

# REDLINE VERSION



---

**Low-voltage electrical installations –  
Part 5-56: Selection and erection of electrical equipment – Safety services**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 91.140.50

ISBN 978-2-8322-6220-7

<b>Warning! Make sure that you obtained this publication from an authorized distributor.</b>
--

## CONTENTS

FOREWORD.....	3
560.1 Scope .....	6
560.2 Normative references.....	6
560.3 Terms and definitions.....	7
560.4 Classification .....	9
560.5 General.....	10
560.6 Electrical sources for safety services .....	10
560.7 <b>Electrical</b> circuits of safety services.....	13
560.8 Wiring systems .....	14
560.9 Emergency- <del>escape</del> lighting applications.....	15
560.10 Fire protection applications/equipment.....	17
Annex A (informative) Guidance for emergency lighting .....	18
Annex B (informative) Guidance for fire protection equipment .....	20
Annex C (informative) List of notes concerning certain countries .....	22
Annex D (informative) Fire switch .....	29
Annex E (informative) Example of installation methods of safety services with cable management system .....	30
Annex F (informative) Wiring systems .....	31
F.1 Ambient test temperature rise .....	31
F.2 Duration of the safety service.....	31
F.3 Expected resistance of feeder conductors.....	31
F.4 Protection against electric shock in the event of a failure by means of the touch voltage reduction .....	32
F.5 Conductor resistance in case of fire .....	32
F.6 High temperature effects.....	33
F.7 Feeder circuits .....	33
Annex G (informative) Guidance on suitable locations for electrical sources for safety services .....	34
G.1 Recommendations for a suitable location for an electrical source for safety services .....	34
G.2 Conditions of fire protection .....	34
Bibliography.....	35
Figure D.1 – Fire switch installation .....	29
Figure E.1 – Example of cable installation for safety services .....	30
Table A.1 – Guidance for emergency lighting.....	18
Table B.1 – Guidance for safety equipment.....	20

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

### LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

#### Part 5-56: Selection and erection of electrical equipment – Safety services

#### 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

#### **DISCLAIMER**

**This Redline version is not an official Standard and is intended to provide the user with an indication of what changes have been made to the previous version. Only the IEC International Standard provided in this package is to be considered the official Standard.**

**This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.**

International Standard IEC 60364-5-56 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This third edition cancels and replaces the second edition published in 2009. This edition constitutes a technical revision.

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

- 1) Modifications to normative references and terms and definitions.
- 2) Under electrical circuits for safety services, addition of requirements concerning circuit and overcurrent protection in order to maintain reliability of safety service power supplies under fire conditions.
- 3) Under electrical circuits for safety services, addition of requirements stating that circuits for safety services are not to be protected by RCDs or AFDDs.
- 4) Under emergency lighting applications, addition of requirements to prevent emergency lighting systems being adversely affected by any control system.
- 5) Addition of requirements for all emergency luminaires in the area to provide full design light output in the event of any final circuit failure.
- 6) Addition of a new Annex D (informative): Fire switch.
- 7) Addition of a new Annex E (informative): Example of installation methods of safety services with cable management system.
- 8) Addition of a new Annex F (informative): Wiring systems.
- 9) Addition of a new Annex G (informative): Guidance on suitable locations for electrical sources for safety services.

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

FDIS	Report on voting
64/2316/FDIS	64/2341/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.

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

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 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.

<p><b>IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.</b></p>
--

## LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

### Part 5-56: Selection and erection of electrical equipment – Safety services

#### 560.1 Scope

This part of IEC 60364 covers general requirements for safety services, selection and erection of electrical supply systems for safety services and ~~electrical safety sources~~ the electrical source for safety services.

Standby electrical supply systems are outside the scope of this document. This document does not apply to installations in hazardous areas (BE3), for which requirements are given in IEC 60079-14.

#### 560.2 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 60331 (all parts), *Tests for electric cables under fire conditions – Circuit integrity*

IEC 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

~~IEC 60364-4-43:2008, Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent~~

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

IEC 60598-2-22, *Luminaires – Part 2-22: Particular requirements – Luminaires for emergency lighting*

IEC 60702-1, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 1: Cables*

IEC 60702-2, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 2: Terminations*

~~IEC 62040-1-1, Uninterruptible power systems (UPS) – Part 1-1: General and safety requirements for UPS in operator access areas~~

~~IEC 62040-1-2, Uninterruptible power systems (UPS) – Part 1-2: General and safety requirements for UPS used in restricted access locations~~

IEC 62040-1, *Uninterruptible power systems (UPS) – Part 1: Safety requirements*

IEC 62040-2, *Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements*

IEC 62040-3, *Uninterruptible power systems (UPS) – Part 3: Method of specifying the performance and test requirements*

ISO 8528-12, *Reciprocating internal combustion engine driven alternating current generating sets – Part 12: Emergency power supply to safety services*

~~GIE S-020~~ ISO 30061:2007, *Emergency lighting*

# INTERNATIONAL STANDARD

---

**Low-voltage electrical installations –  
Part 5-56: Selection and erection of electrical equipment – Safety services**





## CONTENTS

FOREWORD.....	3
560.1 Scope .....	5
560.2 Normative references.....	5
560.3 Terms and definitions.....	6
560.4 Classification .....	8
560.5 General.....	8
560.6 Electrical sources for safety services .....	9
560.7 Electrical circuits of safety services.....	10
560.8 Wiring systems .....	11
560.9 Emergency lighting applications.....	12
560.10 Fire protection applications/equipment.....	14
Annex A (informative) Guidance for emergency lighting .....	15
Annex B (informative) Guidance for fire protection equipment.....	16
Annex C (informative) List of notes concerning certain countries .....	17
Annex D (informative) Fire switch .....	21
Annex E (informative) Example of installation methods of safety services with cable management system.....	22
Annex F (informative) Wiring systems .....	23
F.1 Ambient test temperature rise .....	23
F.2 Duration of the safety service.....	23
F.3 Expected resistance of feeder conductors.....	23
F.4 Protection against electric shock in the event of a failure by means of the touch voltage reduction .....	24
F.5 Conductor resistance in case of fire .....	24
F.6 High temperature effects.....	25
F.7 Feeder circuits .....	25
Annex G (informative) Guidance on suitable locations for electrical sources for safety services .....	26
G.1 Recommendations for a suitable location for an electrical source for safety services .....	26
G.2 Conditions of fire protection .....	26
Bibliography.....	27
Figure D.1 – Fire switch installation .....	21
Figure E.1 – Example of cable installation for safety services .....	22
Table A.1 – Guidance for emergency lighting.....	15
Table B.1 – Guidance for safety equipment.....	16

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

**Part 5-56: Selection and erection of electrical equipment –  
Safety services**

## 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60364-5-56 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This third edition cancels and replaces the second edition published in 2009. This edition constitutes a technical revision.

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

- 1) Modifications to normative references and terms and definitions.
- 2) Under electrical circuits for safety services, addition of requirements concerning circuit and overcurrent protection in order to maintain reliability of safety service power supplies under fire conditions.
- 3) Under electrical circuits for safety services, addition of requirements stating that circuits for safety services are not to be protected by RCDs or AFDDs.

- 4) Under emergency lighting applications, addition of requirements to prevent emergency lighting systems being adversely affected by any control system.
- 5) Addition of requirements for all emergency luminaires in the area to provide full design light output in the event of any final circuit failure.
- 6) Addition of a new Annex D (informative): Fire switch.
- 7) Addition of a new Annex E (informative): Example of installation methods of safety services with cable management system.
- 8) Addition of a new Annex F (informative): Wiring systems.
- 9) Addition of a new Annex G (informative): Guidance on suitable locations for electrical sources for safety services.

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

FDIS	Report on voting
64/2316/FDIS	64/2341/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.

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

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 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.

A bilingual version of this publication may be issued at a later date.

## LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

### Part 5-56: Selection and erection of electrical equipment – Safety services

#### 560.1 Scope

This part of IEC 60364 covers general requirements for safety services, selection and erection of electrical supply systems for safety services and the electrical source for safety services.

Standby electrical supply systems are outside the scope of this document. This document does not apply to installations in hazardous areas (BE3), for which requirements are given in IEC 60079-14.

#### 560.2 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 60331 (all parts), *Tests for electric cables under fire conditions – Circuit integrity*

IEC 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

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

IEC 60598-2-22, *Luminaires – Part 2-22: Particular requirements – Luminaires for emergency lighting*

IEC 60702-1, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 1: Cables*

IEC 60702-2, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 2: Terminations*

IEC 62040-1, *Uninterruptible power systems (UPS) – Part 1: Safety requirements*

IEC 62040-2, *Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements*

IEC 62040-3, *Uninterruptible power systems (UPS) – Part 3: Method of specifying the performance and test requirements*

ISO 8528-12, *Reciprocating internal combustion engine driven alternating current generating sets – Part 12: Emergency power supply to safety services*

ISO 30061:2007, *Emergency lighting*