

<b>STN</b>	<b>Bezpečnosť transformátorov, tlmiviek, napájacích zdrojov a ich kombinácií Časť 2-10: Osobitné požiadavky na transformátory s oddelenými vinutiami s vysokou izolačnou hladinou a na transformátory s oddelenými vinutiami s výstupným napätím prekračujúcim 1 000 V a ich skúšky</b>	<b>STN EN IEC 61558-2-10</b>  35 1330
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Safety of transformers, reactors, power supply units and combinations thereof - Part 2-10: Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/24

Obsahuje: EN IEC 61558-2-10:2024, IEC 61558-2-10:2024

Oznámením tejto normy sa od 12.07.2027 ruší  
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EUROPEAN STANDARD

**EN IEC 61558-2-10**

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2024

ICS 29.180

Supersedes EN 61558-2-10:2014

English Version

**Safety of transformers, reactors, power supply units and combinations thereof - Part 2-10: Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V (IEC 61558-2-10:2024)**

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des combinaisons de ces éléments - Partie 2-10 : Exigences particulières et essais pour les transformateurs d'isolement à enroulements séparés à niveau d'isolement élevé et pour les transformateurs d'isolement à enroulements séparés à tensions secondaires supérieures à 1 000 V (IEC 61558-2-10:2024)

Sicherheit von Transformatoren, Drosseln, Netzgeräten und entsprechenden Kombinationen - Teil 2-10: Besondere Anforderungen und Prüfungen für Netztransformatoren mit hohem Isolationspegel und Netztransformatoren mit Ausgangsspannungen über 1 000 V (IEC 61558-2-10:2024)

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 61558-2-10:2024 (E)****European foreword**

The text of document 96/589/FDIS, future edition 2 of IEC 61558-2-10, 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 IEC 61558-2-10:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2025-04-12 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2027-07-12 document have to be withdrawn

This document supersedes EN 61558-2-10:2014 and all of its amendments and corrigenda (if any).

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**Endorsement notice**

The text of the International Standard IEC 61558-2-10:2024 was approved by CENELEC as a European Standard without any modification.

The endorsement notice of EN IEC 61558-1:2019 applies, except as follows.

*Addition:*

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

IEC 60076-11:2018	NOTE	Approved as EN IEC 60076-11:2018 (not modified)
IEC 60204-1:2016	NOTE	Approved as EN 60204-1:2018
IEC 61050:1991	NOTE	Approved as EN 61050:1992
IEC 61050:1991/A1:1994	NOTE	Approved as EN 61050:1992/A1:1995
IEC 61347-2-10:2000	NOTE	Approved as EN 61347-2-10:2001 (not modified)
IEC 61347-2-10:2000/A1:2008	NOTE	Approved as EN 61347-2-10:2001/A1:2009 (not modified)
IEC 61558 series	NOTE	Approved as EN 61558 series
IEC 61558-2-16:2021	NOTE	Approved as EN IEC 61558-2-16:— <sup>1</sup> (not modified)
IEC 62477-1:2022	NOTE	Approved as EN IEC 62477-1:2023 (not modified)

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<sup>1</sup> to be published, Stage at the time of publication: FprEN IEC 61558-2-16:2021.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where 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.cencenelec.eu](http://www.cencenelec.eu).

Annex ZA of EN IEC 61558-1:2019 applies, except as follows.

*Addition:*

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61558-1	2017	Safety of transformers, reactors, power supply units and combinations thereof - Part 1: General requirements and tests	EN IEC 61558-1	2019



IEC 61558-2-10

Edition 2.0 2024-06

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

GROUP ENERGY EFFICIENCY PUBLICATION  
PUBLICATION GROUPEE SUR L'EFFICACITE ÉNERGÉTIQUE

**Safety of transformers, reactors, power supply units and combinations thereof –  
Part 2-10: Particular requirements and tests for separating transformers with  
high insulation level and separating transformers with output voltages  
exceeding 1 000 V**

**Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des  
combinaisons de ces éléments –  
Partie 2-10 : Exigences particulières et essais pour les transformateurs  
d'isolement à enroulements séparés à niveau d'isolement élevé et pour les  
transformateurs d'isolement à enroulements séparés à tensions secondaires  
supérieures à 1 000 V**

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IEC Secretariat  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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IEC 61558-2-10

Edition 2.0 2024-06

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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ELECTROTECHNICAL  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

### **Part 2-10: Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V**

#### FOREWORD

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IEC 61558-2-10 has been prepared by IEC technical committee 96: Transformers, reactors, power supply units and combinations thereof. It is an International Standard.

This second edition cancels and replaces the first edition published in 2014. This edition constitutes a technical revision.

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

- a) adjustment of structure and references in accordance with IEC 61558-1:2017;
- b) overvoltage categories I, II, III and IV for clearances and dielectric strength tests are included;

c) clearances for homogenous field conditions deleted.

The text of this International Standard is based on the following documents:

Draft	Report on voting
96/589/FDIS	96/595/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

It has the status of a group safety publication in accordance with IEC Guide 104.

This International Standard is to be used in conjunction with IEC 61558-1:2017.

This document supplements or modifies the corresponding clauses in IEC 61558-1:2017, so as to convert that publication into the IEC standard: *Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V*.

A list of all parts in the IEC 61558 series published under the general title *Safety of transformers, reactors, power supply units and combinations 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.

Where this document states "*addition*", "*modification*" or "*replacement*", the relevant text of IEC 61558-1:2017 is to be adapted accordingly.

In this document, 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 document, the words in **bold** are defined in Clause 3.

Subclauses, notes, figures and tables additional to those in IEC 61558-1:2017 are numbered starting from 101; supplementary annexes are entitled AA, BB, etc.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

IEC TC 96 has a group safety function in accordance with IEC Guide 104 for transformers other than those intended to supply distribution networks, in particular transformers and **power supply units** intended to allow the application of protective measures against electric shock as defined by TC 64, which is about electrical installations and protection against electric shock, but in certain cases including the limitation of voltage and horizontal safety function for SELV, in accordance with IEC 60364-4-41.

The group safety function (GSF) is used because of responsibility for **safety extra-low voltage (SELV)** in accordance with IEC 61140:2016, 5.2.6 and IEC 60364-4-41:2005, 414.3.1 or control circuits in accordance with IEC 60204-1:2016, 7.2.4.

The group safety function is used for each part of IEC 61558-2 because different standards of the IEC 61558 series can be combined in one construction but in certain cases with no limitation of **rated output** power.

For example an auto-transformer in accordance with IEC 61558-2-13 can be designed with a separate **SELV-circuit** in accordance with the particular requirements for IEC 61558-2-6 relating to the general requirements of IEC 61558-1.

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

### Part 2-10: Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V

#### 1 Scope

##### *Replacement:*

This part of IEC 61558 deals with the safety of **separating transformers with high insulation level** and **separating transformers with output voltages exceeding 1 000 V**. Transformers incorporating **electronic circuits** are also covered by this document.

NOTE 1 Safety includes electrical, thermal and mechanical aspects.

Unless otherwise specified, from here onward, the term **transformer** covers **separating transformers with high insulation level** and **separating transformers with output voltages exceeding 1 000 V AC or 1 500 V DC**.

This document is applicable to **stationary** or **portable**, single-phase or polyphase, air-cooled (natural or forced) **independent** or **associated dry-type transformers**. The windings can be encapsulated or non-encapsulated.

For **power supply units** (linear) this document is applicable. For **switch mode power supply units**, IEC 61558-2-16 is applicable together with this document. Where two requirements are in conflict, the most severe takes precedence.

The **rated supply voltage** does not exceed 1 000 V AC, and the **rated supply frequency** and the **internal operating frequencies** do not exceed 500 Hz.

The **rated output** does not exceed:

- 25 kVA for single-phase **transformers**;
- 40 kVA for polyphase **transformers**.

This document is applicable to **transformers** without limitation of the **rated output** subject to an agreement between the purchaser and the manufacturer.

Where applicable the **no-load output voltage** or the **rated output voltage**:

- does not exceed 1 000 V AC or 1 500 V DC for **separating transformers with high insulation level**;
- does exceed 1 000 V AC or 1 500 V DC and does not exceed 15 000 V AC or 15 000 V DC for **separating transformers with output voltage exceeding 1 000 V**.

This document does not apply to:

- **transformers** covered by IEC 60076-11;
- neon **transformers** covered by IEC 61050; and
- **power supplies** and converters for use with or in products according to IEC 61347-2-10.

This document is not applicable to external circuits and their components intended to be connected to the input terminals and output terminals of the **transformers**.

NOTE 2 **Transformers** covered by this document are used only in applications where **double or reinforced insulation** between circuits is not required by the installation rules or by the end product standard.

NOTE 3 Normally, the **transformers** are intended to be used with equipment to provide voltages different from the **supply voltage** for the functional requirements of the equipment. The protection against electric shock can be provided (or completed) by other features of the equipment, such as the **body**. Parts of **output circuits** can be connected to the **input circuits** or to **protective earthing**.

This document is applicable to **transformers** associated with specific equipment, to the extent decided upon by the relevant IEC technical committees.

Attention is drawn to the following if necessary:

- for **transformers** intended to be used in vehicles, on board ships, and aircraft, additional requirements (from other applicable standards, national rules, etc.);
- measures to protect the **enclosure** and the components inside the **enclosure** against external influences such as fungus, vermin, termites, solar-radiation, and icing;
- the different conditions for transportation, storage, and operation of the **transformers**;
- additional requirements in accordance with other appropriate standards and national rules can be applicable to **transformers** intended for use in special environments.

It is possible that future technological development of **transformers** will require an increase in the upper limit of the frequencies. Until then this document can be used as a guidance document.

This group safety publication focusing on safety guidance is primarily intended to be used as a product safety standard for the products mentioned in the scope, but is also intended to be used by technical committees in the preparation of publications for products similar to those mentioned in the scope of this group safety publication, in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications and/or group safety publications in the preparation of its publications.

## 2 Normative references

IEC 61558-1:2017, Clause 2 is applicable, except as follows:

*Addition:*

IEC 61558-1:2017, *Safety of transformers, reactors, power supply units and combinations thereof – Part 1: General requirements and tests*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**