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INTERNATIONAL STANDARD

Residual current operated circuit-breakers for household and similar use – Part 3-3: Specific requirements for devices with screw-type terminals for external untreated aluminium conductors and with aluminium screw-type terminals for use with copper or with aluminium conductors



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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RESIDUAL CURRENT OPERATED CIRCUIT-BREAKERS FOR HOUSEHOLD AND SIMILAR USE –

Part 3-3: Specific requirements for devices with screw-type terminals for external untreated aluminium conductors and with aluminium screw-type terminals for use with copper or with aluminium conductors

FOREWORD

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IEC 62873-3-3 has been prepared by subcommittee 23E: Circuit breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This second edition cancels and replaces the first edition published in 2016. This edition constitutes a technical revision.

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

a) Modification of scope to address other devices in addition to RCDs;
b) Modification of Clause 8 so that IEC 62873-3-3 can be referred to by other product standards in addition to those for RCDs;

c) Modification of 9.1 so that IEC 62873-3-3 can be referred to by other product standards in addition to those for RCDs.

The text of this International Standard is based on the following documents:

Draft	Report on voting
23E/1274/FDIS	23E/1306/RVD

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

The language used for the development of this International Standard is English.

A list of all parts of the IEC 62873 series published under the general title *Residual current operated circuit-breakers for household and similar use* can be found on the IEC website.

The following differing practices of a less permanent nature exist in the countries indicated below:

– NOTE 2 of Clause 1: the use of aluminium screw-type terminals for use with copper conductors is not allowed (Austria, Australia and Germany);

– NOTE 2 of Clause 1: terminals for aluminium conductors only are not allowed (Austria and Germany);

– NOTE 2 of Clause 1: the use of aluminium conductors is not allowed for final circuits in household and similar installations e.g. offices, shops (Spain);

– NOTE 2 of Clause 1: the minimum cross-sectional area for aluminium conductors is 16 mm^2 (Denmark).

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

INTRODUCTION

This document is part of the IEC 62873 series described in the outline document IEC 62873-1.

RESIDUAL CURRENT OPERATED CIRCUIT-BREAKERS FOR HOUSEHOLD AND SIMILAR USE –

Part 3-3: Specific requirements for devices with screw-type terminals for external untreated aluminium conductors and with aluminium screw-type terminals for use with copper or with aluminium conductors

1 Scope

This part of IEC 62873 applies to devices equipped with screw-type terminals of copper – or of alloys containing at least 58 % of copper (if worked cold) or at least 50 % of copper (if worked otherwise), or of other metal or suitably coated metal, no less resistant to corrosion than copper and having mechanical properties no less suitable – for use with untreated aluminium conductors, or with screw-type terminals of aluminium material for use with copper or aluminium conductors.

This document does not cover the use of aluminium conductors or aluminium terminals for DC applications.

Flexible aluminium conductors are not covered by this document.

NOTE 1 Flexible aluminium conductors are under consideration.

This document cannot be used alone but it is intended to be applied together with the applicable product standard.

In this document, copper-clad and nickel-clad aluminium conductors are considered as aluminium conductors.

NOTE 2 In AT, AU and DE, the use of aluminium screw-type terminals for use with copper conductors is not allowed.

– In AT and DE, terminals for aluminium conductors only are not allowed;
– In ES, the use of aluminium conductors is not allowed for final circuits in household and similar installations e.g. offices, shops;
– In DK, the minimum cross-sectional area for aluminium conductors is 16 mm^2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 62873-2, *Residual current operated circuit-breakers for household and similar use – Part 2: Residual current devices (RCDs) – Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62873-2 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at https://www.iso.org/obp
- IEC Electropedia: available at http://www.electropedia.org/

3.1
treated conductor
contact area of a conductor that has had its oxide layer on the outside strands scraped away and/or has had a compound added to improve connectability and/or prevent corrosion

3.2
untreated conductor
unprepared conductor
conductor which has been cut and the insulation of which has been removed for insertion into a terminal

Note 1 to entry: A conductor, the shape of which is arranged for introduction into a terminal or the strands of which are twisted to consolidate the end, is considered to be an unprepared conductor.

[SOURCE: IEC 60050-442:1998, 442-01-26]

3.3
equalizer
arrangement used in the test loop to ensure an equipotentiality point and uniform current density in a stranded conductor, without adversely affecting the temperature of the conductor(s)

3.4
reference conductor
continuous length of the same type and size conductor as that used in the terminal unit under test and connected in the same series circuit, which enables the reference temperature and, if required, reference resistance to be determined

3.5
stability factor
Sf
measure of temperature stability of a terminal unit during the current cycling test

4 Classification

Clause 4 of the product standard applies.

5 Characteristics of devices

Clause 5 of the product standard applies.

6 Marking and other product information

In addition to Clause 6 of the product standard, the following requirements apply.

The terminal marking defined in Table 1 shall be marked on the product, near the terminals.

The other information concerning the number of conductors, the screw torque values (if different from the product standard) the type of conductor (solid or stranded) and the cross-sections shall be indicated on the product.