

**Elektromehaanilised kontaktorid majapidamis- ja
muuks taoliseks kasutuseks**

Electromechanical contactors for household and similar
purposes

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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| <p>Käesolev Eesti standard EVS-EN 61095:2009 sisaldab Euroopa standardi EN 61095:2009 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 30.04.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 20.03.2009.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 61095:2009 consists of the English text of the European standard EN 61095:2009.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 30.04.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 20.03.2009.</p> <p>The standard is available from Estonian standardisation organisation.</p> |
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Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

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)

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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.

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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

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:

- | | | |
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| – 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 | - | - |

| <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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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.

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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)

IEC 60050-604:1987, *International Electrotechnical Vocabulary (IEV) – Chapter 604: Generation, transmission and distribution of electricity – Operation*
Amendment 1 (1998)

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*

IEC 60073:2002, *Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators*

IEC 60085:2007, *Electrical insulation – Thermal evaluation and designation*

IEC 60099-1:1991, *Surge arresters – Part 1: Non-linear resistor type gapped surge arresters for a.c. systems*
Amendment 1 (1999)

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60216 (all parts), *Electrical insulating materials – Properties of thermal endurance*

IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

IEC 60417-DB: 2007¹, *Graphical symbols for use on equipment*

IEC 60445:2006, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals and conductor terminations*

IEC 60447:2004, *Basic and safety principles for man-machine interface, marking and identification – Actuating principles*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
Amendment 1 (1999)

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60695-2-10:2000, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

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*

IEC 60695-11-10:1999, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*
Amendment 1 (2003)

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

¹ “DB” refers to the IEC on-line database.

IEC 60947-4-1:2000, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters*
Amendment 1 (2002)
Amendment 2 (2005)

IEC 60947-5-1:2003, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

IEC 61140:2001, *Protection against electric shock – Common aspects for installation and equipment*
Amendment 1 (2004)

IEC 61180 (all parts), *High-voltage test techniques for low-voltage equipment*

ISO 7000:2004, *Graphical symbols for use on equipment – Index and synopsis*

ISO 2039-2:1987, *Plastics – Determination of hardness – Part 2: Rockwell hardness*

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