SLOVENSKI STANDARD
SIST EN 60947-4-2:2000/A2:2007

01-september-2007

Nadomeġļa:

SIST EN 60947-4-2:1998/A2:2000

Nizkonapetostne stikalne in krmilne naprave ï 4-2. del: Kontaktorji in motorski zaganjalniki ï Polprevodniġki krmilniki in zaganjalniki motorjev na izmeniļni tok ï Dopolnilo A2 (IEC 60947-4-2:1999/A2:2006)

Low-voltage switchgear and controlgear -- Part 4-2: Contactors and motor-starters - AC semiconductor motor controllers and starters (IEC 60947-4-2:1999/A2:2006)

Niederspannungsschaltgeräte -- Teil 4-2: Schütze und Motorstarter - Halbleiter-Motor-Steuergeräte und -Starter für Wechselspannungen (IEC 60947-4-2:1999/A2:2006)

Appareillage a basse tension - Partie 4-2: Contacteurs et démarreurs de moteurs - Gradateurs et démarreurs a semiconducteurs de moteurs a courant alternatif (IEC 60947 -4-2:1999/A2:2006)

Ta slovenski standard je istoveten z: **EN 60947-4-2:2000/A2:2006**

ICS:

29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear

SIST EN 60947-4-2:2000/A2:2007 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60947-4-2/A2

December 2006

ICS 29.130.20

English version

Low-voltage switchgear and controlgear
Part 4-2: Contactors and motor-starters
AC semiconductor motor controllers and starters
(IEC 60947-4-2:1999/A2:2006)

Appareillage à basse tension
Partie 4-2: Contacteurs
et démarreurs de moteurs -
Gradateurs et démarreurs
à semiconducteurs de moteurs
à courant alternatif
(CEI 60947-4-2:1999/A2:2006)

Niederspannungsschaltgeräte
Teil 4-2: Schütze und Motorstarter -
Halbleiter-Motor-Steuergeräte
und -Starter für Wechselspannungen
(IEC 60947-4-2:1999/A2:2006)

This amendment A2 modifies the European Standard EN 60947-4-2:2000, it was approved by CENELEC on 2006-12-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 17B/1499/FDIS, future amendment 2 to IEC 60947-4-2:1999, 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 was approved by CENELEC as amendment A2 to EN 60947-4-2:2000 on 2006-12-01.

The following dates were fixed:

– latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2007-09-01
– latest date by which the national standards conflicting with the amendment have to be withdrawn	(dow)	2009-12-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of amendment 2:2006 to the International Standard IEC 60947-4-2:1999 was approved by CENELEC as an amendment to the European Standard without any modification.

Replace Annex ZA of EN 60947-4-2:2000 by:

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60034-1	2004	Rotating electrical machines Part 1: Rating and performance	EN 60034-1	2004
IEC 60050-161 A1 A2	1990 1997 1998	International Electrotechnical Vocabulary (IEV) Chapter 161: Electromagnetic compatibility	- - -	- - -
IEC 60085	2004	Electrical insulation - Thermal classification	EN 60085	2004
IEC 60146	Series	Semiconductor convertors - General requirements and line commutated convertors	EN 60146	Series
IEC 60269-1 A1	1998 2005	Low-voltage fuses Part 1: General requirements	EN 60269-1 A1	1998 2005
IEC 60410	1973	Sampling plans and procedures for inspection by attributes		-
IEC 60439-1 A1	1999 2004	Low-voltage switchgear and controlgear assemblies Part 1: Type-tested and partially type-tested assemblies	EN 60439-1 A1	1999 2004
IEC 60664	Series	Insulation coordination for equipment within low-voltage systems	EN 60664	Series
IEC 60947-1	2004	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1 + corr. November	2004 2004
IEC/TR 61000-2-1	1990	Electromagnetic compatibility (EMC) Part 2: Environment - Section 1: Description of the environment - Electromagnetic environment for low-frequency conducted disturbances and signalling in public power supply systems	-	-
IEC 61000-3-2	2005	Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A per phase)	EN 61000-3-2	2006
IEC 61000-4-2 A1 A2	1995 1998 2000	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2 A1 A2	1995 1998 2001

Publication	Year	Title	EN/HD	Year
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
IEC 61000-4-4 A1 A2	1995 2000 2001	Electromagnetic compatibility (EMC) Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4 [1)] A1 A2	1995 2001 2001
IEC 61000-4-5 A1	1995 2000	Electromagnetic compatibility (EMC) Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5) [2)] A1	1995 2001
IEC 61000-4-6 A1	2003 2004	Electromagnetic compatibility (EMC) Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	-	-
IEC 61000-4-11 A1	1994 2000	Electromagnetic compatibility (EMC) Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11 [3)] A1	1994 2001
IEC 61131-2	2003	Programmable controllers Part 2: Equipment requirements and tests	EN 61131-2 + corr. August	2003 2003
CISPR 11 (mod) A1 (mod)	2003 2004	Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement	EN 55011	200X [4)]
CISPR 14-1	- [5)]	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus Part 1: Emission	EN 55014-1	200X [4)]

[1)] EN 61000-4-4 is superseded by EN 61000-4-4:2004, which is based on IEC 61000-4-4:2004.

[2)] EN 61000-4-5 is superseded by EN 61000-4-5:2006, which is based on IEC 61000-4-5:2005.

[3)] EN 61000-4-11 is superseded by EN 61000-4-11:2004, which is based on IEC 61000-4-11:2004.

[4)] To be published.

[5)] Undated reference.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60947-4-2

1999

AMENDEMENT 2
AMENDMENT 2
2006-11

Amendement 2

Appareillage à basse tension –

Partie 4-2:
Contacteurs et démarreurs de moteurs –
Gradateurs et démarreurs à semiconducteurs de moteurs à courant alternatif

Amendment 2

Low-voltage switchgear and controlgear –

Part 4-2:
Contactors and motor-starters –
AC semiconductor motor controllers and starters

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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PRICE CODE V

Pour prix, voir catalogue en vigueur
For price, see current catalogue

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/1499/FDIS	17B/1524/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 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.

Page 3

CONTENTS

Modify the title of Clause 3 to read:

3 Definitions, symbols and abbreviations

Insert the following:

3.3 Symbols and abbreviations

Delete Subclause 5.9.

Delete Subclause 9.4.

Replace the title of Annexes B and C by the following:

Annex B Vacant

Annex C (normative) Co-ordination at the crossover current between the starter and associated SCPD

Insert the title of Annex K:

Annex K (normative) Extended functions within electronic overload relays

Insert the following:

Figure 3 – Thermal memory test

Figure 4 – Multiple of current setting limits for ambient air temperature compensated time-delay overload relays

Figure C.1 – Examples of time-current withstand characteristic

Figure K.1 – Test circuit for the verification of the operating characteristic of a residual current electronic overload relay

Replace the title of Table 4 by the following:

Table 4 – Minimum overload current withstand time (T_x) in relation to overload current ratio (X) and corresponding to overload relay trip class (see Table 19)

Insert the following:

Table 19 – Trip classes of overload relays

Table 20 – Limits of operation of time-delay overload relays when energized on all poles

Table 21 – Limits of operation of three-pole time-delay overload relays when energized on two poles only

Delete Tables B.1, B.2 and B.3.

Insert the following:

Table C.1 – Test conditions

Table K.1 – Operating time of residual current electronic overload relays

Page 13

1 Scope and object

Modify the existing text of the sixth paragraph to read:

"Contactors, overload relays and control circuit devices used in controllers and starters … "

Page 15 and amendment 1, page 5

2 Normative references

Replace the existing text of first paragraph by the following:

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.

Replace the reference to IEC 60034-1:1996 by the following:

IEC 60034-1:2004, *Rotating electrical machines – Part 1: Rating and performance*

Add, after IEC 60050(161), the following references:

Amendment 1 (1997)
Amendment 2 (1998)

Replace the reference to IEC 60085:1984 by the following:

IEC 60085:2004, *Electrical insulation – Thermal classification*

Insert the following new reference:

IEC 60146 (all parts), *Semiconductor convertors*

Add, after IEC 60269-1, the following reference:

Amendment 1 (2005)

Replace the reference to IEC 60439-1:1992 by the following:

IEC 60439-1:1999, *Low-voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies*
Amendment 1 (2004)

Replace the reference to IEC 60947-1:1999 by the following:

IEC 60947-1:2004, *Low-voltage switchgear and controlgear – Part 1: General rules*

Replace the reference to IEC 61000-3-2:1995 by the following:

IEC 61000-3-2:2005, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤16 A per phase)*

Add, after IEC 61000-4-2, the following references:

Amendment 1 (1998)
Amendment 2 (2000)

Replace the reference to IEC 61000-4-3:1995 by the following:

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

Add, after IEC 61000-4-4, the following references:

Amendment 1 (2000)
Amendment 2 (2001)

Add, after IEC 61000-4-5, the following reference:

Amendment 1 (2000)

Replace the reference to IEC 61000-4-6:1996 by the following:

IEC 61000-4-6:2003, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*
Amendment 1 (2004)

Add, after IEC 61000-4-11, the following reference:

Amendment 1 (2000)

Insert the following new reference:

IEC 61131-2:2003, *Programmable controllers – Part 2: Equipment requirements and tests*

Replace the reference to CISPR 11:1997 by the following:

CISPR 11:2003, *Industrial, scientific and medical (ISM) radio-frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurement*
Amendment 1 (2004)

Replace the reference to CISPR 14-1:1993 by the following:

CISPR 14-1, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*

Delete the reference to CISPR 14-2:1993.

Page 17 and Amendment 1, page 5

3 Definitions

Replace the existing title by the following:

3 Definitions, symbols and abbreviations

Insert, after the first paragraph the following alphabetical index of definitions:

T

U

V

3.1.1.1

Number the existing note as NOTE 1.

Add the following new NOTE 2:

NOTE 2 In a circuit where the current passes through zero (alternately or otherwise), the effect of "not making" the current following such a zero value is equivalent to breaking the current.

Page 19

3.1.1.2

Correction in the French text only.

Page 21 and Amendment 1, page 7

Figure 1 – Semiconductor motor control devices

In row "Bypassed hybrid motor controller":

- *modify the title to read* "Bypassed hybrid motor controller [c] ";
- *delete the reference* "(see 8.2.4.2.3)".

Add, at the bottom of the figure, the following new footnote "[c]":

[c] For other configurations, tests may be suitably adapted by agreement between the user and the manufacturer.

Page 23

3.1.2.1

Correction in the French text only.

Page 27

3.1.19

Correction in the French text only.