



SLOVENSKI STANDARD
oSIST prEN IEC 60931-1:2024
01-september-2024

Nesamoregulacijski vzporedni energetski kondenzatorji za izmenične tokovne sisteme z naznačeno napetostjo do vključno 1000 V - 1. del: Splošno

Shunt power capacitors of the non-self-healing type for AC systems having a rated voltage up to and including 1000 v - Part 1: General

Condensateurs shunt de puissance non autorégénérateurs pour réseaux à courant alternatif de tension assignée inférieure ou égale à 1000 v - Partie 1: Généralités

Ta slovenski standard je istoveten z: prEN IEC 60931-1:2024

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ICS:

29.120.99	Druga električna dodatna oprema	Other electrical accessories
31.060.70	Močnostni kondenzatorji	Power capacitors

oSIST prEN IEC 60931-1:2024 en



COMMITTEE DRAFT FOR VOTE (CDV)

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IEC TC 33 : POWER CAPACITORS AND THEIR APPLICATIONS	
SECRETARIAT: Italy	SECRETARY: Mr Stefano Zunino
OF INTEREST TO THE FOLLOWING COMMITTEES:	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 type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting 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. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Shunt power capacitors of the non-self-healing type for AC systems having a rated voltage up to and including 1000 V - Part 1: General

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SHUNT POWER CAPACITORS OF THE NON-SELF-HEALING TYPE FOR AC SYSTEMS HAVING A RATED VOLTAGE UP TO AND INCLUDING 1000 V –

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Part 1: General – Performance, testing and rating – Safety requirements – Guide for installation and operation

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FOREWORD

132 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all
133 national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-
134 operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition
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162 IEC 60931-1 has been prepared by IEC technical committee 33: Power capacitors and their
163 applications. It is an International Standard.

164 This third edition cancels and replaces second edition published in 1996 and the Amendment 1:2002.
165 This edition constitutes a technical revision.

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

167 a) Integration of IEC 60931-3 within IEC 60931-1;

168 b) Deletion of self-healing test.

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

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

170

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

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

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

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

- 181 • reconfirmed,
- 182 • withdrawn,
- 183 • replaced by a revised edition, or
- 184 • amended.

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SHUNT POWER CAPACITORS OF THE NON-SELF-HEALING TYPE FOR AC SYSTEMS HAVING A RATED VOLTAGE UP TO AND INCLUDING 1000 V –

Part 1: General – Performance, testing and rating – Safety requirements – Guide for installation and operation

197 **1 Scope**

198 This part of IEC 60931 is applicable to both capacitor units and capacitor banks intended to be used,
199 particularly, for power-factor correction of AC power systems having a rated voltage up to and
200 including 1000 V and frequencies 15 Hz to 60 Hz.

201 This part of IEC 60931 also applies to capacitors intended for use in power filter circuits. Additional
202 definitions, requirements, and tests for filter capacitors are given in annex A.

203 The following capacitors are excluded from this part of IEC 60931:

- 204 – Shunt power capacitors of the self-healing type for AC systems having a rated voltage up to and
205 including 1000 V (IEC 60831 series).
- 206 – Shunt capacitors for AC power systems having a rated voltage above 1000 V (IEC 60871).
- 207 – Power Capacitors for induction heating installations (IEC 60110 series).
- 208 – Series capacitors for power systems (IEC 60143 series).
- 209 – Capacitors for motor applications (IEC 60252 series).
- 210 – Coupling capacitors and capacitor dividers (IEC 60358).
- 211 – Capacitors for power electronics (IEC 61071).
- 212 – Small AC capacitors to be used for fluorescent and discharge lamps (IEC 61048 and IEC 61049).
- 213 – Capacitors for suppression of radio interference (under consideration).
- 214 – Capacitors intended to be used in various types of electrical equipment and thus considered as
215 components.
- 216 – Capacitors intended for use with DC voltage superimposed on the AC voltage.
- 217 – Shunt power capacitors of the self-healing type for AC systems having a rated voltage above
218 1000V (IEC 63210).

219 Accessories such as insulators, switches, instrument transformers, fuses, etc., are to be in
220 accordance with the relevant IEC standards.

221 The purpose of this part of the IEC 60931 standard is:

- 222 a) to formulate uniform rules regarding performances, testing and rating;
- 223 b) to formulate specific safety rules;
- 224 c) to provide a guide for installation and operation.

225 **2 Normative references**

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

230 IEC 60050-436: International Electrotechnical Vocabulary (IEV) - Chapter 436: Power capacitors

231 IEC 60060-1: High voltage test techniques - Part 1: General definitions and test requirements

232 IEC 60269-1: Low-voltage fuses - Part 1: General requirements

233 IEC 60931-2: Shunt power capacitors of the non-self-healing type for AC systems having a rated
234 voltage up to and including 1000 V - Part 2: Ageing test and destruction test

235 IEC 61000-2-2: Electromagnetic compatibility (EMC) - Part 2: Environment - Section 2: Compatibility
236 levels for low-frequency conducted disturbances and signalling in public low-voltage power supply
237 systems

238 IEC TR 61000-4-1: Electromagnetic compatibility (EMC) - Part 4-1: Testing and measurement
239 techniques - Overview of IEC 61000-4 series

240 **3 Terms and Definitions**

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

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

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

245 **3.1**

246 **capacitor element (or element)**

247 device consisting essentially of two electrodes separated by a dielectric.

248 [SOURCE: IEC 60931-1:2024]

249 **3.2**

250 **capacitor unit (or unit)**

251 assembly of one or more capacitor elements in the same container with terminals brought out.

252 [SOURCE: IEC 60931-1:2024]

253 **3.3**

254 **non-self-healing capacitor**

255 capacitor in which the dielectric, after local break-down, is not restored.

256 **3.4**

257 **capacitor bank (or bank)**

258 number of capacitor units connected so as to act together.

259 [SOURCE: IEC 60931-1:2024]

260 **3.5**

261 **capacitor**

262 generic term, encompassing the notions of capacitor unit and capacitor bank

263 [SOURCE: IEC 60931-1:2024]

264 Note 1 to entry: In this part of IEC 60931, the word capacitor is used when it is not necessary to lay particular stress upon
265 the different meanings of the words capacitor unit or capacitor bank.

266 **3.6**

267 **capacitor installation:**

268 one or more capacitor banks and their accessories.

269 [SOURCE: IEC 60931-1:2024]

270 **3.7**
271 **discharge device of a capacitor**
272 device which may be incorporated in a capacitor, capable of reducing the voltage between the
273 terminals practically to zero, within a given time, after the capacitor has been disconnected from a
274 network.

275 [SOURCE: IEC 436-03-15, modified]

276 **3.8**
277 **internal fuse of a capacitor**
278 fuse connected inside a capacitor unit, in series with an element or a group of elements.

279 [SOURCE: IEC 436-03-16]

280 **3.9**
281 **overpressure disconnecter for a capacitor**
282 disconnecting device designed to switch off the capacitor in the case of abnormal increase of the
283 internal pressure.

284 [SOURCE: IEC 436-03-17, modified]

285 **3.10**
286 **overtemperature disconnecter for a capacitor**
287 disconnecting device designed to switch off the capacitor in the case of abnormal increase of the
288 internal temperature.

289 **3.11**
290 **line terminal**
291 terminal intended for connection to a line conductor of a network.

292 [SOURCE: IEC 436-03-01]

293 Note 1 to entry: In polyphase capacitors, a terminal intended to be connected to the neutral conductor is not considered to
294 be a line terminal.

295 **3.12**
296 **rated capacitance of a capacitor (C_N)**
297 capacitance value for which the capacitor has been designed.

298 [SOURCE: IEC 436-01-12, modified]

299 **3.13**
300 **rated output of a capacitor (Q_N)**
301 reactive power derived from the rated values of capacitance, frequency and voltage.

302 [SOURCE: IEC 436-01-16, modified]

303 **3.14**
304 **rated voltage of a capacitor (U_N)**
305 RMS value of the alternating voltage for which the capacitor has been designed.

306 [SOURCE: IEC 436-01-15]

307 Note 1 to entry: In the case of capacitors consisting of one or more separate circuits (such as single-phase units intended
308 for use in polyphase connection, or polyphase units with separate circuits), U_N refers to the rated voltage of each circuit.

309 Note 2 to entry: For polyphase capacitors with internal electrical connections between the phases, and for polyphase
310 capacitor banks, U_N refers to the phase-to-phase voltage.

311 **3.15**
312 **rated frequency of a capacitor (f_N)**
313 frequency for which the capacitor has been designed.

314 [SOURCE: IEC 436-01-14]