SLOVENSKI STANDARD
SIST EN 60079-29-1:2017/A1:2022

01-november-2022

Eksplozivne atmosfere - 29-1. del: Javljalniki plina - Zahteve za delovanje javljalnikov vnetljivih plinov (IEC 60079-29-1:2016/A1:2020)

Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases (IEC 60079-29-1:2016/A1:2020)

Explosionsfähige Atmosphäre - Teil 29-1: Gasmessgeräte - Anforderungen an das Betriebsverhalten von Geräten für die Messung brennbarer Gase (IEC 60079-29-1:2016/A1:2020)

Atmosphères explosives - Partie 29-1: Détecteurs de gaz - Exigences d'aptitude à la fonction des détecteurs de gaz inflammables (IEC 60079-29-1:2016/A1:2020)

Ta slovenski standard je istoveten z: **EN 60079-29-1:2016/A1:2022**

ICS:

13.320	Alarmni in opozorilni sistemi	Alarm and warning systems
29.260.20	Električni aparati za eksplozivna ozračja	Electrical apparatus for explosive atmospheres

SIST EN 60079-29-1:2017/A1:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60079-29-1:2016/A1

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ICS 29.260.20

English Version

Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases (IEC 60079-29-1:2016/A1:2020)

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This amendment A1 modifies the European Standard EN 60079-29-1:2016; it was approved by CENELEC on 2020-04-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 CEN-CENELEC Management Centre or to any CENELEC member.

This amendment 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 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.

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

European foreword

The text of document 31/1525/FDIS, future IEC 60079-29-1/A1, prepared by IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-29-1:2016/A1:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-11-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-05-13

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document is read in conjunction with EN 60079-29-1:2016/A11:2022.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, included in this document.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60079-29-1:2016/A1:2020 was approved by CENELEC as a European Standard without any modification.

Annex ZZ
(informative)

Relationship between this European Standard and the essential requirements of Directive 2014/34/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request [M/BC/CEN/92/46] to provide one voluntary means of conforming to essential requirements of *Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres* [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZZ.1 – Correspondence between this European Standard and Annex II of Directive 2014/34/EU [2014 OJ L96]

Essential Requirements of Directive 2014/34/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1.5.5 - 1.5.7	whole standard except 4.2.9 and 5.4.23	
1.5.8	4.2.9, 5.4.23	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

AMENDMENT 1
AMENDEMENT 1

Explosive atmospheres – Part 29-1: Gas detectors – Performance requirements of detectors for flammable gases

Atmosphères explosives – Partie 29-1: Détecteurs de gaz – Exigences d'aptitude à la fonction des détecteurs de gaz inflammables

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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FOREWORD

This amendment has been prepared by IEC technical committee 31 Equipment for explosive atmospheres

The text of this amendment is based on the following documents:

FDIS	Report on voting
31/1525/FDIS	31/1533/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

5.2.2.1 General

Replace the existing text of 5.2.2.1 with the following new text:

For the purposes of type testing, all applicable tests shall be carried out on the same sample except a separate sample may be used for the tests of 5.4.4.3 to 5.4.4.6, and 5.4.16, a separate sample may be used for the test of 5.4.20, and a separate sample may be used for the test of 5.4.21.

If a test sample ceases to function during the test sequence, then mutual agreement shall be reached between the test laboratory and the manufacturer as to which tests have to be repeated with a replacement sample. The decision and its justification shall be described in the test report.

5.2.2.3 Sequence

Replace the existing text of 5.2.2.3 with the following new text:

The unpowered storage test (5.4.2) shall be conducted prior to all remaining tests. The vibration test (5.4.12) shall be performed after the unpowered storage testing for pre-conditioning purposes, except for the separate test samples used for the tests 5.4.4.3 to 5.4.4.6, 5.4.16, 5.4.20 and 5.4.21.

The tests 5.4.4.3 to 5.4.4.6 and 5.4.16 shall be conducted sequentially. All remaining tests may be performed in any order.

If the design of equipment, which has been tested previously to this standard, is modified then the test laboratory shall agree with the manufacturer which tests have to be repeated with the modified equipment. The decision and its justification shall be described in the test report.

In the case of modifications to the software or of electronic components which are part of the basic gas detection functionality (signal chain from sensor to output(s)) the following tests shall be re-performed as a minimum: calibration curve, alarm set point(s), time of response.

5.4.21 Electromagnetic compatibility

Replace the existing text of 5.4.21 with the following new text:

5.4.21.1 Test

The equipment, including the sensor and interconnecting wiring, shall be subjected to the tests described in IEC 61326-1:2012, Table 2.

NOTE Specific applications or local regulations might require more severe electromagnetic immunity test parameters.

For equipment with a measuring range up to 100 %LFL or 5 % (v/v) methane, the test shall be carried out with the equipment exposed to the standard test gas. The test gas(es) shall be selected according to 5.3.2. If two or more test gases are selected, the test gas to which the equipment has the lowest sensitivity shall be used for the tests, and the equipment shall be adjusted to this test gas prior to the test. The alarm set point shall be set so that the alarm is active, i.e. to the volume fraction of the standard test gas minus the variation as listed in Annex A.

The application of standard test gas may be simulated (e.g. by inserting an absorbing filter into the optical path of an infrared sensor or adjusting zero of a catalytic sensor) provided that the sensitivity of the equipment is not changed. If the application of the standard test gas is simulated, the test report shall include a justification that demonstrates that the simulation is equivalent to the operating conditions when the standard test gas is used.

For multi-gas portable equipment, this test shall be performed with a full set of typical sensors.

For equipment with a measuring range up to 100 % (v/v), this test shall be performed in clean air only. The alarm set point shall be set to 5 % of the measuring range or the lowest possible setting, whichever setting is higher.

Any special advice in the instruction manual concerning EMC shall be followed.

5.4.21.2 Performance criteria

The following hierarchical performance criteria shall apply to all functions of the equipment associated with the detection and measurement of gas:

Performance criterion A:

The equipment shall continue to operate as intended both during and after the test. The performance requirements in Table A.1 shall be met. No spurious alarms or deactivation of alarms is allowed.

Performance criterion B:

During the test:

- degradation of performance is allowed but the performance requirements given in Table A.1 shall not be exceeded, or
- the equipment shall show a specified fault indication and/or output.

After the test any degradation in performance shall be self-recoverable and the equipment shall continue to operate as intended. No permanent change of actual operating state or stored data, or continuous deactivation of the alarm is allowed.

If the equipment includes latching alarms or status signals, these may be triggered during the test. After the test signal has been removed, the latching circuits shall be reset and the correct operation of the alarm circuit verified by applying standard test gas.

Performance criterion C:

Temporary loss of function is allowed during the test, provided the loss of function is self-recoverable or can be easily restored by the operation of the controls. The equipment shall operate as intended after the test. No change of stored data is allowed.

If performance criterion C is required in IEC 61326-1:2012, the requirements are presumed to be fulfilled if the equipment complies with performance criterion A or B.