
Components of automatic fire detection systems

Part 7. Specification for point-type smoke detectors using scattered light, transmitted light or ionization

Organes constitutifs des systèmes de détection automatique d'incendie
Partie 7. Détecteurs ponctuels de fumée, fonctionnant suivant le principe de la diffusion de la lumière, de la transmission de la lumière et de l'ionisation

Bestandteile automatischer Brandmeldeanlagen
Teil 7. Punktförmige Rauchmelder, nach dem Streulicht-, Durchlicht-, oder Ionisationsprinzip

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National foreword

This Part of BS 5445 has been prepared under the direction of the Fire Standards Committee and is the English language version of European Standard EN 54 'Components of automatic fire detection systems' Part 7 : 1982 'Point type smoke detectors; Detectors using scattered light, transmitted light or ionization' of the European Committee for Standardization (CEN).

This Part of BS 5445 specifies the requirements, methods of test and performance criteria for point-type smoke detectors. Point-type heat detectors are specified in Parts 5 and 8; the components of automatic fire detection systems to be specified in other Parts are described in Part 1. The tests are in the nature of 'type tests' and are not intended as manufacturers' tests to maintain uniformity of quality in production. While they are intended to assess the most important features of the design of automatic fire alarm systems, they cannot remove the necessity for regular inspection and maintenance,

as described in clause 29 of BS 5839 : Part 1 : 1980, which are essential for reliable operation.

It should be noted that the comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as a decimal marker.

Cross-references. Aluminium alloy conforming to material 2014A condition TF as specified in BS 1470 : 1972 'Specification for wrought aluminium and aluminium alloys for general engineering purposes — plate, sheet and strip', is equivalent to aluminium alloy Al-Cu4SiMg to ISO 209 : 1971 'Composition of wrought products of aluminium and aluminium alloys — Chemical composition (percent)', solution treated and precipitation treated condition (see annex 0).

Compliance with a British Standard does not of itself confer immunity from legal obligations.



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Components of automatic fire detection systems
Part 7. Specification for point-type smoke
detectors using scattered light, transmitted light
or ionization

Revised text

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Text of EN 54 : Part 7

Amend the text of the European Standard in accordance with the details given on the attached pages.

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English version

Components of automatic fire detection systems Part 7. Point-type smoke detectors; Detectors using scattered light, transmitted light or ionization

Organes constitutifs des systèmes de détection automatique d'incendie; Partie 7: Détecteurs de fumée; Détecteur fonctionnant suivant le principe de diffusion de la lumière, de la transmission de la lumière et de l'ionisation

Bestandteile automatischer Brandmeldeanlagen; Teil 7: Punktförmige Rauchmelder; Rauchmelder nach dem Streulicht-, Durchlicht- oder Ionisationsprinzip

This Amendment was accepted by CEN on 14 May 1987 in accordance with the conditions given on the title page of the European Standard to which this amendment refers and of which it is an integral part.

The CEN members are bound to abide by the Common CEN/CENELEC Rules which define the conditions for making modifications.

CEN members are the national standards organizations of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Brief history

This Amendment 1 to the European Standard EN 54 Part 7 was drawn up by the Technical Committee CEN/TC 72 (the EN has been voted in 1982) 'Automatic fire detection systems', the Secretariat of which is held by BSI. This amendment clarifies the procedures for certain tests.

In accordance with the Common CEN/CENELEC Rules, following countries are bound to implement this Amendment:

Austria, Belgium, Finland, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

Amendments applicable to all language versions

10. Air movement

10.1 Response behaviour

Delete the existing text of **10.1** entirely and substitute the following.

'The detector shall be tested in the manner described in annex **H.1**. The detector shall be deemed to comply with the requirements of this clause if:

$$0,625 \leq \frac{Y_{(0,2) \max} + Y_{(0,2) \min}}{Y_{(1,0) \max} + Y_{(1,0) \min}} \leq 1,6$$

or

$$0,625 \leq \frac{m_{(0,2) \max} + m_{(0,2) \min}}{m_{(1,0) \max} + m_{(1,0) \min}} \leq 1,6$$

10.2 False alarm behaviour

Insert the following new paragraph between the title and the existing first paragraph.

'This test only applies to smoke detectors using ionization.'

12. Ambient light

Insert the following new paragraph between the title and the existing first paragraph.

'This test only applies to smoke detectors using scattered light or transmitted light.'

In paragraph 2, item (b), delete 'or $Y_{\max}:Y_{\min}$ '.

Table 1. Test schedule for smoke detectors

In the row titled '12 K Ambient light', in the column titled '4', delete 'x' and substitute 'x¹⁾'.

At the foot of table 1 insert the following.

¹⁾ 'This test only applies to smoke detectors using scattered light or transmitted light.'

Annex H. Test for sensitivity to air movement

H.2 False alarm behaviour

Insert 'for at least 5 min' between ' $v = 5 \pm 0,5$ m/s' and 'and then to a gust lasting 2 s'.

Annex K. Sensitivity to ambient light test

In K.1, delete the final paragraph and substitute the following.

'In each directional alignment of the detector, the maximum response threshold value is given the symbol $m_{\max}$ and the minimum response threshold value is given the symbol $m_{\min}$.'

Annex M. Humidity test

M.1 Test method

Delete:

'The response threshold value of detector no. 6 shall be measured with the most unfavourable flow direction according to annex B within 5 min of removal from the climatic chamber.'

and substitute the following:

'The response threshold value of detector no. 6 shall be measured according to annex B with the most unfavourable flow direction. The measurement shall commence not later than 5 min after removal from the climatic test chamber.'

Annex P. Corrosion test

P.3 Procedure

In paragraph 2, delete '60 h' and substitute '72 h'.

Annex Q. Insulation resistance test

In Q.1, delete

The detector shall be dried in an oven at a temperature of 40 ± 5 °C. Immediately afterwards the detector shall be placed in a climatic chamber, and subjected to the following conditions for 10 days:'

and substitute

The detector shall then be heated to, and allowed to stabilize at, 40 ± 5 °C (to prevent the formation of condensation) before being subjected to the following conditions for 10 days:'