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

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EUROPEAN STANDARD

**EN 60947-7-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2002

ICS 29.130.20

Supersedes EN 60947-7-1:1991 + A1:1999

English version

**Low-voltage switchgear and controlgear  
Part 7-1: Ancillary equipment -  
Terminal blocks for copper conductors  
(IEC 60947-7-1:2002)**

Appareillage à basse tension  
Partie 7-1: Matériels accessoires -  
Blocs de jonction pour conducteurs  
en cuivre  
(CEI 60947-7-1:2002)

Niederspannungsschaltgeräte  
Teil 7-1: Hilfseinrichtungen -  
Reihenklempen für Kupferleiter  
(IEC 60947-7-1:2002)

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This European Standard was approved by CENELEC on 2002-10-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and 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/1187/FDIS, future edition 2 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 2002-10-01.

This European Standard supersedes EN 60947-7-1:1991 + corrigendum June 1997 + A1:1999.

This Part 7-1 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 "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 following dates were fixed:

- |  |       |            |
|--|-------|------------|
| <ul style="list-style-type: none"> <li>– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement</li> </ul> | (dop) | 2003-07-01 |
| <ul style="list-style-type: none"> <li>– latest date by which the national standards conflicting with the EN have to be withdrawn</li> </ul>   | (dow) | 2005-10-01 |

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes C and ZA are normative and annexes A and B are informative.

Annex ZA has been added by CENELEC.

[SIST EN 60947-7-1:2003](https://standards.iteh.ai/standards/IEC/60947-7-1/2002)  
<https://standards.iteh.ai/standards/IEC/60947-7-1/2002>  
**Endorsement notice**  
[91807e85e7ab/sist-en-60947-7-1-2003](https://standards.iteh.ai/standards/IEC/60947-7-1/2002)

The text of the International Standard IEC 60947-7-1:2002 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60715	NOTE	Harmonized as EN 60715:2001 (not modified).
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**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60695-2-2	1991	Fire hazard testing Part 2: Test methods - Section 2: Needle-flame test	EN 60695-2-2	1994
A1	1994		A1	1995
IEC 60947-1 (mod)	1999	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1 + corr. October	1999
A1	2000		A1	2000
A2	2001		A2	2001
ISO 4046	1978	Paper, board, pulp and related terms - Vocabulary	-	-

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Deuxième édition  
Second edition  
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Appareillage à basse tension –

Partie 7-1:  
Matériels accessoires –  
Blocs de jonction pour conducteurs en cuivre

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Ancillary equipment –

Terminal blocks for copper conductors

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

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

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

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 second edition of IEC 60947-7-1 cancels and replaces the first edition, published in 1989, and amendment 1 (1999), and constitutes a technical revision.

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/1187/FDIS	17B/1218/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.

Annex C forms an integral part of this standard.

Annexes A and B are for information only.

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

The contents of the corrigendum of March 2003 have been included in this copy.

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## 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 screwless-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<sup>2</sup> and 300 mm<sup>2</sup> (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 = 1000 cmil;

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

1 mil = 1/1000 inch

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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 disconnect terminal blocks, 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 60695-2-2:1991, *Fire hazard testing – Part 2: Test methods – Section 2: Needle-flame test*

Amendment 1 (1994)

IEC 60947-1:1999, *Low-voltage switchgear and controlgear – Part 1: General rules*

Amendment 1 (2000)

Amendment 2 (2001)

ISO 4046:1978, *Paper, board, pulp and related terms – Vocabulary*