

ICS 55.200
CCS H 57



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

GB 14287.5-2025

**Electrical fire monitoring system - Part 5: Pyrolysis sensing
electrical fire monitoring detectors**

电气火灾监控系统 第5部分：测量热解粒子式电气火灾监控探测器

Issued on: October 31, 2025

Implemented on: November 1, 2026

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

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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 5 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;
 7. Electrical Fire Protection Current Limiting Protectors
- 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 the rapid development of the social economy and the increasing demand for electricity from people's lives, the total electricity consumption of the whole society continues to grow, and the complexity of electrical systems is constantly increasing. Electrical fires are increasingly frequent, causing significant property damage and casualties. Preventing electrical fires and reducing casualties is crucial. In addition to preventing property damage, constructing an electrical fire monitoring system and identifying potential hazards in advance through monitoring and early warning mechanisms has become the core of fire safety assurance. Needs. Electrical fire monitoring systems differ from fire detection and alarm systems, focusing on the early identification of potential electrical faults by detecting electrical anomalies. Dynamic monitoring and early warning intervention can break the accident chain that leads to electrical faults evolving into fires. With the iteration of electrical fire detection technology, domestic scientific research and industrial institutions have made breakthroughs in the principle of pyrolysis particle detection and developed a series of electrical fire monitoring technologies. Detectors, as core components of the system, support the construction of electrical fire prevention and control systems. Based on technological innovation and industrial application needs, there is an urgent need to formulate... The national standard "Electrical Fire Monitoring Systems - Part

5.Measurement of Pyrolytic Particle Electrical Fire Monitoring Detectors" improves upon the GB 14287 standard. The system provides comprehensive coverage of relevant technical approaches for identifying electrical fire hazards. This document standardizes the technical requirements and testing methods for measuring pyrolysis particle detectors, guiding industry players in product design and production. Production, inspection, and engineering applications enhance the accuracy and reliability of hazard identification in electrical fire monitoring systems, contributing to international trade, technological exchange, and industrial cooperation. Together, we provide a technological benchmark for innovation. GB 14287 "Electrical Fire Monitoring Systems" is the basic standard guiding the production, inspection, and use of electrical fire monitoring system products in my country. The standard is composed 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.

4.Arc Fault Detectors. The purpose is to standardize the general technical requirements for arc fault detector products and improve product quality. quality.

1 Scope

Part 5 of GB 14287 is a new part covering a detection principle that arrives ahead of the others: instead of waiting for leakage current, heat or an arc, the pyrolysis sensing detector measures the sub-micron particles that insulation gives off when it begins to decompose, which happens well before any of those appear. The standard sets the classification, the general requirements and appearance, the basic, monitoring, alarm and communication functions, the performance of the major components and of the detection itself, then the test methods including the pyrolysis test with its specified materials and apparatus, the inspection rules and the marking and packaging. Issued on 31 October 2025, in force since 1 November 2026; 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 measuring pyrolysis particle electrical fire monitoring detectors, specifies their classification, requirements, inspection rules, and markings, and describes... The corresponding experimental methods are described. This document applies to the measurement of pyrolysis particle type electrical fire monitoring detectors (hereinafter referred to as "detectors") in electrical fire monitoring systems. 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