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Responsible committee: EXL/31 Equipment for explosive atmospheres

Interested committees:

Title: Draft BS EN 50270 Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

September 2019

ICS 13.320

Will supersede EN 50270:2015 and all of its
amendments and corrigenda (if any)

English Version

**Electromagnetic compatibility - Electrical apparatus for the
detection and measurement of combustible gases, toxic gases
or oxygen**

Compatibilité électromagnétique - Appareils de détection et
de mesure de gaz combustible, de gaz toxique et
d'oxygène

Elektromagnetische Verträglichkeit - Elektrische Geräte für
die Detektion und Messung von brennbaren Gasen,
toxischen Gasen oder Sauerstoff

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2019-12-20.

It has been drawn up by CLC/TC 31.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 50270:2019) has been prepared by CLC/SC 31-9 “Electrical apparatus for the detection and measurement of combustible gases to be used in industrial and commercial potentially explosive atmospheres” of CLC/TC 31, “Electrical apparatus for explosive atmospheres”.¹

This document is currently submitted to the Enquiry/ Primary Questionnaire.

The following dates are proposed:

- latest date by which the existence of this document has to be announced at national level (doa) dor + 6 months
- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) dor + 12 months
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) dor + 36 months (to be confirmed or modified when voting)

This document will supersede EN 50270:2015 and all of its amendments and corrigenda (if any).

EN 50270:2018 includes no significant technical changes with respect to EN 50270:2015 + AC/2016.

This document has been prepared under the European Commission standardization request M/552 given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2014/30/EU.

For the relationship with EU Directive 2014/30/EU see informative Annex ZZ, which is an integral part of this document.

¹ CLC/TC 216 “Gas detectors” contributed to the preparation of the text.

1 Scope

This document specifies requirements for the electromagnetic compatibility (EMC) for electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen which are subject to the performance standards for gas detection apparatus, for example EN 45544 (all parts), EN 50104, EN 50194 (all parts), EN 50291 (all parts), EN 50379 (all parts), EN 50543, EN 50545-1, EN 60079-29-1 or EN 60079-29-4.

NOTE For the purpose of this standard, the word 'toxic' covers 'very toxic', 'toxic', 'harmful', 'corrosive', 'irritating', 'sensitizing', 'carcinogenic', 'mutagenic' and 'teratogenic'.

This document applies to apparatus intended for use in residential, commercial and light-industrial environments as well as to apparatus intended for use in industrial environments, and includes AC-, DC- or battery powered apparatus.

This document is also applicable to apparatus which is intended for use in hazardous areas which could contain explosive or potentially explosive atmospheres. It covers only normal operation and does not cover safety requirements related to EMC phenomena.

This document is a product standard which is based on the product family standard EN 61326-1. prEN 50270:2019 takes precedence over the product family standard and over generic standards.

This document applies to electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen that include functions specified by the manufacturer as being safety functions and can include functions specified as not being safety functions.

All performance standards for the detection and measurement of combustible gases, toxic gases or oxygen include the minimum requirements for functional safety specified in EN 50271. There are also gas detectors and gas detection systems which are intended to be used with safety integrity levels SIL 1 to SIL 3 according to EN 50402 and EN 61508 (all parts). For functional safety in industrial applications, this document has taken into account those aspects of EN 61326-3-2 relating to the measuring and warning function of the apparatus defined as safety function.

This standard specifies requirements for immunity tests in relation to continuous and transient, conducted and radiated disturbances, including electrostatic discharges, and also for emission tests. The test requirements are specified for each port considered.

Apparatus falling within the scope of this document are classified as follows by the following types.

- Type 1: apparatus intended for use in residential, commercial and light-industrial environments, as described in EN 61000-6-1 and EN 61000-6-3.
- Type 2: apparatus intended for use in industrial environments, as described in EN 61000-6-2 and EN 61000-6-4.

Type 1 apparatus for which the manufacturer claims a safety integrity level should be considered as type 2 apparatus with regard to immunity requirements.

This document does not apply to any of the following:

- apparatus intended for the detection of dusts or mists in air;
- scientific or laboratory based apparatus used only for analysis or measurement;
- apparatus used exclusively for process measurement purposes;
- apparatus for medical purposes;
- apparatus used for breath alcohol measurement
- apparatus intended for the direct measurement of automotive exhaust gases.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50291-1:2018, *Gas detectors — Electrical apparatus for the detection of carbon monoxide in domestic premises — Part 1: Test methods and performance requirements*

EN 50291-2:2010, *Electrical apparatus for the detection of carbon monoxide in domestic premises — Part 2: Electrical apparatus for continuous operation in a fixed installation in recreational vehicles and similar premises including recreational craft — Additional test methods and performance requirements*

EN 50545-1:2011,² *Electrical apparatus for the detection and measurement of toxic and combustible gases in car parks and tunnels — Part 1: General performance requirements and test methods for the detection and measurement of carbon monoxide and nitrogen oxides*

EN 61000-4-2:2009, *Electromagnetic compatibility (EMC) — Part 4-2: Testing and measurement techniques — Electrostatic discharge immunity test (IEC 61000-4-2:2008)*

EN 61000-4-3:2006,³ *Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques — Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3:2006)*

EN 61000-4-4:2012, *Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test (IEC 61000-4-4:2012)*

EN 61000-4-5:2006, *Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test (IEC 61000-4-5:2005)*

EN 61000-4-6:2014, *Electromagnetic compatibility (EMC) — Part 4-6: Testing and measurement techniques — Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:2013)*

EN 61000-4-8:2010, *Electromagnetic compatibility (EMC) — Part 4-8: Testing and measurement techniques — Power frequency magnetic field immunity test (IEC 61000-4-8:2009)*

EN 61000-4-11:2004, *Electromagnetic compatibility (EMC) — Part 4-11: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11:2004)*

EN 61000-4-29:2000, *Electromagnetic compatibility (EMC) — Part 4-29: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests (IEC 61000-4-29:2000)*

EN 61000-6-1:2007, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1:2005)*

EN 61000-6-2:2005,⁴ *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2:2005)*

² As impacted by EN 50545-1:2011/A1:2016.

³ As impacted by EN 61000-4-3:2006/A1:2008 and EN 61000-4-3:2006/A2:2010.

⁴ As impacted by EN 61000-6-2:2005/AC:2005.