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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13955-2017

**Installation and operation of residual current operated
protective devices**

剩余电流动作保护装置安装和运行

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1 Scope

GB/T 13955-2017 is the Chinese national standard on installation and operation of residual current operated protective devices, in the field of electrical engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 December 2017 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 July 2018. Classification: ICS 29.120.50, CCS K09. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the relevant requirements for correct selection, installation and application of residual current operated protective devices (RCD) and their operational management. This Standard applies to AC power supply systems with a rated voltage not exceeding 400 V. This Standard does not apply to the protection against electric shock accidents, electrical equipment damages or electrical fire accidents between phases or between phases and N lines.

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.

GB/Z 6829 General requirements for residual current operated protective devices

GB/T 10963.1 Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installation - Part

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1 direct contact Contact between humans, animals AND live conductors.

3.2 indirect contact Contact between humans and animals AND the exposed conductor of a device that become charged in the event of a fault.

3.3 residual current I_{Δ} An effective value of the vector sum of the current that passes through the RCD's main circuit.

3.4 residual operating current A residual current value that makes the RCD operate under specified conditions.

3.5 rated residual operating current $I_{\Delta n}$ A residual operating current value specified by the manufacturer for RCDs. At this current value, the RCD shall operate under specified conditions.

3.6 residual non-operating current A residual current value, when less than or equal to this current, the RCD does not operate under specified conditions.

4 Application of RCDs

4.1 Protection against direct contact electric shock accidents In the protection against direct contact electric shock accidents, the RCD is only used as a supplementary protection measure of the basic protection measure of direct contact electric shock accidents (excluding the protection against direct contact electric shock accidents formed between phases, phases and N lines).

4.2 Protection against indirect contact electric shock accidents

4.2.1 General requirements The main measure for the protection against direct contact electric shock accidents is to use the protection method of automatically cutting off the power supply when an earth fault occurs due to insulation damage of electrical equipment, to prevent the exposed accessible conductors of the electrical equipment from having harmful effects due to continuously carrying dangerous voltage or electrical equipment damage.

4.2.2 Protection requirements for TN systems

4.3 Selective protection In low-voltage power supply systems, in order to reduce the range of power failure caused by the occurrence of personal electric shock accidents and earth faults, the RCD shall adopt selective protection.

4.4 Equipment and locations where RCD shall be installed

4.4.1 End protection End protection RCD shall be installed on the following equipment and locations.

4.4.2 Line protection When the low-voltage distribution line adopts two-level or three-level protection according to the specific conditions, install the RCD at the power supply end, the head end of the load group, or the end of the line (the power distribution box of the agricultural production equipment).

4.5 Cases where RCD may not be installed Electrical equipment and locations with the following conditions may not be installed with RCD.

5 Selection of RCDs

5.1 Technical conditions of RCDs It shall comply with the specifications of GB/Z 6829, GB/T 10963.1, GB/T 14048.2, GB/T 16916, GB/T 16917, GB/T 20044, GB/T 28527, GB/T 22794, GB/T 22387, etc., and pass the China Compulsory Product Certification.

5.2 Technical parameters of RCDs The rated values (see Annex B) of technical parameters of RCDs shall be compatible with the technical parameters of the lines or equipment being protected and the specific conditions used for installation.

5.3 Selection of RCD according to the power supply mode of electrical equipment

5.4 Selection of rated operating current of RCDs For the selection of the rated operating current of RCDs, the following factors shall be considered.

5.5 Adopting selective protection method When the selective protection method is adopted, the series test simulation selective operation test shall be carried out by using the test device before installation, ensuring the coordination of the operation characteristics.

5.8 Selection of RCD for special loads and locations For installing RCD for medical equipment in the hospitals listed in

4.4.1 i), it shall select the RCD with a rated residual current of 10 mA and without time delay.

6 Installation of RCDs

6.1 Installation requirements for RCDs The installation requirements for RCDs are as

follows:

6.3 Construction requirements for installation of RCDs The construction requirements for installation of RCDs are as follows:

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