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**Requirements for automatic reclosing devices (ARDs) for circuit breakers-RCBOs-RCCBs for household and similar uses**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 50557:2011 sisaldab Euroopa standardi EN 50557:2011 ingliskeelset teksti.	This Estonian standard EVS-EN 50557:2011 consists of the English text of the European standard EN 50557:2011.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.12.2011.	Date of Availability of the European standard is 02.12.2011.
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ICS 29.120.50

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English version

**Requirements for automatic reclosing devices (ARDs) for circuit breakers-  
RCBOs-RCCBs for household and similar uses**

Prescriptions pour les dispositifs à  
refermeture automatique (DRA) pour  
disjoncteurs, ID et DD, pour usages  
domestiques et analogues

Automatisch wiedereinschaltende  
Einrichtungen für Leitungsschutzschalter  
sowie Fehlerstrom-Schutzschalter mit und  
ohne eingebautem Überstromschutz  
(RCBOs und RCCBs) für  
Hausinstallationen und für ähnliche  
Anwendungen (ARDs)

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European Committee for Electrotechnical Standardization

Comité Européen de Normalisation Electrotechnique

Europäisches Komitee für Elektrotechnische Normung

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## Foreword

This document (EN 50557:2011) has been prepared by CLC/TC 23E "Circuit breakers and similar devices for household and similar applications".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2012-07-19
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2014-07-19

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

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## Introduction

Automatic Reclosing Devices are intended to reclose circuit-breakers-RCBOs-RCCBs after tripping in order to re-establish continuity of service.

### 1 Scope

This European Standard applies to Automatic Reclosing Devices (hereinafter referred to as “ARD”) for household and similar uses, for rated voltage not exceeding 440 V a.c. intended to be used in combination with circuit-breakers and/or RCCBs and/or RCBOs, and designed either for factory assembly or for assembly on site.

These devices are intended to reclose main protective devices (hereinafter referred to as “MPD”) such as circuit-breakers complying to EN 60898-1 and/or EN 60898-2, RCCBs complying to EN 61008-1 and RCBOs complying to EN 61009-1 after tripping of those devices in order to re-establish continuity of service.

In detail, this European Standard applies to the following types of ARD:

- ARD with assessment means, reclosing only if both the prospective line current and the prospective earth-fault current do not exceed given values;
- ARD with assessment means, reclosing only if the prospective line current does not exceed a given value;
- ARD with assessment means, reclosing only if the prospective earth-fault current does not exceed a given value;
- ARD that reclose without any assessment.

NOTE 1 The assessment cannot substitute the verifications required by HD 60364-6:2007.

NOTE 2 The requirements and tests for the assessment function in IT systems are under consideration.

This European Standard does not apply to ARDs with multiple settings adjustable by means accessible to the user in normal service.

This European Standard states:

- the terms and definitions used for ARD (Clause 3);
- the classification of ARD (Clause 4);
- the characteristics of ARD (Clause 5);
- the preferred values of the operating and influencing quantities (Clause 5);
- the marking and information to be provided for ARD (Clause 6);
- the standard conditions for installation and operation in service (Clause 7);
- the requirements for construction and operation (Clause 8);
- the list of minimum requirements to be tested (Clause 9).

### 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.

EN 55014-1:2006 + A1:2009, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission* (CISPR 14-1:2005 + A1:2008)

EN 60065:2002 + A1:2006 + corr. Aug. 2007 + A11:2008 + A2:2010, *Audio, video and similar electronic apparatus – Safety requirements* (IEC 60065:2001, mod. + A1:2005, mod. + A2:2010, mod.)

- EN 60112:2003 + A1:2009, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials* (IEC 60112:2003 + A1:2009)
- EN 60384-14 series, *Fixed capacitors for use in electronic equipment* (IEC 60384 series)
- EN 60384-14:2005, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains* (IEC 60384-14:2005)
- EN 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles requirements and tests* (IEC 60664-1:2007)
- EN 60664-3:2003 + A1:2010, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution* (IEC 60664-3:2003 + A1:2010 + corr. Nov. 2010)
- EN 60898-1:2003 + corr. Feb. 2004 + A1:2004 + A11:2005 + A12:2008, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation* (IEC 60898-1:2002, mod. + A1:2002, mod.)
- EN 60898-2:2006, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 2: Circuit-breakers for a.c. and d.c. operation* (IEC 60898-2:2000, mod. + A1:2003, mod.)
- EN 60947-5-1:2004 + corr. Jul. 2005 + A1:2009, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices* (IEC 60947-5-1:2003 + A1:2009)
- EN 60950-1:2006 + A11:2009 + A1:2010, *Information technology equipment – Safety – Part 1: General requirements* (IEC 60950-1:2005, mod. + A1:2009, mod.)
- EN 61008-1:2004 + A11:2007 + A12:2009, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules* (IEC 61008-1:1996, mod. + A1:2002, mod.)
- EN 61009-1:2004 + A11:2008 + A12:2009 + A13:2009, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) – Part 1: General rules* (IEC 61009-1:1996, mod. + A1:2002, mod. + corr. May 2003)
- EN 61000-4-2:2009, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test* (IEC 61000-4-2:2008)
- EN 61000-4-3:2006 + A1:2008 + A2:2010, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test* (IEC 61000-4-3:2006 + A1:2007 + A2:2010)
- EN 61000-4-4:2004 + A1:2010, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test* (IEC 61000-4-4:2004 + A1:2010)
- EN 61000-4-5:2006, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test* (IEC 61000-4-5:2005)
- EN 61000-4-6:2009, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields* (IEC 61000-4-6:2008)
- EN 61000-4-16:1998 + A1:2004 + A2:2011, *Electromagnetic compatibility (EMC) – Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz* (IEC 61000-4-16:1998 + A1:2001 + A2:2009)
- EN 61189-2, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 2: Test methods for materials for interconnection structures* (IEC 61189-2)

EN 61543:1995 + corr. Dec. 1997 + A11:2003 + A12:2005, *Residual current-operated protective devices (RCDs) for household and similar use Electromagnetic compatibility* (IEC 61543:1995 + A2:2005)

EN 61558 series, *Safety of power transformers, power supply units and similar products* (IEC 61558 series)

EN 62019, *Electrical accessories – Circuit-breakers and similar equipment for household use – Auxiliary contact units* (IEC 62019)

EN ISO 306:2004, *Plastics – Thermoplastic materials – Determination of Vicat softening temperature (VST)* (ISO 306:2004)

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

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 60898-1:2003, EN 61008-1:2004, EN 61009-1:2004 and the following apply.

#### 3.1

##### **actuator**

part of the actuating system to which an external force is applied when the ARD is installed as in normal use  
[IEV 441-15-22, mod.]

NOTE The actuator may take the form of a handle, knob, push-button, roller, plunger, etc.

#### 3.2

##### **assessment using a method based on the limitation of the test current**

type of assessment that is designed in such a way that, under normal operating in tripped and blocked conditions, the assessment is carried out by means of a non hazardous current flowing in the installation

NOTE The limit values of currents are specified in 8.12.3.

#### 3.3

##### **assessment using a method based on the limitation of the test voltage**

type of assessment that is designed in such a way that, under normal operating in tripped and blocked conditions, the assessment is carried out by means of a non hazardous voltage applied at the installation by means of a transformer with a reinforced insulation between the primary and the secondary circuit

NOTE The limit values of voltage are specified in 8.12.2.

#### 3.4

##### **automatic reclosing**

function intended to reclose, under specified conditions, the MPD after tripping

#### 3.5

##### **automatic reclosing device**

ARD

electromechanical device intended to produce the automatic reclosing of the MPD to which is intended to be associated with

#### 3.6

##### **blocked condition**

condition of the ARD for which the MPD is tripped and the ARD shall not reclose it automatically

NOTE This condition can be removed only by manual reset operation according to the manufacturer's instructions.

#### 3.7

##### **consecutive reclosing operations**

number of consecutive reclosing operations that leads the ARD in blocked condition within a period of time

#### 3.8

##### **disabled (condition)**

condition of the ARD for which automatic reclosing function is de-activated and MPD can never be automatically reclosed