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TECHNICAL REPORT

Residual current devices (RCDs) associated with additional function(s)

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IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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RESIDUAL CURRENT DEVICES (RCDs) ASSOCIATED WITH ADDITIONAL FUNCTION(S)

FOREWORD

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IEC TR 62710, which is a Technical Report, has been prepared by subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

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

Enquiry draft	Report on voting
23E/875/DTR	23E/900/RVC

Full information on the voting for the approval of this technical report 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.

In this Technical Report, the following print types are used:

– compliance statements: *in italic type*

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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- withdrawn,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.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This Technical Report (TR) introduces information allowing manufacturers to introduce additional function(s) associated with Residual current devices (RCD). This TR is also relevant for technical committees in charge of drafting an International Standard for additional function(s); for this purpose, requirements and tests have been introduced. It would also be of benefit to laboratories having difficulties in testing RCDs associated with an additional function. This TR does not cover the additional function(s) itself (this is the purpose of an International Standard covering the additional function(s)), nor the RCD function and characteristics (this is the purpose of an RCD International Standard). It is limited to checking that the additional function(s) do not impair any function of the RCD in case there is no International Standard for the additional function(s) for household and similar uses. Where there is a relevant International Standard for household and similar uses for the additional function(s), then it is used. This means that the assembly of the RCD plus the additional function(s) behave correctly according to the referred standards.

This Technical Report is drafted according to the following basic principles:

– In order not to restrict innovation, it is drafted independently of the additional function(s) and is thus applicable whatever the additional function(s) are.

  NOTE It is not possible to list all possible existing and future additional function(s); some examples are given within the definitions.

– The verification is only limited to the assembly and association of an RCD with one or several additional function(s), being integrated or not.

– The verification aims to show that the assembly of one or several additional function(s) declared suitable to a specific protective device is safe and does not impair the basic characteristics of the RCD.

– Responsibility for the assembly means that the additional function(s) and the RCD are intended to be from the same manufacturer or to be affixed with the same trademark. As a consequence, it is intended that the manufacturer or trademark owner declare with which protective devices the additional function(s) can be associated.

RESIDUAL CURRENT DEVICES (RCDs) ASSOCIATED WITH ADDITIONAL FUNCTION(S)

1 Scope

This Technical Report (TR) provides information concerning the possible use of:

– dedicated additional function(s) declared by a manufacturer as suitable for an assembly with declared RCDs complying with IEC standards for household and similar uses;

– specific RCDs complying with IEC standards for household and similar uses having integrated additional function(s).

NOTE 1 The term RCD is a generic term applied to a family of products which open automatically in response to a residual current at or exceeding the RCD's rated residual operating current $I_{\Delta n}$. This generic term is often applied to the following:

– RCCB: Residual current operated circuit-breaker without integral overcurrent protection;

– RCBO: Residual current operated circuit-breaker with integral overcurrent protection;

– SRCD: Residual current device with or without overcurrent protection for socket-outlets;

– PRCD: Portable residual current device without integral overcurrent protection.

This TR identifies the applicable testing procedure to determine the effect on the normal functioning of specific RCD(s) declared suitable with one or more additional function(s) integrated into or added to or assembled with this specific RCD.

This TR may also be used to draft additional requirements to standards for additional function(s) intended to be combined with RCDs for household and similar applications.

This TR provides a procedure based on an assessment in order to identify the necessary testing to demonstrate compliance with the appropriate requirements. If the assessment of the additional function integrated in the RCDs concludes that the additional function does not impair the RCD, no additional test is required by this TR.

Where more than one additional function(s) can be simultaneously associated with one or several RCD(s), the possible combinations is checked by considering the most severe ones.

This TR does not apply:

– to additional functions covered by a standard which explicitly addresses the combination with RCDs for household and similar applications;

NOTE 2 Example of an additional device with independent product standard is auxiliary contacts according to IEC 62019.

– to additional function(s) associated with RCDs for connection purposes;

NOTE 3 Examples of additional function(s) for connection purposes are connection devices between RCBOs and a circuit breakers.

– to locking devices.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC TR 60755, *General requirements for residual current operated protective devices*

IEC 60898 (all parts), *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations*

IEC 61008 (all parts), *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs)*

IEC 61009 (all parts), *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)*

IEC 62423, *Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60755, IEC 60898, IEC 61008, IEC 61009 and IEC 62423, as well as the following apply.

3.1
additional function
feature, action, capability, or the like integrated or assembled with a declared RCD, and not required by the basic product standard

Note 1 to entry: The additional function(s) can have a mechanical and/or electrical interface with one or more parts of the RCD.

Note 2 to entry: Examples of additional function(s) are: automatic reclosing devices, protection against too high or too low voltage, remote-controlled mechanism, remote-controlled tripping, telemonitoring, undervoltage release, shunt release, residual current indicator, lifetime monitoring, installation monitoring, thermal monitoring, self monitoring and test, data communication, smoke detector as well as any combinations of these devices, etc.

3.1.1
integrated additional function
additional function completely built into the RCD

3.1.2
non integrated additional function
external additional function such as a module which can subsequently be built-in on site or can be added on by the manufacturer

Note 1 to entry: The additional function(s) may influence the RCD via interfaces.

Note 2 to entry: After assembly of the external additional function(s) with the RCD, the device becomes a constructional unit.

3.2
RCD
residual current device
mechanical switching device designed to make, carry and break currents under normal service conditions and to cause the opening of the contacts when the residual current attains a given value under specified conditions

Note 1 to entry: RCDs are covered by an applicable RCD product standard and are used as a protective device against electric shock.

[SOURCE: IEC 60050-442:1998, 442-05-02, modified – The note has been modified.]