INTERNATIONAL STANDARD

IEC 60364-4-41

Fifth edition
2005-12

GROUP SAFETY PUBLICATION

Low-voltage electrical installations –

Part 4-41:
Protection for safety –
Protection against electric shock

*This **English-language** version is derived from the original **bilingual** publication by leaving out all French-language pages. Missing page numbers correspond to the French-language pages.*

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

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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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International Standard IEC 60364-4-41 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This fifth edition cancels and replaces the fourth edition, published in 2001, and constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

– adoption of IEC 61140 terminology;
– layout rationalized on basis of complete protective measures (i.e. appropriate practical combinations of protective provision in normal service (direct contact protection) and protective provision in case of a fault (indirect contact protection);

– requirements of 471 and 481, which were included in the fourth edition have been rationalized
– disconnection requirements for TT systems clarified;
– IT systems considered more fully;
– requirements in certain cases for additional protection of socket-outlets by means of a 30 mA RCD, where the protective measure is automatic disconnection of supply.

The text of this standard is based on the following documents:

FDIS	Report on voting
64/1489/FDIS	64/1500/RVD

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

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

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

The Part 4 series comprises the following parts under the general title *Low-voltage electrical installations:*

Part 4-41: Protection for safety – Protection against electric shock

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

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

Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

410 Introduction

This Part 4-41 of IEC 60364 deals with protection against electric shock as applied to electrical installations. It is based on IEC 61140 which is a basic safety standard that applies to the protection of persons and livestock. IEC 61140 is intended to give fundamental principles and requirements that are common to electrical installations and equipment or are necessary for their co-ordination.

The fundamental rule of protection against electric shock, according to IEC 61140, is that hazardous-live-parts must not be accessible and accessible conductive parts must not be hazardous live, neither under normal conditions nor under single fault conditions.

According to 4.2 of IEC 61140, protection under normal conditions is provided by basic protective provisions and protection under single fault conditions is provided by fault protective provisions. Alternatively, protection against electric shock is provided by an enhanced protective provision, which provides protection under normal conditions and under single fault conditions.

This standard has the status of a group safety publication (GSP) for protection against electric shock.

In the fourth edition of IEC 60364 (2001):

– protection under normal conditions (now designated basic protection) was referred to as protection against direct contact and
– protection under fault conditions (now designated fault protection) was referred to as protection against indirect contact.

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 4-41: Protection for safety – Protection against electric shock

410.1 Scope

Part 4-41 of IEC 60364 specifies essential requirements regarding protection against electric shock, including basic protection (protection against direct contact) and fault protection (protection against indirect contact) of persons and livestock. It deals also with the application and co-ordination of these requirements in relation to external influences.

Requirements are also given for the application of additional protection in certain cases.

410.2 Normative references

The following referenced documents are indispensable for the application 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, *Electrical installations of buildings – Part 5-52: Selection and erection of electrical equipment – Wiring systems* [1)]

IEC 60364-5-54, *Electrical installations of buildings – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements, protective conductors and protective bonding conductors*

IEC 60364-6, *Low-voltage electrical installations – Part 6: Verification* [2)]

IEC 60439-1, Low-*voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies*

IEC 60449, *Voltage bands for electrical installations of buildings*

IEC 60614 (all parts), *Conduits for electrical installations – Specification*

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

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61386 (all parts), *Conduit systems for electrical installations*

IEC 61558-2-6, *Safety of power transformers, power supply units and similar – Part 2-6: Particular requirements for safety isolating transformers for general use*

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

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1) A new edition is currently under consideration.

2) To be published.