

ICS 29.200

CCS K 46



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

GB/T 13498-2017

**Terminology for high-voltage direct current (HVDC)
transmission**

(English Translation)

Issued on: December 29, 2017

Implemented on: July 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China, Standardization
Administration of the People's Republic of China**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 13498-2007 "HVDC Terminology", compared with GB/T 13498-2007, the main changes are as follows.

--- Added an introduction;

--- Modify "Link" to "Link" (see Chapter 1, 4.2, 4.3, 4.8, 6.2, and 8.24, Chapter 1, 5.2, 5.3, 5.9 of the 2007 Edition and 6.2);

--- Change the title of 3.2 to "Subscript" (see 3.2, 3.2 of 2007 Edition);

--- Adjust Chapter 4 "Graphics" to 3.4 (see 3.4, Chapter 4 of the 2007 edition);

--- For the term defined in the definition and note that has been defined in this standard, the

term entry number to be referred to is placed in parentheses, followed by After the definition and the term appearing in the note;

- Adjust Chapter 5 to Chapter 4 (see Chapter 4, Chapter 5 of the 2007 edition);
- Added Chapter 5 "Conversion Charge", part of which is based on 3.1 "word symbols" (see Chapter 5);
- Modify the terms "converter [unit]" "[commutation] bridge", etc. (see Chapter 6, Chapter 6 of the 2007 edition);
- Added the terms "rectifier", "inverter", "rectifier station" and "inverter station" (see Chapters 6 and 8);
- Removed the term "energy converter station" (see version 8.9.1 of the 2007 edition);
- Adjust Chapter 10 to Chapter 11 and Chapter 11 to Chapter 10 (see Chapters 10 and 11 Chapter 11 of the 2007 Edition and Chapter 10);
- Added Appendix A "This Standard and GB/T 13498-2007 Correspondence Table" and Appendix B "This Standard and IEC 60633:2015 Pair should be the table." this standard uses the redrafted method to modify the use of IEC 60633:2015 "HVDC terminology." this standard has more adjustments in structure than IEC 60633:2015. Appendix B lists this standard and IEC 60633:2015 the chapter numbering control list.

There is a technical difference between this standard and IEC 60633:2015. The terms involved in these differences have passed through the margins on its outer side.

The vertical single line () is marked.

The technical differences between this standard and IEC 60633:2015 and its causes are as follows.

--- With regard to normative references, this standard has made adjustments with technical differences to adapt to China's technical conditions. Adjusted feelings the focus is reflected in Chapter 2, "Normative References," and the specific adjustments are as follows.

- Replaced IEC 60617-5 with GB/T 4728.5 equivalent to international standards;
- Replaced IEC 60617-6 with GB/T 4728.6 equivalent to the international standard;
- Removed IEC 60050-551;
- Removed IEC 60146-1-1;

--- According to our country's habits, in order to facilitate the development and application of direct current transmission, the term "rectifier", "inverter", "conversion valve" and "valve" have been added.

Hall "rectifier station" and "inverter station" (see Chapters 6, 8 and 10);

--- According to our country's habits, 7.12 and 7.34 are merged into the term "trigger" and the definition is modified (see 7.12);

--- According to the current situation in China, the term "[asymmetrical] unipolar [high-voltage direct current]" added or modified in IEC 60633:2015 was deleted.

System, Symmetric Unipolar, Rigid DC Bipolar System, and Symmetrical Unipolar [High-Voltage DC] System (see IEC 60633:2015) 8.8, 8.16, 8.17 and 8.18);

--- According to the status quo in China, the 2007 version of the term "High-Voltage DC System" and "Bipolar Metallic Loop" are retained.

[High-voltage DC] systems, unipolar [high-voltage direct current] systems, "single-high loop DC [high-voltage direct current] systems," "unipolar metal return lines [high Pressure DC] systems (see 8.8.1, 8.8.2, 8.9, 8.9.1, and 8.9.2);

--- According to our country's habits, "control" is modified to "control protection" (see 10, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.6.1, 10.6.2, 10.7, 11, 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.6.1, 11.6.2 of IEC 60633:2015, 11.7);

--- According to the status quo in China, the 2007 version of the term "voltage control method" is retained (see 11.2).

--- According to the status quo in China, the term "DC voltage control method" of IEC 60633:2015 has been deleted (see IEC 60633:2015 10.2).

This standard also made the following editorial changes.

--- Adjust the diagram to the text;

--- Change 8.12 in Figure 9 and Figure 10 to 8.13.

This standard was proposed by the China Electrical Appliance Industry Association.

This standard is under the jurisdiction of the National Standardization Technical Committee for Power Electronic Systems and Equipment (SAC/TC60).

Introduction

HVDC transmission as an important means to solve large-capacity, long-distance transmission and asynchronous networking, energy optimization in China and large area the network plays an important role.

The terminology standard for HVDC transmission is the basis of HVDC system technology. In the early stage of the development of high-voltage DC transmission technology in China, IEC 60633:1978 "HVDC Transmission Terminology" has established GB/T 13498-1992, which has effectively adapted to China's HVDC transmission technology.

The actual needs of surgical development and engineering construction, digestion and

absorption of imported technology, independent development of equipment, system operation, and development of HVDC transmission technology the standard system of surgery plays an important role in many aspects.

In order to adapt to the rapid development of China's HVDC transmission technology, after 2000, it began to adopt the amendment of IEC 60633:1998.

GB/T 13498-1992 and published as GB/T 13498-2007.

At present, the voltage level, transmission capacity, and transmission distance of China's HVDC transmission systems are all ranked first in the world, not only domestically the construction of high-voltage,, back-to-back HVDC transmission projects is in full swing, with the development and utilization of large-scale wind power, photovoltaic and other new energy sources.

Began to go abroad. In recent years, IEC has revised and issued IEC 60633:2015. Therefore, according to the actual revision of our country GB/T 13498-2007, adding new technologies, new concepts, deleting outdated technical terminologies, and separating different technology concepts in order to dominate the international HVDC transmission technology development of.

HVDC transmission terminology

1 Scope

This standard defines a HVDC converter station and a high-voltage converter that converts AC to DC or DC to AC using a power electronic converter.

Pressurized HVDC transmission system terms and definitions.

This standard applies to HVDC converter stations that use grid commutation converters, which use one-way electronic valves (such as semiconductor valves), usually based on for three-phase bridge (double) connection.

2 Normative references

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

GB/T 4728.5 Graphical symbols for electrical diagrams Part 5. Semiconductor tubes and tubes (GB/T 4728.5-2005, IEC 60617 database, IDT) GB/T 4728.6 Graphical symbols for electrical diagrams Part 6. Generation and conversion of electrical energy (GB/T 4728.6-2008, IEC 60617 database, IDT) IEC 60027 (all parts) Letter symbols for electrical engineering (Lettersymbolstobeusedinelectricaltechnology)