

BS EN 50194-1:2009



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Electrical apparatus for the detection of combustible gases in domestic premises —

Part 1: Test methods and performance requirements

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The UK participation in its preparation was entrusted by Technical Committee GEL/31, Equipment for explosive atmospheres, to Subcommittee GEL/31/19, Gas detectors.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English version

Electrical apparatus for the detection of combustible gases in domestic premises - Part 1: Test methods and performance requirements

Matériels électriques
pour la détection des gaz combustibles
dans les locaux à usage domestique -
Partie 1: Méthodes d'essai
et exigences d'aptitude à la fonction

Elektrische Geräte
für die Detektion von brennbaren Gasen
in Wohnhäusern -
Teil 1: Prüfverfahren und Anforderungen
an das Betriebsverhalten

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CENELEC

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

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 216, Gas detectors.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50194-1 on 2008-09-01.

This European Standard supersedes EN 50194:2000.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
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 - latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2011-09-01
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1 Scope

This European Standard specifies general requirements for the construction, testing and performance of electrically operated apparatus for the detection of combustible gases, designed for continuous operation in a fixed installation in domestic premises. The apparatus may be mains or battery powered.

Additional requirements for apparatus to be used in recreational vehicles and similar premises are specified in EN 50194-2.

NOTE 1 For caravan holiday homes EN 50194-1 applies.

This European Standard specifies two types of apparatus to operate in the event of an escape of town gas, natural gas or liquefied petroleum gas (LPG):

- Type A apparatus - to provide a visual and audible alarm and an executive action in the form of an output signal that may actuate directly or indirectly a shut-off device and/or other ancillary device;
- Type B apparatus - to provide a visual and audible alarm only.

This European Standard excludes apparatus for the detection of toxic hazards of gases such as carbon monoxide (see EN 50291-1 and EN 50291-2).

Apparatus complying with this standard is not considered suitable for industrial or commercial installations for which EN 60079-29-1 apply.

NOTE 2 Apparatus tested in accordance with EN 60079-29-1 will not necessarily comply with this European Standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 437	1993	Appliances using combustible gases - Test gases, test pressure and categories of appliances
EN 1775	2007	Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations
EN 50244	2000	Electrical apparatus for the detection of combustible gases in domestic premises - Guide on the selection, installation, use and maintenance
EN 50270	2006	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen
EN 50291	2001	Electrical apparatus for the detection of carbon monoxide in domestic premises - Test methods and performance requirements
EN 60079-29-1	2007	Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases (IEC 60079-29-1:2007, modified)
EN 60335-1	2002	Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1:2001, modified)
EN 60529	1991	Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)
EN 60704-1	1997	Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 1: General requirements (IEC 60704-1:1997)

3 Definitions

For the purposes of this European Standard the following definitions apply:

3.1

ambient air

the normal atmosphere surrounding the apparatus

3.2

clean air

air which is free from combustible gases, interfering and contaminating substances

3.3

domestic premises

any house or building being the place of residence or home of a household, family or person

3.4

fixed installation

an apparatus which is intended to have all parts except replaceable batteries permanently installed

3.5

latching alarm

an alarm which, once activated, requires deliberate action for resetting

3.6

lower explosive limit (LEL)

the volume ratio of flammable gas or vapour in air below which an explosive gas atmosphere will not be formed

NOTE Annex A of EN 61779-1:2000 gives a list of flammability levels which are the internationally agreed basis for the type testing of devices. National regulations may use differing values for the LEL of some substances (for example the values for methane and propane, which were specified in older European Standards).

3.7

sensor

an assembly in which the sensing element is housed and which may contain associated circuit components

3.8

sensing element

a device, the output of which will change in the presence of combustible gas

3.9

volume ratio (v/v)

ratio of the volume of a component to the volume of the gas mixture

3.10

output signal

signal characterized by a standby state and an activated state by which action may be initiated (for example, triggering of a shut-off device)

3.11

alarm set point

a fixed setting of the apparatus that determines the volume ratio of combustible gas at which the apparatus will automatically initiate an alarm and for Type A apparatus, an output signal

3.12**gas detection apparatus**

apparatus comprising the sensor, remote sensor if applicable, alarm and other circuit components, power supply and for Type A apparatus a means of providing an output signal

3.13**fault signal**

a visual or audible signal indicating a faulty or failed apparatus

3.14**LPG**

butane, propane or mixtures thereof

3.15**mains powered apparatus**

an apparatus designed to be powered by the domestic mains electrical supply, with or without additional power source

3.16**self contained battery powered apparatus**

apparatus provided with an internal battery to provide the necessary amount of energy for a predefined duration of operation

3.17**warm-up time**

the time interval between the time when the apparatus is switched on and the time when the apparatus is fully operational

3.18**continuous operation**

apparatus which is continuously powered with continuous or intermittent automatic sensing

3.19**recreational vehicle**

recreational vehicles considered by this standard include recreational craft, caravans and motor caravans

NOTE Other motorised vehicles like trucks are known to have residential accommodation. They are not recreational vehicles but are considered as similar premises in respect of this standard.

3.20**caravan holiday home**

transportable leisure accommodation vehicle that does not meet requirements for construction and use of road vehicles, that retains means for mobility and that is for temporary or seasonal occupation [from EN 13878]

4 General requirements**4.1 General**

Unless otherwise stated, the requirements specified are applicable to both Type A and Type B apparatus.

The apparatus shall reliably detect the presence of combustible gas in domestic premises under the stated application conditions, shall produce an alarm, and in the case of Type A apparatus, shall be able to initiate executive actions whenever the level exceeds a preset alarm volume ratio.