

# Electrical apparatus for the detection and measurement of oxygen

## Performance requirements and test methods

The European Standard EN 50104 : 1995 has the status of a British Standard

ICS 19.080

---

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

# Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee GEL/31, Electrical apparatus for explosive atmospheres, to Subcommittee GEL/31/19, Gas detectors, upon which the following bodies were represented:

- Association of British Mining Equipment Companies
- BLWA Ltd. (The Association of the Laboratory Supply Industry)
- British Gas plc
- Council for Electrical Equipment for Flammable Atmospheres (BEAMA Ltd.)
- Council of Gas Detection and Environmental Monitoring
- Engineering Equipment and Materials Users Association
- ERA Technology Ltd.
- GAMBICA (BEAMA Ltd.)
- Health and Safety Executive
- Safety Equipment Association
- SIRA Ltd.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on 15 September 1996

© BSI 1996

## Amendments issued since publication

| Amd. No. | Date | Text affected |
|----------|------|---------------|
|          |      |               |
|          |      |               |
|          |      |               |
|          |      |               |
|          |      |               |

The following BSI references relate to the work on this standard:  
Committee reference GEL/31/19  
Draft for comment 92/32380 DC

ISBN 0 580 25710 X

# Contents

|                        | Page               |
|------------------------|--------------------|
| Committees responsible | Inside front cover |
| National foreword      | ii                 |
| Foreword               | 2                  |
| Text of EN 50104       | 3                  |

# National foreword

This British Standard has been prepared by Subcommittee GEL/31/19 and is the English language version of EN 50104 : 1995 *Electrical apparatus for the detection and measurement of oxygen — Performance requirements and test methods*, published by the European Committee for Electrotechnical Standardization (CENELEC).

## Cross-references

| Publication referred to    | Corresponding British Standard                                                                                                                                                                                                 |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EN 50014                   | BS EN 50014 : 1992<br><i>Electrical apparatus for potentially explosive atmospheres</i><br><i>General requirements</i>                                                                                                         |
| EN 50015                   | BS EN 50015 : 1994<br><i>Electrical apparatus for potentially explosive atmospheres</i><br><i>Oil immersion 'o'</i>                                                                                                            |
| EN 50016                   | BS EN 50016 : 1996 (in preparation)<br><i>Electrical apparatus for potentially explosive atmospheres</i><br><i>Pressurized apparatus 'p'</i>                                                                                   |
| EN 50017                   | BS EN 50017 : 1994<br><i>Electrical apparatus for potentially explosive atmospheres</i><br><i>Power filling 'q'</i>                                                                                                            |
| EN 50018                   | BS EN 50018 : 1995<br><i>Electrical apparatus for potentially explosive atmospheres</i><br><i>Flameproof enclosures 'd'</i>                                                                                                    |
| EN 50019                   | BS EN 50019 : 1994<br><i>Electrical apparatus for potentially explosive atmospheres</i><br><i>Increased safety 'e'</i>                                                                                                         |
| EN 50020                   | BS EN 50020 : 1995<br><i>Electrical apparatus for potentially explosive atmospheres</i><br><i>Intrinsic safety 'i'</i>                                                                                                         |
| EN 50028                   | BS 5501 <i>Electrical apparatus for potentially explosive atmospheres</i><br>Part 8 : 1988 <i>Encapsulation 'm'</i>                                                                                                            |
| EN 50039                   | BS 5501 <i>Electrical apparatus for potentially explosive atmospheres</i><br>Part 9 : 1982 <i>Intrinsically safe electrical systems 'i'</i><br>BS EN 50081<br><i>Electromagnetic compatibility — Generic emission standard</i> |
| EN 50081-1                 | BS EN 50081-1 : 1992<br><i>Residential, commercial and light industry</i>                                                                                                                                                      |
| EN 50081-2                 | BS EN 50081-2 : 1994<br><i>Industrial environment</i><br>BS EN 50082<br><i>Electromagnetic compatibility — Generic immunity standard</i>                                                                                       |
| EN 50082-1                 | BS EN 50082-1 : 1992<br><i>Residential, commercial and light industry</i>                                                                                                                                                      |
| EN 50082-2                 | BS EN 50082-2 : 1995<br><i>Industrial environment</i>                                                                                                                                                                          |
| EN 60068-2-6 <sup>1)</sup> | BS EN 60068<br><i>Environmental testing</i><br>BS EN 60068-2-6 : 1996<br><i>Tests. Test Fc. Vibration (sinusoidal)</i>                                                                                                         |

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

<sup>1)</sup> Supersedes HD 323.2.6 S2 : 1988

---

ICS 19.080

Descriptors: Electrical apparatus, measuring instrument, detection, measurement, concentration, oxygen, definition, safety, performance evaluation, test, testing conditions

English version

## Electrical apparatus for the detection and measurement of oxygen Performance requirements and test methods

Appareils électriques de détection et de mesure  
d'oxygène  
Règles de fonctionnement et méthodes d'essais

Elektrische Geräte für das Aufspüren und die  
Messung von Sauerstoff  
Anforderungen an das Betriebsverhalten und  
Prüfmethoden

This European Standard was approved by CENELEC on 1994-12-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

### CENELEC

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

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

---

© 1995 Copyright reserved to CENELEC members

Foreword

This European Standard was prepared by the Subcommittee CENELEC SC 31-9, Electrical apparatus for the detection and measurement of combustible gases to be used in industrial and commercial potentially explosive atmospheres.

The first draft, which was based on a text produced by the German National Committee, was submitted to the formal vote and was approved by CENELEC as EN 50104 on 1994-05-15.

At the time, two draft amendments, prAA and prAB had been submitted to the Unique Acceptance Procedure and it was agreed that publication of the EN would be delayed to permit inclusion of the amendments, if ratified.

The text of the draft amendments was approved by CENELEC on 1994-12-06 and their inclusion into EN 50104 confirmed.

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) 1995-09-15
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1995-09-15

Contents

|                                             | Page |
|---------------------------------------------|------|
| Foreword                                    | 2    |
| 1 Scope                                     | 3    |
| 2 Normative references                      | 3    |
| 3 Definitions                               | 3    |
| 4 General requirements                      | 6    |
| 5 Normal conditions of test                 | 7    |
| 6 Test methods and performance requirements | 8    |
| Annex                                       |      |
| A (informative)                             | 12   |
| Figures                                     |      |
| 1 Warm-up time in reference air             | 5    |
| 2 Warm-up time in standard test gas         | 5    |