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Standards

Irish Standard
I.S. EN 60079-25:2010

Explosive atmospheres -- Part 25: Intrinsically safe electrical systems (IEC 60079-25:2010 (EQV))

I.S. EN 60079-25:2010

Incorporating amendments/corrigenda issued since publication:

EN 60079-25:2010/AC:2013

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
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Corrigendum to EN 60079-25:2010

English version

Title page

In the header of the title page, **replace** "Supersedes EN 60079-25:2004" by "Supersedes EN 60079-25:2004 and EN 50394-1:2004".

Foreword

In the foreword, **replace** the second sentence "This European Standard supersedes EN 60079-25:2004." by "This European Standard supersedes EN 60079-25:2004 and EN 50394-1:2004."

September 2013

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I.S. EN 60079-25:2010

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60079-25

October 2010

ICS 29.260.20

Supersedes EN 60079-25:2004

English version

Explosive atmospheres -
Part 25: Intrinsically safe electrical systems
(IEC 60079-25:2010)

Atmosphères explosives -
Partie 25: Systèmes électriques de
sécurité intrinsèque
(CEI 60079-25:2010)

Explosionsfähige Atmosphäre -
Teil 25: Eigensichere Systeme
(IEC 60079-25:2010)

This European Standard was approved by CENELEC on 2010-10-01. 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, 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, 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 31G/202/FDIS, future edition 2 of IEC 60079-25, prepared by SC 31G, Intrinsically-safe apparatus, of IEC TC 31, Equipment for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60079-25 on 2010-10-01.

This European Standard supersedes EN 60079-25:2004.

The significant changes with respect to EN 60079-25:2004 are:

- extension of the scope from Group II to Groups I, II and III;
- introduction of level of protection "ic";
- addition of requirements for cables and multi-core cables;
- reference to EN 60079-11 regarding the termination of intrinsically safe circuits;
- requirements for the assessment of an expanded and clarified intrinsically safe system regarding level of protection "ic", simple apparatus and faults in multi-core cables;
- introduction of predefined systems and merging of the system requirements for FISCO from EN 60079-27;
- addition of requirements for simple intrinsically safe systems containing both lumped inductance and lumped capacitance;
- addition of a method for testing the electrical parameters of cables;
- additional information for the use of simple apparatus in systems.

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

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) | 2011-07-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2013-10-01 |

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 60079-25:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60529

NOTE Harmonized as EN 60529.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60079-0	-	Explosive atmospheres - Part 0: Equipment - General requirements	EN 60079-0	-
IEC 60079-11	2006	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	EN 60079-11	2007
IEC 60079-14	2007	Explosive atmospheres - Part 14: Electrical installations design, selection and erection	EN 60079-14	2008
IEC 60079-15	-	Explosive atmospheres – Part 15: Equipment protection by type of protection "n"	EN 60079-15	-
IEC 60079-27	2008	Explosive atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO)	EN 60079-27	2008
IEC 61158-2	-	Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition	EN 61158-2	-
IEC 61241-0	-	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements	EN 61241-0	-
IEC 61241-11	-	Electrical apparatus for use in the presence of combustible dust - Part 11: Protection by intrinsic safety 'iD'	EN 61241-11	-

Annex ZZ (informative)

Coverage of essential requirements of the directive 94/9/EC

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers only the following essential safety requirements out of those given in Annex II of the EC Directive 94/9/EC:

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

ESR	Equivalent requirement in EN 60079-25:2010
1.0.1	fundamental basis of standard
1.0.2	Fundamental principle of intrinsic safety technique applied throughout this standard and apparatus standard EN 60079-11 and EN 60079-0
1.0.3	Requirement primarily met by apparatus standard EN 60079-11 and the maintenance requirements specified in EN 60079-14 and EN 60079-17.
1.0.4	EN 60079-0 Clause 5, Subclauses 6.1, 6.2, 7.2 and 7.3
1.0.5	Clause 14, EN 60079-0 Clause 29 and Foreword
1.0.6 a	Clause 4
1.1.1	EN 60079-0 Clause 8.1
1.1.3	EN 60079-0 Clause 7, 8, 12
1.2.1	The system and apparatus standards represent the latest state of the art
1.2.2	Requirement met by apparatus standard, EN 60079-0 Clause 13 and clause 13.2 of this standard
1.2.4	Clause 5 also covers Group III, details in EN 60079-0 and EN 60079-11
1.2.6	Covered by EN 60079-11
1.3.1	Sparks and hot surfaces covered in Clause 13 and in EN 60079-11. Other potential ignition sources covered in EN 60079-0
1.3.2	EN 60079-0, Subclause 7.4
1.3.3 to 1.3.5	EN 60079-0
1.4	EN 60079-0 and EN 60079-11
2.0.1 and 2.0.2	'ia' apparatus and systems in accordance with EN 60079-11 and this standard meet the 'two fault' criterion (M1) and 'ib' apparatus and systems in accordance with EN 60079-11 and this standard meet the 'one fault' criterion (M2) and the other criterions
2.1.1 and 2.1.2	'ia' apparatus and systems in accordance with EN 60079-11/EN 61241-11 and this standard meet the 'two fault' criterion (1G and 1D) and the other criterions
2.2.1 and 2.2.2	'ib' apparatus and systems in accordance with EN 60079-11/EN 61241-11 and this standard meet the 'one fault' criterion (2G and 2D) and the other criterions
2.3.1 and 2.3.2	'ic' apparatus and systems in accordance with EN 60079-11/EN 61241-11 and this standard meet the 'safe in normal operation' criterion (3G and 3D) and the other criterions

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –

Part 25: Intrinsically safe electrical systems

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60079-25 has been prepared by subcommittee 31G: Intrinsically safe apparatus, of IEC technical committee 31: Equipment for explosive atmospheres.

This second edition cancels and replaces the first edition published in 2003 and constitutes a thorough technical revision.

The significant changes with respect to the previous edition are listed below:

- extension of the scope from Group II to Groups I, II and III;
- introduction of level of protection "ic";
- addition of requirements for cables and multi-core cables;
- reference to IEC 60079-11 regarding the termination of intrinsically safe circuits
- requirements for the assessment of an expanded and clarified intrinsically safe system regarding level of protection "ic", simple apparatus and faults in multi-core cables;

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- introduction of predefined systems and merging of the system requirements for FISCO from IEC 60079-27;
- addition of requirements for simple intrinsically safe systems containing both lumped inductance and lumped capacitance;
- addition of a method for testing the electrical parameters of cables;
- additional information for the use of simple apparatus in systems.

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

FDIS	Report on voting
31G/202/FDIS	31G/203/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 60079 series, under the general title *Explosive atmospheres*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

EXPLOSIVE ATMOSPHERES –

Part 25: Intrinsically safe electrical systems

1 Scope

This part of IEC 60079 contains the specific requirements for construction and assessment of intrinsically safe electrical systems, type of protection “i”, intended for use, as a whole or in part, in locations in which the use of Group I, II or III apparatus is required.

NOTE 1 This standard is intended for use by the designer of the system who may be a manufacturer, a specialist consultant or a member of the end-user's staff.

This standard supplements and modifies the general requirements of IEC 60079-0 and the intrinsic safety standard IEC 60079-11. Where a requirement of this standard conflicts with a requirement of IEC 60079-0 or IEC 60079-11, the requirement of this standard takes precedence.

This standard supplements IEC 60079-11, the requirements of which apply to electrical apparatus used in intrinsically safe electrical systems.

The installation requirements of Group II or Group III systems designed in accordance with this standard are specified in IEC 60079-14.

NOTE 2 Group I installation requirements are presently not provided in IEC 60079-14.

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 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

IEC 60079-11:2006, *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”*

IEC 60079-14:2007, *Explosive atmospheres – Part 14: Electrical installations design, selection and erection*

IEC 60079-15, *Electrical apparatus for explosive gas atmospheres – Part 15: Construction, test and marking of type of protection “n” electrical apparatus*

IEC 60079-27:2008, *Explosive atmospheres – Part 27: Fieldbus intrinsically safe concept (FISCO)*

IEC 61158-2, *Industrial communication networks – Fieldbus specifications – Part 2: Physical layer specification and service definition*

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