BS EN 60831-1:2014

Incorporating corrigendum May 2014

BSI Standards Publication

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

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National foreword

This British Standard is the UK implementation of EN 60831-1:2014. It is identical to IEC 60831-1:2014, incorporating corrigendum May 2014. It supersedes BS EN 60831-1:1998 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/33, Power capacitors.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2014.

Amendments/corrigenda issued since publication

Date	Text affected
31 July 2014	Implementation of IEC corrigendum May 2014: Clause B.4.3 amended.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60831-1

June 2014

ICS 29.120.99; 31.060.70

Supersedes EN 60831-1:1996

English Version

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 (IEC 60831-1:2014)

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 (CEI 60831-1:2014)

Selbstheilende Leistungs-Parallelkondensatoren für Wechselstromanlagen mit einer Bemessungsspannung bis 1 000 V - Teil 1: Allgemeines - Leistungsanforderungen, Prüfung und Bemessung - Sicherheitsanforderungen - Anleitung für Errichtung und Betrieb (IEC 60831-1:2014)

This European Standard was approved by CENELEC on 2014-03-18. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 33/543/FDIS, future edition 3 of IEC 60831-1, prepared by IEC/TC 33, "Power capacitors and their applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60831-1:2014.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2014-12-18
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-03-18

This document supersedes EN 60831-1:1996 + A1:2003.

EN 60831-1:2014 includes the following significant technical changes with respect to EN 60831-1:1996 + A1:2003:

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60831-1:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60060-2:2010	NOTE	Harmonised as EN 60060-2:2011 (not modified).
IEC 60110-1:1998	NOTE	Harmonised as EN 60110-1:1998 (not modified).
IEC 60143-1	NOTE	Harmonised as EN 60143-1 (not modified).
IEC 60143-2	NOTE	Harmonised as EN 60143-2 (not modified).
IEC 60143-3	NOTE	Harmonised as EN 60143-3 (not modified).
IEC 60143-4	NOTE	Harmonised as EN 60143-4 (not modified).
IEC 60252-1:2010	NOTE	Harmonised as EN 60252-1:2011 (not modified).

IEC 60358-1	NOTE	Harmonised as EN 60358-1 (not modified).
IEC 61048:2006	NOTE	Harmonised as EN 61048:2006 (not modified).
IEC 61049:1991	NOTE	Harmonised as EN 61049:1993 (modified).
IEC 61071 (series)	NOTE	Harmonised as EN 61071 (series) (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60269-1	2006	Low-voltage fuses - Part 1: General requirements	EN 60269-1	2007
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	EN 60695-2-12	2010
IEC 60831-2	2014	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	EN 60831-2	2014
IEC 61000-2-2	2002	Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	EN 61000-2-2	2002
IEC 61000-4-1	2006	Electromagnetic compatibility (EMC) - Part 4-1: Testing and measurement techniques - Overview of IEC 61000-4 series	EN 61000-4-1	2007

CONTENTS

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

1 Scope

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-, -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)
– AC motor capacitors (IEC 60252-1 and -2)
– Coupling capacitors and capacitor dividers (IEC 60358-1)
– Capacitors 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.