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GB/T 14598.302-2016

Specification for arc flash protection equipment

弧光保护装置技术要求

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Foreword

GB/T 14598 "Measuring relays and protective devices" is divided into the following sections.

GB/T 14598.1 Electrical relays - Part 23. Contact performance; GB/T 14598.2 Measuring relays and protective devices - Part 1. General requirements; Electrical relays - Part 5. Insulation requirements and tests for measuring relays and protective devices; GB/T . Electrical relays - Part 14. Life expectancy of electrical relay contacts - Preference values for contact loads; GB/T 14598.4; GB/T 14598.5 Electrical relays - Part 15. Life test of electrical relay contacts - Characteristics of test equipment specification; GB/T 14598.6 Electrical relays - Part 18. Dimensions with or without general purpose relays; GB/T 14598.7 Electrical relays - Part 3. Single - input excitation quantities for relays with fixed time or self - defined time limits; Electrical relays - Part 20. Protective systems; Measuring relays and protective devices - Part 26. Electromagnetic compatibility requirements; Measurement relays and protective devices - Part 27. Product safety requirements; GB 14598.27; Measuring relays and protective devices - Part 127. Requirements for over - undervoltage protection; GB/T 14598.127; Measuring relays and protective devices - Part 149. Functional requirements for electric relays; GB/T 14598.149; Measuring relays and protective devices - Part 151. Requirements for over/undercurrent protection function GB/T 14598.151;

--- GB/T 14598.300 microcomputer transformer protection device general technical requirements;

--- GB/T 14598.301 Microcomputer-based generator transformer fault recorder technology requirements;

--- GB/T 14598.302 arc protection device technical requirements; General specification for integrated protection devices for digital motors GB/T 14598.303. This part is part 302 of GB/T 14598. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part is made by China Electrical Equipment Industry Association. This section is under the jurisdiction of the National Standardization Technical Committee for Measuring Relays and Protective Equipment (SAC/TC154). This part of the drafting unit. Yunnan Power Grid Company Electric Power Research Institute, Nanjing Nairui following Insurance Electric Co., Ltd., Xuchang Cape detection technology Co., Ltd., Nanjing Hongyi Electric Automation Co., Ltd., Chengdu Enneng Technology Co., Ltd., Xuchang Cape Electric Research Institute, Nanjing Zhongkai photoelectric Technology Co., Ltd., Schwartz Engineering Experiment (Shanghai) Co., Ltd., Nanjing Wujinjin Sensing Technology Co., Ltd., Shandong Zhongrui Electric Co., Ltd. Division, Chengdu Xingyu Energy Saving Technology Co., Ltd., Canada SAQE China Representative Office, Hangzhou Ruisheng Electric Co., Ltd., Jincheng Electronics Ltd., Beijing Sifang Ji Bao Automation Co., Ltd., ABB (China) Co., Ltd., Schneider Electric (China) Co., Ltd., Zhuhai Wan Li of Electrical Automation Co., Ltd., Guodian Nanrui Nanjing Control System Co., Ltd., Hebei North Heng Electric Technology Co., Ltd., long park Deep Rui Ji Bao Automation Co., Ltd., Beijing Hong Sheng Fu Bo Electric Power Technology Co., Ltd., Shenzhen Branch Lu Electronic Technology Co., Ltd. The main drafters of this part. Ding Xinzhi, Niu Honghai, Li Quanxi, Lu Yabin, Yan Changqing, Liu Zhukui, Li Zhiyong, Yang Huixia, Xu Degao, CAO Qing - zhou, YAN Yue, LI Xue - lu, HE Yong - tai, YUAN Rui, ZHOU Lin, YUAN Wen - guang, LI Ji - sheng, LI Yan, HU Jia, ZHU Zhi - wei, ZHANG Qing - wei, TIAN Jian - jun, XU Yong-jun, FENG Si-long, ZHANG Song, HU Xiao-jing, HU Yun-hua Technical requirements for arc protection devices

1 Scope

Part 302 of China's series on measuring relays and protection equipment, covering arc flash protection - the systems that detect an internal arcing fault in switchgear and clear it in a few milliseconds. It specifies the technical requirements, the test methods, the inspection rules, and the marking, labelling, packaging, transport and storage of arc flash protection devices. An arcing fault inside a switchboard is the most destructive thing that can happen in an electrical installation. The arc releases energy at a rate that vaporises copper, raises the pressure inside the enclosure explosively, and produces a flash and a pressure wave that kill or maim anyone standing in front of the panel. Conventional overcurrent protection will clear it, but only after the time its grading requires - often several hundred milliseconds - and the damage is done in the first tens. Arc flash protection exists to shorten that interval, and it does so by detecting the light of the arc, usually together with a current rise to confirm it, and tripping immediately without waiting for grading. The requirements follow from that purpose. The operating time is the central one and is measured in milliseconds. The light detection has to see an arc anywhere in the compartment it protects, through optical sensors or fibre, without being blinded by dirt or triggered by a camera flash or a

torch - so the sensitivity, the field of view and the immunity to spurious light are all specified. The confirmation logic, the self-supervision that must report a failed sensor, the tripping outputs, and the electromagnetic and environmental requirements of a device living inside switchgear complete it. Issued on 24 February 2016 and in force since 1 September 2016.

This part of GB/T 14598 specifies the technical requirements, test methods, inspection rules, marking, labeling and packaging of arc protection devices, Transportation, storage and so on. This part applies to arc protection devices and their interface devices (hereinafter referred to as devices), as product design, manufacturing, testing and application in accordance with.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 191 packaging and storage icon

GB/T 2900.1 Basic terminology for electrical terminology Electrician Terminology Relays Electrotechnical terminology - Power system protection GB/T

GB/T 5169.16-2008 Fire hazard testing for electric and electronic products - Part 16. Test flame 50W Horizontal and vertical fire Flame test method Basic test methods for relay protection and safety automatic devices

GB/T 7261-2016 General technical conditions for general cargo transport packaging GB/T 9174-2008

GB/T 11287-2000 Electrical relays - Part 21. Vibration, shocks, collisions and earthquakes for measuring relays and protective devices Test Part 1. Vibration test (sine) Tests for impact and impact of measuring relays and protective devices

GB/T 14537-1993 Measuring relays and protective devices - Part 1. General requirements GB/T 14598.2-2011

GB/T 14598.26-2016 Measuring relays and protective devices - Part 26. Electromagnetic compatibility requirements Measuring relays and protective devices - Part 27. Product safety requirements

GB 14598.27-2008 Electromagnetic compatibility test and measurement techniques - Pulsed magnetic field immunity test GB/T 17626.9-2011

GB/T 17626.10-1998 Electromagnetic compatibility test and measurement techniques Damping oscillations Magnetic field immunity test

GB/T 19582.1-2008 Industrial automation network specification based on Modbus protocol

Part 1. Modbus application protocol Specification for time synchronization system for power systems

GB/T 26866-2011 DL/T 667 Telecontrol equipment and systems - Part 5. Transmission protocol - Part 103. Information protection for relay protection equipment DL/T 860 (all parts) substation communication networks and systems

3 Terms and definitions

GB/T 2900.1, GB/T 2900.17, GB/T 2900.49 Definitions and the following terms and definitions apply to this document.

3.1 Arc protection device arcflashprotectionequipment To the power of a device failure generated when the arc light signal as the main criterion, the current signal and other failures as the auxiliary criteria, through the