ICS 29.260.20 SLOVENSKÁ TECHNICKÁ NORMA December 2022

STN	**Výbušné atmosféry** **Časť 25: Iskrovo bezpečné elektrické systémy**	**STN** **EN IEC 60079-25** 33 2320

Explosive atmospheres - Part 25: Intrinsically safe electrical systems

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/22

Obsahuje: EN IEC 60079-25:2022, IEC 60079-25:2020, IEC 60079-25:2020/COR1:2020

Oznámením tejto normy sa od 09.09.2025 ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60079-25

September 2022

ICS 29.260.20

Supersedes EN 60079-25:2010; EN 60079-25:2010/AC:2013

English Version

Explosive atmospheres - Part 25: Intrinsically safe electrical systems (IEC 60079-25:2020 + COR1:2020)

Atmosphères explosives - Partie 25: Systèmes électriques de sécurité intrinsèque (IEC 60079-25:2020 + COR1:2020)

Explosionsfähige Atmosphäre - Teil 25: Eigensichere Systeme (IEC 60079-25:2020 + COR1:2020)

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

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Ref. No. EN IEC 60079-25:2022 E

EN IEC 60079-25:2022 (E)

European foreword

The text of document 31G/318/FDIS, future edition 3 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 approved by CENELEC as EN IEC 60079-25:2022.

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)	2023-03-09
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2025-09-09

This document supersedes EN 60079-25:2010 and all of its amendments and corrigenda (if any).

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 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, which is an integral part of 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 60079-25:2020 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 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year[1]	Title	EN/HD	Year
IEC 60079-0	-	Explosive atmospheres - Part 0: Equipment - General requirements	EN IEC 60079-0	2018
			+ AC	2020
IEC 60079-11	-	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	EN 60079-11	2012
IEC 60079-14	-	Explosive atmospheres - Part 14: Electrical installations design, selection and erection	EN 60079-14	2014
			+ AC	2016
IEC 61158-2	-	Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition	EN 61158-2	2014

[1] The EN version is obliged to have dated references to satisfy the legal need of the European Commission, but the IEC version remains with undated references and the latest version should always be used, unless there is justification to do otherwise. The given date is based on the standard that was current at the time of publication of the IEC version of this document.

Annex ZZ
(informative)

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

This European standard has been prepared under a Commission's standardisation request M/BC/CEN/92/46 to provide one voluntary means of conforming to essential requirements of 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 (recast).

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 2014/34/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1.0.1.	1, 4 to 13	Second indent only
1.0.2.	1, 4 to 13	
1.0.3.	Different references throughout document	Any particular conditions related to such a system shall be clearly stated in the descriptive system document.
1.0.4.	Not covered	
1.0.5.	Not covered	
1.0.6.	Different references throughout document	Instruction shall be defined in all instructions note of each apparatus which are part of the system and the others in the descriptive system document
1.1.1.	Not covered	
1.1.2.	Not covered	
1.1.3.	Not covered	
1.2.1.	4 to 13	
1.2.2.	4 to 13	
1.2.3.	Not covered	
1.2.4.	Not covered	
1.2.5.	Not covered	
1.2.6.	Not covered	
1.2.7.	Not covered	
1.2.8.	Not covered	

Essential Requirements of 2014/34/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1.2.9.	Not covered	
1.3.1.	4 to 13	
1.3.2.	Not covered	
1.3.3.	Not covered	
1.3.4.	4 to 13	
1.3.5.	Not covered	
1.4.1.	Not covered	
1.4.2.	Not covered	
1.5.1	Not covered	
1.5.2.	Not covered	
1.5.3.	Not covered	
1.5.4.	Not covered	
1.5.5.	Not covered	
1.5.6.	Not covered	
1.5.7.	Not covered	
1.5.8.	Not covered	
1.6.1.	Not covered	
1.6.2.	Not covered	
1.6.3.	Not covered	
1.6.4.	Not covered	
1.6.5.	Not covered	
2.0.1	Throughout document	Multiple requirements for Group I, Ex ia, EPL Ma
2.0.2	Throughout document	Multiple requirements for Group I, Ex ib, EPL Mb
2.1.1.	Throughout document	Multiple requirements for Group II, Ex ia, EPL Ga
2.1.2.	Throughout document	Multiple requirements for Group III, Ex ia, EPL Da
2.2.1	Throughout document	Multiple requirements for Group II, Ex ib, EPL Gb
2.2.2	Throughout document	Multiple requirements for Group III, Ex ib, EPL Db
2.3.1.	Throughout document	Multiple requirements for Group II, Ex ic, EPL Gc
2.3.2.	Throughout document	Multiple requirements for Group III, Ex ic, EPL Dc
3.	Not covered	

NOTE To confer a presumption of conformity with the relevant essential requirements of Directive 2014/34/EU, this standard has to be applied together with at least one of the supplemental standards giving the requirements for a specific Type of Protection. See Clause 1.

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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IEC 60079-25

Edition 3.0 2020-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Explosive atmospheres –
Part 25: Intrinsically safe electrical systems

Atmosphères explosives –
Partie 25: Systèmes électriques de sécurité intrinsèque

IEC 60079-25:2020-06(en-fr)

IEC 60079-25

Edition 3.0 2020-06

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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 third edition cancels and replaces the second edition published in 2010 and constitutes a technical revision.

The significance of the changes between IEC 60079-25, Edition 2 (2010) and IEC 60079-25, Edition 3 (2019) are as listed below:

		Type		
Changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
References to ‘electrical systems’ changed to ‘systems’ and note added that installation requirement for Group I are being considered.	1	X		
Normative references updated to remove references that were outdated or not mentioned in the body of the standard.	2	X		
Reference to IEC Electropedia and ISO Online Browsing platform added, abbreviations dropped from title. Definition of ‘system designer’ deleted, definitions of ‘certified intrinsically safe electrical system’, and ‘uncertified intrinsically safe electrical system’ dropped.	3	X		
‘Intrinsically safe electrical system’ changed to ‘intrinsically safe system’.	3.1	X		
Definition for ‘multi-circuit cable’ added.	3.2	X		
‘Maximum’ changed to ‘total’ on definitions of cable capacitance and cable inductance.	3.4, 3.5	X		
‘Maximum’ deleted on definition of cable inductance to resistance ratio.	3.6	X		
FISCO changed to definition from abbreviation.	3.9	X		
The requirement for the system designer to sign and date the document dropped, editorial changes for clarity made, and a reference to Annex E made to show typical descriptive system documents.	4	X		
Title of clause changed to ‘Grouping and temperature classification’, ambient temperature range added to things to be included in the system document and reworded for clarity.	5		X	
Notes moved and reworded among the clauses.	6.1, 6.2, 6.3, 6.4	X		
Changed from ‘Ambient temperature rating’ which was moved to Clause 5, and new section renamed ‘Non-intrinsically safe circuits’ added.	7		X	
Clause reorganized into sections and some rewording done for clarity.	8	X		
Title changed to ‘Requirements of single and multi-circuit cables’.	9	X		
Requirement for insulation thickness moved into this clause, and it now applies to all cables.	9.1		X	
Title changed to ‘Dielectric strength’ and consolidation of requirements for single circuit and multi-circuit cables. Requirement for dielectric testing changed to twice the circuit voltage with a minimum of 500VAC.	9.2		X	
Dielectric strength requirements for single circuit cables consolidated here.	9.2.1	X		
Dielectric strength requirements for multi- circuit cables consolidated here.	9.2.2	X		
Multi-circuit cables shall not be used for intrinsically safe circuits with voltages exceeding 90 V.	9.2.2			C1
Title changed to ‘Intrinsic safety parameters of cables’	9.3	X		

		Type		
Changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Title changed to ‘Enclosures’	10	X		
Most of the old Clause 12 moved to IEC 60079-14.	11			C2
This clause was Clause 13 in the previous edition, and the entire clause has been re-arranged for clarity and easier reading.	12	X		
This General clause has been re-written in list format to make it easier to understand, and analysis of single and multiple power supplies moved to 12.4 and 12.5 respectively.	12.1		X	
This clause added to clarify fault applications in assemblies of certified equipment.	12.2		X	
This clause added to provide guidance on how to handle non-certified items in larger assemblies.	12.3		X	
Analysis of single power source information consolidated here and amplified.	12.4		X	
Analysis of multiple power sources information consolidated in this clause. Information added for clarity.	12.5		X	
The circuit analysis example dropped in text for simple apparatus, new Annex F added with more information.	12.6	X		
Section added to provide more information on determining capacitance, inductance and L/R that was moved from Annex A.	12.7		X	
Requirements for Type A, B, and C cables reworded for clarity.	12.8	X		
Information on evaluation of capacitance and inductance moved to 12.7.	Annex A	X		
Changed from normative to informative	Annex B	X		
Reordered and rewritten for greater clarity.	Annex C	X		
Annex updated for clarity.	Annex E	X		
The former Annex F on surge protection has been removed.	Annex F			C3
Annex G in the previous edition was on testing of cable parameters and has been removed from this edition. Annex G is now FISCO systems.	Annex G	X		

NOTE The technical changes referred to include the significance of technical changes in the revised IEC Standard, but they do not form an exhaustive list of all modifications from the previous version. More guidance may be found by referring to the Redline Version of the standard.

Explanations:

A) Definitions

Minor and editorial changes	clarification decrease of technical requirements minor technical change editorial corrections

These are changes which modify requirements in an editorial or a minor technical way. They include changes of the wording to clarify technical requirements without any technical change, or a reduction in level of existing requirement.

Extension	addition of technical options

These are changes which add new or modify existing technical requirements, in a way that new options are given, but without increasing requirements for equipment that was fully compliant with the previous standard. Therefore, these will not have to be considered for products in conformity with the preceding edition.

Major technical changes	addition of technical requirements increase of technical requirements

These are changes to technical requirements (addition, increase of the level or removal) made in a way that a product in conformity with the preceding edition will not always be able to fulfil the requirements given in the later edition. These changes have to be considered for products in conformity with the preceding edition. For these changes additional information is provided in clause B) below.

NOTE These changes represent current technological knowledge. However, these changes should not normally have an influence on equipment already placed on the market.

B) Information about the background of 'Major Technical Changes'

B1 – A limitation of 90 V for multi-circuit system has been added since for this voltage level a dielectric test of at least 500 V AC or 700 V DC is normally used to validate the insulation.

B2 – Most of the earthing and bonding requirements have been removed and moved to IEC 60079-14, and the surge protection requirements that were in the old Clause 12 were added here in Clause 11. The rest of the old Clause 12 was also removed and moved to IEC 60079-14.

B3 – The former Annex F on surge protection has been removed and will be covered in IEC 60079-14. Annex F is now Simple Apparatus, which was Annex H in the previous edition.

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

FDIS	Report on voting
31G/318/FDIS	31G/321/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 in the IEC 60079 series, published 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 design, construction and assessment of intrinsically safe 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 Ex Equipment is required.

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

This document 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.

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. Installation requirements for Group I are being considered.

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.

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

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

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

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN