



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

GB/T 42726-2023

**Specification of supervision and control system for
electrochemical energy storage station**

电化学储能电站监控系统技术规范

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Foreword

This document was issued on 23 May 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 December 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 42726-2023 covers the supervision and control system of an electrochemical energy storage station, the equipment and software through which operators see the batteries and command them. It gives the overall requirements, the normal operating conditions, the technical requirements, the testing, and marking, packaging, transportation and storage. The functions it addresses are data collection, data processing, control and adjustment, alarms, sequence-of-event recording, post-disturbance review, communication, data storage, the human-machine interface, system time synchronization and system load rate. The architecture is divided into a station level and a local level so the system meets its reliability, real-time and scalability requirements, and it has to carry monitoring, control, protection and communication functions. Sequence-of-event recording, post-disturbance review and time synchronization exist for one reason between them: when a storage station trips, the order in which signals arrived is the only evidence of what failed first, and that order is lost unless the system was built to timestamp it and keep it. Terms are taken from DL/T 2528. Useful to system suppliers, to the designers laying out a storage station, and to the commissioning engineers who have to demonstrate the functions before the station is

handed over.

This document specifies the requirements for data collection, data processing, control and adjustment, alarms, event sequential record, post disturbance review, communication, data storage, human-machine interface, system time synchronization and system load rate of the

supervision and control system for electrochemical energy storage station (hereinafter referred

to as "supervision and control system"). It also describes the corresponding test methods, and

specifies the normal operating conditions, system architecture, marking, packaging, transportation and storage, etc. of the supervision and control system.

This document is applicable to the design, manufacturing, testing, detection, operation, maintenance and overhaul of the supervision and control system for electrochemical energy

storage station.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only

versions with a specified date are applicable to this document. In terms of references without a

specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 191 Packaging - Pictorial Markings for Handling of Goods

GB/T 4798.2 Classification of Environmental Conditions - Classification of Groups of Environmental Parameters and Their Severities - Part 2: Transportation and Handling

GB/T 13384 General Specifications for Packing of Mechanical and Electrical Product

GB/T 19582 (all parts) Modbus Industrial Automation Network Specification

GB/T 22239 Information Security Technology - Baseline for Classified Protection of Cybersecurity

GB/T 36572 Guidelines of Cyber Security Protection for Electric Power System Supervision and Control

DL/T 634.5104 Telecontrol Equipment and Systems - Part 5-104: Transmission Protocols - Network Access for IEC 60870-5-101 Using Standard Transport Profiles

DL/T 667 Telecontrol Equipment and Systems - Part 5: Transmission Protocols Section 103 Companion Standard for the Information Interface of Protection Equipment

DL/T 698.41 Data Acquisition and Management System for Electrical Energy - Part 4-1: Communication Protocol - Master Station Communication with Data Acquisition Terminal

DL/T 719 Telecontrol Equipment and Systems - Part 5: Transmission Protocol Section 102: Companion Standard for the Transmission of Integrated Totals in Electric Power Systems

DL/T 860 (all parts) Communication Networks and Systems for Power Utility Automation

DL/T 2528 Basic Terminology of Electrical Energy Storage

3 Terms and Definitions

What is defined in DL/T 2528, and the following terms and definitions are applicable to this document.

3.1 station level

Station level refers to a power station control level that is composed of supervision and control

system equipment intensively arranged in the computer room or secondary equipment room

(cabin) to realize functions, such as: full-station supervision and control, etc.

3.2 local level

Local level refers to a power station control level that is composed of supervision and control

system equipment arranged on the site of the controlled equipment to realize functions, such as:

data collection, equipment monitoring and control, etc.

4 Overall Requirements

4.1 The architecture of the supervision and control system shall include the station level

and

the local level to satisfy the system reliability, real-time and scalability requirements. See

Appendix A for the typical system architecture.

4.2 The supervision and control system shall be equipped with the functions of monitoring, control, protection and communication, etc.

4.3 The supervision and control system shall utilize important equipment, such as: servers and

telecontrol workstations, which should be redundantly configured.

4.4 Before exiting the factory, the supervision and control system shall be subject to various functions and related performance tests.

4.5 The network security protection of the supervision and control system shall comply with the stipulations of GB/T 22239 and GB/T 36572.

6.1.1 The supervision and control system shall collect operation information of equipment, such

as: battery management system, energy storage converter, power transformation and distribution equipment, and auxiliary system, etc.

6.1.2 For information collected on the battery management system, see Table B.1 in Appendix

B.

6.1.3 For information collected on the energy storage converter, see Table B.2.

6.1.4 For information collected on the power transformation and distribution equipment, see Table B.3.

6.1.5 For information collected on auxiliary systems, such as: fire-fighting system, heating ventilation and air-conditioning system, environmental monitoring device and DC power supply, etc., see Table B.4.

6.1.6 The data collection response time of the supervision and control system shall satisfy the

following requirements:

a) The response time of digital quantity information (from I/O input terminal to station