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GB/T 14598.121-2017

**Measuring relays and protection equipment -- Part 121:
Functional requirements for distance protection
(English Translation)**

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Foreword

"Measuring relays and protection devices" is divided into the following sections.

- GB/T 14598.1 electrical relays Part 23. Contact performance;
- GB/T 14598.2 measuring relays and protection devices Part 1. General requirements;
- GB/T 14598.3 electrical relays Part 5. Measuring relays and protective devices with the requirements of insulation and testing;
- GB/T 14598.4 electrical relays Part 14. Electrical relay contact life test contact excellent load First value
- GB/T 14598.5 electrical relays Part XV. Electrical relay contact life test test equipment characteristics specification;
- GB/T 14598.6 electrical relays Part XVIII with or without general-purpose relay size;
- GB/T 14598.8 electrical relays Part 20. Protection system;
- GB/T 14598.24 Measuring relays and protection equipment Part 24. Power System Transient Data Exchange (COMTRADE) Common format
- GB/T 14598.26 Measuring relays and protection devices - Part 26. Electromagnetic compatibility requirements;
- Measuring relays and protection devices GB/T 14598.27 Part 27. Product safety requirements;

- GB/T 14598.121 Measuring relays and protection equipment Part 121. Distance protection requirements;
- GB/T 14598.127 Measuring relays and protection devices Part 127. Over/under voltage protection function requirements;
- GB/T 14598.149 Measuring relays and protection devices Part 149. Functional requirements of electric relays;
- Measuring relays and protection equipment GB/T 14598.151 Part 151. Over/under current protection function requirements;
- GB/T 14598.300 computer transformer protection device general technical requirements;
- GB/T 14598.301 microcomputer generator transformer fault recording device technical requirements;
- GB/T 14598.302 arc protection device technical requirements;
- GB/T 14598.303 digital motor general protection device general technical conditions.

This section GB/T 14598 Part 121.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method is equivalent to using IEC 60255-121:2014 "Measuring relays and protection devices Part 121. Distance protection Functional Requirements "(in English).

This part is proposed by China Electrical Equipment Industry Association.

This part of the National Measurement Relay and Protection Equipment Standardization Technical Committee (SAC/TC154) centralized.

This part of the main drafting unit. Nanrui Nanjing Electric Co., Ltd. following security, Xuchang Cape Detection Technology Co., Ltd., Beijing Sifugi following Paul from Automation Co., Ltd., Xuchang Cape Electric Institute, Xu JI Electric Co., Ltd., Northeast Electric Power Design Institute Co., Ltd., Hebei Network Provincial Power Company, State Grid Shandong Electric Power Company, State Grid Hebei Electric Power Co., Ltd., State Power Nanjing Automation Co., Ltd., Beijing Ziguang Measurement Control Co., Ltd., Chang Yuan Shenzhen Rui Bao Automation Co., Ltd., Jicheng Electronic Co., Ltd., Oriental Electronics Co., Ltd., State Grid Electric Power Scientific Research Institute, Harbin Electric Group Acheng Relay Co., Ltd., Hebei Beheng Electric Technology Co., Ltd., ABB (China) Limited Company, Henan Electric Power Survey and Design Institute, Alstom Grid Technology Center Co., Ltd., Schneider Electric (China) Co., Ltd., State Power NARI Technology Co., Ltd., Jiangsu Provincial Power Company.

1 Scope

GB/T 14598 provisions of this part of the general for, but not limited to effectively grounded three-phase power line distance protection work the minimum requirement for energy and performance evaluation. This section also specifies the way to record and publish performance test results.

This part covers the distance protection functions whose operating characteristics can be defined on the impedance plane, including protection function specifications, measurement characteristics, selection Phase, Directionality, Startup and Delay Characteristics.

This section includes test methods for testing performance characteristics and accuracy. This section specifies the accuracy of the factors under steady-state conditions and performance characteristics under dynamic conditions. This section also includes the protection requirements of the transformer.

This section covers the distance protection functions are as follows.

IEEE/ANSI C37.2 Function Code IEC 61850-7-4 Logical Node Phase Distance Relay 21 PDIS Ground distance relay 21G PDIS this section does not specify the additional functions normally associated with digital distance relays, such as oscillatory lockup (PSB), out of step tripping (OST), Voltage Transformer (VT) monitoring, closing in Fault Protection (SOTF), Accelerated Trip after Reclosing (TOR), Inactive Grounding Over-line fault protection logic in the network, trip switching logic. This section only deals with the impact of these additional features on distance protection. In series Compensation line protection beyond the scope of this section.

General requirements for measuring relays and protection devices are specified in GB/T 14598.2.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

Measuring relays and protection equipment Part 1. General requirements (IEC 60255-1:2009, IDT) IEC 60050 (all parts) International Electrotechnical Vocabulary IEC 61850 (all parts) Electric Power Utilities Automation Communication Networks and Systems systems for power utility automation) Instrument transformers - Part 2. Additional requirements for current transformers (Instrument transformers - Part 2: Additional requirements for current transformers) IEC 61869-5:2011 Transformers - Part 5. Supplementary technical requirements for capacitive voltage transformers (Instrument transformers - Part 5: Additional requirements for capacitor voltage transformers)