Irish Standard
I.S. EN 60947-7-1:2009

Low-voltage switchgear and controlgear -- Part 7-1: Ancillary equipment - Terminal blocks for copper conductors (IEC 60947-7 -1:2009 (EQV))

I.S. EN 60947-7-1:2009

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EUROPEAN STANDARD

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EN 60947-7-1

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Supersedes EN 60947-7-1:2002

English version

Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors

(IEC 60947-7-1:2009)

Appareillage à basse tension -
Partie 7-1: Matériels accessoires -
Blocs de jonction
pour conducteurs en cuivre
(CEI 60947-7-1:2009)

Niederspannungsschaltgeräte -
Teil 7-1: Hilfseinrichtungen -
Reihenklemmen für Kupferleiter
(IEC 60947-7-1:2009)

This European Standard was approved by CENELEC on 2009-06-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 European Standard 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, Bulgaria, 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: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60947-7-1:2009 E

Foreword

The text of document 17B/1654/FDIS, future edition 3 of IEC 60947-7-1, 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 EN 60947-7-1 on 2009-06-01.

This European Standard supersedes EN 60947-7-1:2002.

The main technical modifications of EN 60947-7-1:2009 since EN 60947-7-1:2002 are listed below:

– added in the scope that EN 60947-7-1:2009 may be used as a guide for special types of terminal blocks, for example with diodes or varistors or similar component holders;

– the conventional free air thermal current added in 5.2 in the list of information to be stated by the manufacturer;

– update of 7.1.4 that the colour combination green-yellow is not allowed for terminal blocks;

– the consequences in case of failed single tests and failed tests within test sequences specified in 8.2;

– requirements regarding clearances and creepage distances replaced by reference to Annex H of EN 60947-1, Annex A deleted;

– requirements for tightening torques for the tests improved and referenced to Table 4 of EN 60947-1, Annex C deleted;

– in 8.3.3.3 changed reference for pull-out force to EN 60947-1;

– the wording of the test of the voltage drop improved in 8.4.4;

– the wording of the short-time withstand current test improved in 8.4.6;

– Annex D with additional requirements for test disconnect terminal blocks added. The scope has been modified accordingly.

This standard shall be read in conjunction with EN 60947-1. The provisions of the general rules dealt with in EN 60947-1 are applicable to this standard, where specifically called for. Clauses and subclauses, tables, figures and annexes thus applicable are identified by reference to EN 60947-1, e.g. 1.2 of EN 60947-1, Table 4 of EN 60947-1 or Annex A of EN 60947-1.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2010-03-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-06-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60947-7-1:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60228	NOTE Harmonized as EN 60228:2005 (not modified).
IEC 60715	NOTE Harmonized as EN 60715:2001 (not modified).

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 7-1: Ancillary equipment – Terminal blocks for copper conductors

FOREWORD

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International Standard IEC 60947-7-1 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This third edition of IEC 60947-7-1 cancels and replaces the second edition, published in 2002, and constitutes a technical revision.

The main technical modifications of this standard since this previous publication are listed below:

– added in the scope that this standard may be used as a guide for special types of terminal blocks, for example with diodes or varistors or similar component holders;
– the conventional free air thermal current added in 5.2 in the list of information to be stated by the manufacturer;
– update of 7.1.4 that the colour combination green-yellow is not allowed for terminal blocks;
– the consequences in case of failed single tests and failed tests within test sequences specified in 8.2;

– requirements regarding clearances and creepage distances replaced by reference to Annex H of IEC 60947-1, Annex A deleted;

– requirements for tightening torques for the tests improved and referenced to Table 4 of IEC 60947-1, Annex C deleted;

– in 8.3.3.3 changed reference for pull-out force to IEC 60947-1;

– the wording of the test of the voltage drop improved in 8.4.4;

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– Annex D with additional requirements for test disconnect terminal blocks added. The scope modified accordingly.

This standard shall be read in conjunction with IEC 60947-1. The provisions of the general rules dealt with in IEC 60947-1 are applicable to this standard, where specifically called for. Clauses and subclauses, tables, figures and annexes thus applicable are identified by reference to IEC 60947-1, e.g. 1.2 of IEC 60947-1, Table 4 of IEC 60947-1 or Annex A of IEC 60947-1.

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

FDIS	Report on voting
17B/1654/FDIS	17B/1668/RVD

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

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

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

The committee has decided that the contents of this 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.

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 7-1: Ancillary equipment – Terminal blocks for copper conductors

1 General

1.1 Scope

This part of IEC 60947 specifies requirements for terminal blocks with screw-type or screw-less-type clamping units primarily intended for industrial or similar use and to be fixed to a support to provide electrical and mechanical connection between copper conductors. It applies to terminal blocks intended to connect round copper conductors, with or without special preparation, having a cross-section between 0,2 mm^2 and 300 mm^2 (AWG 24/600 kcmil), intended to be used in circuits of a rated voltage not exceeding 1 000 V a.c. up to 1 000 Hz or 1 500 V d.c.

NOTE AWG is the abbreviation of “American Wire Gage” (Gage (US) = Gauge (UK))

kcmil = 1 000 cmil;

1 cmil = 1 circular mil = surface of a circle having a diameter of 1 mil

1 mil = 1/1 000 inch

This standard may be used as a guide for

– terminal blocks requiring the fixing of special devices to the conductors, for example quick connect terminations or wrapped connections, etc.;

– terminal blocks providing direct contact to the conductors by means of edges or points penetrating the insulation, for example insulation displacement connections, etc.;

– special types of terminal blocks, for example with diodes or varistors or similar component holders, etc.

Where applicable in this standard, the term “clamping unit” has been used instead of the term “terminal”. This is taken into account in case of reference to IEC 60947-1.

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 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*

ISO 4046-4:2002, *Paper, board, pulp and related terms – Vocabulary – Part 4: Paper and board grades and coverted products*