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Thermal-links - Requirements and application guide

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. 12/23

Obsahuje: EN IEC 60691:2023, IEC 60691:2023

Oznámením tejto normy sa od 04.10.2026 ruší  
STN EN 60691 (35 4735) z apríla 2017

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EUROPEAN STANDARD

**EN IEC 60691**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2023

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Supersedes EN 60691:2016; EN 60691:2016/A1:2019

English Version

**Thermal-links - Requirements and application guide  
(IEC 60691:2023)**Protecteurs thermiques - Exigences et guide d'application  
(IEC 60691:2023)Temperatursicherungen - Anforderungen und  
Anwendungshinweise  
(IEC 60691:2023)

This European Standard was approved by CENELEC on 2023-10-04. 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.

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

**EN IEC 60691:2023 (E)****European foreword**

The text of document 32C/604/FDIS, future edition 5 of IEC 60691, prepared by SC 32C "Miniature fuses" of IEC/TC 32 "Fuses" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60691:2023.

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) 2024-07-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-10-04

This document supersedes EN 60691:2016 and all of its amendments and corrigenda (if any).

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

|                          |   |
|--------------------------|---|
| IEC 60085:2007           | NOTE Approved as EN 60085:2008 (not modified)           |
| IEC 60695-10-3:2016      | NOTE Approved as EN 60695-10-3:2016 (not modified)      |
| IEC 60695-11-20:2015     | NOTE Approved as EN 60695-11-20:2015 (not modified)     |
| IEC 60127-1:2006         | NOTE Approved as EN 60127-1:2006 (not modified)         |
| IEC 60127-1:2006/A1:2011 | NOTE Approved as EN 60127-1:2006/A1:2011 (not modified) |
| IEC 60127-1:2006/A2:2015 | NOTE Approved as EN 60127-1:2006/A2:2015 (not modified) |
| IEC 60216-1:2013         | NOTE Approved as EN 60216-1:2013 (not modified)         |
| IEC 60695-2-11:2021      | NOTE Approved as EN IEC 60695-2-11:2021 (not modified)  |

## 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).

| <u>Publication</u> | <u>Year</u> | <u>Title</u>   | <u>EN/HD</u>      | <u>Year</u> |
|--------------------|-------------|--|-------------------|-------------|
| IEC 60065          | 2014        | Audio, video and similar electronic apparatus - Safety requirements  | -                 | -           |
| IEC 60112          | 2020        | Method for the determination of the proof and the comparative tracking indices of solid insulating materials   | EN IEC 60112      | 2020        |
| IEC 60127-2        | 2014        | Miniature fuses - Part 2: Cartridge fuse-links   | EN 60127-2        | 2014        |
| IEC 60216-5        | 2008        | Electrical insulating materials - Thermal endurance properties - Part 5: Determination of relative thermal endurance index (RTE) of an insulating material | EN 60216-5        | 2008        |
| IEC 60664-1        | 2020        | Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests                                       | EN IEC 60664-1    | 2020        |
| IEC 60695-2-12     | 2021        | Fire hazard testing - Part 2-12: Glowing/hot-wire based test methods - Glow-wire flammability index (GWFI) test method for materials                       | EN IEC 60695-2-12 | 2021        |
| IEC 60695-2-13     | 2021        | Fire hazard testing - Part 2-13: Glowing/hot-wire based test methods - Glow-wire ignition temperature (GWIT) test method for materials                     | EN IEC 60695-2-13 | 2021        |
| IEC 60695-10-2     | 2014        | Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test method   | EN 60695-10-2     | 2014        |
| IEC 60695-11-10    | 2013        | Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods  | EN 60695-11-10    | 2013        |
| IEC 60730-1 (mod)  | 2013        | Automatic electrical controls - Part 1: General requirements   | EN 60730-1        | 2016        |
| + A1               | 2015        |  | + A1              | 2019        |
| + A2               | 2020        |  | + A2              | 2022        |

**EN IEC 60691:2023 (E)**

| <u>Publication</u> | <u>Year</u> | <u>Title</u>  | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|--------------|-------------|
| IEC 61210 (mod)    | 2010        | Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements | EN 61210     | 2010        |



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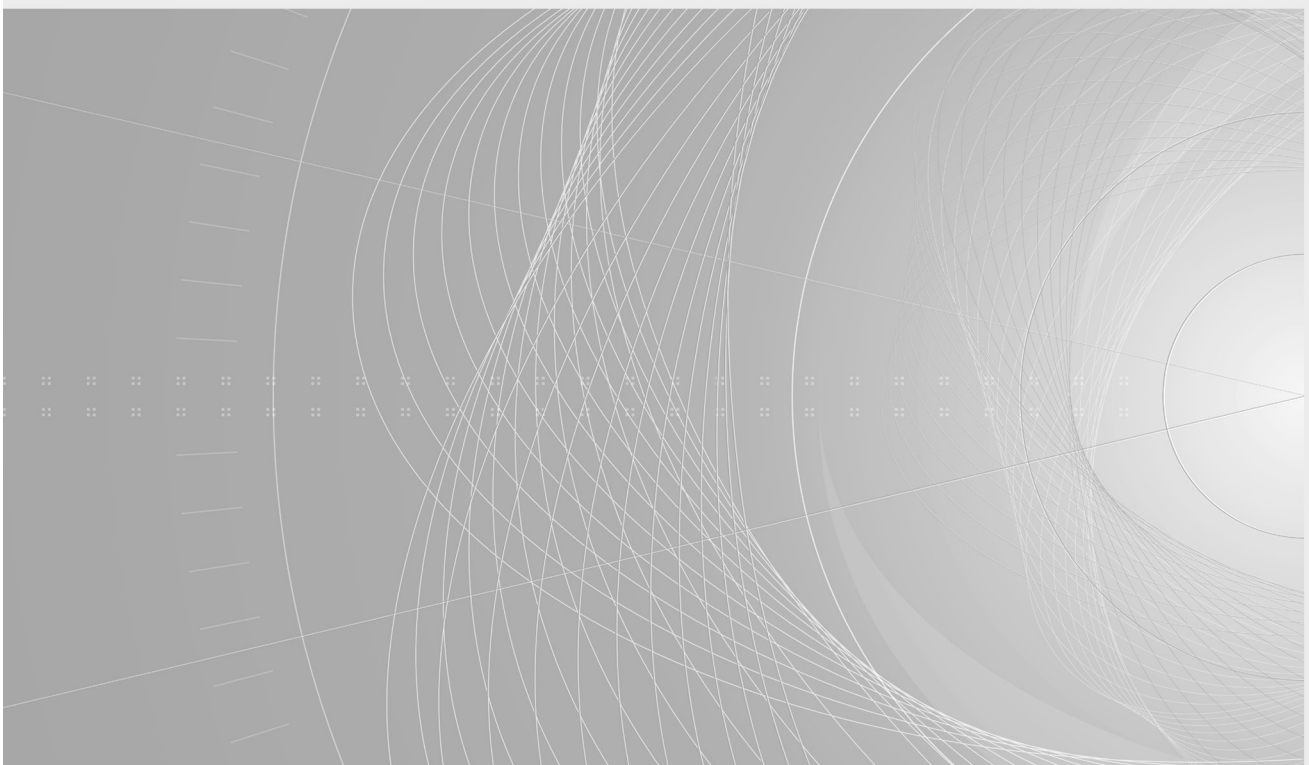
# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Thermal-links – Requirements and application guide**

**Protecteurs thermiques – Exigences et guide d'application**





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CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
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IEC 60691

Edition 5.0 2023-03

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Thermal-links – Requirements and application guide**

**Protecteurs thermiques – Exigences et guide d'application**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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**THERMAL-LINKS –  
REQUIREMENTS AND APPLICATION GUIDE****FOREWORD**

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IEC 60691 has been prepared by subcommittee 32C: Miniature fuses, of IEC technical committee 32: Fuses. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2015 and Amendment 1:2019. This edition constitutes a technical revision.

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

- a) requirements for thermal-link packaged assemblies;
- b) renew the requirements and definitions for  $T_h$ -test;

The harmonization of the USA national standard, UL 1020, fifth edition (withdrawn 2003), and IEC 60691:1993, together with its Amendment 1:1995 and Amendment 2:2000 have served as a basis for the elaboration of this standard.

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

| Draft        | Report on voting |
|--------------|------------------|
| 32C/604/FDIS | 32C/605/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/publications](http://www.iec.ch/publications).

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- Annex E is required in the USA, if applicable;
- Annex F is required to be declared in the USA.

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- *compliance statements: in italic type.*

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

## INTRODUCTION

Thermal-links, defined as non-resettable devices functioning once only without refunctioning, are widely applied for the thermal protection of equipment in which, under fault (abnormal) conditions, one or more parts may reach hazardous temperatures.

As these devices have several aspects in common with miniature fuse-links and are used for obtaining a comparable degree of protection, this standard has endeavoured to lay down a number of basic requirements for such devices.

## **THERMAL-LINKS – REQUIREMENTS AND APPLICATION GUIDE**

### **1 Scope**

This International Standard is applicable to thermal-links intended for incorporation in electrical appliances, electronic equipment and component parts thereof, normally intended for use indoors, in order to protect them against excessive temperatures under abnormal conditions.

NOTE 1 The equipment is not designed to generate heat.

NOTE 2 The effectiveness of the protection against excessive temperatures logically depends upon the position and method of mounting of the thermal-link, as well as upon the current which it is carrying.

This document may be applicable to thermal-links for use under conditions other than indoors, provided that the climatic and other circumstances in the immediate surroundings of such thermal-links are comparable with those in this standard.

This document may be applicable to thermal-links in their simplest forms (e.g. melting strips or wires), provided that molten materials expelled during function cannot adversely interfere with the safe use of the equipment, especially in the case of hand-held or portable equipment, irrespective of its position.

Annex H of this document is applicable to thermal-link packaged assemblies where the thermal-link(s) has already been approved to this standard but packaged in a metallic or non-metallic housing and provided with terminals/wiring leads.

This document is applicable to thermal-links with a rated voltage not exceeding 690 V AC or DC and a rated current not exceeding 63 A.

The objectives of this document are:

- a) to establish uniform requirements for thermal-links,
- b) to define methods of test, and
- c) to provide useful information for the application of thermal-links in equipment.

This document is not applicable to thermal-links used under extreme conditions such as corrosive or explosive atmospheres.

This document is not applicable to thermal-links to be used in circuits on AC with a frequency lower than 45 Hz or higher than 62 Hz.

### **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 60065:2014, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60112:2020, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

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IEC 60127-2:2014, *Miniature fuses – Part 2: Cartridge fuse-links*

IEC 60216-5:2008, *Electrical insulating materials – Thermal endurance properties – Part 5: Determination of relative thermal endurance index (RTE) of an insulating material*

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests*

IEC 60695-2-12:2021, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-2-13:2021, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*

IEC 60695-10-2:2014, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

IEC 60695-11-10:2013, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60730-1:2013, *Automatic electrical controls – Part 1: General requirements*

IEC 60730-1:2013/AMD1:2015

IEC 60730-1:2013/AMD2:2020

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