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Linjedetektorer för detektering av gaser och ångor – Del 1: Allmänna fordringar och provningsmetoder

*Specification for open path apparatus for the detection of combustible
or toxic gases and vapours –*

Part 1: General requirements and test methods

Som svensk standard gäller europastandarden EN 50241-1:1999. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50241-1:1999.

ICS 13.320; 19.080

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EUROPEAN STANDARD

EN 50241-1

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April 1999

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English version

**Specification for open path apparatus for the detection of
combustible or toxic gases and vapours
Part 1: General requirements and test methods**

Spécifications pour les détecteurs
à chemin optique ouvert de gaz et
vapeurs toxiques
Partie 1: Règles générales et
méthodes d'essai

Anforderungen an Geräte mit offener
Meßstrecke für die Detektion brennbarer
oder toxischer Gase und Dämpfe
Teil 1: Allgemeine Anforderungen und
Prüfverfahren

This European Standard was approved by CENELEC on 1998-10-01. 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, Czech Republic, 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

Foreword

This 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

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50241-1 on 1998-10-01.

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) 1999-10-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 1999-10-01

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.

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1 Scope

This European Standard specifies general requirements for the construction and testing of apparatus for the detection and measuring of combustible or toxic¹ gases or vapours in ambient air by measuring the spectral absorption by the gases or vapours over extended optical paths, ranging typically from one metre to a few kilometres.

Such apparatus measures the integral concentration of the absorbing gas over the optical path in units such as LEL metre for combustible gases and ppm metre for toxic gases.

NOTE 1: Actual values of concentration can only be deduced where it can be established that the concentration is uniform over the optical path, as for example in very short optical paths (<100 mm). In such cases, the apparatus is within the scope of EN 50054 - EN 50058 and prEN 45544-1 to prEN 45544-4.

Apparatus falling within the scope of this European Standard is classified as follows by the following types.

Type 1: an optical transmitter and receiver, located at either end of a path through the atmosphere to be monitored.

Type 2: an optical transceiver (i.e. combined transmitter and receiver) and a suitable reflector, which may be a topographic feature or a retroreflector, located at either end of a path through the atmosphere to be monitored.

This European Standard does not apply to any of the following:

1. Apparatus intended to provide range resolution of gas concentration (e.g. LIDAR),
2. Apparatus consisting of a passive optical receiver without a dedicated optical source,
3. Apparatus intended to measure the local volumetric concentration of gas (point sensors),
4. Apparatus intended for the detection of dusts or mists in air,
5. Apparatus for cross stack monitoring,
6. Apparatus intended for the detection of explosives and vapours, and
7. Apparatus intended for quantitative and simultaneous multicomponent analysis, e.g. FTIR.

This European Standard covering general requirements and test methods is supplemented by the following European Standard concerning specific requirements of performance:

EN 50241-2 : Performance requirements for apparatus for the detection of combustible gases.

This European Standard is applicable to apparatus which is intended for use in both hazardous and non hazardous areas. Apparatus for use in hazardous areas which may contain potentially combustible atmospheres is required to be designed for safe operation, see 4.1.2.

This European Standard applies to transportable, and fixed apparatus intended for commercial and industrial applications.

NOTE 2: This European Standard and EN 50241-2 as referenced above are intended to provide for the supply of apparatus giving a level of performance suitable for general purpose applications. However, for specific applications a prospective purchaser or an appropriate authority may additionally require apparatus to be submitted to particular tests or approval. Such tests or approval are to be regarded as additional to and separate from the provisions from the European Standards referred to above.

¹ The word 'Toxic' is used in accordance with its dictionary definition and includes 'harmful', 'toxic' and 'very toxic' meanings.