IEC 60364-4-43

Edition 4.0 2023-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent

Installations électriques à basse tension – Partie 4-43: Protection pour assurer la sécurité – Protection contre les surintensités



IEC 60364-4-43:2023-07(en-fr)



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Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 4-43: Protection for safety – Protection against overcurrent

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 60364-4-43 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2008. This edition constitutes a technical revision.

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

a) the standard has been restructured, see Table 1 (Correspondence between IEC 60364-4-43:2008 and this document) below;
b) the measure "automatic disconnection of supply" has been designated as the preferred measure for protection against overcurrent;
c) all measures except the measure "automatic disconnection of supply" have been transferred into new normative annexes to indicate that these measures are usable in certain applications and under certain restricted conditions only (see Annex A, Annex B and Annex E);

d) a new clause "Terms and definitions" has been added;

e) new requirements have been added for the protection of the neutral or mid-point conductor (with and without triplen harmonics).

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

Draft	Report on voting
64/2591/FDIS	64/2618/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. 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 F 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,
- replaced by a revised edition, or
- amended.

Correspondence between IEC 60364-4-43:2008 and this document

Table 1 provides a list of contents of both the previous edition and the current edition of IEC 60364-4-43, indicating the new structure of the standard.

Table 1 also indicates which clauses of IEC 60364-4-43:2008 have been transferred to IEC 60364-5-53:2019.

Table 1 – Correspondence between IEC 60364-4-43:2008 and this document

IEC 60364-4-43:2008		**IEC 60364-4-43:2023**	
Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent		**Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent**	
43	Protection against overcurrent	430	Protection against overcurrent
430.1	Scope	430.1	Scope
430.2	Normative references	430.2	Normative references
		430.3	Terms and definitions
430.3	General requirements	430.4	General requirements
431	Requirements according to the nature of the circuits	431	Protection against overcurrent by automatic disconnection of supply
431.1	Protection of line conductors	431.1	Protection of line conductors
431.2	Protection of the neutral conductor	431.2	Protection of neutral or mid-point conductor
431.3	Disconnection and reconnection of the neutral conductor in multi-phase systems		Deleted Covered by product standards and 530.4.2
432	Nature of protective devices	431.3	Protection against overcurrent Partly covered by Clause 533
432.1	Devices providing protection against both overload current and short-circuit current	431.3.1	Protection against both overload current and short-circuit current
432.2	Devices ensuring protection against overload current only	431.3.2	Protection against overload current only
432.3	Devices ensuring protection against short-circuit current only	431.3.3	Protection against short-circuit current only
432.4	Characteristics of protective devices		Deleted Covered by Clause 533
433	Protection against overload current	431.4	Protection against overload current
433.1	Coordination between conductors and overload protective devices	431.4.2	Coordination between conductors and overload protective devices
433.2	Position of devices for overload protection		Deleted Covered by 533.4.2
433.3	Omission of devices for protection against overload	Annex A Protection against overcurrent by other means, Clause A.2 Protection against overload **except 433.3.2.1 which was initially transferred to IEC 60364-5-53:2019, 533.4.2.4 but was then deleted at CDV stage from IEC 60364-5-53:2019**	
433.4	Overload protection of conductors in parallel	431.4.3	Protection against overload current of conductors connected in parallel
434	Protection against short-circuit currents	431.5	Protection against short-circuit currents
434.1	Determination of prospective short-circuit currents	431.5.2	Determination of prospective short-circuit currents

IEC 60364-4-43:2008		IEC 60364-4-43:2023	
Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent		**Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent**	
434.2	Position of devices for short-circuit protection		Deleted Covered by 533.4.3
434.3	Omission of devices for protection against short-circuit	Annex A Protection against overcurrent by other means, Clause A.3 Protection against short-circuits	
434.4	Short-circuit protection of conductors in parallel	431.5.3	Protection against short-circuit current of conductors connected in parallel
434.5	Characteristics of short-circuit protective devices	431.5.4	Requirements for protection against short-circuit current
435	Coordination of overload and short-circuit protection	431.6	Coordination of protection against overload current and protection against short-circuit current
435.1	Protection afforded by one device	431.6.1	Protection afforded by one device
435.2	Protection afforded by separate devices	431.6.2	Protection afforded by separate devices
		431.6.3	Coordination for selectivity and combined short-circuit protection
		Annex A (normative) Protection against overcurrent by other means	
436	Limitation of overcurrent by characteristics of supply	Annex B (normative) Protection against overcurrent by limitation of the characteristics of supply	
Annex A (informative) Protection of conductors in parallel against overcurrent.		Annex C (informative) Protection of conductors in parallel against overcurrent	
Annex B (informative) Conditions 1 and 2 of 433.1			Deleted Covered by Figure 1 in 431.4.2
Annex C (informative) Position or omission of devices for overload protection			Moved to IEC 60364-5-53:2019, Annex A (Position of devices for overload protection)
Annex D (informative) Position or omission of devices for short-circuit protection			Moved to IEC 60364-5-53:2019, Annex B (Position of devices for short-circuit protection)
		Annex D (informative) Design current	
		Annex E (normative) Cases where automatic disconnection of supply for protection against overcurrent can cause an increased risk	
Annex E (informative) List of notes concerning certain countries		Annex F (informative) List of notes concerning certain countries	

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 4-43: Protection for safety – Protection against overcurrent

430 Protection against overcurrent

430.1 Scope

This part of IEC 60364 provides requirements for:

– protection of live conductors, PEN conductors, PEM conductors, and PEL conductors against the harmful effects caused by overcurrent;

– coordination of measures for protection against overcurrent.

NOTE 1 The requirements of this document do not take account of external influences.

NOTE 2 Protection of conductors according to this document does not necessarily protect the equipment connected to the conductors.

NOTE 3 Flexible cables connecting equipment by plugs and socket-outlet to fixed installations are not part of the scope of this document and for this reason are not necessarily protected against the harmful effects caused by overcurrent.

430.2 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 60364-5-52:2009, *Low-voltage electrical installations – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

430.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

430.3.1
overcurrent
electric current the value of which exceeds a specified limiting value

Note 1 to entry: For conductors, the specified limiting value is equal to the current-carrying capacity.

Note 2 to entry: An overcurrent is an overload current or a short-circuit current.

[SOURCE: IEC 60050-151:2001, 151-15-28, modified – The Notes to entry have been added.]

430.3.2
overload current
<of an electric circuit> overcurrent occurring in an electric circuit, which is not caused by a short-circuit or an earth fault

[SOURCE: IEC 60050-826:2022, 826-11-15]

430.3.3
short-circuit current
electric current in a given short-circuit

[SOURCE: IEC 60050-195:2021, 195-05-18]

430.3.4
short-circuit
accidental or intentional conductive path between two or more conductive parts forcing the electric potential differences between these conductive parts to be equal to or close to zero

[SOURCE: IEC 60050-151:2001, 151-12-04]

430.3.5
overload
operating conditions in an electrically undamaged circuit, which cause an overcurrent

[SOURCE: IEC 60050-441:1984, 441-11-08]

430.3.6
design current
<of an electric circuit> electric current intended to be carried by an electric circuit in normal operation

[SOURCE: IEC 60050-826:2022, 826-11-10]

430.3.7
rated conditional short-circuit current
I_{cc}
value of prospective short-circuit current, declared by the busbar trunking or powertrack system manufacturer, that can be withstood for the disconnection time of the overcurrent protective device under specified conditions

[SOURCE: IEC 61439-1:2020, 3.8.10.4, modified – The definition has been adapted to busbar trunking or powertrack system.]

430.3.8
combined short-circuit protection
coordination of two overcurrent protective devices in series, capable of breaking short-circuit currents higher than the breaking capacity of one of the devices alone

430.3.9
diversity
prospective simultaneous demand of a group of electrical loads.

[SOURCE: IEC 60364-1:—, 1.3.1]