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

GB/T 14598.1871-2024

**Measuring relays and protection equipment - Part 187-1: Functional
requirements for differential protection - Restrained and unrestrained
differential protection of motors, generators and transformers**

(English Translation)

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References

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 1871 of GB/T 14598 "Measuring relays and protection devices". GB/T 14598 has been published for the following part.

- GB/T 14598.2 Measuring relays and protection devices Part 1: General requirements;
- GB/T 14598.3 Electrical relays Part 5: Insulation coordination requirements and tests for measuring relays and protection devices;
- GB/T 14598.8 Electrical relays Part 20: Protection systems;
- GB/T 14598.23 Electrical relays Part 21: Vibration, shock, impact and earthquake of measuring relays and protective devices Test Part 3: Earthquake Test;
- GB/T 14598.24 Measuring relays and protection devices Part 24: Transient data exchange in power systems (COMTRADE) Common Format;
- GB/T 14598.26 Measuring relays and protection devices Part 26: Electromagnetic compatibility requirements;
- GB/T 14598.27 Measuring relays and protection devices Part 27: Product safety requirements;
- GB/T 14598.118 Measuring relays and protection devices Part 118: Synchronous phasor measurement in power systems;
- GB/T 14598.121 Measuring relays and protection devices Part 121: Requirements for distance protection functions;
- GB/T 14598.127 Measuring relays and protection devices Part 127: Over/undervoltage protection function requirements;
- GB/T 14598.149 Measuring relays and protection devices Part 149: Functional requirements of electric heating relays;
- GB/T 14598.151 Measuring relays and protection devices Part 151: Over/under current protection function requirements;

---GB/T 14598.181 Measuring relays and protection devices Part 181: Requirements for frequency protection functions;

---GB/T 14598.300 General technical requirements for transformer protection devices;

---GB/T 14598.301 Technical requirements for continuous recording devices in power systems;

---GB/T 14598.302 Technical requirements for arc protection devices;

---GB/T 14598.303 General technical requirements for digital integrated motor protection devices;

---GB/T 14598.1871 Measuring relays and protection devices Part 187-1.Functional requirements for differential protection of motors, Generator and transformer ratio restraint differential protection and differential quick-break protection.

This document is equivalent to IEC 60255-187-1:2021 "Measuring relays and protection devices Part 187-1.Functions of differential protection Requirements for ratio brake differential protection and differential quick-break protection for motors, generators and transformers.

The following minimal editorial changes were made to this document.

---Correct the relevant contents of 6.4.4.2, 6.4.4.3, 6.4.4.4, 6.4.5.2 in IEC, and change "When a fault occurs, the voltage of system A and the voltage of system B are equal" to the phase angle between the voltage of system A and the voltage of fault A should be consistent with the state before fault (load)" is corrected to "When fault occurs, the phase angle between the voltage of system A and the voltage of fault A should be consistent with the state before fault (load)" the front (load) state remains consistent";

--- Correct the relevant content of IEC 6.4.7.2, and correct "the total number of tests is 2560 times" to "the total number of tests is 2048 times";

--- Corrected footnote c of table 43 in 6.4.7.3 of IEC, adding "magnetizing impedance is infinite";

---Correct the relevant content of IEC 6.8.3.1, and correct "the input current can be obtained by equation (17) to equation (22)" to "the input current is obtained by Formula (16)~Formula (21) to obtain";

---Correct the relevant content of E.3.3 in IEC, and change "CT1" to "CT2".

Introduction

The purpose of formulating GB/T 14598 is to stipulate unified principles that are consistent with the above characteristics. These principles are applicable to power generation, transmission and distribution systems.