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

GB/T 35745-2017

**Specifications for control and protection equipment of voltage
source converter based HVDC transmission systems**

柔性直流输电控制与保护设备技术要求

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard proposed by the China Electrical Equipment Industry Association. This standard by the National Measurement Relay and Protection Equipment Standardization Technical Committee (SAC/TC154) centralized. This standard was drafted unit. Southern Power Grid Research Institute Co., Ltd., Xuchang Cape Electric Institute, the State Grid Zhejiang Power Dispatching Control System Center, China Southern Power Grid Power Dispatching Control Center, Nanjing NARI Electric Co., Ltd., Xu Ji Electric Co., Ltd., Beijing Sifangji Paul Automation Co., Ltd., Beijing State Economic and Technological Research Institute, Guangdong Power Grid Co., Ltd. Power Dispatching Control Center, Monternet Wing Letter Technology Group Co., Ltd., Tsinghua University, China Energy Construction Group Guangdong Electric Power Design Institute Co., Ltd., Beijing Zhizhongneng Internet Research Institute Co., Ltd., TBEA Xinjiang New Energy Co., Ltd. The main drafters of this standard. Li Yan, Li Zhiyong, Pan Wu Lue, Rao Hong, Yu Jiang, Dong Yunlong, Hao Junfang, Secretary Zhe, Pu Ying, Wu Shuangxi, Zhang Haitao, Yuan Zhichang, Yang Huixia, Lurijuan, Chen Jun, Liu Tao, Xu Shukai, Fu Jiao, Liu Wei Zeng. Flexible DC transmission control and protection equipment technical requirements

1 Scope

China's national specification for the control and protection equipment of voltage source converter HVDC transmission systems. VSC-HVDC - flexible DC transmission, as it is known in China - is the newer of the two high voltage direct current technologies, and the difference from the classic line-commutated kind is fundamental. A classic converter needs a strong AC system to commutate against and cannot start one from nothing; a voltage source converter makes its own AC waveform with switched semiconductors, so it can feed a passive network, ride through faults, control real and reactive power independently and reverse power flow without reversing polarity. That is what makes it the technology for offshore wind connections, for feeding islands and weak grids, and for the multi-terminal DC grids China has been building. All of that capability lives in the control and protection equipment, which is why it is specified as a product: the converter hardware is unremarkable without it.

This standard specifies the flexible DC transmission system control and protection equipment, general requirements, functional and technical performance requirements, test requirements, standard Chi label requirements, packaging, transportation and storage requirements, the supply of complete sets of requirements and quality assurance. This standard applies to back-to-back, double-ended, multi-terminal flexible DC transmission system control and protection equipment (hereinafter referred to as equipment), can be used as equipment Design, manufacture, testing, inspection basis.

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.

GB/T 191-2008 Packaging - Pictorial signs General specifications for computerized premises GB/T 2887-2011

GB/T 4208-2017 enclosure rating (IP code) Computerized site safety requirements GB/T 9361-2011

GB/T 9969 Industrial Products Manual General

GB/T 11287-2000 Electrical relays - Part 21. Vibration, shock, bump and earthquakes of measuring relays and protection devices Test Part 1. Vibration test (sine)

GB/T 13498 HVDC terms Shock and collision tests for measuring relays and protection equipment Measuring relays and protection equipment - Part 1. General requirements GB/T 14598.2-2011

GB/T 14598.24 Measuring relays and protection equipment - Part 24 - Power system transient data exchange (COMTRADE) Use format

GB/T 14598.26-2015 Measuring relays and protection equipment - Part 26. EMC requirements

GB/T 14598.27-2008 Measuring relays and protection equipment - Part 27. Product safety requirements Electromagnetic compatibility (EMC) - Testing and measurement techniques - Pulsed magnetic field immunity test

GB/T 17626.10-1998 Electromagnetic compatibility Testing and measurement techniques Shock magnetic field immunity test

GB/T 18700 (all parts) Telecontrol equipment and systems Transformers - Part 8. Electronic current transformers

GB/T 22390.1-2008 HVDC system control and protection equipment Part 1. Operating personnel control system

GB/T 22390.6 HVDC transmission system control and protection equipment - Part 6
converter station transient fault recorder device DL/T 667 Telecontrol equipment and
systems Part 5. Transmission protocol Part 103. Relay equipment information Interface
configuration standards DL/T 860 (all parts) Substation communication networks and
systems DL/T 1193 Flexible Transmission Term

IEC 62747.2014 Voltage source converter based HVDC terminology (Terminology for
voltage-source dcon- verters (VSC) for high-voltage direct current (HVDC) systems)

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