SLOVENSKI STANDARD
SIST EN 60947-2:2006/A2:2013

01-julij-2013

Nizkonapetostne stikalne naprave - 2. del: Odklopniki (IEC 60947-2:2006/A2:2013)

Low-voltage switchgear and controlgear - Part 2: Circuit-breakers (IEC 60947-2:2006/A2:2013)

Niederspannungsschaltgeräte - Teil 2: Leistungsschalter (IEC 60947-2:2006/A2:2013)

Appareillage à basse tension - Partie 2: Disjoncteurs (CEI 60947-2:2006/A2:2013)

Ta slovenski standard je istoveten z: **EN 60947-2:2006/A2:2013**

ICS:

29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear

SIST EN 60947-2:2006/A2:2013 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60947-2/A2

May 2013

ICS 29.130.20

English version

Low-voltage switchgear and controlgear -
Part 2: Circuit-breakers
(IEC 60947-2:2006/A2:2013)

Appareillage à basse tension -
Partie 2: Disjoncteurs
(CEI 60947-2:2006/A2:2013)

Niederspannungsschaltgeräte -
Teil 2: Leistungsschalter
(IEC 60947-2:2006/A2:2013)

This amendment A2 modifies the European Standard EN 60947-2:2006; it was approved by CENELEC on 2013-03-07. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60947-2:2006/A2:2013 E

Foreword

The text of document 17B/1796/FDIS, future edition 1 of IEC 60947-2:2006/A2, prepared by SC 17B, "Low-voltage switchgear and controlgear", of IEC TC 17, "Switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60947-2:2006/A2:2013.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-12-07
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-03-07

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive see informative Annex ZZ, which is an integral part of this document.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60947-2:2006/A2:2013 was approved by CENELEC as a European Standard without any modification.

Replace *the Annex ZZ of EN 60947-2:2006 by the following:*

Annex ZZ
(informative)

Coverage of Essential Requirements of EU Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers protection requirements of Annex I Article 1 of the EU Directive 2004/108/EC.

Compliance with this standard provides presumption of conformity with the specified essential requirements of the Directives concerned.

NOTE: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

IEC 60947-2

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

AMENDMENT 2
AMENDEMENT 2

Low-voltage switchgear and controlgear – Part 2: Circuit-breakers

Appareillage à basse tension – Partie 2: Disjoncteurs

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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FOREWORD

This amendment has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

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

FDIS	Report on voting
17B/1796/FDIS	17B/1807/RVD

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

The committee has decided that the contents of this amendment and the base publication 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.

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.

CONTENTS

Delete the entry referring to Table 1.

1.1 Scope and object

Replace the existing item b)2) of this subclause by the following new item b)2):

2) operation and behaviour in case of overload and operation and behaviour in case of short-circuit, including co-ordination in service (selectivity and back-up protection);

2 Definitions

2.17.1
over-current discrimination

Replace the existing term and definition by the following new term and definition, and delete the source:

over-current selectivity
co-ordination of the operating characteristics of two or more over-current protective devices such that, on the incidence of over-currents within stated limits, the device intended to operate within these limits does so, while the other(s) does (do) not

2.17.2
total discrimination (total selectivity)

Replace the existing term by the following new term:

total selectivity

*Replace in the existing definition the word "*discrimination*" by the word "*selectivity*".*

2.17.3
partial discrimination (partial selectivity)

Replace the existing term by the following new term:

partial selectivity

*Replace in the existing definition the word "*discrimination*" by "*selectivity*".*

Renumber the existing definition 2.21, added by Amendment 1, as definition 2.22.

Add, after 2.20, the following new definition 2.21:

2.21
overload current setting
I_r
current setting of an adjustable overload release

NOTE In case of a non-adjustable overload release, this value is equal to nominal current I_n.

4.3.1.1 Rated operational voltage (U_e)

This correction does not apply to the English version.

4.3.5.1 Rated short-circuit making capacity (I_{cm})

This correction does not apply to the English version.

4.3.5.2 Rated short-circuit breaking capacities

This correction does not apply to the English version.

4.3.5.2.1 Rated ultimate short-circuit breaking capacity (I_{cu})

This correction does not apply to the English version.

4.3.5.2.2 Rated service short-circuit breaking capacity (I_{cs})

Replace the text of the existing subclause, including Table 1, by the following new text:

The rated service short-circuit breaking capacity of a circuit-breaker is the value of service short-circuit breaking capacity (see 2.15.2) assigned to that circuit-breaker by the manufacturer for the corresponding rated operational voltage, under the conditions specified in 8.3.4. It is expressed as a value of prospective breaking current, in kA, or as a % of I_{cu} (for example I_{cs} = 25 % I_{cu}).

I_{cs} shall be at least equal to 25 % of I_{cu}.

Table 1 (void)

Table 4 – Selectivity categories

Replace the existing text of note 2 by the following new text:

NOTE 2 Vacant.

5.2 Marking

This correction does not apply to the English version.

Add, at the end of the existing item b), the following two new bulleted items:

- range of the current setting (I_r) of adjustable overload release (see 4.7.3);
- value or range of the rated instantaneous short-circuit current setting (I_i), fixed or adjustable (see 4.7.3).

This correction does not apply to the English version.

Add, at the end of the existing item c), the following new bulleted items:

- minimum cable cross-section, if different from Table 9 of IEC 60947-1, for ratings ≤ 20 A according to rated ultimate short-circuit breaking capacity I_{cu};
- values of tightening torque for the circuit-breaker terminals.

7.1.5 List of construction breaks

Replace the first dashed item by the following new dashed item:

– material, finish and dimensions of internal current-carrying parts, admitting, however, the variations listed in a), b), c), f) and g) below;

Replace the item f) introduced by Amendment 1 by the following new item f):

f) in the case of the 2-pole and 4-pole variants, replacement of the trip unit in one pole by a link, to provide an unprotected neutral;

Add, at the end of the existing list, the following new item g):

g) creating a 2-pole breaker from a 3-pole breaker by removing the centre current path.

8.3.1.2 Tests omitted from sequence I and made separately

Replace, in this subclause introduced by Amendment 1, the existing first dashed item by the following new dashed item:

– tripping limits and characteristics (8.3.3.1); in which case the sample(s) tested in the sequence shall be subjected to the tests of 8.3.3.1.3, only on the phase poles at the maximum setting, at room temperature and without the additional test of item b) to verify the time-current characteristic;

8.3.1.4 Alternative test programmes for circuit-breakers having both three-pole and four-pole variants

Replace the existing title and text of this subclause, introduced by Amendment 1, including Table 9b and Table 9c, by the following new title, text and Table 9b, Table 9c:

8.3.1.4 Alternative test programmes for circuit-breakers of a given frame size and design having a different number of poles

These alternative test programmes may only be applied when all ratings are the same or lower than the variant submitted to the full programme of Table 9, and construction breaks are the same for all variants. In the case of 1-pole circuit-breakers the voltage ratings shall be equal to or lower than the line-to neutral voltage of the variant tested to Table 9. A 2-pole circuit-breaker produced by removing the centre current path from a 3-pole circuit-breaker tested to Programme 1 or Programme 2 of this clause need not be tested as it is considered to be covered by the tests on the 3-pole variant.

Compliance with the test requirements is met by carrying out one of the alternative programmes 1 or 2 below.

– Programme 1: The applicable test sequences according to Table 9 shall be carried out on the three-pole variant. In addition, where applicable, the tests or test sequences listed in Table 9b shall be carried out on the other variants.

– Programme 2: The applicable test sequences according to Table 9 shall be carried out on the four-pole variant. In addition, where applicable, the tests or test sequences listed in Table 9c shall be carried out on the other variants.

The principle for the application of the alternative test programmes is illustrated below:

	Programme 1					Programme 2			
	1-pole	2-poles	3-poles	4-poles		1-pole	2-poles	3-poles	4-poles
Construction 1[a]	□	□	■	□		○	○	○	■
Construction 2	-	-	■	□		-	-	-	■
Construction 3	-	-	■	□		-	-	-	■
…	-	-	■	□		-	-	-	■
Construction n	-	-	■	□		-	-	-	■
NOTE	■ fully tested per Table 9 □ tested per Table 9b ○ tested per Table 9c - no test required								
[a]	construction 1 is the construction which covers the max rating.								