(PREVIEW)

Indian Standard

RESIDUAL CURRENT OPERATED CIRCUIT – BREAKERS FOR HOUSEHOLD AND SIMILAR USES

PART 1 CIRCUIT- BREAKERS WITHOUT INTEGRAL OVERCURRENT PROTECTION (RCCBs)

1 Scope

This International Standard applies to residual current operated circuit-breakers functionally Independent of, or functionally dependent on, line voltage, for household and similar uses, not Incorporating overcurrent protection (hereafter referred to as RCCBs), for rated voltages not exceeding 440 V a.c. and rated currents not exceeding 125 A, intended principally for protection against shock-hazard,

These devices are intended to protect persons against indirect contact, the exposed conductive parts of the installation being connected to an appropriate earth electrode. They may be used to provide protection against fire hazards due to a persistent earth fault current, without the operation of the overcurrent protective device.

RCCBs having a rated residual operating current not exceeding 30 mA are also used as a means for additional protection in case of failure of the protective means against electric shock

This standard applies to devices performing simultaneously the functions of detection of the residual current, of comparison of the value of this current with the residual operating value and of opening of the protected circuit when the residual current exceeds this value.

NOTE 1 The requirements for RCCBs are in line with the general requirements of IEC 60755, RCCBs are essentially intended to be operated by uninstructed persons and designed not to require maintenance, They may be submitted for certification purposes.

NOTE 2 Installation and application rules of RCCBs are given in IEC 60364.

They are intended for use in an environment with pollution degree 2.

They are suitable for isolation.

Special precautions (e. g lightning arresters) may be necessary when excessive overvoltages are likely to occur on the supply side (for example in the case of supply through overhead lines) (see IEC 60364-4-443).

RCCBs of the general type are resistant to unwanted tripping including the case where surge voltages (as a result of switching transients or induced by lightning) cause loading currents in the Installation without occurrence of flashover.

RCCBs of the S type are considered to be sufficient proof against unwanted tripping even if the surge voltage causes a flashover and a follow-on current occurs.

NOTE 3 Surge arresters installed downstream of the general type of RCCBs and connected in common mode may cause unwanted tripping

NOTE 4 For RCCBs having a degree of protection higher than IP20 special constructions may be required.

Particular requirements are necessary for

-Residual current operated circuit-breakers with integral overcurrent protection (see IEC 61009),
– RCCBS incorporated in or intended only for association with plugs and socket-outlets or with appliance couplers for household or similar general purposes.

NOTE 5 For the time being, for RCCBs incorporated in, or intended only for socket-outlets or plugs, the requirements of this standard in conjunction with the requirements of IEC 60884-1 may be used as far as applicable.

The requirements of this standard apply for normal environmental conditions (see 7.1). Additional requirements may be necessary for RCCBS used in locations having severe environmental conditions.

RCCBs including batteries are not covered by this standard,

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 600381963, {EC standard voltages

IEC 60050(1 51):1978, *Internationl Electrotechnical Vocabulary (IEV) - Chapter 151: Electrical and magnetic devices*

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

IEC 60051, *Direct acting indicating analogue electrical measuring instruments and their accessories*

IEC 60060-1:1989, *High-voltage* test *techniques - Part 1: General definitions and test requirements*

IEC 60060-2:1994, *High-voltage test techniques - Part 2: Measuring Systems*

IEC 60068-2-28:1980, *Environmental testing – Part 2: Tests – Guidance for damp heat tests*

IEC 60068-2-30:1990, *Environmental testing - Part 2: Tests - Test Db and guidance: Damp heat, cycle (12 + 12 hour cycle)*

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

IEC 364-4-443:1995, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 44: Protection against overvoltages- Section 443: Protection against overvoltages of atmospheric origin or due to switching*

IEC 60364-5-53:1994, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment - Chapter 53: Switchgear and controlgear*

IEC 60417:1973, *Graphical symbols for use on equipment. Index survey and compilation of the single sheets*

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

IEC 60664-1 1992, *Insulation co-ordination for equipment within* low-voltage *systems – Part 1. Principles, requirements and tests*

IEC 60695-2-1/0:1994, *Fire hazard testing – Part 2, Test methods – Section l/sheet O Glow-wire tests methods – General*

IEC 60755:1983, *General measurements for residual current-operated protective devices*

IEC 60884-1:1994, Plugs *and* socket-outlets for *household and similar purposes – Part 1. General requirements*

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