



# SLOVENSKI STANDARD SIST EN 60079-28:2015

01-december-2015

Nadomešča:

SIST EN 60079-28:2007

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**Eksplozivne atmosfere - 28. del: Zaščita opreme, ki uporablja optično sevanje, in sistemov za prenos optičnega sevanja (IEC 60079-28:2015)**

Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation (IEC 60079-28:2015)

Explosionsgefährdete Bereiche - Teil 28: Schutz von Geräten und Übertragungssystemen, die mit optischer Strahlung arbeiten (IEC 60079-28:2015)

Atmosphères explosives - Partie 28: Protection du matériel et des systèmes de transmission utilisant le rayonnement optique (IEC 60079-28:2015)

**Ta slovenski standard je istoveten z: EN 60079-28:2015**

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**ICS:**

29.260.20	Električni aparati za eksplozivna ozračja	Electrical apparatus for explosive atmospheres
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**SIST EN 60079-28:2015**

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EUROPEAN STANDARD

**EN 60079-28**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2015

ICS 29.260.20

Supersedes EN 60079-28:2007

English Version

## Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation (IEC 60079-28:2015)

Atmosphères explosives - Partie 28: Protection du matériel et des systèmes de transmission utilisant le rayonnement optique  
(IEC 60079-28:2015)

Explosionsgefährdete Bereiche - Teil 28: Schutz von Geräten und Übertragungssystemen, die mit optischer Strahlung arbeiten  
(IEC 60079-28:2015)

This European Standard was approved by CENELEC on 2015-07-01. 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.

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[SIST EN 60079-28:2015](#)

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

**EN 60079-28:2015****European foreword**

The text of document 31/1178/FDIS, future edition 2 of IEC 60079-28, prepared by IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-28:2015.

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) 2016-04-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-07-01

This document supersedes EN 60079-28:2007.

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

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

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The text of the International Standard IEC 60079-28:2015 was approved by CENELEC as a European Standard without any modification.

SIST EN 60079-28:2015

IEC 60079-2	NOTE	Harmonized as EN 60079-2.
IEC 60079-10-1	NOTE	Harmonized as EN 60079-10-1.
IEC 60079-10-2	NOTE	Harmonized as EN 60079-10-2.
IEC 60079-31	NOTE	Harmonized as EN 60079-31.
IEC 61508 (series)	NOTE	Harmonized as EN 61508 (series).
IEC 60825-1	NOTE	Harmonized as EN 60825-1.
IEC 61511 (series)	NOTE	Harmonized as EN 61511 (series).

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050	-	International Electrotechnical Vocabulary (IEV)	-	-
IEC 60079-0	-	Explosive atmospheres -- Part 0: Equipment - General requirements	EN 60079-0	-
IEC 60079-1	-	Explosive atmospheres -- Part 1: Equipment protection by flameproof enclosures "d"	EN 60079-1	-
IEC 60079-11	-	Explosive atmospheres -- Part 11: Equipment protection by intrinsic safety "i"	EN 60079-11	-
IEC 60079-15	-	Explosive atmospheres -- Part 15: Equipment protection by type of protection "n"	EN 60079-15	-
IEC 60825-2	-	Safety of laser products -- Part 2: Safety of optical fibre communication systems (OFCS)	EN 60825-2	-

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**Annex ZZ**  
(informative)  
**Coverage of Essential Requirements of EC Directives**

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 requirements out of those given in Annex II of the EC Directive 2014/34/EU.

- ER 1.0.1 to ER 1.0.4, ER 1.05 (partly)
- ER 1.2.1, ER 1.2.4, ER 1.2.5 (partly), ER 1.2.6, ER 1.2.8, ER 1.2.9
- ER 1.3.1
- ER 1.5.1
- ER 2.0.1
- ER 2.0.2
- ER 2.1.1
- ER 2.1.2
- ER 2.2.1
- ER 2.2.2
- ER 2.3.1
- ER 2.3.2

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

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

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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Explosive atmospheres –**  
**Part 28: Protection of equipment and transmission systems using optical radiation**

**Atmosphères explosives –**  
**Partie 28: Protection du matériel et des systèmes de transmission utilisant le rayonnement optique**

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ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**EXPLOSIVE ATMOSPHERES –****Part 28: Protection of equipment and transmission systems using optical radiation**

## FOREWORD

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International Standard IEC 60079-28 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres.

This second edition cancels and replaces the first edition, published in 2006, and constitutes a technical revision.

The significance of the changes between IEC 60079-28, Edition 2.0 (2015) and IEC 60079-28, Edition 1.0 (2006), is as listed below:

**Significance of changes with respect to IEC 60079-28:2006**

Significant Changes	Clause	Type		
		Minor and editorial changes	Extension	Major technical changes
Scope: Expansion to include Group III and EPLs Da, Db and Dc	1		x	
Scope: Clarification and list of exclusions for optical radiation sources	1		x	
Normative references: Deletion of IEC 60079-10, and addition of IEC 60050-426 and 60050-731	2	x		
Terms and definitions: Some definitions not used in the standard deleted. New definitions added.	3	x		
General requirements: Introduction of an ignition hazard assessment moved to 4, statement for presence of absorbers added, Explanation of EPLs deleted	4	x		
Table 1: EPLs versus protection types moved from 5.5 to 5.1, table modified and extended	5.1	x	x	
Structure of Table 2 changed and extended explanation in the notes, but with the same limit values	5.2.2.1	x		
Table 3 for Group III added	5.2.2.1		x	
Table 4 replaces Figure 1 for better application	5.2.2.1	x		
Detailed requirements for the measurement of optical power added	5.2.2.2		x	
Detailed requirements for the measurement of optical irradiance added	5.2.2.3		x	
Requirements for the assessment of optical pulses for Group II much more detailed	5.2.3.1 5.2.3.2 5.2.3.3 5.2.3.4	x		
Requirements for the assessment of optical pulses for Group I and Group III added	5.2.3.5		x	
Ignition tests: Notes 1 and 2 added	5.2.4	x		
Over-power/energy fault protection: Title changed and wording modified for clarity	5.2.5	x		
Radiation inside optical fibre or cable: requirements added, e.g. pull test	5.3.2			C1
Radiation inside enclosures: IP 6X enclosures, "p" or "t" enclosures added	5.3.3		x	
Optical system with interlock "op sh" Table 3 deleted, Figure 1 with interlock cutoff delay times added	5.4		x	
Type verifications and tests: structure changed (editorial, without changing the requirements)	6	x		
Marking: markings required by IEC 60079-0 deleted. Examples of marking: example with combination of op is with other types of protection added	7	x		
Ignition hazard assessment: Flow chart in Figure C.1 modified for better understanding	Annex C	x		
Old Annex E (Introduction of EPLs) deleted. New Annex E provides a flow chart for the assessment of pulses according to 5.2.3	Annex E	x		
Relevant IEC-Standards moved to Clause 2	Formerly Annex F	x		

**Explanation of the Types of Significant Changes:****A) Definitions**

- 1) 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.

- 2) 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.

- 3) 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'**

C1 For the protection concept "protected radiation op pr" some requirements like a pull test for optical fibres or cables have been added.

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

FDIS	Report on voting
31/1178/FDIS	31/1193/RVD

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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,
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