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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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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 1 000 V –

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

FOREWORD

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International Standard IEC 60831-1 has been prepared by IEC technical committee 33: Power capacitors and their applications.

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

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

a) Updating of the normative references;
b) Test conditions have been clarified;
c) Thermal stability test has been clarified;
d) Maximum permissible voltage and current have been clarified;
e) The protection of the environment has been amended with safety concerns and plastic quality requirements.

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

FDIS	Report on voting
33/543/FDIS	33/550/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.

A list of all parts in the IEC 60831 series, published under the general title *Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including, 1 000 V* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
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The contents of the corrigendum of May 2014 have been included in this copy.

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

~~Section 1: General~~

1 Scope ~~and object~~

This part of the IEC 60831 series 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 1 000 V and frequencies of 15 Hz to 60 Hz.

This part of IEC 60831 also applies to capacitors intended for use in power filter circuits. Additional definitions, requirements, and tests for power filter capacitors are given in Annex A.

The following capacitors are excluded from this part of IEC 60831:

– Shunt power capacitors of the non-self-healing type for a.c. systems having a rated voltage up to and including 1 000 V (IEC 60931-1, -2 and -3).

– Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V (IEC 60871-1, -2, -3 and -4).

– Capacitors for inductive heat-generating plants operating at frequencies between 40 Hz and 24 000 Hz (IEC 60110-1 and -2).

– Series capacitors (IEC60143-1, -2, -3 and -4).

– ~~Capacitors for motor applications and the like~~ AC motor capacitors (IEC 60252-1 and -2).

– Coupling capacitors and capacitor dividers (IEC 60358-1).

– Capacitors ~~to be used in~~ for power electronic circuits (IEC 61071).

– Small a.c. capacitors to be used for fluorescent and discharge lamps (IEC 61048 and IEC 61049).

– 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 and are not covered by the scope of this part of IEC 60831.

The object of this part of IEC 60831 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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

~~IEC 60050(436):1990, *International Electrotechnical Vocabulary (IEV) – Chapter 436: Power capacitors*~~

IEC 60060-1:~~1989~~2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

~~IEC 60110:1973, *Recommendation for capacitors for inductive heat generating plants operating at frequencies between 40 and 24 000 Hz*~~

~~IEC 60143:1992, *Series capacitors for power systems*~~

~~IEC 60252:1993, *A.C. motor capacitors*~~

IEC 60269-1:~~1986~~2006, *Low-voltage fuses – Part 1: General requirements*

~~IEC 60358:1990, *Coupling capacitors and capacitor dividers*~~

IEC 60695-2-12:2010, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60831-2:~~1995~~2013, *Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 000 V – Part 2: Ageing test, self-healing test and destruction test*

~~IEC 60871-1:1987, *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 60931-1:1996, *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*~~

~~IEC 60931-3:1996, *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 61000-2-2:~~1990~~2002, *Electromagnetic compatibility (EMC) – Part 2-2: Environment – Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems*

IEC 61000-4-1:~~1992~~2006, *Electromagnetic compatibility (EMC) – Part 4-1: Testing and measurement techniques – ~~Overview of immunity tests. Basic EMC publication~~ Overview of IEC 61000-4 series*

~~IEC 61048:1991, *Capacitors for use in tubular fluorescent and other discharge lamp circuits – General and safety requirements*~~

~~IEC 61049:1991, *Capacitors for use in tubular fluorescent and other discharge lamp circuits – Performance requirements*~~

~~IEC 61071-1:1993, *Power electronic capacitors – Part 1: General*~~

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~~* According to Amendment 1 (1991).~~

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

Condensateurs shunt de puissance autoregénérateurs 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

IEC 60831-1:2014-02(EN-FR)

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