

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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**Low-voltage electrical installations –
Part 4-42: Protection for safety – Protection against thermal effects**

**Installations électriques à basse tension -
Partie 4-42: Protection pour assurer la sécurité – Protection contre les effets
thermiques**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 4-42: Protection for safety – Protection against thermal effects

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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IEC 60364-4-42 has been prepared by IEC technical committee 64: Electrical installations and protection against electrical shock. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2010 and Amendment 1:2014. This edition constitutes a technical revision.

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

- a) the Scope now includes a new paragraph stating that IEC 60364-4-42 has become a group safety publication (GSP) following the Advisory Committee on Safety (ACOS) recommendation for approval of the group safety function "protection against thermal effects for any kind of low-voltage electrical installations" to TC 64; this GSP is primarily intended to be used as a product safety standard for the installations mentioned in the scope, but also to be used by TCs in the preparation of publications for installations similar to those mentioned in the scope of this GSP;
- b) new terms and definitions have been added, for:
 - arcing;
 - arc fault;
 - assembly internal arc fault;
 - burn;
 - combustion;
 - escape route;
 - final circuit arc fault;
 - flame;
 - flammable;
 - flaming combustion;
 - low-voltage switchgear and controlgear assembly;
- c) a new Subclause 421.6 regarding measures for preventing fires originating from the use of an electrical stove or cooker or hob has been added;
- d) the previous Subclause 421.7 was expanded and moved to a new Clause 426: Additional protective measures against thermal effect for locations where consequences of fire are severe;
- e) requirements for escape routes have been expanded and modified;
- f) requirements for final circuits in EFL locations have been expanded and modified;
- g) requirements for locations with irreplaceable goods or with business critical facilities have been expanded and modified;
- h) a new Clause 425 for protection against fire due to fault currents has been added;
- i) a new Clause 427 for protection against assembly internal arc faults has been added.

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

Draft	Report on voting
64/2686/FDIS	64/2697/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 has the status of a group safety publication in accordance with IEC Guide 104.

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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60364 series, published under the general title *Low-voltage electrical installations*, can be found on the IEC website.

The reader's attention is drawn to the fact that Annex A lists all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this document.

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 in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

IEC 60364-1 gives the rules for the design, erection, and verification of electrical installations. The rules are intended to provide for the safety of persons, livestock and property against dangers and damage which can arise in the reasonable use of electrical installations and to provide for the proper functioning of those installations.

According to IEC 60364-1:2005, 11.5, electrical equipment is dealt with only so far as its selection and application in the electrical installation are concerned.

According to IEC 60364-1:2005, 131.3 (Protection against thermal effects), "the electrical installation shall be so arranged to minimize the risk of damage or the risk of ignition of flammable materials due to high temperature or electric arc. In addition, during normal operation of the electrical equipment, there shall be no risk of persons or livestock suffering burns. These general requirements are specified in this document.

However, there are several types of electrical installations which are not covered by the IEC 60364 series, such as those indicated in IEC 60364-1:2005, 11.3.

The safety aspects specified in this document are also applicable to installations not covered by the IEC 60364 series.

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 4-42: Protection for safety – Protection against thermal effects

420 Protection against thermal effects

420.1 Scope

This part of IEC 60364 applies to electrical installations with regard to measures for the protection of persons, livestock and property against:

- thermal effects, risk of combustion or degradation of materials, and risk of burn caused by electrical equipment,
- flames in case of a fire hazard being propagated from electrical installations to other fire compartments segregated by barriers which are in the vicinity, and
- the impairment of the safe functioning of electrical equipment, including safety services due to thermal effects.

NOTE For explosion risks, see IEC 60079-14.

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

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

420.2 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 60332 (all parts), *Tests on electric and optical fibre cables under fire conditions*

IEC 60364-4-43:2023, *Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-5-53:2019, *Low-voltage electrical installations – Part 5-53: Selection and erection of electrical equipment – Devices for protection for safety, isolation, switching, control and monitoring*

IEC 61084 (all parts), *Cable trunking systems and cable ducting systems for electrical installations*

IEC 61386 (all parts), *Conduit systems for cable management*

IEC 61439-6, *Low-voltage switchgear and controlgear assemblies – Part 6: Busbar trunking systems (busways)*