

SLOVENSKI STANDARD
SIST EN 61558-2-16:2010/A1:2014
01-januar-2014

Varnost močnostnih transformatorjev, napajalnikov, dušilk in podobnih izdelkov za napetosti do 1100 V - 2-16. del: Posebne zahteve in preskusi za stikalne napajalnike in transformatorje za stikalne napajalnike

Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1100 V - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units

Sicherheit von Transformatoren, Drosseln, Netzgeräten und dergleichen für Versorgungsspannungen bis 1100 V - Teil 2-16: Besondere Anforderungen und Prüfungen an Schaltnetzteilen (SMPS) und Transformatoren für Schaltnetzteile

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et produits analogues pour des tensions d'alimentation jusqu'à 1100 V - Partie 2-16: Règles particulières et essais pour les blocs d'alimentation à découpage et les transformateurs pour blocs d'alimentation à découpage

Ta slovenski standard je istoveten z: EN 61558-2-16:2009/A1:2013

ICS:

29.180 Transformatorji. Dušilke Transformers. Reactors

SIST EN 61558-2-16:2010/A1:2014 en,fr,de

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[SIST EN 61558-2-16:2010/A1:2014](https://standards.iteh.ai/catalog/standards/sist/a7dfa57-88a5-40ac-82e7-eca3e88d46d/sist-en-61558-2-16-2010-a1-2014)

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61558-2-16/A1

November 2013

ICS 29.180

English version

**Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V -
Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units
(IEC 61558-2-16:2009/A1:2013)**

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et produits analogues pour des tensions d'alimentation jusqu'à 1 100 V -
Partie 2-16: Règles particulières et essais pour les blocs d'alimentation à découpage et les transformateurs pour blocs d'alimentation à découpage
(CEI 61558-2-16:2009/A1:2013)

Sicherheit von Transformatoren, Drosseln, Netzgeräten und dergleichen für Versorgungsspannungen bis 1 100 V -
Teil 2-16: Besondere Anforderungen und Prüfungen an Schaltnetzteilen (SMPS) und Transformatoren für Schaltnetzteile
(IEC 61558-2-16:2009/A1:2013)

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This amendment A1 modifies the European Standard EN 61558-2-16:2009; it was approved by CENELEC on 2013-09-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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

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

Foreword

The text of document 96/401/FDIS, future IEC 61558-2-16:2009/A1, prepared by IEC/TC 96, "Transformers, reactors, power supply units and combinations thereof" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61558-2-16:2009/A1:2013.

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) 2014-06-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-09-16

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 61558-2-16:2009/A1:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

The bibliography of Part 1 is applicable, except as follows:
[SIST EN 61558-2-16:2010/A1:2014](https://standards.iteh.ai/SIST/EN/61558-2-16:2010/A1:2014)
<https://standards.iteh.ai/standards/7dfa57-88a5-40ac-82e7-eca3e88d46d/sist-en-61558-2-16-2010-a1-2014>

Addition:

IEC 61800-5-1

NOTE

Harmonised as EN 61800-5-1.

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.

Add, to the existing list of references, the following new references:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60317-0-7	2012	Specifications for particular types of winding wires - Part 0-7: General requirements - Fully insulated (FIW) zero-defect enamelled round copper wire with nominal conductor diameter of 0,040 mm to 1,600 mm	EN 60317-0-7	2012
IEC 60317-43	-	Specifications for particular types of winding wires - Part 43: Aromatic polyimide tape wrapped round copper wire, class 240	EN 60317-43	-
IEC 60317-56	-	Specifications for particular types of winding wires - Part 56: Solderable fully insulated (FIW) zero-defect polyurethane enamelled round copper wire with nominal conductor diameter of 0,040 mm to 1,600 mm, class 180	EN 60317-56	-
IEC 60851-3	2009	Winding wires - Test methods - Part 3: Mechanical properties	EN 60851-3	2009
IEC 60851-5	2008	Winding wires - Test methods - Part 5: Electrical properties	EN 60851-5	2008

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AMENDMENT 1
AMENDEMENT 1

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FOREWORD

This amendment has been prepared by IEC technical committee 96: Transformers, reactors, power supply units, and combinations thereof.

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

FDIS	Report on voting
96/401/FDIS	96/405/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base 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.

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IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION to the Amendment

This amendment has been prepared to allow the use of **FIW** wires in SMPS.

The manufacturer should be careful, that during production and transport no damage of the **FIW** wire will be possible.

2 Normative references

Add, to the existing list of references, the following new references:

IEC 60317-0-7:2012, *Specifications for particular types of winding wires – Part 0-7: General requirements – Fully insulated (FIW) zero-defect enamelled round copper wire with nominal conductor diameter of 0,040 mm to 1,600 mm*

IEC 60317-43, *Specifications for particular types of winding wires – Part 43: Aromatic polyimide tape wrapped round copper wire, class 240*

IEC 60317-56, *Specifications for particular types of winding wires – Part 56: Solderable fully insulated (FIW) zero-defect polyurethane enamelled round copper wire with nominal conductor diameter 0,040 mm to 1,600 mm, class 180*

IEC 60851-3:2009, *Winding wires – Test methods – Part 3: Mechanical properties*

IEC 60851-5:2008, *Winding wires – Test methods – Part 5: Electrical properties*

3 Terms and definitions

Add, at the end of the existing text, the following new instruction and new terms and definitions as follows:

Addition:

3.101

FIW

fully insulated winding wire

wire according to IEC 60317-0-7, IEC 60317-56 and IEC 60851-5:2008 which is a **zero-defect wire** construction

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3.102

zero-defect wire

winding wire that exhibits no electrical discontinuities when tested under specific conditions

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3.103

grade of FIW

range of overall diameter of a wire (**FIW3 – FIW9**)

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18 Insulation resistance, dielectric strength and leakage current

18.3

Add, after the existing Table 8a, the following new instruction:

Replacement of the text in footnote a of Table 8a:

^a For construction according to 26.2.4.1, test B the voltage is multiplied by the factor 1,25. For the construction according to 26.2.4.2 the voltage is multiplied by the factor 1,35.

Add, after the existing subclause 18.101, the following new subclause and new figure:

18.102 A partial discharge test according to IEC 60664-1, (test description see below) shall be performed, if **FIW** wires are used and if the recurring peak working voltage U_t across the insulation is greater than 750 V. The relevant recurring peak voltage is the maximum measured voltage between the input and the output circuit of the SMPS, if the secondary side is earthed. The measuring shall be done at 1,0 of the maximum rated input voltage.

A partial discharge test shall be done at the transformer for the SMPS with the measured recurring peak voltage U_t , greater than 750 V peak.

U_t is the maximum peak working voltage;

t_1 is 5 s;