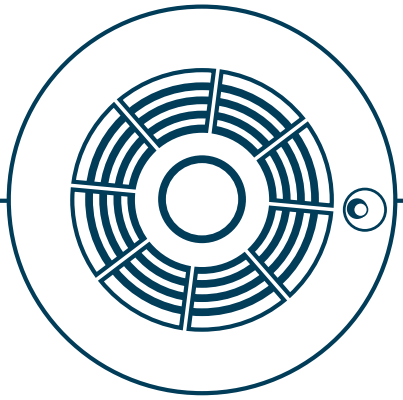
Guidance Note

Fire Industry Association



FIA Guidance Document – BS 5446-4

Fire Detection and Fire alarm devices for dwellings – Part 4: Specification for multi-sensor fire alarms using any combination of smoke, heat and carbon monoxide sensors

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1. FOREWORD

This guide is intended to provide an overview of BS 5446-4 including an introduction to the standard, how the standard was written, the relationship to other domestic and commercial FD&A standards, along with product definitions.

2. INTRODUCTION

BS 5446 is published in the following parts:

- **Part 2**: Specification for heat alarms;
- **Part 3**: Specification for fire and carbon monoxide alarm systems for deaf and hard of hearing people; and
- **Part 4**: Specification for multi-sensor fire alarms using any combination of smoke, heat and carbon monoxide sensors.

Currently, existing standards used within the UK domestic fire alarm industry include:

BS EN 14604:2005
– Smoke alarm devices.

BS 5446-2:2003
– Fire detection and fire alarm devices for dwellings – Part 2: Specification for heat alarms.

For carbon monoxide detection in domestic premises:

BS EN 50291-1:2018 – Gas Detectors
– Electrical apparatus for the detection of carbon monoxide in domestic premises. Part 1: Test methods and performance requirements.

Note: This should not be confused with carbon monoxide fire detection.

All of the above standards provide alarm specifications for single sensor fire, or carbon Monoxide detection. Within the EN 54 series other relevant standards include:

EN 54-26:2015
– Fire detection and fire alarm systems – Part 26: Carbon monoxide detectors – Point detectors.

EN 54-29:2015
– Fire detection and fire alarm systems – Part 29: Multi-sensor fire detectors – Point detectors using a combination of smoke and heat sensors.

EN 54-30:2015
– Fire detection and fire alarm systems – Part 30: Multi-sensor fire detectors – Point detectors using a combination of carbon monoxide and heat sensors.

EN 54-31:2014
– Fire detection and fire alarm systems – Part 31: Multi-sensor fire detectors – Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors.

BS 5446-4 was written to be aligned with the working group drafts of prEN 14604 and prEN 54-31, in addition elements from other relevant EN 54 standards have been utilised throughout the drafting process for consistency.

3. OPEN DESCRIPTIONS

BS 5446-4 was drafted to follow the Open Descriptions (OD) approach currently under consideration by TC 72 for the EN 54 series of standards. The Open Descriptions approach provides a common technical language to express the performance of a product. As such manufacturers are required to publish a Declaration of Performance using the descriptors. Within BS 5446-4 the technique of using simple descriptors has been adopted, but the option of a descriptor “0” has been omitted.

As the CPR does not permit pass/fail criteria, Open descriptions provides a method for the performance of the product to be described. The Open Descriptions approach introduces standard descriptor “X” and “0” to express, respectively, when an optional characteristic is not provided (X) and when the performance of a characteristic is not within defined criteria (0). Other descriptors (e.g. “1”,”2”,”A1”,”A2”) express when the performance of a characteristic is within defined criteria.

It should be noted that the different descriptors describe different variants of a product and greater descriptors would not equate to a superior product.

The OD approach is focussed on providing the “common technical language” for expressing the performance of a product under the CPR to be used by the manufacturer in the Declaration of Performance (DoP) required by the CPR.

BS 5446-4:2020, Annex A, provides a DoP which is analogous to the requirements of the CPR.

4. SCOPE AND DEFINITIONS

BS 5446-4 defines the requirements and test methods for domestic multi-sensor alarms using one of the following combinations of sensors:

a) Smoke and heat;

b) Smoke and Carbon monoxide;

c) Carbon monoxide and heat; and

d) Smoke, Carbon Monoxide and heat.

The standard does not include ionisation smoke sensors.

The standard is applicable for permanent installation within dwellings as well as leisure accommodation vehicles.

Multi-sensor fire alarm device (Definition as per BS 5446-4)

Unit containing all the components, except possibly the normal power source, necessary for detecting smoke and for giving an audible alarm, which can comprise one or more parts such as a base (socket) and a head (body).

Note: The addition of CO detection as per EN 50291-1 to a fire or heat detection device does not meet the requirements for a device specified under BS 5446-4.

5. CONTENTS

Within the standard the following areas are defined:

- Scope
- Normative references
- Terms, definitions, symbols and abbreviations
- Product characteristics and Test procedures
- Testing, assessment, and sampling methods
- Assessment and verification of constancy or performance
- Marking, labelling, and packaging
- Annexes covering test fires – TF1, TF2, TF3, TF4, TF5, and TF8

DISCLAIMER

The information set out in this document is believed to be correct in the light of information currently available but it is not guaranteed and neither the Fire Industry Association nor its officers can accept any responsibility in respect of the contents or any events arising from use of the information contained within this document.

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