

Specification for

Low-voltage switchgear and controlgear —

Part 7: Ancillary equipment —

Section 1: Terminal blocks for copper
conductors

The European Standard EN 60947-7-1:1991, with the incorporation of amendments A11:1997 and A1:1999, has the status of a British Standard

ICS 29.130.20

Cooperating organizations

The European Committee for Electrotechnical Standardization (CENELEC), under whose supervision this European Standard was prepared, comprises the national committees of the following countries.

Austria	Italy
Belgium	Luxembourg
Denmark	Netherlands
Finland	Norway
France	Portugal
Germany	Spain
Greece	Sweden
Iceland	Switzerland
Ireland	United Kingdom

This British Standard, having been prepared under the direction of the Power Electrical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 1 April 1992

© BSI 12-2000

The following BSI references relate to the work on this standard:
Committee reference PEL/10
Announced in *BSI News*,
January 1990

ISBN 0 580 20571 1

Amendments issued since publication

Amd. No.	Date	Comments
7856	July 1993	Corrigendum to EN foreword
9814	February 1998	See national foreword
10925	December 2000	See national foreword

Contents

	Page
Cooperating organizations	Inside front cover
National foreword	ii
Foreword	2
Text of EN 60947-7-1	5
National annex NA (informative) Original IEC text amended by CENELEC	Inside back cover
National annex NB (informative) Committees responsible	Inside back cover
National annex NC (informative) Cross-reference	Inside back cover

National foreword

This British Standard has been prepared by Technical Committee PEL/17/2 (formerly PEL/10) and is the English language version of BS EN 60947-7-1:1992 *Specification for low-voltage switchgear and controlgear — Part 7: Ancillary equipment — Section 2: Terminal blocks for copper conductors*, including corrigendum March 1993 and amendments A11:1997 and A1:1999, published by the European Committee for Electrotechnical Standardization (CENELEC). It was derived by CENELEC from IEC 60947-7-1:1992, including amendment 1:1999, published by the International Electrotechnical Commission (IEC).

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags **[C]** **[C]**. Where a common modification has been introduced by amendment, the tags carry the number of the amendment. For example, the common modifications introduced by CENELEC amendment A11 are indicated by **[C11]** **[C11]**. Parts of the original IEC text that have been modified by CENELEC have been quoted in National annex NA.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **[A1]** **[A1]**. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **[A1]** **[A1]**.

This British Standard is to be read in conjunction with BS EN 60947-1 which identifies the general requirements for equipment for low-voltage switchgear and controlgear. The BS EN 60947 series comprises the following publications.

- *Part 1: General rules;*
- *Part 2: Circuit breakers;*
- *Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units;*
- *Part 4: Contactors and motor-starters;*
- *Section 1: Electromechanical contactors and motor-starters;*
- *Part 5: Control circuit devices and switching elements;*
- *Section 1: Electromechanical control circuit devices;*
- *Section 2: Proximity switches;*
- *Part 6: Multiple function equipment;*
- *Section 1: Automatic transfer switching equipment;*
- *Part 7: Ancillary equipment;*
- *Section 1: Terminal blocks and copper conductors.*

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 19 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Descriptors: Low-voltage switchgear and controlgear, electrical installation, accessory, terminal block, electrical conductor, copper, characteristics, tests

English version

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

(includes amendments A11:1997 and A1:1999)
(IEC 60947-7-1:1989 + A1:1999)

Appareillage à basse tension Septième
partie: Matériels accessoires
Section un — Blocs de jonction pour
conducteurs en cuivre
(inclut les amendements A11:1997 et A1:1999)
(CEI 60947-7-1:1989 + A1:1999)

Niederspannung-Schaltgeräte
Teil 7: Hilfseinrichtungen Hauptabschnitt
eins — Reihenklemmen für Kupferleiter
(enthält Änderungen A11:1997 und A1:1999)
(IEC 60947-7-1:1989 + A1:1999)

This European Standard was approved by CENELEC on 1991-03-15. Amendment A1 was approved by CENELEC on 1999-08-01. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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 CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 947-7-1:1989 could be accepted without textual changes, has shown that no CENELEC common modifications were necessary for the acceptance as European Standard. The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60947-7-1 on 15 March 1991.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1992-03-01
- latest date of withdrawal of conflicting national standards (dow) 1997-10-97

For products which have complied with the relevant national standard before 1992-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1997-03-01.

Annexes designated “normative” are part of the body of the standard. In this standard, Annex ZA is normative.

Introduction

All subjects left “under consideration” in IEC 947-7-1:1989 are not part of this European Standard.

This means that:

- for the following clauses the title and text are to be replaced by “Vacant”:

7.1.5 Resistance of parts in insulating material to abnormal heat, fire and tracking

Up-to-date information concerning the subjects dealt with in these clauses can be obtained from the secretariat of CENELEC TC 17B.

Foreword to amendment A11

This amendment was prepared by the Technical Committee CENELEC TC 17B, Low-voltage switchgear and controlgear including dimensional standardization.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A11 to EN 60947-7-1:1991 on 1996-07-02.

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) 1997-10-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1997-10-01

Foreword to amendment A1

The text of document 17B/980/FDIS, future amendment 1 to IEC 60947-7-1, prepared by SC 17B, Low-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, amendment A1 to EN 60947-7-1:1991 on 1999-08-01.

This amendment A1 supersedes EN 60947-7-1:1991/A11:1997.

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) 2000-05-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2002-08-01

Contents

	Page
Foreword	2
1 General	5
2 Definitions	5
3 Classification	5
4 Characteristics	5
4.1 Summary of characteristics	5
4.2 Type of terminal block	6
4.3 Rated and limiting values	6
5 Product information	7
5.1 Markings	7
5.2 Additional information	7
6 Normal service, mounting and transport conditions	7
7 Constructional and performance requirements	8
7.1 Constructional requirements	8
7.2 Performance requirements	8
A1 Electromagnetic compatibility (EMC) A1	9
8 Tests	9
8.1 General	9
8.2 Verification of mechanical characteristics	9
8.3 Verification of electrical characteristics	10
8.4 A1 EMC tests A1	14
Appendix A Clearances and creepage distances	15
Appendix B Items subject to agreement between manufacturer and user	16
Annex ZA (normative) Other international publications quoted in this standard with the references of the relevant European publications	17
Figure 1 — Test arrangement for test according to sub-clause 8.2.1	10
Figure 2 — Test arrangement for the verification of voltage drop	13
Table I — Standard cross-sections of round copper conductors	6
Table II — Relationship between rated cross-section and rated connecting capacity of terminal blocks	7
Table III — Attachment test parameters	10
Table IV	11
Table V — Values of test current for temperature-rise test, ageing test and voltage drop test for metric wire sizes	12
Table VI — Values of test current for temperature-rise test, ageing test and voltage drop test for AWG or MCM wire sizes	12

