



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

GB 14287.9-2026

**Electrical fire monitoring system - Part 9: Insulation monitoring
device of electrical fire**

电气火灾监控系统 第9部分：探测绝缘性能式电气火灾监控探测器

Issued on: January 28, 2026

Implemented on: February 1, 2027

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

Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	1
4.Classification	2
5 Requirements	2
5.1 General Requirements	2
5.2 Appearance	2
5.3 Performance of Major Components	2
5.4 Basic Functions	3
5.5 Fault Alarm Function	4
5.6 Monitoring and alarm functions	4
5.7 Communication Functions	4
5.8 Insulation resistance	4
5.9 Leakage Current	4
5.10 Electrical strength	4
5.11 Electromagnetic Compatibility	5
5.12 Voltage fluctuation	6
5.13 Mechanical environmental tolerance	6
5.14 Climate and Environmental Tolerance	6
5.15 Instruction Manual	6
6.1 General Requirements	6
6.2 Appearance and major component inspection	8
6.3 Basic Function Test	9
6.4 Fault Alarm Function Test	12
6.5 Monitoring and Alarm Function Test	12
6.6 Communication Function Test	12
6.7 Insulation resistance test	12
6.8 Leakage Current Test	12
6.9 Electrical strength test	13
6.10 Radio Frequency Electromagnetic Field Radiation Immunity Test	13
6.11 Conducted Interference Immunity Test Based on Radio Frequency Field Induction ..	13
6.12 Electrostatic Discharge Immunity Test	14

6.13 Electrical Fast Transient/Bulk Immunity Test	14
6.14 Surge (Impulse) Immunity Test	14
6.15 Immunity test for voltage sags, short interruptions and voltage variations	14
6.16 Power Frequency Magnetic Field Immunity Test	15
6.17 Voltage Fluctuation Test	15
6.18 Vibration (Sine) (Running) Test	15
6.19 Crash Test	16
6.20 Low Temperature (Operation) Test	16
6.21 Constant Humidity and Heat (Operation) Test	16
7. Inspection Rule	16
7.1 Factory Inspection	16
7.2 Type Testing	17
8. Markings and Packaging	17
8.1 Product Marking	17
8.2 Quality Inspection Mark	17
18 Appendix B (Normative) Detector Housing Combustion Performance 19 B.1	
Requirement 19 B.2 Experiment 19 B.3 requires	20

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 is Part 9 of GB 14287 "Electrical Fire Monitoring Systems". GB 14287 has the following parts published.

1. Electrical Fire Monitoring Equipment;
2. Residual Current Type Electrical Fire Monitoring Detector;
3. Temperature-measuring electrical fire monitoring detectors;
4. Fault Arc Detectors;
5. Measurement of Pyrolytic Particle Electrical Fire Monitoring Detectors;
6. Harmonic Suppression Electrical Fire Monitoring Devices;
7. Electrical Fire-Resistant Current-Limiting Protective Devices;
9. Electrical fire monitoring detectors that detect insulation performance. 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 and is under the jurisdiction of the State Fire and Rescue Administration.

With rapid socio-economic development and increasing demand for electricity from residents, total electricity consumption has continued to grow, leading to a continuous increase in the complexity of electrical systems. Electrical fires are occurring frequently, causing significant property damage and casualties. Preventing electrical fires and reducing casualties and property losses are crucial. To prevent property damage, building an electrical fire monitoring system and identifying potential hazards in advance through monitoring and early warning mechanisms has become a core requirement for fire safety assurance. Electrical fire monitoring systems differ from fire detection and alarm systems in that they focus on the early identification of potential electrical faults and anomalies through dynamic monitoring. Detection and early warning intervention can break the accident chain that leads to electrical faults evolving into fires. With the evolution of electrical fire monitoring and detection technology, domestic research and industrial institutions have developed technologies suitable for IT grounding systems and based on power distribution systems. Electrical fire monitoring products that integrate insulation performance detection serve as key components of electrical fire monitoring systems, supporting practical electrical fire prevention and control. Due to the needs of technological development and application, it is urgent to formulate this document to improve the technical approach for identifying electrical fire hazards in the GB 14287 standard system. Comprehensive coverage. This document standardizes the technical requirements and testing methods for electrical fire monitoring detectors that detect insulation performance, guiding industry players in their work. Product design, production, inspection, and engineering applications enhance the accuracy and reliability of hazard identification in electrical fire monitoring systems, contributing to international trade and technology. It provides a technological benchmark for communication and industry-collaborative innovation. GB 14287 "Electrical Fire Monitoring Systems" is the fundamental standard guiding the production, inspection, and use of electrical fire monitoring systems in my country. It is planned to consist of nine parts.

1. Electrical Fire Monitoring Equipment. The purpose is to standardize the general technical requirements for electrical fire monitoring equipment products and improve production efficiency. Product quality.

2. Residual Current Type Electrical Fire Monitoring Detectors. The purpose is to standardize residual current type electrical fire monitoring detectors. General technical requirements for products, to improve product quality.

3. Temperature-Sensing Electrical Fire Monitoring Detectors. The purpose is to standardize the use of temperature-sensing electrical fire monitoring detectors. Use technical requirements to improve product quality.

1 Scope

Part 9 of GB 14287 is a new part covering the insulation monitoring detector, which measures the insulation resistance of a live circuit continuously rather than inferring a problem from the leakage current it produces. The standard sets the classification, the general requirements and appearance, the performance of the main components, the basic, fault alarm, monitoring alarm and communication functions, then the electrical requirements - insulation resistance, leakage current, dielectric strength, electromagnetic compatibility and tolerance of voltage fluctuation - and the mechanical and climatic endurance, with twenty-one test methods, the inspection rules, the marking and two normative annexes. Issued on 28 January 2026, in force from 1 February 2027; first edition. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the edition it replaces are taken from there. The clause text, the tables and the numeric limits are not reproduced on this page - they are in the document itself, which is delivered in full in English translation.

This document defines the terminology for electrical fire monitoring detectors that detect insulation performance, and specifies their classification, requirements, inspection rules, and markings. The packaging describes the corresponding test methods. This document applies to electrical fire monitoring detectors (hereinafter referred to as "detectors") used in electrical fire monitoring systems to detect insulation performance. Product design, manufacturing, and inspection.

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 9969 General Rules for Instructions for Use of Industrial Products

GB 12978 Inspection Rules for Fire Protection Electronic Products

GB 14287 (all parts) Electrical fire monitoring systems

GB/T 16838 Environmental testing methods and severity levels for fire protection electronic products

GB/T 17626.2 Electromagnetic compatibility testing and measurement techniques - Electrostatic discharge immunity test

GB/T 17626.3 Electromagnetic compatibility testing and measurement techniques - Part