BRITISH STANDARD

BS EN
50056:1999

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

The European Standard EN 50056:1998 has the status of a British Standard

ICS 13.320

National foreword

This British Standard is the English language version of EN 50056:1998. It supersedes BS EN 50056:1991.

The 1998 edition of the European Standard incorporates some minor modifications to bring it into alignment with the New Approach Directive on Potentially Explosive Atmospheres (ATEX). There are no changes to the technical provisions.

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.

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

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 5 and a back cover.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50056

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Supersedes EN 50056:1991 + A1:1995

Descriptors: electrical apparatus, explosive atmosphere, mine susceptible to firedamp, detector, measuring apparatus, flammable gas, combustible gas, characteristic

English version

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

Appareils électriques de détections et de mesure des gaz combustibles — Règles de performances des appareils du Groupe I pouvant indiquer jusqu'à 100 % (*V/V*) de méthane dans l'air

Elektrische Geräte für das Aufspüren und die Messung brennbarer Gase — Anforderungen an das Betriebsverhalten von Geräten der Gruppe I mit einem Meßbereich bis zu 100 % (*V/V*) Methan in Luft

This European Standard was approved by CENELEC on 12 September 1996.

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

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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 50056:1991, 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 50056.

This European Standard replaces EN 50056:1991 + 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.

Contents

1 Scope

1.1 This European Standard specifies performance requirements for Group I (as defined in EN 50054) portable, transportable and fixed apparatus for the detection and measurement of methane concentrations in mine air. The apparatus, or parts thereof, are intended for use in mines susceptible to firedamp and shall meet the general requirements and test methods specified in EN 50054.

1.2 This European Standard is restricted to apparatus intended for the detection and measurement of volume ratios of methane in air from 0 % (*V/V*) up to 100 % (*V/V*).

NOTE Apparatus covered by this European Standard will normally be intended to operate in volume ratios greater than 5 % (*V/V*).

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 50054:1998, *Electrical apparatus for the detection and measurement of combustible gases — General requirements and test methods.*

3 Definitions

For the purposes of this European Standard, the definitions given in EN 50054 apply.

4 General requirements

The apparatus shall comply with the general requirements specified in clause **4** of EN 50054.

5 Performance requirements

5.1 General

The normal conditions for test are specified in subclause **5.3** of EN 50054. Compliance shall be determined in accordance with the test methods specified in subclause **5.4** of EN 50054.

5.2 Unpowered storage

After being submitted to the conditions specified in subclause **5.4.2** of EN 50054, the apparatus shall meet the requirements specified in **5.3** to **5.25** of this European Standard.

5.3 Calibration curve (not applicable to alarm-only apparatus)

Each of the three indications (after correction using the manufacturer's calibration curve, if necessary) obtained for each of the four gas volume ratios shall not differ from these volume ratios by more than ± 3 % (*V/V*) methane or ± 5 % of the indication, whichever is the greater.

5.4 Drift (continuous duty apparatus)

The medium term variation shall not exceed ± 3 % (*V/V*) methane or ± 5 % of the indication, whichever is the greater, in air and in the standard test gas.

5.5 Drift (spot reading apparatus)

The variation of the indication shall not exceed ± 3 % (*V/V*) methane or ± 5 % of the indication, whichever is the greater, in air and in the standard test gas.

5.6 Alarm

The alarm shall operate during every cycle of the test. If a latching alarm is provided, the manual reset action shall be checked during every cycle.

5.7 Temperature

The variation of the indication from that at 20 °C, over the temperature range:

a) −10 °C to 0 °C, shall not exceed ± 7 % (*V/V*) methane or ± 15 % of the indication; and

b) 0 °C to + 40 °C, shall not exceed ± 5 % (*V/V*) methane or ± 10 % of the indication.

whichever is the greater.

5.8 Pressure

The variation of the indication from that at 101,3 kPa, over a pressure range of 92 kPa to 115 kPa, shall not exceed ± 7,5 % (*V/V*) methane or ± 5 % of the indication, whichever is the greater.

5.9 Humidity

At 40 °C, the variation of the indication from that at 55 % relative humidity (r.h.) over a humidity range of 5 % r.h. to 90 % r.h., shall not exceed ± 5 % (*V/V*) methane or ± 10 % of the indication, whichever is the greater.

5.10 Air speed

The variation of the indication over a range of air speeds from 0 m/s to 6 m/s shall not exceed ± 3 % (*V/V*) methane or ± 5 % of the indication, whichever is the greater.

5.11 Pumping rate

The variation of the indication shall not exceed ± 3 % (*V/V*) methane or 5 % of the variation, whichever is the greater.

5.12 Orientation

5.12.1 *Portable apparatus*

The variation in the indication shall not exceed ± 5 % (*V/V*) methane or ± 10 % of the indication, whichever is the greater.

5.12.2 *Fixed and transportable apparatus*

The variation in the indication shall not exceed ± 3 % (*V/V*) methane or ± 5 % of the indication, whichever is the greater.