



Member of the FM Global Group



American National Standard for Radiant Energy-Sensing Fire Detectors for Automatic Fire Alarm Signaling

ANSI/FM Approvals 3260-2004 (R2014)

Reaffirmation of ANSI/FM Approvals 3260-2004

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Foreword

NOTE: This foreword is introductory only and is not part of American National Standard/FM Approvals 3260.

This standard sets performance requirements for radiant energy-sensing fire detectors used for automatic fire alarm signaling for the protection of occupants, building space, structure, area, or object.

This American National Standard has been developed by the canvass method of standards development of the American National Standards Institute (ANSI). FM Approvals is an ANSI-accredited standards developing organization (SDO).

Approval of an American National Standard requires verification by ANSI that the principles of openness and due process have been followed and that a consensus of those directly and materially affected by the standard has been achieved. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution. Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached.

The American National Standards Institute does not develop standards nor will it in any circumstances give an interpretation of any American National Standard. Requests for interpretations of this test standard should be addressed to FM Approvals.

ANSI regulations require that this American National Standard shall be revised, reaffirmed or withdrawn within five years of the date of publication.

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1. INTRODUCTION

1.1 Scope

This standard sets performance requirements for radiant energy-sensing fire detectors used for automatic fire alarm signaling for the protection of occupants, building space, structure, area, or object.

1.2 Basis for Requirements

The requirements of this standard are based on experience, research and testing, and/or the standards of other national and international organizations. The advice of manufacturers, users, trade associations, jurisdictions, and loss control specialists has also been considered.

1.3 System of Units

Units of measurement used in this standard are United States (U.S.) customary units. These are followed by their arithmetic equivalents in International System (SI) units, enclosed in parentheses. The first value stated shall be regarded as the requirement. The converted equivalent value may be approximate. The Appendix lists the selected units and conversions to SI units for measures appearing in this standard. Conversion of U.S. customary units is in accordance with the American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)/American Society for Testing Materials (ASTM) SI 10-97, “*Standard for Use of the International System of Units (SI): The Modern Metric System.*”

1.4 Applicable Documents

The following standards, test methods, and practices are referenced in this standard:

ANSI/UL 50 – Enclosures for Electrical Equipment

FM Approval Standard 3600 – *Electrical Equipment For Use In Hazardous (Classified) Locations General Requirements*

IEC 60529 – Degree of Protection Provided by Enclosures (IP Code)

National Fire Protection Association (NFPA) 70 – National Electrical Code.

National Fire Protection Association (NFPA) 72 – National Fire Alarm Code

FM Approval Standard 3615 – *Explosionproof Electrical Equipment*

2. GENERAL INFORMATION

2.1 Product Information

2.1.1 Radiant energy sensing detectors fall into two (2) general categories: flame detectors and spark/ember detectors, depending upon the source of radiant energy they are intended to detect and the ambient in which they are to be used. Flame detectors are intended to respond to the radiant emissions from a flame and are expected to operate in normally illuminated environments. Spark/ember detectors are intended to respond to embers in a fuel stream flowing past them within a sheet metal pneumatic conveyance duct, chute, conveyor, or other location of limited illumination.

2.1.2 All radiant energy sensing detectors have a limited field of view and rely on a line-of-sight transmission of radiant energy from the source to the detector. Radiant energy sensing detectors employ infrared, visible, and/or ultraviolet sensors or combinations of sensors, selected to match the radiant emissions expected from the source to be detected. Since each fuel emits unique spectra, not all detectors are capable of detecting all fuels.

2.2 Requirements for Samples for Examination

For functional tests outlined below, the manufacturer shall provide at least four detectors which are deemed to be representative of the manufacturer's normal production with regard to construction and calibration. All four detectors shall be subjected to the baseline, flame response sensitivity, and false alarm tests; the remainder of the tests shall be spread over the four samples as outlined in Table 1.

Table 1: Test Assignments

Test	Paragraph	Sample 1	Sample 2	Sample 3	Sample 4
Baseline Sensitivity	4.1.2	x	x	x	x
Flame Response	4.2.2	x	x	x	x
False stimuli	4.3.2	x	x	x	x
Field of view	4.4.2	x			
Switching	4.5.2	x			
Humidity cycling & conditioning	4.6.2		x		
Voltage variation	4.7.2			x	
Temperature extremes	4.8.2		x		
Vibration	4.9.2			x	
Dielectric strength	4.10.2		x		
Bonding	4.11.2		x		
Durability	4.12.2				x
Stability	4.13.2				x
Extraneous transients	4.14.2				x
Surge transient tests	4.15.2				x
Spark/Ember Detector	4.16.2	x	x	x	x