ICS 29.240.01
CCS F 21

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 28815-2025

Replacing GB/T 28815-2012

Technical requirements for the master station of a real-time dynamic monitoring system of a power system

电力系统实时动态监测主站技术要求

Issued on: December 2, 2025 **Implemented on: July 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB/T 28815-2012 "Technical Specification for Real-time Dynamic Monitoring Master Station of Power System" and is consistent with GB/T 28815-2012. Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows:

a) A new chapter, "Terms and Definitions" (see Chapter 3), and a new chapter, "Abbreviations" (see Chapter 4), have been added;

b) Change "General Requirements" to "General Requirements" and incorporate the relevant content from the.2012 version (see Chapter 5,.2012 version). Chapters 3 and 4); change "System Functions" to "Basic Functional Requirements" and incorporate the relevant content from the.2012 version. (See Chapter 6, Chapter 5 of the.2012 edition); Change "Application Functionality" to "Application Functionality Requirements", and include the relevant content from the.2012 edition. The revised version is included (see Chapter 7, Chapter 6 of the.2012 edition);

c) Added "Data Acquisition" content (see 6.1.2);

d) Added requirements for "data quality monitoring and statistics" (see 6.2), "data interaction and sharing" (see 6.3), and "offline files of main and sub-sites". "Interaction" requirement (see 6.4);

e) The monitored content has been expanded (see 7.1.1);

f) Requirements for locating oscillation disturbance sources and identifying spurious oscillations have been added (see 7.2.1.1);

g) Added monitoring and analysis requirements for "subsynchronous oscillation and supersynchronous oscillation" (see 7.2.2) and "medium-high frequency oscillation" monitoring and analysis requirements. (See 7.2.3);

h) Added "DC fault" identification requirements (see 7.3.1.4);

i) The requirement for "active online testing of primary frequency modulation" has been added (see 7.4.2);

j) Added the requirement of "online evaluation of grid connection performance of new energy power plants and energy storage power stations" (see 7.4.4);

k) Added the requirement for "harmonic and interharmonic analysis and statistics" (see 7.6);

l) The sections "Test Methods" (see Chapter 7 of the.2012 edition), "Inspection Rules" (see Chapter 8 of the.2012 edition), and "Marking, Packaging" have been removed. The contents of "loading, transportation and storage" (see Chapter 9 of the.2012 edition). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Electricity Council. This document is under the jurisdiction of the National Technical Committee on Standardization of Power System Management and Information Exchange (SAC/TC82). This document was drafted by: State Grid Henan Electric Power Research Institute and China Power Engineering Consulting Group North China Electric Power Design Institute. Limited Company, China Electric Power Research Institute Co., Ltd., NARI Technology Co., Ltd., National Power Dispatch and Control Center, Beijing Sifang Relay Protection Engineering Technology Co., Ltd., State Grid Electric Power Research Institute Co., Ltd., China Southern Power Dispatch and Control Center, North China Electric Power University, and other relevant institutions. State Grid Jiangsu Electric Power Co., Ltd., State Grid Henan Electric Power Co., Ltd., Nanjing NARI Relay Protection & Automation Co., Ltd., and China Power Precision Engineering Co., Ltd. State Grid Sichuan Electric Power Research Institute, State Grid Shandong Electric Power Research Institute, State Grid Zhejiang Electric Power Co., Ltd. The company's partners include Shaoxing Power Supply Company, Beijing Jiaotong University, Shenyang University of Technology, State Grid Corporation of China North China Branch, and Guodian Nanjing Automation Co., Ltd. Limited Liability Company, State Grid Jiangxi Electric Power Co., Ltd., Shanghai Kuanyu Industrial Network Equipment Co., Ltd., and Changyuan Shenrui Relay Protection Automation Co., Ltd. The main drafters of this document are. Zhang Daonong, Li Qiang, Bi Tianshu, Yu Yuehai, Zhang Jiangnan, Li Jin, Chang Naichao, Xie Xiaodong, Xu Yong, and Wang Yongfu. Chang Guanghui, Liu Dong, Bian Baoyin, Shi Lin, Chen Li, Zhang Xiao, Feng Shilin, Wen Fuguang, Wu Po, Xu Feiyang, Yuan Mingjun, Chen Kai, Xia Chenglin, Zhang Haidong Song Kun, Liang Zhengtang, Zhang Lizong, Xia Mingchao, Chen Qifang, Pei Maolin, Yang Mengjuan, Liu Hao, Liu Hui. The release history of this document and the document it replaces is as follows:

1 Scope

GB/T 28815-2025 is the Chinese national standard covering the WAMS master station - the machine that collects synchrophasor data from PMUs across a grid, time-aligned to the microsecond, and turns it into oscillation detection, state estimation and post-event analysis of what actually happened. Issued on 2 December 2025, it has been in force since 1 July 2026, replacing GB/T 28815-2012.

This document specifies the overall requirements, basic functional requirements, and application functional requirements for the real-time dynamic monitoring master station of the power system. This document applies to real-time dynamic monitoring master stations of power systems installed in power grid dispatching agencies at all levels. It also applies to power generation groups and other enterprises. The main monitoring station shall follow suit.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 2887 General Specifications for Computer Venues

GB/T 22239 Information Security Technology - Basic Requirements for Network Security Level Protection

GB/T 26865.2 Real-time dynamic monitoring system for power systems - Part

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 A system for monitoring and analyzing the dynamic processes of power systems based on synchronous phasor measurement, broadband measurement, and communication technologies.

Note. Includes the main site and sub-sites.

3.2 power system Synchronous phasor measurement devices/wideband measurement devices and phasor datasets installed in the same power plant, substation, converter station, or energy storage power station A collection of concentrators/wideband data concentrators.

Note. This is abbreviated as real-time dynamic monitoring substation or substation for

power system.

3.3 power system Computer systems and related software used to receive and forward data from substations, and to perform storage, management, analysis, alarm, and decision-making functions.

Note. Abbreviated as Power System Real-time Dynamic Monitoring Master Station or Master Station.

3.4 Wide-frequency oscillation Oscillations in the power grid at frequencies ranging from a few tenths of a hertz to several kilohertz are non-rated frequencies.