SLOVENSKI STANDARD
SIST EN 60947-4-1:2010/A1:2012

01-december-2012

Nizkonapetostne stikalne naprave - 4-1. del: Kontaktorji in motorski zaganjalniki - Elektromehanski kontaktorji in motorski zaganjalniki (IEC 60947-4-1:2009/A1:2012)

Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motor-starters (IEC 60947-4-1:2009/A1:2012)

Niederspannungsschaltgeräte - Teil 4-1: Schütze und Motorstarter - Elektromechanische Schütze und Motorstarter (IEC 60947-4-1:2009/A1:2012)

Appareillage à basse tension - Partie 4-1: Contacteurs et démarreurs de moteurs - Contacteurs et démarreurs électromécaniques (CEI 60947-4-1:2009/A1:2012)

Ta slovenski standard je istoveten z: **EN 60947-4-1:2010/A1:2012**

ICS:

29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear

SIST EN 60947-4-1:2010/A1:2012 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60947-4-1/A1

October 2012

ICS 29.120.99; 29.130.20

English version

Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motor-starters

(IEC 60947-4-1:2009/A1:2012)

Appareillage à basse tension -
Partie 4-1: Contacteurs et démarreurs de moteurs -
Contacteurs et démarreurs électromécaniques
(CEI 60947-4-1:2009/A1:2012)

Niederspannungsschaltgeräte -
Teil 4-1: Schütze und Motorstarter -
Elektromechanische Schütze und Motorstarter
(IEC 60947-4-1:2009/A1:2012)

This amendment A1 modifies the European Standard EN 60947-4-1:2010; it was approved by CENELEC on 2012-08-24. 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.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 17B/1769/FDIS, future edition 1 of IEC 60947-4-1:2009/A1, 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 60947-4-1:2010/A1:2012.

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)	2013-05-24
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-08-24

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.

Endorsement notice

The text of the International Standard IEC 60947-4-1:2009/A1:2012 was approved by CENELEC as a European Standard without any modification.

Add to the Bibliography of EN 60947-4-1:2010, the following note for the standard indicated:

IEC 61915-2:2011 NOTE Harmonized as EN 61915-2:2012 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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
Addition *to Annex ZA of EN 60947-4-1:2010:*				
IEC 61051-2	1991	Varistors for use in electronic equipment - Part 2: Sectional specification for surge suppression varistors	-	-

IEC 60947-4-1

Edition 3.0 2012-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters

Appareillage à basse tension – Partie 4-1: Contacteurs et démarreurs de moteurs – Contacteurs et démarreurs électromécaniques

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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/1769/FDIS	17B/1780/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.

INTRODUCTION

This amendment includes the following significant technical changes with respect to the previous edition 3 (2009):

- introduction of the motor management starter;
- definitions and measurement method of the power consumption of the control circuit during holding and pick-up operations;
- measurement method of the pole impedance;
- requirements for screwless terminals;
- performance requirements for latched contactors;
- alignments to Amendment 1 of IEC 60947-1:2007;
- harmonisation with IEC 60947-2 of the operation tests of under-voltage relays and shunt releases;
- short-circuit tests harmonisation with North America;
- test requirements for utilisation AC-6b capacitor load;
- polarity for DC contactors;
- dielectric test method in presence of built-in varistor;
- addition of an extended function for electronic overload relay: control functions.

1.1.2 AC motor-starters

Add, in the first paragraph, the parenthesis "(including motor management starter)*" between "*AC motor-starters*" and "*intended to start*".*

1.1.2.2.1 Star-delta starters

*Replace, in the first sentence of the existing note, "*the current*" by "*the starting current*".*

1.1.2.3 Rheostatic rotor starters

Delete the existing second paragraph and the existing note.

2 Normative references

Add to the existing list the following normative reference:

IEC 61051-2:1991, *Varistors for use in electronic equipment – Part 2: Sectional specification for surge suppression varistors*

3.2 Alphabetical index of terms

Delete from the existing list the following terms and references:

electronic overload relay with current imbalance detection.....H.2.2
electronic overload relay with ground/earth fault function H.2.1
electronic overload relay with phase reversal function.....H.2.4
electronic overload relay with under power detection H.2.6
inhibit current (I_{ic}) H.2.7

Add to the existing list the following new terms and references:

holding power 3.3.9
motor management starter 3.4.31
pick-up power 3.3.10

3.3.8
electronically energized coil of electromagnet

Replace the existing term and definition by the following new term and new definition:

3.3.8.
electronically controlled electromagnet
electromagnet in which the coil is controlled by a circuit with active electronic elements

Add, after the existing definition 3.3.8, the following new terms and definitions 3.3.9 and 3.3.10:

3.3.9
holding power (of a contactor)
power needed to maintain the operation of the electromagnet

3.3.10
pick-up power (of a contactor)
power needed to operate the contactor from the de-energized state to the energized state

Add, after the existing definition 3.4.30, the following new term and definition 3.4.31:

3.4.31
motor management starter
starter including extended functions with communication ability

NOTE Interoperable device profiles for motor management starter are defined by IEC 61915-2.

3.6 Symbols and abbreviations

Add to the existing list the following new symbols:

P_c Nominal holding power of a d.c. controlled contactor

P_p Pick-up power of a d.c. controlled contactor with separate pick-up and hold-on windings

S_h Holding power of an a.c. controlled contactor

S_p Pick-up power of an a.c. controlled contactor

U_d Voltage drop of a contactor pole

Z Pole impedance of a contactor (5.3.7)

"r" Minimum short-circuit test current

I_q Maximum conditional short-circuit test current

Delete from the existing list "I_{ic} Inhibit current (H.2.7)".

5.3.1.1.2 Rated rotor operational voltage (U_{er})

Add, after the second paragraph, the following new paragraph and new note:

The rated insulation voltage of the switching devices inserted in the rotor circuit shall be at least 50 % the highest voltage between open slip-rings.

NOTE Electrical stresses are lower and shorter in the rotor than in the stator.

5.3.5.5.2 Standard conditions for making and breaking corresponding to the starting characteristics for rheostatic rotor starters

Delete the existing note.

Add, after the existing Subclause 5.3.6, the following new Subclause 5.3.7:

5.3.7 Pole impedance of a contactor (*Z*)

The pole impedance may be stated by the manufacturer and is determined by measuring the voltage drop resulting of the current flowing through the pole.

5.5 Control circuits

Replace the entire existing text by the following new text:

Subclause 4.5 of IEC 60947-1:2007 applies.

5.7.3 Characteristic values

Replace the existing item c) by the following new item c):

c) Release with residual current sensing relay:
- rated current;
- operating current;
- operating time or time-current characteristic according to Table T.1 of IEC 60947-1:2007, Amendment 1;
- inhibit time (when applicable);
- type designation (see Annex T of IEC 60947-1: 2007, Amendment 1).

6.1.2 Characteristics, basic rated values and utilization

Add, after the exiting item d), the following new item aa):

aa) polarity of terminals, if applicable;