



**SLOVENSKI STANDARD**  
**oSIST prHD 60364-7-712:2023**  
**01-september-2023**

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**Nizkonapetostne električne inštalacije - 7-712. del: Zahteve za posebne inštalacije ali lokacije - Sončna fotonapetostna (PV) napajalna omrežja**

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

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

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**Ta slovenski standard je istoveten z: prHD 60364-7-712:2023**

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**ICS:**

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91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

**oSIST prHD 60364-7-712:2023**                      **en**





64/2628/CDV

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IEC TC 64 : ELECTRICAL INSTALLATIONS AND PROTECTION AGAINST ELECTRIC SHOCK	
SECRETARIAT: Germany	SECRETARY: Mr Wolfgang Niedenzu
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 8, SC 8B, TC 20, TC 22, SC 22F, SC 23E, SC 23K, SC 32B, SC 37A, TC 82, TC 85, TC 120, TC 121, SC 121A, SC 121B, PC 128, SyC LVDC, SyC Smart Energy	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING
<p><b>Attention IEC-CENELEC parallel voting</b></p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p>	

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TITLE:

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

PROPOSED STABILITY DATE: 2028

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**LOW VOLTAGE ELECTRICAL INSTALLATIONS –**

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

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## FOREWORD

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

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214

This third edition cancels and replaces the second edition published in 2017. This edition constitutes a technical revision.

215

216

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

217

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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 second edition of this standard was published.

220

b)

221

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

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

222  
223 Full information on the voting for its approval can be found in the report on voting indicated in  
224 the above table.

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

226 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in  
227 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available  
228 at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are  
229 described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

230 The committee has decided that the contents of this document will remain unchanged until the  
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232 specific document. At this date, the document will be

- 233 • reconfirmed,
- 234 • withdrawn,
- 235 • replaced by a revised edition, or
- 236 • amended.

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238

## INTRODUCTION

239

240 For the purpose of this part of IEC 60364 (IEC 60364-7-712), the requirements of the general  
241 parts 1 to 6 and part 8 of IEC 60364 apply.

242 The IEC 60364-7-7XX parts of IEC 60364 contain particular requirements for special  
243 installations or locations which are based on the requirements of the general parts of IEC 60364  
244 (IEC 60364-1 to IEC 60364-6 and IEC 60364-8). These IEC 60364-7-7XX parts are considered  
245 in conjunction with the requirements of the general parts.

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

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

253 The clause numbering of this part follows the pattern and corresponding references of  
254 IEC 60364. The numbers following the particular number of this part are those of the  
255 corresponding parts, or clauses of the other parts of the IEC 60364 series, valid at the time of  
256 publication of this part, as indicated in the normative references of this document (dated  
257 reference). If requirements or explanations additional to those of the other parts of the  
258 IEC 60364 series are needed, the numbering of such items appears as 712.101, 712.102,  
259 712.103, etc.

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

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

266

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

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

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

273

274 The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed  
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## LOW VOLTAGE ELECTRICAL INSTALLATIONS –

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

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#### 293 **712 Solar photovoltaic (PV) power supply installations**

##### 294 **712.1 Scope**

295 This part of IEC 60364 applies to the electrical installation of PV systems.

296 The equipment of a PV system, like any other item of equipment, is dealt with only so far as its  
297 selection and application in the installation is concerned. A PV installation comprises of all  
298 equipment from PV modules(s) up to the connection point to other parts of the installation e.g.  
299 a distribution board or the utility supply point (point of connection).

300 It may include requirements on electrical installation resulting from the installation of PV power  
301 supply installations.

302 Requirements are included relating to the possible installation of energy storage systems (e.g.  
303 batteries).

304 Requirements are also included for PV installations for island mode operation described in IEC  
305 60364-8-82.

306 NOTE 1 The abbreviation “PV” is used for “Photovoltaic”. Photovoltaic installations are, hereafter, known as PV  
307 installations.

308 NOTE 2 Additional requirements for PV system floating on water are under development. See Bibliography.

##### 309 **712.2 Normative references**

310 The following documents are referred to in the text in such a way that some or all of their content  
311 constitutes requirements of this document. For dated references, only the edition cited applies.  
312 For undated references, the latest edition of the referenced document (including any  
313 amendments) applies.

314 IEC 60228, *Conductors of insulated cables*

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

317 IEC 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test*  
318 *for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW*  
319 *pre-mixed flame*

320 IEC 60364 (all parts), *Low-voltage electrical installations*

321 IEC 60479-1, *Effects of current on human beings and livestock - Part 1: General aspects*

322 IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

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

- 325 IEC 60898 (all parts), *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations*  
326
- 327 IEC 60947 (all parts), *Low-voltage switchgear and controlgear*
- 328 IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*
- 329 IEC TS 61201, *Use of conventional touch voltage limits – Application guide*
- 330 IEC 61215 (all parts), *Terrestrial photovoltaic (PV) modules – Design qualification and type approval*  
331
- 332 IEC 61439 (all parts), *Low-voltage switchgear and controlgear assemblies*
- 333 IEC 61439-2, *Low-voltage switchgear and controlgear assemblies – Part 2: Power switchgear and controlgear assemblies*  
334
- 335 IEC 61557-8:2014, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 8: Insulation monitoring devices for IT systems*  
336  
337
- 338 IEC 61557-9, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 9: Equipment for insulation fault location in IT systems*  
339  
340
- 341 IEC 61643-31:2018, *Low-voltage surge protective devices – Part 31: Requirements and test methods for SPDs for photovoltaic installations*  
342
- 343 IEC 61643-32, *Low-voltage surge protective devices – Part 32: Surge protective devices connected to the DC side of photovoltaic installations – Selection and application principles.*  
344
- 345 IEC 61730 (all parts), *Photovoltaic (PV) module safety qualification*
- 346 IEC 62109 (all parts), *Safety of power converters for use in photovoltaic power systems*
- 347 IEC 62109-1:2010, *Safety of power converters for use in photovoltaic power systems – Part 1: General requirements*  
348
- 349 IEC 62109-2, *Safety of power converters for use in photovoltaic power systems – Part 2: Particular requirements for inverters*  
350
- 351 IEC 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*  
352
- 353 IEC 62423, *Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses*  
354
- 355 IEC 62446-1, *Photovoltaic (PV) systems – Requirements for testing, documentation and maintenance – Part 1: Grid connected systems – Documentation, commissioning tests and inspection*  
356  
357
- 358 IEC 62446-2, *Photovoltaic (PV) systems – Requirements for testing, documentation and maintenance – Part 2: Grid connected systems – Maintenance of PV systems*  
359
- 360 IEC 62509, *Battery charge controllers for photovoltaic systems - Performance and functioning*

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

363 IEC 62930, *Electric cables for photovoltaic systems with a voltage rating of 1,5kV DC*

364 IEC 63027, *DC arc detection and interruption in photovoltaic power systems*

365 IEC 63112, *Photovoltaic (PV) arrays – Earth fault protection equipment – Safety and safety-*  
 366 *related functionality*

367 IEC TS 63126, *Guidelines for qualifying PV modules, components and materials for operation*  
 368 *at high temperatures*

369 IEC TR 63225, *Incompatibility of connectors for DC-application in photovoltaic systems*

### 370 **712.3 Terms and definitions**

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

372 ISO and IEC maintain terminology databases for use in standardization at the following  
 373 addresses:

- 374 • IEC Electropedia: available at <https://www.electropedia.org/>
- 375 • ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 376 **712.3.1**

##### 377 **PV cell**

##### 378 **photovoltaic cell**

##### 379 **solar cell**

##### 380 **solar photovoltaic cell**

381 most elementary device that exhibits the photovoltaic effect, i.e. the direct non-thermal  
 382 conversion of radiant solar energy into electrical energy

383 Note 1 to entry: The preferred term is "solar photovoltaic cell" or "photovoltaic cell", colloquially referred to as a  
 384 "solar cell".

385 [SOURCE: IEC TS 61836:2016, 3.1.48.1, modified — "that exhibits ... electrical energy" has  
 386 been added]

#### 387 **712.3.2**

##### 388 **PV module**

389 smallest complete environmentally protected assembly of interconnected cells

#### 390 **712.3.3**

##### 391 **PV string**

392 circuit of one or more series-connected PV modules

393 Note 1 to entry: If only some PV modules of a PV string are equipped with a DCU the string is still considered as a  
 394 PV string

395 [SOURCE: IEC TS 61836:2016, modified – "or one or more" has been added]

#### 396 **712.3.4**

##### 397 **PV array**

398 assembly of electrically interconnected PV modules, PV strings, DCU strings or PV sub-arrays  
 399 up to the final PCE or DC load