სსტ ენ 60079-14:2014/2014

საქართველოს სტანდარტი

ფეთქებადსაშიში გარემო-ნაწილი 14: ელექტრო დანადგარების პროექტირება, შერჩევა და მონტაჟი (იეკ 60079-14:2013)

საქართველოს სტანდარტების და
მეტროლოგიის ეროვნული სააგენტო
თბილისი

სსტ ენ 60079-14:2014/2014

საინფორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2014 წლის 21 აგვისტოს № 72 განკარგულებით

3 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 60079-14:2014 ,, ფეთქებადსაშიში გარემო-ნაწილი 14: ელექტრო დანადგარების პროექტირება, შერჩევა და მონტაჟი (იეკ 60079-14:2013)”

4 პირველად

5 რეგისტრირებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2014 წლის 21 აგვისტო №268-1.3-6101

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60079-14

March 2014

ICS 29.260.20

Supersedes EN 60079-14:2008, EN 60079-14:2008/AC:2011

English version

Explosive atmospheres - Part 14: Electrical installations design, selection and erection

(IEC 60079-14:2013)

Atmosphères explosives - Partie 14: Conception, sélection et construction des installations électriques (CEI 60079-14:2013)

Explosionsgefährdete Bereiche - Teil 14: Projektierung, Auswahl und Errichtung elektrischer Anlagen (IEC 60079-14:2013)

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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

Ref. No. EN 60079-14:2014 E

Foreword

The text of document 31J/225/FDIS, future edition 5 of IEC 60079-14, prepared by SC 31J "Classification of hazardous areas and installation requirements" of IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-14:2014.

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) 2014-10-02
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-01-02

This document supersedes EN 60079-14:2008.

EN 60079-14:2014 includes the following significant technical changes with respect to EN 60079-14:2008:

		Type		
Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Introduction of initial inspection	Scope		X	
Introduction of definition “electrical equipment”	3.1.3	X		
Introduction of definition “hybrid mixture”	3.2.4		X	
Note added to the definition “associated apparatus”	3.5.2	X		
Introduction of definition “radio frequency identification”	3.15	X		
List for documents improved and extended: site, equipment, installation and personnel	4.2	X		
New clause for initial inspection	4.3		X	
Specific requirements given in this standard based on the current edition of the EN standards in the EN 60079 series.	4.4.1.2	X		
New selection criteria for radiating equipment according to EN 60079-0	5.7		X	
New selection criteria for ultrasonic equipment according to EN 60079-0	5.8		X	
Specific requirements for cells and batteries used in transportable, portable and personal equipment aligned with EN 60079-11	5.10			C1
New structure for the selection of rotating electrical machines	5.11	X		
New selection criteria for cells and batteries	5.14		X	
New selection criteria for radio frequency identification tags	5.15		X	
New selection criteria for gas detection equipment	5.16		X	
The requirements for material composition of metallic installation material aligned with the requirements for light metal according to EN 60079-0	6.1		X	
Above hazardous area, the restriction of 3,5 m deleted	6.3.7	X		

		Type		
Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
New structure of the requirements for static electricity according to EN 60079-0 added	6.5		X	
New requirements for electromagnetic radiation in accordance with EN 60079-0	6.7		X	
Improvement of the text for cables, cables for fixed and flexible cables for fixed installation for easier reading	9.3.1 9.3.2 9.3.3	X		
New structure of the requirements for cable entry system and blanking elements with subclauses - General - Connections of cables to equipment - Selection of cable glands with the new Table 10 - Additional requirements for cable glands other than Ex “d”, Ex “t” or Ex “nR” - Additional requirements for Ex “d” - Additional requirements for Ex “t” - Additional requirements for Ex “nR”	10 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8		X	
New structure for the requirements for rotating electrical machines for all types of protections	11		X	
New structure for the requirements for electric heating systems including temperature monitoring, limiting temperature, safety device and additional requirements for electrical heat tracing system	13		X	
New clause to limit the dissipation power of terminal boxes as a function of the numbers of wire in relation to the cross-section and the permissible continuous current with an example.	15.4		X	
Improvement of the text for simple apparatus with its definition, limits and the variation in maximum power dissipation based on the ambient temperature and an alternative equation to calculate the max. surface temperature.	16.4		X	
New requirements for terminal boxes if containing more than one intrinsically safe circuits to avoid short circuits between independent intrinsically safe circuits.	16.5			C2
Improvement of the text for terminal boxes with non-intrinsically and intrinsically safe circuits	16.5.4	X		
New subclause for pressurized rooms and analyser houses	17.4		X	
New clause for optical radiation	22		X	
New annex for initial inspection with the equipment specific inspection schedule for all type of protections	Annex C		X	
New annex for electrical installations in extremely low ambient temperature	Annex D		X	
New annex for the restricted migration of gas through cables	Annex E		X	
New annex for installation of electrical trace heating systems	Annex F		X	
New annex for the requirements for type of protection “op” – Optical radiation	Annex K		X	
New annex for hybrid mixtures	Annex M		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 the requirements for the design, selection and erection of existing installations that are fully compliant with the previous standard. Therefore, these will not have to be considered for existing installations 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 an existing installation 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 existing installations in conformity with the preceding edition, for which additional information is provided in B) below. These changes represent the latest state-of-the-art technology. However, these changes should not normally have an influence on existing installations.	
B) Information about the background of "major technical changes"	
C1	Due to the risk of gassing producing hydrogen from all cell types, adequate provision for venting is required as the gassing can create an explosive condition in small enclosures. This condition would apply to torches, multi meters, pocket gas sensors and similar items. Alternatively, where the equipment meets the requirements for Equipment Group IIC, the requirement of degassing apertures or limitation of hydrogen concentration does not apply.
C2	An individual intrinsically safe circuit is also safe under short-circuit conditions. The short-circuit between two independent intrinsically safe circuits is not considered. Therefore the terminal boxes have to meet additional requirements for IP rating as well for the mechanical impact to make sure that the integrity of the enclosure is given also under worst case conditions.

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.

Endorsement notice

The text of the International Standard IEC 60079-14:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60034-5	NOTE	Harmonized as EN 60034-5.
IEC/TS 60034-17	NOTE	Harmonized as CLC/TS 60034-17.
IEC/TS 60034-25	NOTE	Harmonized as CLC/TS 60034-25.
IEC 60079-2	NOTE	Harmonized as EN 60079-2.
IEC 60079-5	NOTE	Harmonized as EN 60079-5.
IEC 60079-29-2	NOTE	Harmonized as EN 60079-29-2.
IEC 60079-30-2	NOTE	Harmonized as EN 60079-30-2.
IEC 60079-31	NOTE	Harmonized as EN 60079-31.
IEC 60332-2-2	NOTE	Harmonized as EN 60332-2-2.
IEC 60332-3 Series	NOTE	Harmonized as EN 60332-3 Series (partly modified).
IEC 60529	NOTE	Harmonized as EN 60529.
IEC 60742	NOTE	Harmonized as EN 60742.

IEC 61008-1	NOTE	Harmonized as EN 61008-1.
IEC 61010-1	NOTE	Harmonized as EN 61010-1.
IEC 61241 Series	NOTE	Harmonized as EN 61241 Series (not modified).
IEC 61241-1	NOTE	Harmonized as EN 61241-1 [1)].
IEC 61241-4	NOTE	Harmonized as EN 61241-4.
IEC 61241-11	NOTE	Harmonized as EN 61241-11.
IEC 61439-1	NOTE	Harmonized as EN 61439-1.
ISO 10807	NOTE	Harmonized as EN ISO 10807.

[1)] Superseded by EN 60079-31.

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

Publication	Year	Title	EN/HD	Year
IEC 60034-1	-	Rotating electrical machines - Part 1: Rating and performance	EN 60034-1	-
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60079	Series	Explosive atmospheres	EN 60079	Series
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 60079-6	-	Explosive atmospheres - Part 6: Equipment protection by oil immersion "o"	EN 60079-6	-
IEC 60079-7	-	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"	EN 60079-7	-
IEC 60079-10-1	-	Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres	EN 60079-10-1	-
IEC 60079-10-2	-	Explosive atmospheres - Part 10-2: Classification of areas - Combustible dust atmospheres	EN 60079-10-2	-
IEC 60079-11	-	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	EN 60079-11	-
IEC 60079-13	-	Explosive atmospheres - Part 13: Equipment protection by pressurized room "p"	EN 60079-13	-
IEC 60079-15	-	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"	EN 60079-15	-
IEC/TR 60079-16	-	Electrical apparatus for explosive gas atmospheres - Part 16: Artificial ventilation for the protection of analyzer(s) houses	-	-
IEC 60079-17	-	Explosive atmospheres - Part 17: Electrical installations inspection and maintenance	EN 60079-17	-
IEC 60079-18	-	Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"	EN 60079-18	-

Publication	Year	Title	EN/HD	Year
IEC 60079-19	-	Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation	EN 60079-19	-
IEC 60079-26	-	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga	EN 60079-26	-
IEC 60079-28	-	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation	EN 60079-28	-
IEC 60079-29-1	-	Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases	EN 60079-29-1	-
IEC 60079-29-4	-	Explosive atmospheres - Part 29-4: Gas detectors - Performance requirements of open path detectors for flammable gases	EN 60079-29-4	-
IEC 60079-30-1	-	Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements	EN 60079-30-1	-
IEC 60243-1	-	Electric strength of insulating materials - Test methods - Part 1: Tests at power frequencies	EN 60243-1	-
IEC 60332-1-2	-	Tests on electric and optical fibre cables under fire conditions - Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame	EN 60332-1-2	-
IEC 60364	Series	Low voltage electrical installations	HD 60364	Series
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41 + corr. July	2007 2007
IEC 60950	Series	Information technology equipment - Safety	EN 60950	Series
IEC 61010-1	-	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	-
IEC 61285	-	Industrial-process control - Safety of analyser houses	EN 61285	-
IEC 61558-2-6	-	Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers	EN 61558-2-6	-
IEC 62305-3 (mod)	2010	Protection against lightning - Part 3: Physical damage to structures and life hazard	EN 62305-3	2011

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Explosive atmospheres –
Part 14: Electrical installations design, selection and erection

Atmosphères explosives –
Partie 14: Conception, sélection et construction des installations électriques

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EXPLOSIVE ATMOSPHERES –

Part 14: Electrical installations design, selection and erection

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by subcommittee 31J: Classification of hazardous areas and installation requirements, of IEC technical committee 31: Equipment for explosive atmospheres.

The text of this interpretation sheet is based on the following documents:

ISH	Report on voting
31J/268/ISH	31J/270/RVD

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

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INTERPRETATION SHEET

Interpretation sheet for IEC 60079-14:2013, Explosive atmospheres – Part 14: Electrical installations design, selection and erection

Following decision No 1 of the SC 31J meeting in Frankfurt in 2016, the issuing of an Interpretation Sheet for IEC 60079-14:2013 was requested, in order to clarify the issues relating to the installation of the converter supply or reduced voltage starting of electric motors.

Details of interpretation:

Interpretation of sub clauses 11.2.1 b), 11.2.2 b), 11.3.5 b), 11.4.1 b) 11.4.2 b), 11.5.1 b), 11.5.2 b), 11.6.1 b) and 11.6.2 b) for Motors with converter supply or reduced voltage starting

The motor has not been type-tested for this duty as a unit in association with the converter. In this case, means (or equipment) for direct temperature control by embedded temperature sensors specified in the motor documentation or other effective measures for limiting the surface temperature of the motor housing shall be provided. The effectiveness of the temperature control shall take into consideration power, speed range, torque and frequency for the duty required and shall be verified and documented. ***The action of the protective device shall cause the motor to be electrically disconnected."***

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Question

Is physical disconnection, such as a switch (circuit breaker) or contactor, required to accomplish the intent of this requirement ?

Interpretation

The intention of this requirement is to protect the machine from excessive surface temperatures.

Any action within the control circuit for the motor that accomplishes one of the following satisfactorily meets the intent of this requirement:

- direct physical disconnection resulting in no output voltage to the motor, or,
- control circuit intervention such as ceasing modulation, resulting in the motor not operating.

  NOTE In this case, voltage to a motor may still exist, but the motor does not operate.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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IEC 60079-14
Edition 5.0 2013-11

EXPLOSIVE ATMOSPHERES –

Part 14: Electrical installations design, selection and erection

INTERPRETATION SHEET 2

This interpretation sheet has been prepared by subcommittee 31J: Classification of hazardous areas and installation requirements, of IEC technical committee 31: Equipment for explosive atmospheres.

The text of this interpretation sheet is based on the following documents:

DISH	Report on voting
31J/302/DISH	31J/303/RVDISH

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

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Background

With changes to the Type of Protection designations in the IEC 60079 Series, a number of these Type of Protection designations are not identified in the current edition of IEC 60079-14. This may create confusion for end users regarding the correct application of equipment with these Types of Protection.

Question

How should equipment be marked with new Type of Protection designations be handled in accordance with IEC 60079-14?

Interpretation

Equipment marked with new Type of Protection designations shall be applied in accordance with IEC 60079-14 requirements based on the following points and IEC 60079-14:2013, Table 2.

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- Ex "eb" should be treated as equivalent to Ex "e"
- Ex "ec" should be treated as equivalent to Ex "nA"
- Ex "db" should be treated as equivalent to Ex "d"
- Ex "dc" requirements should be based on Ex "d" requirements but is only suitable for EPL Gc
- Ex "ob" should be treated as equivalent to Ex "o"
- Ex "oc" requirements should be based on Ex "o" requirements but is only suitable for EPL Gc

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