SLOVENSKI STANDARD
SIST EN 60831-1:1999

01-julij-1999

Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 kV -- Part 1: General - Performance, testing and rating - Safety requirements - Guide for installation and operation (IEC 60831-1:1996)

Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 kV -- Part 1: General - Performance, testing and rating - Safety requirements - Guide for installation and operation

Selbstheilende Leistungs-Parallelkondensatoren für Wechselstromanlagen mit einer Nennspannung bis 1 kV -- Teil 1: Allgemeines - Leistungsanforderungen, Prüfung und Bemessung - Sicherheitsanforderungen - Anleitung für Errichtung und Betrieb

Condensateurs shunt de puissance autorégénérateurs pour réseaux à courant alternatif de tension assignée inférieure ou égale à 1 kV -- Partie 1: Généralités - Caractéristiques fonctionnelles, essais et valeurs assignées - Règles de sécurité - Guide d'installation et d'exploitation

Ta slovenski standard je istoveten z: **EN 60831-1:1996**

ICS:

31.060.70 Močnostni kondenzatorji Power capacitors

SIST EN 60831-1:1999 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60831-1

December 1996

ICS 31.060.70

Supersedes EN 60831-1:1993

Descriptors: Power capacitors, self-healing capacitors, capacitor banks, performance characteristics, safety requirements, markings, installation, service conditions

English version

Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 kV Part 1: General - Performance, testing and rating Safety requirements - Guide for installation and operation (IEC 831-1:1996)

Condensateurs shunt de puissance autorégénérateurs pour réseaux à courant alternatif de tension assignée inférieure ou égale à 1 kV Partie 1: Généralités - Caractéristiques fonctionnelles, essais et valeurs assignées - Règles de sécurité Guide d'installation et d'exploitation (CEI 831-1:1996)

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This European Standard was approved by CENELEC on 1996-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of documents 33/234/FDIS and 33/234A/FDIS, future edition 2 of IEC 831-1, prepared by IEC TC 33, Power capacitors, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60831-1 on 1996-10-01.

This European Standard supersedes EN 60831-1:1993.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1997-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-08-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A and ZA are normative and annex B is informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 831-1:1996 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 50(436)	1990	International electrotechnical vocabulary Chapter 436: Power capacitors	-	-
IEC 60-1	1989	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 110	1973	Recommendation for capacitors for inductive heat generating plants operating at frequencies between 40 Hz and 24 kHz	HD 207 S1	1977
IEC 143 (mod)	1992	Series capacitors for power systems Part 1: General - Performance, testing and rating - Safety requirements Guide for installation	EN 60143 + corr. October	1993 1994
IEC 252 (mod)	1993	A.C. motor capacitors	EN 60252 + corr. May	1994 1994
IEC 269-1	1986	Low-voltage fuses Part 1: General requirements	EN 60269-1	1989
IEC 358	1990	Coupling capacitors and capacitor dividers	HD 597 S1 + corr. March	1992 1992
IEC 831-2	1995	Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 kV Part 2: Ageing test, self-healing test and destruction test	EN 60831-2	1996
IEC 871-1	1987	Shunt capacitors for a.c. power systems having a rated voltage above 1 kV Part 1: General - Performance, testing and rating - Safety requirements Guide for installation and operation	HD 525.1 S1	1989

Publication	Year	Title	EN/HD	Year
IEC 931-1	1996	Shunt power capacitors of the non-self-healing type for a.c. systems having a rated voltage up to and including 1 kV Part 1: General - Performance, testing and rating - Safety requirements Guide for installation and operation	EN 60931-1	1996
IEC 931-3	1996	Part 3: Internal fuses	EN 60931-3	1996
IEC 1000-2-2 (mod)	1990	Electromagnetic compatibility (EMC) Part 2: Environment Section 2: Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	ENV 61000-2-2	1993
IEC 1000-4-1	1992	Part 4: Testing and measurement techniques -- Section 1: Overview of immunity tests	EN 61000-4-1	1994
IEC 1048 (mod)	1991	Auxiliaries for lamps - Capacitors for use in tubular fluorescent and other discharge lamp circuits - General and safety requirements	EN 61048[1)]	1993
IEC 1049 (mod)	1991	Capacitors for use in tubular fluorescent and other discharge lamp circuits Performance requirements	EN 61049[2)]	1993
IEC 1071-1 (mod)	1991	Power electronic capacitors Part 1: General	EN 61071-1	1996

1) EN 61048 includes corrigendum January 1992 to IEC 1048.
2) EN 61049 includes corrigendum January 1992 to IEC 1049.

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Deuxième édition
Second edition
1996-11

Condensateurs shunt de puissance autorégénérateurs pour réseaux à courant alternatif de tension assignée inférieure ou égale à 1 000 V –

Partie 1: Généralités – Caractéristiques fonctionnelles, essais et valeurs assignées – Règles de sécurité – Guide d'installation et d'exploitation

Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 000 V –

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

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SHUNT POWER CAPACITORS OF THE SELF-HEALING TYPE FOR A.C. 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

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 831-1 has been prepared by IEC technical committee 33: Power capacitors.

This second edition cancels and replaces the first edition published in 1988, its amendment 1 (1991), and amendment 2 (1993), and constitutes a technical revision.

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

FDIS	Report on voting
33/234/FDIS 33/234A/FDIS	33/249/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.

Annexe A forms an integral part of this standard.

Annexe B is for information only.

SHUNT POWER CAPACITORS OF THE SELF-HEALING TYPE FOR A.C. 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

Section 1: General

1 Scope and object

This part of IEC 831 is applicable to both capacitor units and capacitor banks intended to be used, particularly, for power-factor correction of a.c. power systems having a rated voltage up to and including 1000 V and frequencies 15 Hz to 60 Hz.

This part of IEC 831 also applies to capacitors intended for use in power filter circuits. Additional definitions, requirements, and tests for filter capacitors are given in annex A.

The following capacitors are excluded from this part of IEC 831:

– Shunt power capacitors of the non-self-healing type for a.c. systems having a rated voltage up to and including 1000 V (IEC 931).

– Shunt capacitors for a.c. power systems having a rated voltage above 1000 V (IEC 871).

– Capacitors for inductive heat-generating plants operating at frequencies between 40 Hz and 24 000 Hz (IEC 110).

– Series capacitors (IEC 143).

– Capacitors for motor applications and the like (IEC 252).

– Coupling capacitors and capacitor dividers (IEC 358).

– Capacitors to be used in power electronic circuits (IEC 1071).

– Small a.c. capacitors to be used for fluorescent and discharge lamps (IEC 1048 and IEC 1049).

– Capacitors for suppression of radio interference (under consideration).

– Capacitors intended to be used in various types of electrical equipment, and thus considered as components.

– Capacitors intended for use with d.c. voltage superimposed on the a.c. voltage.

Accessories such as insulators, switches, instrument transformers, fuses, etc., should be in accordance with the relevant IEC standards.

The object of this part of IEC 831 is to:

a) formulate uniform rules regarding performances, testing and rating;

b) formulate specific safety rules;

c) provide a guide for installation and operation.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 831. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 831 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 50(436): 1990, *International Electrotechnical Vocabulary (IEV) – Chapter 436: Power capacitors*

IEC 60-1: 1989, *High voltage test techniques – Part 1: General definitions and test requirements*

IEC 110: 1973, *Recommendation for capacitors for inductive heat generating plants operating at frequencies between 40 and 24 000 Hz*

IEC 143: 1992, *Series capacitors for power systems*

IEC 252: 1993, *A.C. motor capacitors*

IEC 269-1: 1986, *Low-voltage fuses – Part 1: General requirements*

IEC 358:1990, *Coupling capacitors and capacitor dividers*

IEC 831-2:1995, *Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1000 V – Part 2: Ageing test, self-healing test and destruction test*

IEC 871-1: 1987, *Shunt capacitors for a.c. power systems having a rated voltage above 1000 V* – Part 1: General – Performance, testing and rating – Safety requirements – Guide for installation and operation*

IEC 931-1: 1996, *Shunt power capacitors of the non-self-healing type for a.c. 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*

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* According to Amendment No. 1 (1991).

IEC 931-3: 1996, *Shunt power capacitors of the non-self-healing type for a.c. systems having a rated voltage up to and including 1000 V – Part 3: Internal fuses*

IEC 1000-2-2: 1990, *Electromagnetic compatibility (EMC) – Part 2: Environment – Section 2: Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems*

IEC 1000-4-1: 1992, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 1: Overview of immunity tests – Basic EMC publication*

IEC 1048: 1991, *Capacitors for use in tubular fluorescent and other discharge lamp circuits – General and safety requirements*

IEC 1049: 1991, *Capacitors for use in tubular fluorescent and other discharge lamp circuits – Performance requirements*

IEC 1071-1: 1993, *Power electronic capacitors – Part 1: General*

3 Definitions

For the purposes of this part of IEC 831, the following definitions apply:

3 1 **capacitor element (or element):** A device consisting essentially of two electrodes separated by a dielectric. [IEV 436-01-03]

3.2 **capacitor unit (or unit):** An assembly of one or more capacitor elements in the same container with terminals brought out. [IEV 436-01-04]

3.3 **self-healing capacitor:** A capacitor of which the electrical properties, after local breakdown of the dielectric, are rapidly and essentially restored. [IEV 436-03-12]

3.4 **capacitor bank (or bank):** A number of capacitor units connected so as to act together. [IEV 436-01-06]

3.5 **capacitor:** In this part of IEC 831, the word capacitor is used when it is not necessary to lay particular stress upon the different meanings of the words capacitor unit or capacitor bank.

3.6 **capacitor installation:** One or more capacitor banks and their accessories. [IEV 436-01-07]

3.7 **discharge device of a capacitor:** A device which may be incorporated in a capacitor, capable of reducing the voltage between the terminals practically to zero, within a given time, after the capacitor has been disconnected from a network. [IEV 436 03-15 modified]