

### SLOVENSKI STANDARD SIST EN 61558-2-14:2013

01-junij-2013

### Varnost transformatorjev, dušilk, napajalnikov in kombinacij teh elementov - 2-14. del: Posebne zahteve in preskus za spremenljive transformatorje in napajalnike z vgrajenimi spremenljivimi transformatorji

Safety of transformers, reactors, power supply units and combinations thereof - Part 2-14: Particular requirements and test for variable transformers and power supply units incorporating variable transformers

### iTeh STANDARD PREVIEW (standards.iteh.ai)

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des combinaisons de ces éléments à Partie 2-14 Exigences particulières et essais pour les transformateurs variables et les blocs d'alimentation incorporant des transformateurs variables

Ta slovenski standard je istoveten z: EN 61558-2-14:2013

ICS:

29.180 Transformatorji. Dušilke

Transformers. Reactors

SIST EN 61558-2-14:2013

en

### iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 61558-2-14:2013</u> https://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65de011264523f9/sist-en-61558-2-14-2013



### EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

### EN 61558-2-14

March 2013

ICS 29.180

English version

### Safety of transformers, reactors, power supply units and combination thereof -Part 2-14: Particular requirements and tests for variable transformers and power supply units incorporating variable transformers (IEC 61558-2-14:2012)

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des combinaisons de ces éléments -Partie 2-14 : Exigences particulières et essais pour les transformateurs variables et les blocs d'alimentation incorporant des ransformateurs variables (CEI 61558-2-14:2012) (standards.iteh.ai)

#### SIST EN 61558-2-14:2013

https://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65d-

This European Standard was approved by CENELEC on 2012-12-273 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.

## CENELEC

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

#### Management Centre: Avenue Marnix 17, B - 1000 Brussels

© 2013 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Ref. No. EN 61558-2-14:2013 E

#### Foreword

The text of document 96/395/FDIS, future edition 1 of IEC 61558-2-14, prepared by IEC/TC 96 "Transformers, reactors, power supply units and combination thereof" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61558-2-14:2013.

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)	2013-09-27
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-12-27

This standard is to be used in conjunction with EN 61558-1:2005 + A1:2009.

This part supplements or modifies the corresponding clauses in EN 61558-1, so as to convert that publication into the EN standard: Particular requirements and tests for variable transformers and power supply units incorporating variable transformers.

A list of all parts of the EN 61558 series, under the general title: Safety of transformers, reactors, power supply units and combination thereof, can be found on the CENELEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition. W IT EIL STANDA 

Where a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable. Where this part states "addition" "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

In this part, the following print types are used: https://standards.iten.a/catalog/standards/sist/aec67504-9024-40a5-b65d-

- requirements proper: in roman type1264523f9/sist-en-61558-2-14-2013

test specifications: in italic type;

- explanatory matter: in smaller roman type.

In the text of this part, the words in **bold** are defined in Clause 3.

Subclauses, notes, figures and tables additional to those in Part 1 are numbered starting from 101; supplementary annexes are entitled AA, BB, etc.

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 61558-2-14:2012 was approved by CENELEC as a European Standard without any modification.

In the Bibliography of EN 61558-1:2005, the following notes have to be added for the standards indicated:

IEC 60076-11	NOTE	Harmonised as EN 60076-11.
IEC 61558-2-16	NOTE	Harmonised as EN 61558-2-16.

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

#### Annex ZA of EN 61558-1:2005 is applicable except as follows:

Publication	<u>Year</u>	Title	<u>EN/HD</u>	Year
In Annex ZA of EN	V 61558	-1:2005 <b>add</b> :		
IEC 61558-1 + corr. March + corr. March + corr. April + A1	2005 2010 2008 2011 2009	Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests	EN 61558-1 + corr. August + A1	2005 2006 2009

### iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61558-2-14:2013

https://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65de011264523f9/sist-en-61558-2-14-2013

### iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 61558-2-14:2013</u> https://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65de011264523f9/sist-en-61558-2-14-2013





Edition 1.0 2012-11

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

GROUP SAFETY PUBLICATION PUBLICATION GROUPÉE DE SÉCURITÉ

Safety of transformers, reactors, power supply units and combination thereof – Part 2-14: Particular requirements and tests for variable transformers and power supply units incorporating variable transformers

#### <u>SIST EN 61558-2-14:2013</u>

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des combinaisons de ces éléments 239/sist-en-61558-2-14-2013 Partie 2-14: Exigences particulières et essais pour les transformateurs variables et les blocs d'alimentation incorporant des transformateurs variables

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE CODE PRIX



ICS 29.180

ISBN 978-2-83220-499-3

Warning! Make sure that you obtained this publication from an authorized distributor. Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

 Registered trademark of the International Electrotechnical Commission Marque déposée de la Commission Electrotechnique Internationale

### CONTENTS

FO	REWORD	3
1	Scope	6
2	Normative references	8
3	Terms and definitions	8
4	General requirements	9
5	General notes on tests	9
6	Ratings	10
7	Classification	10
8	Marking and other information	10
9	Protection against electric shock	12
10	Change of input voltage setting	12
11	Output voltage and output current under load	12
12	No-load output voltage	12
13	Short-circuit voltage	14
14	Heating	15
15	Short circuit and overload protection	15
16	Mechanical strength STANDARD PREVIEW	15
17	Protection against harmful ingress of dust, solid objects and moisture	16
18	Insulation resistance, dielectric strength and leakage current	
19	Construction	
20	Componentshttps://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65d- e01126452319/sist-en-61558-2-14-2013	20
21	Internal wirings	20
22	Supply connection and other external flexible cables or cords	20
23	Terminals for external conductors	20
24	Provision for protective earthing	20
25	Screws and connections	21
26	Creepage distances, clearances and distances through insulation	21
27	Resistance to heat, fire and tracking	21
28	Resistance to rusting	21
Anr	nexes	22
Bib	liography	23
<b>_</b> .		
	ble 101 – Output voltages difference for auto transformers, separating and safety	14

Table 101 – Output voltages difference for auto transformers, separating and safety	
isolating transformers	14
Table 102 – Output voltages difference for isolating transformers	14
Table 103 – Maximum permitted temperatures of the winding	15

#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

### SAFETY OF TRANSFORMERS, REACTORS, POWER SUPPLY UNITS AND COMBINATION THEREOF –

### Part 2-14: Particular requirements and tests for variable transformers and power supply units incorporating variable transformers

#### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- The formal decisions or agreements of 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national dor(regional publication shall be clearly indicated in the latter. https://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65d-
- 5) IEC itself does not provide any attestation of conformity independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International standard IEC 61558-2-14 has been prepared by technical committee 96: Transformers, reactors, power supply units and combination thereof.

This first edition cancels and replaces the chapter IV of the IEC 60989 published in 1991. It is a technical revision.

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

- a) update of the existing text;
- b) complete editorial review.

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

FDIS	Report on voting
96/395/FDIS	96/398/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.

This part has the status of a group safety publication in accordance with IEC Guide 104:2010, *The preparation of safety publications and the use of basic safety publications and group safety publications.* 

This part is intended to be used in conjunction with the latest edition of IEC 61558-1 and its amendments. It is based on the second edition (2005) of that standard and its Amendment 1 (2009).

This part supplements or modifies the corresponding clauses in IEC 61558-1, so as to convert that publication into the IEC standard: *Particular requirements and tests for variable transformers and power supply units incorporating variable transformers.* 

A list of all parts of the JEC 61558 series, under the general title. Safety of transformers, reactors, power supply units and combination thereof, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

#### https://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65d-

Where a particular subclause of (Part to is not mentioned in this part, that subclause applies as far as is reasonable. Where this part states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

In this part, the following print types are used:

- requirements proper: in roman type;
- test specifications: in italic type;
- explanatory matter: in smaller roman type.

In the text of this part, the words in **bold** are defined in Clause 3.

Subclauses, notes, figures and tables additional to those in Part 1 are numbered starting from 101; supplementary annexes are entitled AA, BB, etc.

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,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months from the date of publication.

### iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 61558-2-14:2013</u> https://standards.iteh.ai/catalog/standards/sist/aec67504-9024-40a5-b65de011264523f9/sist-en-61558-2-14-2013