

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Low-voltage switchgear and controlgear –  
Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination  
units**

**Appareillage à basse tension –  
Partie 3: Interrupteurs, sectionneurs, interrupteurs-sectionneurs et combinés-  
fusibles**

[IEC 60947-3:2008](#)

<https://standards.iteh.ai/catalog/standards/iec/22695480-2d37-4f0b-8edb-24d0cf8ddd56/iec-60947-3-2008>



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2015 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

#### IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

#### IEC publications search - [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

#### IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [csc@iec.ch](mailto:csc@iec.ch).

### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Catalogue IEC - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

#### Recherche de publications IEC - [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

#### Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)

Plus de 60 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [csc@iec.ch](mailto:csc@iec.ch).

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Low-voltage switchgear and controlgear –  
Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination  
units**

**Appareillage à basse tension –  
Partie 3: Interrupteurs, sectionneurs, interrupteurs-sectionneurs et combinés-  
fusibles**

IEC 60947-3:2008

<https://standards.iteh.ai/catalog/standards/iec/22695480-2d37-4f0b-8edb-24d0cf8ddd56/iec-60947-3-2008>

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 29.120.40, 29.130.20

ISBN 978-2-8322-2823-4

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**



## REDLINE VERSION

## VERSION REDLINE



**Low-voltage switchgear and controlgear –  
Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination  
units**

**Appareillage à basse tension –  
Partie 3: Interrupteurs, sectionneurs, interrupteurs-sectionneurs et combinés-  
fusibles**

[IEC 60947-3:2008](https://standards.iteh.ai/standards/iec/22695480-2d37-4f0b-8edb-24d0cf8ddd56/iec-60947-3-2008)

<https://standards.iteh.ai/catalog/standards/iec/22695480-2d37-4f0b-8edb-24d0cf8ddd56/iec-60947-3-2008>

## CONTENTS

FOREWORD.....	4
1 General.....	6
1.1 Scope and object.....	6
1.2 Normative references.....	7
2 Terms, definitions <b>and index of terms</b> .....	8
<b>2.1 General.....</b>	<b>8</b>
<b>2.2 Alphabetical index of terms.....</b>	<b>8</b>
<b>2.3 Terms and definitions.....</b>	<b>9</b>
<b>2.4 Summary of the equipment types.....</b>	<b>12</b>
3 Classification.....	13
3.1 According to the utilization category.....	13
3.2 According to the method of operation of manually operated equipment.....	14
3.3 According to suitability for isolation.....	14
3.4 According to the degree of protection provided.....	14
4 Characteristics.....	14
4.1 Summary of characteristics.....	14
4.2 Type of equipment.....	14
4.3 Rated and limiting values for the main circuit.....	14
4.4 Utilization category.....	16
4.5 Control circuits.....	17
4.6 Auxiliary circuits.....	17
4.7 Relays and releases.....	17
<b>4.8 Co-ordination with short circuit protective devices (SCPD).....</b>	<b>17</b>
5 Product information.....	18
5.1 Nature of information.....	18
5.2 Marking.....	18
5.3 Instructions for installation, operation and maintenance.....	19
6 Normal service, mounting and transport conditions.....	19
7 Constructional and performance requirements.....	19
7.1 Constructional requirements.....	19
7.2 Performance requirements.....	21
7.3 Electromagnetic compatibility.....	25
8 Tests.....	27
8.1 Kind of tests.....	27
8.2 Type tests for constructional requirements.....	28
8.3 Performance.....	32
8.4 Electromagnetic compatibility tests.....	49
8.5 Special tests.....	50
Annex A (normative) Equipment for direct switching of a single motor.....	51
Annex B (informative) Items subject to agreement between manufacturer and user.....	57
Annex C (normative) Single pole operated three pole switches.....	58
<b>Annex D (normative) Switches, disconnectors, switch-disconnectors and fuse-combination units for use in photovoltaic (PV) d.c. applications.....</b>	<b>61</b>
Bibliography.....	73

~~Figure 1 – Actuate applied force  $F$~~

Figure C.1 – Typical arrangements .....	59
Table 1 – Summary of equipment definitions .....	13
Table 2 – Utilization categories.....	17
Table 3 – Verification of rated making and breaking capacities (see 8.3.3.3) – Conditions for making and breaking corresponding to the various utilization categories.....	23
Table 4 – Verification of operational performance – Number of operating cycles corresponding to the rated operational current.....	24
Table 5 – Test circuit parameters for Table 4.....	24
Table 6 – Immunity tests .....	26
Table 7 – Emission limits.....	27
<del>Table 8 – Actuator test forces.....</del>	
Table 9 – List of type tests applicable to a given equipment.....	32
Table 10 – Overall scheme of test sequences.....	33
Table 11 – Test sequence I: general performance characteristics.....	37
Table 12 – Temperature-rise limits for terminals and accessible parts.....	40
Table 13 – Test sequence II: operational performance capability.....	40
Table 14 – Test sequence III: short-circuit performance capability.....	42
Table 15 – Test sequence IV: conditional short-circuit current.....	47
Table 16 – Test sequence V: overload performance capability.....	49
Table A.1 – Utilization categories.....	52
Table A.2 – Rated making and breaking capacity conditions corresponding to several utilization categories .....	52
Table A.3 – Relationship between current broken $I_C$ and off-time for the verification of the rated making and breaking capacities.....	53
Table A.4 – Operational performance – Conditions for making and breaking corresponding to several utilization categories.....	53
Table A.5 – Verification of the number of on-load operating cycles – Conditions for making and breaking corresponding to several utilization categories.....	56
<del>Table D.1 – Utilization categories .....</del>	<del>63</del>
<del>Table D.2 – Service arrangements .....</del>	<del>63</del>
<del>Table D.3 – Environmental conditions.....</del>	<del>64</del>
<del>Table D.4 – Rated impulse withstand levels for PV switches, PV disconnectors, PV switch-disconnectors or PV fuse-combination units.....</del>	<del>65</del>
<del>Table D.5 – Verification of rated making and breaking capacities (see 8.3.3.3) – Conditions for making and breaking corresponding to the DC-PV category.....</del>	<del>65</del>
<del>Table D.6 – Number of operating cycles .....</del>	<del>66</del>
<del>Table D.7 – Test circuit parameters for Table D.6.....</del>	<del>66</del>
<del>Table D.8 – Overall scheme of test sequences (addition).....</del>	<del>67</del>
<del>Table D.9 – Number of operating cycles corresponding to the critical load current.....</del>	<del>70</del>
<del>Table D.10 – Test circuit parameters for Table D.9.....</del>	<del>70</del>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –****Part 3: Switches, disconnectors, switch-disconnectors  
and fuse-combination units**

## 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.

**This consolidated version of the official IEC Standard and its amendments has been prepared for user convenience.**

**IEC 60947-3 edition 3.2 contains the third edition (2008-08) [documents 17B/1601/FDIS and 17B/1608/RVD], its amendment 1 (2012-02) [documents 17B/1758/FDIS and 17B/1763/RVD] and its amendment 2 (2015-07) [documents 121A/42/FDIS and 121A/46/RVD].**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions and deletions are displayed in red, with deletions being struck through. A separate Final version with all changes accepted is available in this publication.**



International Standard IEC 60947-3 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

The document 17B/1601/FDIS, circulated to the National Committees as amendment 3, led to the publication of the new edition.

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

- alignment with the fifth edition of IEC 60947-1;
- a switching operation without current allowed between making and breaking operation (Table 3);
- increased number of operations for AC-23 allowed with agreement of the manufacturer (Table 3);
- simplified test procedure amended, f) added to 8.3.2.1.3;
- temperature rise test shall be made at the rated operational current  $I_e$  instead of the conventional enclosed thermal current  $I_{the}$  (8.3.3.1).

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

A list of all parts of the IEC 60947 series can be found, under the general title *Low-voltage switchgear and controlgear*, on the IEC website.

This part is to be used in conjunction with IEC 60947-1. The numbering of the subclauses is sometimes not continuous because it is based on IEC 60947-1.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability 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.

The contents of the corrigenda 1 (September 2012) and 2 (November 2013) have been included in this copy.

**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 document using a colour printer.**

## LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

### Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units

#### 1 General

The provisions of the general rules dealt with in IEC 60947-1 are applicable to this part, where specifically called for. Clauses and subclauses, tables, figures and appendices of the general rules thus applicable are identified by reference IEC 60947-1, e.g., 4.3.4.1 of IEC 60947-1, Table 4 of IEC 60947-1, or Annex A of IEC 60947-1.

##### 1.1 Scope and object

This part of IEC 60947 applies to switches, disconnectors, switch-disconnectors and fuse-combination units to be used in distribution circuits and motor circuits of which the rated voltage does not exceed 1 000 V a.c. or 1 500 V d.c.

The manufacturer shall specify the type, ratings and characteristics according to the relevant standard of any incorporated fuses.

This part does not apply to equipment coming within the scope of IEC 60947-2, IEC 60947-4-1 and IEC 60947-5-1; however, when switches and fuse-combination units coming into the scope of this part are normally used to start, accelerate and/or stop an individual motor they shall also comply with the additional requirements given in Annex A.

The requirements for single pole operated three pole switches are included in Annex C.

Auxiliary switches fitted to equipment within the scope of this part shall comply with the requirements of IEC 60947-5-1.

This part does not include the additional requirements necessary for electrical apparatus for explosive gas atmospheres.

NOTE 1 Depending on its design, a switch (or disconnector) can be referred to as "a rotary switch (disconnector)", "cam-operated switch (disconnector)", "knife-switch (disconnector)", etc.

NOTE 2 In this part, the word "switch" also applies to the apparatus referred to in French as "commutateurs", intended to modify the connections between several circuits and *inter alia* to substitute a part of a circuit for another.

NOTE 3 In general, throughout this part switches, disconnectors, switch-disconnectors and fuse-combination units will be referred to as "equipment".

The object of this part is to state

- a) the characteristics of the equipment;
- b) the conditions with which the equipment shall comply with reference to
  - 1) operation and behaviour in normal service;
  - 2) operation and behaviour in case of specified abnormal conditions, e.g. short circuit;
  - 3) dielectric properties;
- c) the tests for confirming that these conditions have been met and the methods to be adopted for these tests;

- d) the information to be marked on the equipment or made available by the manufacturer, e.g. in the catalogue.

## 1.2 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 60050-441:1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*  
IEC 60050-441:1984/AMD1:2000

IEC 60269 (all parts), *Low-voltage fuses*

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 60417-DB:~~2000~~ 2002<sup>1</sup>, *Graphical symbols for use on equipment*

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*  
~~IEC 60947-1:2007/AMD1:2010~~  
~~IEC 60947-1:2007/AMD2:2014~~

IEC 60947-2:2006, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*  
~~IEC 60947-2:2006/AMD1:2009~~  
~~IEC 60947-2:2006/AMD2:2013~~

IEC 60947-4-1:~~2000~~ 2009, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters*  
~~Amendment 1 (2002)~~  
~~Amendment 2 (2005)~~  
~~IEC 60947-4-1:2009/AMD1:2012~~

IEC 60947-5-1:2003, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*  
~~IEC 60947-5-1:2003/AMD1:2009~~

IEC 61000-4-2:~~1995~~ 2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*  
~~Amendment 1 (1998)~~  
~~Amendment 2 (2000)~~

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*  
IEC 61000-4-3:2006/AMD1:2007  
~~IEC 61000-4-3:2006/AMD2:2010~~

IEC 61000-4-4:~~2004~~ 2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:~~2005~~ 2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

<sup>1</sup> “DB” refers to the IEC on-line database.

IEC 61000-4-6:~~2003~~ 2013, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

~~Amendment 1 (2004)~~

~~Amendment 2 (2006)~~

CISPR 11:~~2003~~ 2009, *Industrial, scientific and medical (ISM) radio-frequency equipment – ~~Electromagnetic~~ Radio-frequency disturbance characteristics – Limits and methods of measurement*

~~Amendment 1 (2004)~~

~~Amendment 2 (2006)~~

CISPR 11:2009/AMD1:2010

CISPR 22:~~2005~~ 2008, *Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement*

~~Amendment 1 (2005)~~

~~Amendment 2 (2006)~~

## 2 Terms, definitions and index of terms

### 2.1 General

For the purposes of document, the terms and definitions given in IEC 60050-441 and IEC 60947-1 as well as the following apply.

### 2.2 Alphabetical index of terms

	Reference
D	
Dependent manual operation (of a mechanical switching device) .....	2.13
Disconnecter .....	<del>2.2</del> 2.3.1
Disconnecter-fuse .....	<del>2.7</del> 2.3.5
Disconnecter-fuse single opening .....	2.3.5.1
Disconnecter-fuse double opening .....	2.3.5.2
F	
Fuse-combination unit .....	<del>2.4</del> 2.3.2
Fuse-disconnector .....	<del>2.8</del> 2.3.6
Fuse-disconnector single opening .....	2.3.6.1
Fuse-disconnector double opening .....	2.3.6.2
Fuse-switch .....	<del>2.6</del> 2.3.4
Fuse-switch single opening .....	2.3.4.1
Fuse-switch double opening .....	2.3.4.2
Fuse-switch-disconnector .....	<del>2.10</del> 2.3.8
Fuse-switch-disconnector single opening .....	2.3.8.1
Fuse-switch-disconnector double opening .....	2.3.8.2
I	
Independent manual operation (of a mechanical switching device) .....	2.14
M	
Multiple tip contact system .....	2.12

Semi-independent manual operation.....	2-15 2.3.10
Single pole operated three pole <del>switch device</del> .....	2-14 2.3.9
<del>Stored energy operation (of a mechanical switching device).....</del>	<del>2-16</del>
<del>Switch (mechanical).....</del>	<del>2-1</del>
<del>Switch-disconnector.....</del>	<del>2-3</del>
Switch-disconnector-fuse .....	2-9 2.3.7
Switch-disconnector-fuse single opening .....	2.3.7.1
Switch-disconnector-fuse double opening .....	2.3.7.2
Switch-fuse .....	2-5 2.3.3
Switch-fuse single opening .....	2.3.3.1
Switch-fuse double opening.....	2.3.3.2

## 2.3 Terms and definitions

### 2.1

#### ~~(mechanical) switch~~

~~mechanical switching device capable of making, carrying and breaking currents under normal circuit conditions which may include specified operating overload conditions and also carrying for a specified time currents under specified abnormal circuit conditions such as those of short-circuit~~

~~NOTE—A switch may be capable of making, but not breaking, short-circuit currents.~~

~~[IEV 441-14-10]~~

### 2.2 2.3.1

#### **disconnecter**

mechanical switching device which, in the open position, complies with the requirements specified for the isolating function

~~NOTE 1—This definition differs from IEC 441-14-05 by referring to isolating function instead of isolating distance.~~

~~Note 2 1 to entry: A disconnecter is capable of opening and closing a circuit when either a negligible current is broken or made, or when no significant change in the voltage across the terminals of each of the poles of the disconnecter occurs. It is also capable of carrying currents under normal circuit conditions and carrying, for a specified time, currents under abnormal conditions such as those of short-circuit.~~

[SOURCE: IEC 60050-441:1984, 441-14-05, modified – reference to isolating function instead of isolating distance]

### 2.3

#### ~~switch-disconnector~~

~~switch which, in the open position, satisfies the isolating requirements specified for a disconnecter~~

~~[IEV 441-14-12]~~

### 2.4 2.3.2

#### **fuse-combination unit**

combination of a mechanical switching device and one or more fuses in a composite unit, assembled by the manufacturer or in accordance with his instructions

[SOURCE: IEC 60050-441:1984, 441-14-04]

~~NOTE—(Not included in IEC 441-14-04.) This is a general term for fuse switching devices (see also from 2.5 to 2.10 and Table 1).~~

**2-5 2.3.3**

**switch-fuse**

switch in which one or more poles have a fuse in series in a composite unit

[SOURCE: IEC 60050-441:1984, 441-14-14]

**2.3.3.1**

**switch-fuse single opening**

switch-fuse which provides an interruption in the circuit on one side of the fuse-link only

Note 1 to entry: With this arrangement safety precautions may be necessary when removing fuse-links.

**2.3.3.2**

**switch-fuse double opening**

switch-fuse which provides an interruption in the circuit on both sides of the fuse-link

Note 1 to entry: With this arrangement safety precautions may be necessary when removing fuse-links.

**2-6 2.3.4**

**fuse-switch**

switch in which a fuse-link or a fuse-carrier with fuse-link forms the moving contact

[SOURCE: IEC 60050-441:1984, 441-14-17]

**2.3.4.1**

**fuse-switch single opening**

fuse-switch which provides an interruption in the circuit on one side of the fuse-link only

Note 1 to entry: With this arrangement, safety precautions may be necessary when removing fuse-links.

**2.3.4.2**

**fuse-switch double opening**

fuse-switch which provides an interruption in the circuit on both sides of the fuse-link

Note 1 to entry: With this arrangement, safety precautions may be necessary when removing fuse-links.

**2-7 2.3.5**

**disconnecter-fuse**

disconnecter in which one or more poles have a fuse in series in a composite unit

[SOURCE: IEC 60050-441:1984, 441-14-15]

**2.3.5.1**

**disconnecter-fuse single opening**

disconnecter-fuse which provides an opening in the circuit on at least one side of the fuse-link, that satisfies the requirements specified for the isolating function

Note 1 to entry: With this arrangement, safety precautions may be necessary when removing fuse-links.

**2.3.5.2**

**disconnecter-fuse double opening**

disconnecter-fuse which provides an opening in the circuit that satisfies the requirements specified for the isolating function on both sides of the fuse-link

**2-8 2.3.6**

**fuse-disconnector**

disconnecter in which a fuse-link or fuse-carrier with fuse-link forms the moving contact

[SOURCE: IEC 60050-441:1984, 441-14-18]