SVENSK STANDARD SS-EN 60079-29-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2008-11-17	1	1 (1+54)	SEK TK 31

Explosiv atmosfär – Del 29-1: Gasdetektorer (gasvarnare) – Prestandafordringar för utrustning för detektering av brännbara gaser

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

Som svensk standard gäller europastandarden EN 60079-29-1:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60079-29-1:2007.

Nationellt förord

Europastandarden EN 60079-29-1:2007

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC

– **IEC 60079-29-1, First edition, 2007 - Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 60079-0 och SS-EN 60079-29-2.

Tidigare fastställd svensk standard SS-EN 61779-1, utgåva 1, 2000, SS-EN 61779-1/A11:2004, SS-EN 61779-2, utgåva 1, 2000, SS-EN 61779-3, utgåva 1, 2000, SS-EN 61779-4, utgåva 1, 2000, SS-EN 61779-5, utg 1, 2000, gäller ej fr o m 2010-11-01.

ICS 29.260.20

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60079-29-1

November 2007

ICS 29.260.20

Supersedes EN 61779-1:2000 + A11:2004, EN 61779-2:2000, EN 61779-3:2000, EN 61779-4:2000, EN 61779-5:2000

English version

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

(IEC 60079-29-1:2007, modified)

Atmosphères explosives -
Partie 29-1: Détecteurs de gaz -
Exigences d'aptitude à la fonction
des détecteurs de gaz inflammables
(CEI 60079-29-1:2007, modifiée)

Explosionsfähige Atmosphäre -
Teil 29-1: Gasmessgeräte -
Anforderungen an das Betriebsverhalten
von Geräten für die Messung
brennbarer Gase
(IEC 60079-29-1:2007, modifiziert)

This European Standard was approved by CENELEC on 2007-11-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

Ref. No. EN 60079-29-1:2007 E

SEK Svensk Elstandard

Foreword

The text of document 31/695/FDIS, future edition 1 of IEC 60079-29-1, prepared by IEC TC 31, Equipment for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote.

A draft amendment, 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, containing common modifications to document 31/695/FDIS was submitted to the formal vote.

The combined texts of document 31/695/FDIS and the draft amendment prAA were approved by CENELEC as EN 60079-29-1 on 2007-11-01.

This European Standard supersedes EN 61779-1:2000 + A11:2004, EN 61779-2:2000, EN 61779-3:2000, EN 61779-4:2000 and EN 61779-5:2000.

The main changes with respect to the EN 61779 series are listed below:

– Subclause 4.2.3 (Alarm or output functions) was modified to ensure alarm devices cannot be adjustable outside their measuring range and to include requirements for de-activation of alarm devices;

– Subclause 4.2.7 (Stand-alone gas detection apparatus for use with separate control units) was added to allow separate evaluation of detection apparatus providing an industry recognized output signal;

– Subclause 4.2.8 (Separate control units for use with stand-alone gas detection apparatus) was added to allow separate evaluation of control unit apparatus using an industry recognized input signal;

– Subclause 4.2.9 (Software-controlled apparatus) was added to the document for improved evaluation of software. The added text is based upon the guiding principles and requirements of EN 50271;

– Subclause 5.2.1.1 was modified to require the center wavelength of the optical filters of two apparatus at the minimum and maximum limit of this standard;

– Subclause 5.2.1.2 was modified to allow the order of testing within each block to be conducted at the discretion of the test laboratory;

– Subclause 5.3.11 (Communications options) was added to ensure maximum transaction rates are applied during testing;

– Subclause 5.3.12 (Gas detection apparatus as part of systems) was added to ensure maximum transaction rates are applied during testing;

– Subclause 5.4.6 (Alarm set point(s)) was modified to include text related to alarms that are activated at decreasing concentrations;

– Subclause 5.4.10 (Air velocity) was modified to include testing at 3 m/s and 6 m/s;

– Subclause 5.4.16 (Time of response) was modified to exclude recovery time test requirements for Group II apparatus with a volume fraction up to 100 % LFL indication;

– Subclause 5.4.18 (High gas concentration operation above the measuring range) was modified to define the sequence of tests;

– Annex A (Performance requirements) has undergone major modifications by eliminating the gas/vapour table and replacing the annex with the performance requirements of Parts 2 to 5 of EN 61779. Additionally, performance requirements of Parts 2 to 5 of EN 61779 were adjusted for consistency as appropriate. The intent of this change is to condense Parts 1 to 5 of EN 61779 within a single standard.

This part of EN 60079-29 is to be used in conjunction with the following standards:

– EN 60079-0, Electrical apparatus for explosive gas atmospheres – Part 0: General requirements

– EN 60079-29-2, Explosive atmospheres – Part 29-2: Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen.

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)	2008-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-11-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 94/9/EC. See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60079-29-1:2007 was approved by CENELEC as a European Standard with agreed common modifications as given below.

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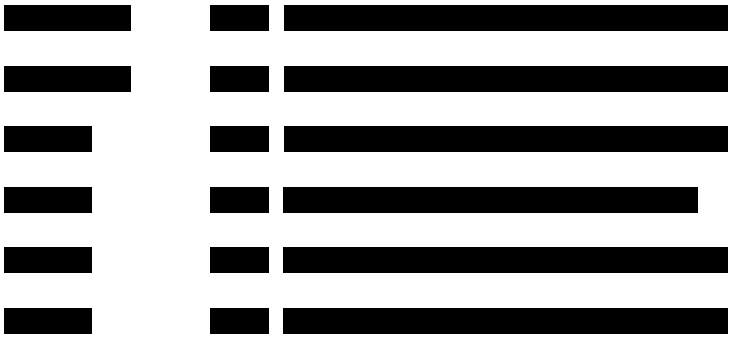

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
-	-	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen	EN 50270	-[1)]
-	-	Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen - Requirements and tests for apparatus using software and/or digital technologies	EN 50271	-[1)]
IEC 60079-0 (mod)	-[1)]	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements	EN 60079-0	2006[2)]
IEC/TR 60079-20	-[1)]	Electrical apparatus for explosive gas atmospheres - Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus	-	-
IEC 60079-29-2	-[1)]	Explosive atmospheres - Part 29-2: Gas detectors - Selection, installation, use and maintenance of detectors for flammable gases and oxygen	EN 60079-29-2	2007[2)]

1) Undated reference.

2) Valid edition at date of issue.

CONTENTS

INTRODUCTION

Guidance for the selection, installation, use and maintenance of gas detecting apparatus are set out in IEC 60079-29-2: Explosive atmospheres – Part 29-2: Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen.

EXPLOSIVE ATMOSPHERES –

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

1 Scope

This part of IEC 60079-29 specifies general requirements for construction, testing and performance, and describes the test methods that apply to portable, transportable and fixed apparatus for the detection and measurement of flammable gas or vapour concentrations with air. The apparatus, or parts thereof, are intended for use in potentially explosive atmospheres (see 3.1.8) and in mines susceptible to firedamp.

This standard is also applicable when an apparatus manufacturer makes any claims regarding any special features of construction or superior performance that exceed these minimum requirements. In these cases, all such claims should be verified and the test procedures should be extended or supplemented, where necessary, to verify the performance claimed by the manufacturer. When verifying the superior performance of one criterion, other performance criteria are not required to meet the standards minimum requirements, however, these reduced claimed performance criteria (as confirmed in the manufactures Installation Manual) should also be verified. (e.g. temperature range of 0 °C to 60 °C; 0 °C to 40 °C at ±10 % accuracy and 40 °C to 60 °C at ±15 % (manufacturers claimed accuracy). The additional tests should be agreed between the manufacturer and test laboratory and identified and described in the test report.

This standard is applicable to flammable gas detection apparatus intended to provide an indication, alarm or other output function; the purpose of which is to give a warning of a potential explosion hazard and in some cases, to initiate automatic or manual protective action(s).

This standard is applicable to apparatus, including the integral sampling systems of aspirated apparatus, intended to be used for commercial, industrial and non-residential safety applications.

This standard does not apply to external sampling systems, or to apparatus of laboratory or scientific type, or to apparatus used only for process control purposes. It also does not apply to open path (line of sight) area monitors. For apparatus used for sensing the presence of multiple gases, this standard applies only to the detection of flammable gas or vapour.

This standard supplements and modifies the general requirements of IEC 60079-0. Where a requirement of this standard conflicts with a requirement of IEC 60079-0, the requirement of IEC 60079-29-1 will take precedence.

NOTE 1 IEC 60079-29-1 is intended to provide for the supply of apparatus giving a level of safety and performance suitable for general purpose applications. However, for specific applications, a prospective purchaser (or an appropriate authority) may additionally require the apparatus to be submitted to particular tests or approval. For example, group I apparatus (i.e. apparatus to be used in mines susceptible to firedamp) may not be permitted to be used without the additional, prior approval of the relevant authority in mines under its jurisdiction. Such particular tests/approval are to be regarded as additional to and separate from the provisions of the standards referred to above and do not preclude certification to or compliance with these standards.

NOTE 2 All apparatus calibrated on specific gases or vapours can not be expected to correctly indicate on other gases or vapours.

NOTE 3 For the purposes of this standard, the terms "lower flammable limit (LFL)" and "lower explosive limit (LEL)" are deemed to be synonymous, and likewise the terms "upper flammable limit (UFL)" and "upper explosive limit (UEL)" are deemed to be synonymous. For ease of reference, the two abbreviations LFL and UFL may be used hereinafter to denote these two sets of terms. It should be recognized that particular authorities having jurisdiction may have overriding requirements that dictate the use of one of these sets of terms and not the other.

NOTE 4 For the purposes of this standard, the term “indicating up to a volume fraction of X %” includes apparatus with an upper limit of the measuring range equal to or less than X %.

2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60079-0: *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements*

IEC 60079-20: *Electrical apparatus for explosive gas atmospheres – Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus*

IEC 60079-29-2, *Explosive atmospheres – Part 29-2: Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen*

IEC 61000-4-1: *Electromagnetic compatibility (EMC) – Part 4-1: Testing and measurement techniques – Overview of IEC 61000-4 series.* Basic EMC publication

IEC 61000-4-3: *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test.* Basic EMC publication

IEC 61000-4-4: *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test* – Basic EMC publication