
**Electrical apparatus for the detection and measurement of combustible gases -
Performance requirements for group II apparatus indicating up to 100 % (v/v) gas**

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Elektrische Geräte für das Aufspüren und die Messung brennbarer Gase -
Anforderungen an das Betriebsverhalten von Geräten der Gruppe II mit einem
Meßbereich bis zu 100 % (V/V) Gas

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Appareils électriques de détection et de mesure des gaz combustibles - Règles de
performances des appareils du Groupe II pouvant indiquer jusqu'à 100 % (v/v) de gaz

Ta slovenski standard je istoveten z: EN 50058:1991

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29.260.20	Električni aparati za eksplozivna ozračja	Electrical apparatus for explosive atmospheres

SIST EN 50058:1997**en**

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EUROPEAN STANDARD

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Descriptors: Electrical apparatus, explosive atmosphere, explosive atmosphere other than mines, detector, measuring apparatus, flammable gas, combustible gas, characteristic

ENGLISH VERSION

ELECTRICAL APPARATUS FOR THE DETECTION AND
MEASUREMENT OF COMBUSTIBLE GASES
PERFORMANCE REQUIREMENTS FOR GROUP II APPARATUS
INDICATING UP TO 100 % (v/v) GAS

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détection et de mesure des
gaz combustibles

Règles de performances des
appareils du Groupe II pouvant
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verhalten von Geräten der Gruppe II
mit einem Meßbereich bis
zu 100 % (V/V) Gas

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This European Standard was approved by CENELEC on 1990-12-10.
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Up-to-date list 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.

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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

FOREWORD

This European Standard has been prepared by the CENELEC Subcommittee SC 31-9, Gas detectors.

The text of the draft was approved by CENELEC as EN 50058 on 10 December 1990.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1992-03-01
- latest date of withdrawal of conflicting national standards (dow) 1992-03-01

For products which have complied with the relevant national standard before 1992-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1997-03-01.

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European Standards referred to in European Standard EN 50 058

EN 50 054 (1991) Electrical apparatus for the detection and measurement of combustible gases.

General requirements and test methods.

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1 Scope

1.1 This European Standard specifies performance requirements for Group II (as defined in European Standard EN 50 054) portable, transportable and fixed apparatus for the detection and measurement of combustible gas or vapour concentrations with air. The apparatus, or parts thereof, may be installed or used in potentially explosive atmospheres, other than mines susceptible to firedamp (i.e. Group I). The general requirements and test methods applicable to the apparatus covered by this European Standard are specified in European Standard EN 50 054.

1.2 This European Standard is restricted to apparatus intended for the detection and measurement of volume ratios of combustible gas or vapour in air from 0 % (v/v) to 100 % (v/v).

NOTE 1. Apparatus covered by this European Standard will normally be intended to operate in volume ratios greater than 100 % LEL.

NOTE 2. Although apparatus of the types covered by this European Standard may be suitable for detecting a wide range of combustible gases, particular gases (e.g. methane or propane) are specified in European Standard EN 50 054 as the components of the test gases for the purpose of practical convenience. The performance requirements specified in this European Standard must therefore be regarded with caution when the apparatus is used to detect other combustible gases, as some parameters - such as time of response - will be modified.

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2 Definitions

For the purposes of this European Standard, the definitions given in European Standard EN 50 054 apply.

3 General requirements

The apparatus shall comply with the general requirements specified in clause 3 of European Standard EN 50 054.

It shall be verified that the contents of the instruction manual are in accordance with the requirements specified in European Standard EN 50 054.

4 Performance requirements

4.1 General

The normal conditions for test are specified in clause 4.3 of EN 50 054. Compliance shall be determined in accordance with the test methods specified in clause 4.4 of EN 50 054.

4.2 Unpowered storage

After being submitted to the conditions specified in clause 4.4.2 of EN 50 054, the apparatus shall meet the requirements specified in 4.3 to 4.25 of this European Standard.

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

4.3.1 Calibration curve. Each of the three indications (after correction using the manufacturer's calibration curves, if necessary) obtained from these true volume ratios shall not differ from these volume ratios by more than $\pm 5\%$ of the measuring range or $\pm 10\%$ of the indication, whichever is greater.

4.3.2 Response to gases other than the test gas. The apparatus indications (after correction using the manufacturer's calibration curves, if necessary) obtained for each of the three gas volume ratios of each gas tested shall not differ from these volume ratios by more than $\pm 7\%$ of the measuring range or $\pm 15\%$ of the indication, whichever is greater.

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4.4 Drift (Continuous duty apparatus)

4.4.1 Short term drift. The short term variation shall not exceed $\pm 3\%$ of the measuring range or $\pm 10\%$ of the indication, whichever is greater.

4.4.2 Long term drift. The long term variation shall not exceed $\pm 10\%$ of the measuring range or $\pm 30\%$ of the indication, whichever is greater.

4.5 Drift (Spot reading apparatus)

The variation shall not exceed $\pm 3\%$ of the measuring range or $\pm 10\%$ of the indication, whichever is the greater.

4.6 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.

4.7 Temperature

4.7.1 Apparatus where the control unit and sensors are used in the same environment.

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

(a) -10 °C to 0 °C, shall not exceed $\pm 7\%$ of the measuring range or $\pm 15\%$ of the indication and

(b) 0 °C to +40 °C, shall not exceed $\pm 5\%$ of the measuring range or $\pm 10\%$ of the indication, whichever is greater.

4.7.2 Remote sensors, of apparatus where the control unit and sensor are not used in the same environment.

The variation of the indication from that at 20 °C over the temperature range -25 °C to +55 °C shall not exceed $\pm 2\%$ of the measuring range or $\pm 3.5\%$ of the indication per 10 °C.

4.7.3 Control units, of apparatus where the control unit and sensor are not used in the same environment.

The variation of the indication from that at 20 °C over the temperature range +5 °C to +55 °C shall not exceed $\pm 3\%$ of the measuring range or $\pm 10\%$ of the indication whichever is greater.

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The variation of the indication from that at 101.3 kPa, over a pressure range of 95 kPa to 110 kPa, shall not exceed $\pm 7.5\%$ of the measuring range or $\pm 15\%$ of the indication, whichever is greater.

4.9 Humidity

At 40 °C, the variation of the indication from that at 55 % relative humidity (r.h.) over a humidity range of 5 % to 90 % r.h. shall not exceed $\pm 5\%$ of the measuring range or $\pm 10\%$ of the indication, whichever is the greater.

4.10 Air speed

The variation of the indication shall not exceed $\pm 5\%$ of the measuring range or $\pm 10\%$ of the indication, whichever is the greater.

4.11 Pumping rate

The variation of the indication shall not exceed $\pm 5\%$ of the measuring range or $\pm 10\%$ of the indication, whichever is the greater.