

Electromechanical elementary relays - Part 10:  
Additional functional aspects and safety requirements  
for high-capacity relays

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 61810-10:2019 sisaldab Euroopa standardi EN IEC 61810-10:2019 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61810-10:2019 consists of the English text of the European standard EN IEC 61810-10:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

**Electromechanical elementary relays - Part 10: Additional  
functional aspects and safety requirements for high-capacity  
relays  
(IEC 61810-10:2019)**

Relais électromécaniques élémentaires - Partie 10: Aspects  
fonctionnels et exigences de sécurité supplémentaires pour  
les relais à grande capacité  
(IEC 61810-10:2019)

Elektromechanische Elementarrelais - Teil 10:  
Hochleistungsrelais - Zusätzliche funktionale Aspekte und  
Sicherheitsanforderungen  
(IEC 61810-10:2019)

This European Standard was approved by CENELEC on 2019-08-15. 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.

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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**

## European foreword

The text of document 94/453/FDIS, future edition 1 of IEC 61810-10, prepared by IEC/TC 94 "All-or-nothing electrical relays" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61810-10:2019.

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) 2020-05-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-08-15

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## Endorsement notice

The text of the International Standard IEC 61810-10:2019 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 60038	NOTE	Harmonized as EN 60038
IEC 60060-1	NOTE	Harmonized as EN 60060-1
IEC 60068-2-20	NOTE	Harmonized as EN 60068-2-20
IEC 60085	NOTE	Harmonized as EN 60085
IEC 60364-4-44	NOTE	Harmonized as HD 60364-4-444
IEC 60664 (series)	NOTE	Harmonized as EN 60664 (series)
IEC 60695-2-10	NOTE	Harmonized as EN 60695-2-10
IEC 60947-2:2016	NOTE	Harmonized as EN 60947-2:2017 (not modified)
IEC 60947-5-1	NOTE	Harmonized as EN 60947-5-1
IEC 61210	NOTE	Harmonized as EN 61210
IEC 61810-7:2006	NOTE	Harmonized as EN 61810-7:2006 (not modified)
IEC 61984	NOTE	Harmonized as EN 61984

## 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.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60028	-	International standard of resistance for copper	-	-
IEC 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60068-2-14-		Environmental testing - Part 2: Tests - Test N: Change of temperature	-	-
IEC 60068-2-17-		Basic environmental testing procedures - Part 2-17: Tests - Test Q: Sealing	EN 60068-2-17 -	
IEC 60068-2-27-		Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27 -	
IEC 60068-2-64	2008	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance	EN 60068-2-64	2008
IEC 60270	-	High-voltage test techniques - Partial discharge measurements	EN 60270	-
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-3	2016	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2017
IEC 60947-1	2007	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1	2007
IEC 60999-1	-	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm <sup>2</sup> up to 35 mm <sup>2</sup> (included)	EN 60999-1	-
IEC 60099-2	-	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 2: Particular requirements for clamping units for conductors above 35 mm <sup>2</sup> up to 300 mm <sup>2</sup> (included)	EN 60999-2	-
IEC 61810-1	2015	Electromechanical elementary relays - Part 1: General and safety requirements	EN 61810-1	2015
ISO 16750-1	2019	Road vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 1: General	-	-
ISO 16750-2	2012	Road vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 2: Electrical loads	-	-

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTROMECHANICAL ELEMENTARY RELAYS –****Part 10: Additional functional aspects and safety requirements for high-capacity relays****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.
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The International Standards of the IEC 61810 have been prepared by IEC technical committee 94: All-or-nothing electrical relays.

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

FDIS	Report on voting
94/453/FDIS	94/458/RVD

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.



A list of all parts of IEC 61810 series, published under the general title *Electromechanical elementary relays*, can be found on the IEC website.

This International Standard is to be used in conjunction with IEC 61810-1:2015.

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

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

## ELECTROMECHANICAL ELEMENTARY RELAYS –

### Part 10: Additional functional aspects and safety requirements for high-capacity relays

#### 1 Scope

This part of IEC 61810, with functional and safety aspects, applies to electromechanical elementary relays (non-specified time all-or-nothing relays) with high capability requirements like breaking or short circuit capabilities and similar for incorporation into low-voltage equipment. These relays may have a specific design to extinguish the electric arc between contacts (e.g. by magnetic blow-out), or use an insulation coordination not covered by IEC 61810-1 (e.g. by gas filled contact chambers), or require safety assessments not covered by IEC 61810-1 (e.g. for higher loads).

It defines additional requirements for high-capacity relays with generic performance intended for use in applications in smart grids, electric vehicles and other applications where, for example, battery charge/discharge switching is used, such as:

- electrical energy storage (EES) systems,
- solar photovoltaic energy systems,
- electric road vehicles (EV) and electric industrial trucks,
- power electronic systems and equipment,
- secondary cells and batteries,
- road vehicles.

Compliance with the requirements of this standard is verified by the type tests indicated.

#### 2 Normative references

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.

IEC 60028, *International standard of resistance for copper*

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

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-17, *Basic environmental testing procedures – Part 2-17: Tests – Test Q: Sealing*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-64:2008, *Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*