BRITISH STANDARD

BS EN
50054:1999

Electrical apparatus for the detection and measurement of combustible gases — General requirements and test methods

The European Standard EN 50054:1998 has the status of a British Standard

ICS 13.320

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National foreword

This British Standard is the English language version of EN 50054:1998. It supersedes BS EN 50054:1991 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GEL/31, Electrical apparatus for explosive atmospheres, to Subcommittee GEL/31/19, Gas detectors, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

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English version

Electrical apparatus for the detection and measurement of combustible gases — General requirements and test methods

Appareils électriques de détection et de mesure des gaz combustibles — Règles générales et méthodes d'essais

Elektrische Geräte für das Aufspüren und die Messung brennbarer Gase — Allgemeine Anforderungen und Prüfmethoden

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European Committee for Standardization
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Foreword

This second edition of the European Standard was prepared by SC 31-9, Electrical apparatus for the detection and measurement of combustible gases to be used in industrial and commercial potentially explosive atmospheres, of Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres, on the basis of EN 50054:1991, its amendment A1:1995 and a second amendment.

This second amendment was approved by CENELEC on 1996-12-09 for incorporation into a new edition of EN 50054.

This European Standard replaces EN 50054:1991 + A1:1995.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1999-01-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and covers essential requirements of EC Directive 94/9/EC.

Annexes designated “informative” are given for information only.

In this standard, annexes A, B and C are informative.

Contents

		Page
Foreword		2
1	Scope	3
2	Normative references	3
3	Definitions	3
4	General requirements	5
4.1	Introduction	5
4.2	Construction	6
5	Test requirements	7
5.1	Introduction	7
5.2	General requirements for tests	7
5.3	Normal conditions for test	8
5.4	Test methods	9
6	Field calibration kit	12
7	Information for use	13
7.1	Labelling and marking	13
7.2	Instruction manual [see also **7.2** r)]	13
Annex A (informative) Flammability limits (i.e. LEL and UEL) of some flammable gases and vapours		15
Annex B (informative) Determination of time of response		18
B.1	Aspirated apparatus (see also Figure B.1)	
B.2	Apparatus that samples by diffusion	18
Annex C (informative) Bibliography		23
Figure 1 — Warm-up time in clean air		14
Figure 2 — Warm-up time in standard test gas		14
Figure B.1 — Schematic example of equipment for use with aspirated apparatus		19
Figure B.2 — Schematic example of equipment during application of clean air or test gas		20
Figure B.3 — Schematic example of equipment showing change-over from clean air to test gas to begin the time of response measurement (see also **B.2.2**)		20
Figure B.4 — Schematic example of applicator and sensor inlet during application of test gas or clean air (see also **B.2.2**)		21
Figure B.5 — An example of an automated test chamber (see also **B.2.3.1**)		22

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1 Scope

1.1 This European Standard specifies general requirements for construction and testing and describes the test methods that apply to portable, transportable and fixed apparatus for the detection and measurement of combustible gas or vapour concentrations with air. The apparatus, or parts thereof, is intended for use in potentially explosive atmospheres (see **3.1**) and in mines susceptible to firedamp.

This European standard is supplemented by the following European Standards, concerning the specific requirements for performance of the various types of apparatus.

EN 50055, *Performance requirements for Group I apparatus indicating up to 5 % (V/V) methane in air.*

EN 50056, *Performance requirements for Group I apparatus indicating up to 100 % (V/V) methane.*

EN 50057, *Performance requirements for Group II apparatus indicating up to 100 % lower explosive limit.*

EN 50058, *Performance requirements for Group II apparatus indicating up to 100 % (V/V) gas.*

NOTE 1 Group I apparatus indicating up to 100 % (*V/V*) methane and Group II apparatus indicating up to 100 % (*V/V*) gas are suitable for use only with the specific gases for which they have been calibrated.

NOTE 2 For the purposes of this European Standard the term "combustible gas" includes combustible vapours but excludes mist and dust, see **3.3**, note 1.

1.2 This European Standard is applicable to combustible gas detection apparatus intended to provide an indication alarm and/or other output function, the purpose of which is to give a warning of potential explosion hazard and in some cases to initiate automatic or manual protective actions.

1.3 This European Standard is applicable to apparatus, including the integral sampling systems of aspirated apparatus intended to be used for commercial and industrial safety applications.

1.4 This European Standard does not apply to external sampling systems, or to apparatus of the laboratory or scientific types, or to apparatus used only for process control purposes.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to the European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50055:1998, *Electrical apparatus for the detection and measurement of combustible gases — Performance requirements for Group I apparatus indicating up to 5 % (V/V) methane in air.*

EN 50056:1998, *Electrical apparatus for the detection and measurement of combustible gases — Performance requirements for Group I apparatus indicating up to 100 % (V/V) methane in air.*

EN 50057:1998, *Electrical apparatus for the detection and measurement of combustible gases — Performance requirements for Group II apparatus indicating up to 100 % lower explosive limit.*

EN 50058:1998, *Electrical apparatus for the detection and measurement of combustible gases — Performance requirements for Group II apparatus indicating up to 100 % (V/V) gas.*

EN 60068-2-6:1995, *Environmental testing — Part 2: Tests — Test Fc: Vibration (sinusoidal).* (IEC 60068-2-6:1995 + corrigendum Mar. 1995)

EN 61000-4-3:1996, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 3: Radiated, radio frequency, electromagnetic field immunity test.* (IEC 61000-4-3:1995, modified)

EN 61000-4-4:1995, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 4: Electrical fast transient/burst immunity test.* (IEC 61000-4-4:1995)

HD 481.1 S1, *Electromagnetic compatibility for industrial-process measurement and control equipment — Part 1: General introduction.* (IEC 60801-1:1984)

ISO 6142:1981, *Gas analysis — Preparation of calibration gas mixtures — Weighing methods.*

ISO 6145:1986, *Gas analysis — Preparation of calibration gas mixtures — Dynamic volumetric methods (Parts 1, 3, 4 and 6).*

ISO 6147:1979, *Gas analysis — Preparation of calibration gas mixtures — Saturation method.*

3 Definitions

The following definitions are applicable in this European Standard and in the European Standards listed in **1.1**.

3.1

potentially explosive atmosphere

an atmosphere which could become explosive (the danger is a potential one)

3.2

firedamp

a flammable gas, consisting mainly of methane, found naturally in mines

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