers referring to a general part in this 712 part may no longer align with the latest edition of the general part. Dated references should be observed.

LOW VOLTAGE ELECTRICAL INSTALLATIONS ~~OF BUILDINGS~~ –

Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems

712 Solar photovoltaic (PV) power supply ~~systems~~ installations

NOTE The abbreviation “PV” is used for ~~“solar photovoltaic”~~ “Photovoltaic”. Photovoltaic installations are, hereafter, known as PV installations.

712.1 Scope

This part of IEC 60364 applies to the electrical installation of PV ~~power supply~~ systems ~~including systems with AC modules~~ intended to supply all or part of an installation.

~~NOTE 1 Standards for PV equipment are being prepared by TC 82.~~

~~NOTE 2 Requirements for PV power supply systems which are intended for stand-alone operation are under consideration.~~

The equipment of a PV installation, like any other item of equipment, is dealt with only so far as its selection and application in the installation is concerned.

A PV installation starts from a PV module or a set of PV modules connected in series with their cables, provided by the PV module manufacturer, up to the user installation or the utility supply point (point of common coupling).

Requirements of this document apply to

- PV installations not connected to a system for distribution of electricity to the public,
- PV installations in parallel with a system for distribution of electricity to the public,
- PV installations as an alternative to a system for distribution of electricity to the public,
- appropriate combinations of the above.

This document does not cover the specific installation requirements for batteries or other energy storage methods.

NOTE 1 Additional requirements for PV installations with battery storage capabilities on the DC side are under consideration.

NOTE 2 This document does cover the protection requirements of PV arrays which develop as a result of the use of batteries in PV installations.

For systems using DC-DC converters, additional requirements regarding voltage and current rating, switching, and protective devices can apply. These requirements are under consideration.

The object of this document is to address the design safety requirements arising from the particular characteristics of PV installations. DC systems, and PV arrays in particular, pose some hazards in addition to those derived from conventional AC power installations, including the ability to produce and sustain electrical arcs with currents that are not greater than normal operating currents.

In grid connected PV installations the safety requirements of this document are, however, critically dependent on the PCE associated with PV arrays complying with the requirements of IEC 62109-1 and IEC 62109-2.

712.2 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 60050(826):1982, International Electrotechnical Vocabulary (IEV) — Chapter 826: Electrical installations of buildings~~

IEC 60228, *Conductors of insulated cables*

IEC 60269-6, *Low-voltage fuses – Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems*

IEC 60332-1-2, *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 60364 (all parts), *Low-voltage electrical installations*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-43, *Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-4-44, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

~~IEC 60439-1, Low-voltage switchgear and controlgear assemblies — Part 1: Type-tested and partially type-tested assemblies~~

IEC 60670 (all parts), *Boxes and enclosures for electrical accessories for household and similar fixed electrical installations*

~~IEC/TR 60755, General requirements for residual current operated protective devices Amendment 2 (1992)~~

IEC 60898 (all parts), *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations*

IEC 60898-2, *Circuit-breakers for overcurrent protection for household and similar installations – Part 2: Circuit-breakers for a.c. and d.c. operation*

~~IEC 60904-3, Photovoltaic devices — Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data~~

IEC 60947 (all parts), *Low-voltage switchgear and controlgear*

IEC 60947-1, *Low-voltage switchgear and controlgear – Part 1: General rules*

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

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

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61215 (all parts), ~~Crystalline silicon~~ *Terrestrial photovoltaic (PV) modules – Design qualification and type approval*

IEC 61439 (all parts), *Low-voltage switchgear and controlgear assemblies*

IEC 61439-2, *Low-voltage switchgear and controlgear assemblies – Part 2: Power switchgear and controlgear assemblies*

IEC 61557-8:2014, *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 8: Insulation monitoring devices for IT systems*

IEC 62109 (all parts), *Safety of power converters for use in photovoltaic power systems*

IEC 62109-1:2010, *Safety of power converters for use in photovoltaic power systems – Part 1: General requirements*

IEC 62109-2, *Safety of power converters for use in photovoltaic power systems – Part 2: Particular requirements for inverters*

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

IEC 62423, *Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses*

IEC 62446-1, *Photovoltaic (PV) systems – Requirements for testing, documentation and maintenance – Part 1: Grid connected systems – Documentation, commissioning tests and inspection*

IEC 62852:2014, *Connectors for DC-application in photovoltaic systems – Safety requirements and tests*

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Low voltage electrical installations –
Part 7-712: Requirements for special installations or locations – Solar
photovoltaic (PV) power supply systems**

**Installations électriques basse tension –
Partie 7-712: Exigences applicables aux installations ou emplacements
spéciaux – Installations d'énergie solaire photovoltaïque (PV)**

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
712 Solar photovoltaic (PV) power supply installations.....	8
712.1 Scope.....	8
712.2 Normative references.....	9
712.3 Terms and definitions.....	10
712.31 Purposes, supplies and structure.....	15
712.4 Protection for safety.....	22
712.41 Protection against electric shock.....	22
712.410 Introduction.....	22
712.412 Protective measure: double or reinforced insulation.....	23
712.414 Protective measure: extra-low-voltage provided by SELV and PELV.....	23
712.42 Protection against thermal effects.....	23
712.421 Protection against fire caused by electrical equipment.....	23
712.43 Protection against overcurrent.....	24
712.432 Nature of protective devices.....	25
712.433 Protection against overload current.....	25
712.434 Protection against short-circuit currents.....	29
712.44 Protection against voltage disturbances and electromagnetic disturbances.....	29
712.443 Protection against transient overvoltages of atmospheric origin or due to switching.....	29
712.444 Measures against electromagnetic influences.....	30
712.5 Selection and erection of electrical equipment.....	30
712.51 Common rules.....	30
712.511 Compliance with standards.....	31
712.512 Operational conditions and external influences.....	31
712.513 Accessibility.....	32
712.514 Identification.....	32
712.515 Prevention of mutual detrimental influence.....	34
712.52 Wiring systems.....	35
712.521 Types of wiring systems.....	35
712.522 Selection and erection of wiring systems in relation to external influences.....	37
712.523 Current-carrying capacities.....	38
712.524 Cross-sectional areas of conductors.....	38
712.525 Voltage drop in consumers installations.....	39
712.526 Electrical connections.....	40
712.527 Selection and erection of wiring systems to minimize spread of fire.....	41
712.528 Proximity of wiring systems to other services.....	41
712.529 Selection and erection of wiring systems in relation to maintainability, including cleaning.....	41
712.53 Isolation, switching and control.....	41
712.531 Devices for protection against indirect contact (fault protection) by automatic disconnection of supply.....	41
712.532 Devices for protection against thermal effects.....	44
712.533 Devices for protection against overcurrent.....	45

712.534	Devices for protection against transient overvoltages	46
712.536	Isolation and switching	48
712.54	Earthing arrangements and protective conductors	49
712.542	Earthing arrangements	49
712.55	Other equipment	50
712.6	Inspection and testing	50
Annex A (informative)	PV installation information	51
Annex B (normative)	Calculation of $U_{OC\ MAX}$ and $I_{SC\ MAX}$	54
Annex C (informative)	Examples of signs	56
Annex D (informative)	Blocking diode	57
Annex E (informative)	Arc fault detection and interruption in PV arrays	61
Annex F (informative)	List of notes concerning certain countries	62
Bibliography	63
Figure 712.1	– General functional configuration of a PV installation	15
Figure 712.2	– PV array diagram – single string case	16
Figure 712.3	– PV array diagram – multiple parallel string case	17
Figure 712.4	– PV array diagram – multiple parallel string case with array divided into subarrays	18
Figure 712.5	– PV array using a PCE with multiple MPPT DC inputs	19
Figure 712.6	– PV array using a PCE with multiple DC inputs internally connected to a common DC bus	20
Figure 712.7	– Example of a PV array diagram where strings are grouped under one overload protective device per group	27
Figure 712.8	– Example of an indication showing the presence of a photovoltaic installation on a building	33
Figure 712.9	– Examples of cables with reinforced protection	36
Figure 712.10	– PV string wiring with minimum loop area	37
Figure A.712.1	– Single string PV array	51
Figure A.712.2	– Parallel connected multi-string PV array	52
Figure A.712.3	– Unearthed PV array connected to the AC side via a PCE with transformer	53
Figure A.712.4	– Unearthed PV array connected to the AC side via a PCE without a transformer	53
Figure A.721.5	– Earthed PV array connected to the AC side via a PCE with transformer	53
Figure A.712.6	– Earthed PV array connected to the AC side via a PCE without a transformer, the transformer being separate	53
Figure C.712.1	– Example of sign required on PV array combiner boxes (712.514.102)	56
Figure C.712.2	– Example of switchboard sign for identification of PV on a building	56
Figure D.712.1	– Effect of blocking diode at short circuit in PV string	58
Figure D.712.2	– Effect of blocking diode where there is an insulation fault on a PV installation with earthing on the DC negative side	58
Figure D.712.3	– Effect of blocking diode where there is a fault on a PV installation with earthing on the DC positive side	59
Figure E.712.1	– Examples of types of arcs in PV arrays	61

Table 712.1 – Calculation of the critical length L_{crit}	30
Table 712.2 – Minimum current rating of circuits	39
Table 712.3 – Requirements for different system types based on PCE isolation and PV array functional earthing	42
Table 712.4 – Minimum insulation resistance thresholds for detection of failure of insulation to earth	43
Table 712.5 – Response time limits for sudden changes in residual current	44
Table 712.6 – Rated current of automatic disconnecting device in the functional earthing conductor	45
Table 712.7 – Impulse withstand voltage U_w where no information is available	47
Table 712.8 – Disconnection device requirements in PV array installations	48
Table A.712.1 – PV DC configurations	52

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Solar photovoltaic (PV) power supply systems**

FOREWORD

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INTRODUCTION

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The IEC 60364-7-7XX parts of IEC 60364 contain particular requirements for special installations or locations which are based on the requirements of the general parts of IEC 60364 (IEC 60364-1 to IEC 60364-6). These IEC 60364-7-7XX parts are considered in conjunction with the requirements of the general parts.

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Requirements of other 7XX parts being relevant for installations covered by this part also apply. This part may therefore also supplement, modify or replace certain of these requirements valid at the time of publication of this part.

The clause numbering of this part follows the pattern and corresponding references of IEC 60364. The numbers following the particular number of this part are those of the corresponding parts, or clauses of the other parts of the IEC 60364 series, valid at the time of publication of this part, as indicated in the normative references of this document (dated reference). If requirements or explanations additional to those of the other parts of the IEC 60364 series are needed, the numbering of such items appears as 712.101, 712.102, 712.103, etc.

Numbering of figures and tables takes the number of this part followed by a sequential number. For annexes, the numbering of figures and tables takes the letter of the annex, the number of the part and a sequential number.

In the case where new or amended general parts with modified numbering were published after this part was issued, the clause numbers referring to a general part in this 712 part may no longer align with the latest edition of the general part. Dated references should be observed.

LOW VOLTAGE ELECTRICAL INSTALLATIONS –

Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems

712 Solar photovoltaic (PV) power supply installations

NOTE The abbreviation “PV” is used for “Photovoltaic”. Photovoltaic installations are, hereafter, known as PV installations.

712.1 Scope

This part of IEC 60364 applies to the electrical installation of PV systems intended to supply all or part of an installation.

The equipment of a PV installation, like any other item of equipment, is dealt with only so far as its selection and application in the installation is concerned.

A PV installation starts from a PV module or a set of PV modules connected in series with their cables, provided by the PV module manufacturer, up to the user installation or the utility supply point (point of common coupling).

Requirements of this document apply to

- PV installations not connected to a system for distribution of electricity to the public,
- PV installations in parallel with a system for distribution of electricity to the public,
- PV installations as an alternative to a system for distribution of electricity to the public,
- appropriate combinations of the above.

This document does not cover the specific installation requirements for batteries or other energy storage methods.

NOTE 1 Additional requirements for PV installations with battery storage capabilities on the DC side are under consideration.

NOTE 2 This document does cover the protection requirements of PV arrays which develop as a result of the use of batteries in PV installations.

For systems using DC-DC converters, additional requirements regarding voltage and current rating, switching, and protective devices can apply. These requirements are under consideration.

The object of this document is to address the design safety requirements arising from the particular characteristics of PV installations. DC systems, and PV arrays in particular, pose some hazards in addition to those derived from conventional AC power installations, including the ability to produce and sustain electrical arcs with currents that are not greater than normal operating currents.

In grid connected PV installations the safety requirements of this document are, however, critically dependent on the PCE associated with PV arrays complying with the requirements of IEC 62109-1 and IEC 62109-2.

712.2 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 60228, *Conductors of insulated cables*

IEC 60269-6, *Low-voltage fuses – Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems*

IEC 60332-1-2, *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 60364 (all parts), *Low-voltage electrical installations*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-43, *Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-4-44, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

IEC 60670 (all parts), *Boxes and enclosures for electrical accessories for household and similar fixed electrical installations*

IEC 60898 (all parts), *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations*

IEC 60898-2, *Circuit-breakers for overcurrent protection for household and similar installations – Part 2: Circuit-breakers for a.c. and d.c. operation*

IEC 60947 (all parts), *Low-voltage switchgear and controlgear*

IEC 60947-1, *Low-voltage switchgear and controlgear – Part 1: General rules*

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

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

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61215 (all parts), *Terrestrial photovoltaic (PV) modules – Design qualification and type approval*

IEC 61439 (all parts), *Low-voltage switchgear and controlgear assemblies*

IEC 61439-2, *Low-voltage switchgear and controlgear assemblies – Part 2: Power switchgear and controlgear assemblies*

IEC 61557-8:2014, *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 8: Insulation monitoring devices for IT systems*

IEC 62109 (all parts), *Safety of power converters for use in photovoltaic power systems*

IEC 62109-1:2010, *Safety of power converters for use in photovoltaic power systems – Part 1: General requirements*

IEC 62109-2, *Safety of power converters for use in photovoltaic power systems – Part 2: Particular requirements for inverters*

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

IEC 62423, *Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses*

IEC 62446-1, *Photovoltaic (PV) systems – Requirements for testing, documentation and maintenance – Part 1: Grid connected systems – Documentation, commissioning tests and inspection*

IEC 62852:2014, *Connectors for DC-application in photovoltaic systems – Safety requirements and tests*

SOMMAIRE

AVANT-PROPOS.....	69
INTRODUCTION.....	71
712 Installations d'énergie solaire photovoltaïque (PV).....	72
712.1 Domaine d'application	72
712.2 Références normatives.....	73
712.3 Termes et définitions	74
712.31 Objet, alimentations et structure.....	79
712.4 Protection pour assurer la sécurité	87
712.41 Protection contre les chocs électriques	88
712.410 Introduction	88
712.412 Mesure de protection: isolation double ou renforcée.....	88
712.414 Protection par très basse tension (TBTS et TBTP)	89
712.42 Protection contre les effets thermiques.....	89
712.421 Protection contre l'incendie provoqué par un matériel électrique	89
712.43 Protection contre les surintensités.....	90
712.432 Nature des dispositifs de protection.....	91
712.433 Protection contre les courants de surcharge.....	91
712.434 Protection contre les courants de court-circuit.....	95
712.44 Protection contre les perturbations de tension et les perturbations électromagnétiques	95
712.443 Protection contre les surtensions transitoires d'origine atmosphérique ou dues à des manœuvres	95
712.444 Dispositions contre les perturbations électromagnétiques.....	96
712.5 Choix et mise en œuvre des matériels électriques.....	97
712.51 Règles communes.....	97
712.511 Conformité aux normes	97
712.512 Conditions de service et influences externes	98
712.513 Accessibilité	98
712.514 Identification.....	99
712.515 Indépendance des matériels.....	100
712.52 Canalisations	101
712.521 Types de canalisations.....	101
712.522 Choix et mise en oeuvre des canalisations en fonction des influences externes	104
712.523 Courants admissibles	105
712.524 Sections des conducteurs.....	105
712.525 Chute de tension dans les installations des consommateurs.....	106
712.526 Connexions électriques	107
712.527 Choix et mise en œuvre des canalisations pour limiter la propagation du feu.....	108
712.528 Voisinage avec d'autres canalisations	108
712.529 Choix et mise en œuvre des canalisations en fonction de la maintenance, y compris le nettoyage	108
712.53 Sectionnement, coupure et commande	108
712.531 Dispositifs de protection contre les contacts indirects (défauts) par coupure automatique de l'alimentation.....	108
712.532 Dispositifs de protection contre les effets thermiques	112

712.533	Dispositifs de protection contre les surintensités	113
712.534	Dispositifs de protection contre les surtensions transitoires	114
712.536	Sectionnement et coupure	116
712.54	Installations de mise à la terre et conducteurs de protection	117
712.542	Installations de mise à la terre	117
712.55	Autres matériels	118
712.6	Inspection et essais	119
Annexe A (informative)	Informations relatives aux installations PV	120
Annexe B (normative)	Calcul de $U_{OC\ MAX}$ and $I_{SC\ MAX}$	124
Annexe C (informative)	Exemples d'étiquettes	126
Annexe D (informative)	Diode antiretour	127
Annexe E (informative)	Détection et interruption de défaut d'arc dans les groupes PV	131
Annexe F (informative)	Liste des notes concernant certains pays	133
Bibliographie	134
Figure 712.1	– Configuration fonctionnelle générale d'une installation PV	79
Figure 712.2	– Schéma d'un groupe PV – cas d'une chaîne unique	81
Figure 712.3	– Schéma d'un groupe PV – cas de plusieurs chaînes en parallèle	82
Figure 712.4	– Schéma d'un groupe PV – cas de plusieurs chaînes en parallèle avec groupe divisé en sous-groupes	83
Figure 712.5	– Groupe PV qui utilise un PCE avec plusieurs entrées en courant continu MPPT	84
Figure 712.6	– Groupe PV qui utilise un PCE avec plusieurs entrées en courant continu connectées en interne à un bus commun en courant continu	85
Figure 712.7	– Exemple de schéma de groupe PV dans lequel les chaînes sont raccordées sous un dispositif de protection contre les surcharges par groupe	93
Figure 712.8	– Exemple d'étiquette indiquant la présence d'une installation photovoltaïque sur un bâtiment	99
Figure 712.9	– Exemples de câbles avec une protection renforcée	103
Figure 712.10	– Câblage de chaîne PV avec surface de boucle minimale	104
Figure A.712.1	– Groupe PV à une seule chaîne	120
Figure A.712.2	– Groupe PV à plusieurs chaînes connectées en parallèle	121
Figure A.712.3	– Groupe PV non relié à la terre, connecté du côté courant alternatif via un PCE avec transformateur	122
Figure A.712.4	– Groupe PV non relié à la terre, connecté du côté courant alternatif via un PCE sans transformateur	122
Figure A.721.5	– Groupe PV relié à la terre, connecté du côté courant alternatif via un PCE avec transformateur	122
Figure A.712.6	– Groupe PV relié à la terre, connecté du côté courant alternatif via un PCE sans transformateur, le transformateur étant séparé	123
Figure C.712.1	– Exemple d'étiquette exigée sur les coffrets de regroupement de groupes PV (712.514.102)	126
Figure C.712.2	– Exemple d'étiquette de tableau de distribution pour l'identification d'une installation PV sur un bâtiment	126
Figure D.712.1	– Effet d'une diode antiretour au niveau d'un court-circuit dans une chaîne PV	128
Figure D.712.2	– Effet d'une diode antiretour en cas de défaut d'isolement sur une installation PV avec mise à la terre du côté courant continu négatif	129

Figure D.712.3 – Effet d'une diode antiretour en cas de défaut sur une installation PV avec mise à la terre du côté courant continu positif.....	129
Figure E.712.1 – Exemples de types d'arcs dans des groupes PV	131
Tableau 712.1 – Calcul de la longueur critique L_{crit}	96
Tableau 712.2 – Courant assigné minimal des circuits	106
Tableau 712.3 – Exigences pour les différents types de systèmes en fonction de l'isolement du PCE et de la mise à la terre du groupe PV pour des raisons fonctionnelles	109
Tableau 712.4 – Seuils minimaux de résistance d'isolement pour la détection des défaillances d'isolation par rapport à la terre.....	110
Tableau 712.5 – Limites de temps de réponse pour les variations brusques de courant différentiel résiduel	111
Tableau 712.6 – Courant assigné du dispositif de coupure automatique du conducteur de mise à la terre fonctionnelle	113
Tableau 712.7 – Tension de tenue aux chocs U_w en l'absence d'information.....	115
Tableau 712.8 – Exigences applicables aux dispositifs de sectionnement dans les installations de groupe PV	117
Tableau A.712.1 – Configurations en courant continu des systèmes PV.....	121

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

INSTALLATIONS ELECTRIQUES BASSE TENSION –

Partie 7-712: Exigences applicables aux installations ou emplacements spéciaux – Installations d'énergie solaire photovoltaïque (PV)

AVANT-PROPOS

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La Norme internationale IEC 60364-7-712 a été établie par le comité d'études 64 de l'IEC: Installations électriques et protection contre les chocs électriques.

Cette deuxième édition annule et remplace la première édition parue en 2002. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) le contenu technique a été considérablement revu et étendu, pour tenir compte du retour d'expérience dans la construction et l'exploitation des installations photovoltaïques, et des développements technologiques depuis la parution de la première édition de cette norme.

Le texte de cette norme est issu des documents suivants:

FDIS	Rapport de vote
64/2154/FDIS	64/2163/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

L'attention est attirée sur la co-existence des normes IEC 60364-7-712 et IEC 62548. Ces deux normes ont été élaborées en étroite collaboration par deux comités techniques différents.

Une liste de toutes les parties de la série IEC 60364, publiées sous le titre général *Installations électriques à basse tension*, peut être consultée sur le site web de l'IEC.

L'attention du lecteur est attirée sur le fait que l'Annexe F énumère tous les articles traitant des différences à caractère moins permanent inhérentes à certains pays, concernant le sujet de la présente norme.

Le comité a décidé que le contenu de cette publication ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "<http://webstore.iec.ch>" dans les données relatives à la publication recherchée. A cette date, la publication sera

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- supprimée,
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IMPORTANT – Le logo "*colour inside*" qui se trouve sur la page de couverture de cette publication indique qu'elle contient des couleurs qui sont considérées comme utiles à une bonne compréhension de son contenu. Les utilisateurs devraient, par conséquent, imprimer cette publication en utilisant une imprimante couleur.

INTRODUCTION

Pour les besoins de la présente partie (IEC 60364-7-712), les exigences des parties générales 1 à 6 de l'IEC 60364 s'appliquent.

Les parties 7-7XX de l'IEC 60364 contiennent des exigences particulières pour les installations et emplacements spéciaux, qui sont fondées sur les exigences des parties générales de l'IEC 60364 (parties 1 à 6). Ces parties IEC 60364-7-7XX sont prises en compte conjointement avec les exigences des parties générales.

Les exigences particulières de la présente partie de l'IEC 60364 complètent, modifient ou remplacent certaines des exigences des parties générales de l'IEC 60364 en vigueur au moment de la publication de la présente partie. L'absence de référence à l'exclusion d'une partie ou d'un article d'une partie générale signifie que les articles correspondants de la partie générale sont applicables (références non datées).

Les exigences des autres parties 7XX pertinentes pour les installations couvertes par la présente partie s'appliquent également. Par conséquent, la présente partie peut également compléter, modifier ou remplacer certaines de ces exigences en vigueur au moment de sa publication.

La numérotation des articles de la présente partie suit la structure et les références correspondantes de l'IEC 60364. Les numéros placés derrière le numéro spécifique de la présente partie sont ceux des parties ou des articles correspondants des autres parties de l'IEC 60364, en vigueur au moment de la publication de la présente partie, comme indiqué dans les références normatives du présent document (références datées). Si des exigences ou des explications en plus de celles des autres parties de l'IEC 60364 sont nécessaires, la numérotation de tels éléments se fait de la manière suivante 712.101, 712.102, 712.103, etc.

La numérotation des figures et des tableaux est constituée du numéro de la partie concernée suivi d'un numéro séquentiel. En ce qui concerne les annexes, la numérotation des figures et des tableaux est constituée de la lettre de l'annexe, du numéro de la partie et d'un numéro séquentiel.

Si des parties générales nouvelles ou amendées étaient publiées avec une numérotation modifiée après la parution de la présente partie, les numéros d'articles se référant à une partie générale dans cette partie 7-712 pourraient ne plus correspondre avec la dernière édition des parties générales. Il conviendrait alors de prendre en compte les références datées.

INSTALLATIONS ELECTRIQUES BASSE TENSION –

Partie 7-712: Exigences applicables aux installations ou emplacements spéciaux – Installations d'énergie solaire photovoltaïque (PV)

712 Installations d'énergie solaire photovoltaïque (PV)

NOTE Dans la suite du texte, le terme abrégé «PV» est utilisée pour «photovoltaïque». Ainsi les installations photovoltaïques sont ci-après appelées installations PV.

712.1 Domaine d'application

La présente partie de l'IEC 60364 s'applique à l'installation électrique de systèmes PV conçus pour alimenter tout ou partie d'une installation.

Les équipements d'une installation PV, ainsi que tout autre élément, ne sont traités que du point de vue de leur choix et mise en œuvre dans l'installation.

Une installation PV commence d'un module PV ou d'un ensemble de modules PV reliés en série au moyen de leurs câbles, fournis par le fabricant de modules PV, jusqu'à l'installation de l'utilisateur ou le point d'alimentation du réseau de distribution public (point de couplage commun).

Les exigences du présent document s'appliquent

- aux installations PV non reliées à un réseau de distribution public,
- aux installations PV parallèlement à un réseau de distribution public,
- aux installations PV comme variante à un réseau de distribution public,
- à des combinaisons appropriées des installations ci-dessus.

Le présent document ne concerne pas les exigences d'installation spécifiques relatives aux batteries ou autres méthodes de stockage d'énergie.

NOTE 1 Des exigences supplémentaires applicables aux installations PV ayant des capacités de stockage dans des batteries du côté courant continu sont actuellement à l'étude.

NOTE 2 Le présent document traite des exigences de protection des groupes PV, qui s'imposent du fait de l'utilisation de batteries dans les installations PV.

Pour les systèmes utilisant des convertisseurs continu-continu, des exigences supplémentaires relatives à la tension assignée, au courant assigné, à la coupure et aux dispositifs de protection peuvent s'appliquer. Ces exigences sont à l'étude.

L'objet du présent document est de traiter des exigences de sécurité de conception découlant des caractéristiques particulières des installations PV. Les systèmes à courant continu, en particulier les groupes PV, présentent certains dangers qui viennent s'ajouter à ceux des systèmes d'alimentation en courant alternatif conventionnels, notamment leur tendance à produire et à maintenir des arcs électriques sous des intensités de courant ne dépassant pas celles des courants de fonctionnement normaux.

Toutefois, dans les installations PV connectées au réseau électrique, les exigences de sécurité du présent document dépendent essentiellement du PCE associé aux groupes PV conformes aux exigences des normes IEC 62109-1 et IEC 62109-2.

712.2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60228, *Ames des câbles isolés*

IEC 60269-6, *Fusibles basse tension – Partie 6: Exigences supplémentaires concernant les éléments de remplacement utilisés pour la protection des systèmes d'énergie solaire photovoltaïque*

IEC 60332-1-2, *Essais des câbles électriques et à fibres optiques soumis au feu – Partie 1-2: essai de propagation verticale de la flamme sur conducteur ou câble isolé – Procédure pour flamme à pré-mélange de 1 kW*

IEC 60364 (toutes les parties), *Installations électriques à basse tension*

IEC 60364-4-41:2005, *Installations électriques à basse tension – Partie 4-41: Protection pour assurer la sécurité – Protection contre les chocs électriques*

IEC 60364-4-43, *Installations électriques à basse tension – Partie 4-43: Protection pour assurer la sécurité – Protection contre les surintensités*

IEC 60364-4-44, *Installations électriques à basse tension – Partie 4-44: Protection pour assurer la sécurité – Protection contre les perturbations de tension et les perturbations électromagnétiques*

IEC 60670 (toutes les parties), *Boîtes et enveloppes pour appareillage électrique pour installations électriques fixes pour usages domestiques et analogues*

IEC 60898, (toutes les parties), *Disjoncteurs pour la protection contre les surintensités pour installations domestiques et analogues*

IEC 60898-2, *Disjoncteurs pour la protection contre les surintensités pour installations domestiques et analogues – Partie 2: Disjoncteurs pour le fonctionnement en courant alternatif et en courant continu*

IEC 60947 (toutes les parties), *Appareillage à basse tension*

IEC 60947-1, *Appareillage à basse tension – Partie 1: Règles générales*

IEC 60947-2, *Appareillage à basse tension – Partie 2: Disjoncteurs*

IEC 60947-3, *Appareillage à basse tension – Partie 3: Interrupteurs, sectionneurs, interrupteurs-sectionneurs et combinés-fusibles*

IEC 61140, *Protection contre les chocs électriques – Aspects communs aux installations et aux matériels*

IEC 61215 (toutes les parties), *Modules photovoltaïques (PV) pour application terrestre – Qualification de la conception et homologation*

IEC 61439 (toutes les parties), *Ensembles d'appareillage à basse tension*

IEC 61439-2, *Ensembles d'appareillage à basse tension – Partie 2: Ensembles d'appareillage de puissance*

IEC 61557-8:2014, *Sécurité électrique dans les réseaux de distribution basse tension de 1 000 V c.a. et 1 500 V c.c. – Dispositifs de contrôle, de mesure ou de surveillance de mesures de protection – Partie 8: Contrôleur permanent d'isolement pour réseaux IT*

IEC 62109 (toutes les parties), *Sécurité des convertisseurs de puissance utilisés dans les systèmes photovoltaïques*

IEC 62109-1:2010, *Safety of power converters for use in photovoltaic power systems – Part 1: General requirements* (disponible en anglais seulement)

IEC 62109-2, *Sécurité des convertisseurs de puissance utilisés dans les systèmes photovoltaïques – Partie 2: Exigences particulières pour les onduleurs*

IEC 62262, *Degrés de protection procurés par les enveloppes de matériels électriques contre les impacts mécaniques externes (Code IK)*

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