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I.S. EN 61095:2009

Electromechanical contactors for household and similar purposes (IEC 61095:2009 (EQV))

I.S. EN 61095:2009

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English version

**Electromechanical contactors
for household and similar purposes
(IEC 61095:2009)**

Contacteurs électromécaniques pour
usages domestiques et analogues
(CEI 61095:2009)

Elektromechanische Schütze für
Hausinstallationen und ähnliche Zwecke
(IEC 61095:2009)

This European Standard was approved by CENELEC on 2009-03-01. 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.

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CENELEC

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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 17B/1640/FDIS, future edition 2 of IEC 61095, prepared by SC 17B, Low-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, in conjunction with SC 23E, Circuit-breakers and similar equipment for household use, of IEC TC 23, Electrical accessories, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61095 on 2009-03-01.

This European Standard supersedes EN 61095:1993 + corrigendum March 1993 + A1:2000 + corrigendum April 2001.

EN 61095:2009 includes the following significant technical changes with respect to EN 61095:1993:

- deletion of switching overvoltages requirements;
- addition of a new utilization category AC-7c: switching of compensated electric discharge lamp control;
- measuring of U_{imp} required, but the marking is not required if U_{imp} equal to 4 kV;
- improvement regarding marking concerning direction of movement;
- improvement of dielectric properties;
- test of resistance to humidity referred to EN 60068-2-78 instead of HD 323.2.3 S2;
- amendment to Table B.1 regarding test sequences;
- deletion of Table F.2 regarding the correspondence between the nominal voltage of the supply system and the contactor rated impulse withstand voltage;
- addition of a new Annex H (normative): degrees of protection of enclosed contactor;
- addition of a new Annex I (normative): requirements and tests for equipment with protective separation.

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) 2009-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2012-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61095:2009 was approved by CENELEC as a European Standard without any modification.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60028	1925	International standard of resistance for copper	-	-
IEC 60050-151	2001	International Electrotechnical Vocabulary (IEV) - Part 151: Electrical and magnetic devices	-	-
IEC 60050-441 A1	1984 2000	International Electrotechnical Vocabulary (IEV) - Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60050-604 A1	1987 1998	International Electrotechnical Vocabulary (IEV) - Chapter 604: Generation, transmission and distribution of electricity - Operation	-	-
IEC 60050-826	2004	International Electrotechnical Vocabulary (IEV) - Part 826: Electrical installations	-	-
IEC 60068-2-78	2001	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2001
IEC 60073	2002	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators	EN 60073	2002
IEC 60085	2007	Electrical insulation - Thermal evaluation and designation	EN 60085	2008
IEC 60099-1 (mod) A1	1991 1999	Surge arresters - Part 1: Non-linear resistor type gapped surge arresters for a.c. systems	EN 60099-1 A1	1994 1999
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60216	Series	Electrical insulating materials - Properties of thermal endurance	EN 60216	Series
IEC 60364-4-44	2007	Low voltage electrical installations - Part 4-44: Protection for safety - Protection against voltage disturbances and electromagnetic disturbances	-	-
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60445 (mod)	2006	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and conductor terminations	EN 60445	2007
IEC 60447	2004	Basic and safety principles for man-machine interface, marking and identification - Actuating principles	EN 60447	2004
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
A1	1999		A1	2000
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60695-2-10	2000	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2001
IEC 60695-2-11	2000	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001
IEC 60695-11-10	1999	Fire hazard testing -	EN 60695-11-10	1999
A1	2003	Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	A1	2003
IEC 60947-1	2007	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1	2007
IEC 60947-4-1	2000	Low-voltage switchgear and controlgear -	EN 60947-4-1	2001
A1	2002	Part 4-1: Contactors and motor-starters -	A1	2002
A2	2005	Electromechanical contactors and motor-starters	A2	2005
IEC 60947-5-1	2003	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1 + corr. July	2004 2005
IEC 61140	2001	Protection against electric shock - Common	EN 61140	2002
A1 (mod)	2004	aspects for installation and equipment	A1	2006
IEC 61180	Series	High-voltage test techniques for low-voltage equipment	EN 61180	Series
ISO 2039-2	1987	Plastics - Determination of hardness - Part 2: Rockwell hardness	EN ISO 2039-2	1999
ISO 7000	2004	Graphical symbols for use on equipment - Index and synopsis	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMECHANICAL CONTACTORS FOR HOUSEHOLD AND SIMILAR PURPOSES

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61095 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear in conjunction with subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 1992 and its Amendment 1 (2000), and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- deletion of switching overvoltages requirements,
- addition of a new utilization category AC-7c: switching of compensated electric discharge lamp control,
- measuring of U_{imp} required, but the marking is not required if U_{imp} equal to 4 kV,
- improvement regarding marking concerning direction of movement,
- improvement of dielectric properties,
- test of resistance to humidity referred to IEC 60068-2-78 instead of IEC 60068-2-3,

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- amendment to Table B.1 regarding test sequences,
- deletion of Table F.2 regarding the correspondence between the nominal voltage of the supply system and the contactor rated impulse withstand voltage,
- addition of a new Annex H (normative): degrees of protection of enclosed contactor,
- addition of a new Annex I (normative): requirements and tests for equipment with protective separation.

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

FDIS	Report on voting
17B/1640/FDIS	17B/1652/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.

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.

INTRODUCTION

This International Standard gives requirements for contactors household and similar purposes, including contactors for distribution control in buildings.

Contactors for such purposes have particular requirements which include test sequences and sampling plans to facilitate testing.

Contactors according to this standard are limited in the range of operational currents and operational voltages to values appropriate to the applications. Such contactors are for use in circuits of limited prospective short-circuit fault current for which they need to be co-ordinated with an appropriate short-circuit protective device to provide suitable co-ordination.

This standard defines in a single document the specific utilization category for a described application and states the relevant requirements. As far as possible, it is in line with the requirements contained in IEC 60947-4-1 "Electromechanical contactors and motor-starters".

This standard also applies to contactors which are components of an appliance, unless otherwise stated in the standard covering the relevant appliance.

ELECTROMECHANICAL CONTACTORS FOR HOUSEHOLD AND SIMILAR PURPOSES

1 Scope

This International Standard applies to electromechanical air break contactors for household and similar purposes provided with main contacts intended to be connected to circuits the rated voltage of which does not exceed 440 V a.c. (between phases) with rated operational currents less than or equal to 63 A for utilization category AC-7a and 32 A for utilization categories AC-7b and AC-7c, and rated conditional short-circuit current less than or equal to 6 kA.

The contactors dealt with in this standard are not normally designed to interrupt short-circuit currents. Therefore, suitable short-circuit protection (see 9.3.4) shall form part of the installation.

This standard does not apply to

- contactors complying with IEC 60947-4-1;
- semiconductor contactors;
- contactors designed for special applications;
- auxiliary contacts of contactors. These are dealt with in IEC 60947-5-1.

This standard states

- 1) the characteristics of contactors.
- 2) the conditions with which contactors shall comply with reference to:
 - a) their operation and behaviour;
 - b) their dielectric properties;
 - c) the degrees of protection provided by their enclosures, where applicable;
 - d) their construction;
 - e) their electromagnetic compatibility characteristics.
- 3) the tests intended for confirming that these conditions have been met, and the methods to be adopted for these tests.
- 4) the test sequences and the number of samples.
- 5) the information to be given with contactors or in the manufacturer's literature.

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 60028:1925, *International standard of resistance for copper*

IEC 60050-151:2001, *International Electrotechnical Vocabulary (IEV) – Part 151: Electrical and magnetic devices*

IEC 60050-441:1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*
Amendment 1 (2000)

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