



SLOVENSKI STANDARD SIST EN 60079-27:2006

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Electrical apparatus for explosive gas atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)

iTeh STANDARD PREVIEW

Elektrische Betriebsmittel für gasexplosionsgefährdete Bereiche - Teil 27: Konzept für eigensichere Feldbussysteme (FISCO) und Konzept für nichtzündfähige Feldbussysteme (FNICO)

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Matériel électrique pour atmosphères explosives gazeuses - Partie 27: Concept de réseau de terrain de sécurité intrinsèque (FISCO) et concept de réseau de terrain non incendiaire (FNICO)

Ta slovenski standard je istoveten z: EN 60079-27:2006

ICS:

29.260.20 01^ dã } ãæ ææã æ Electrical apparatus for
 ^\ •] [[: ã } æ : l æ ææ explosive atmospheres

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EUROPEAN STANDARD

EN 60079-27

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2006

ICS 29.260.20

English version

**Electrical apparatus for explosive gas atmospheres
Part 27: Fieldbus intrinsically safe concept (FISCO)
and Fieldbus non-incendive concept (FNICO)
(IEC 60079-27:2005)**

Matériel électrique pour atmosphères
explosives gazeuses
Partie 27: Concept de réseau de terrain
de sécurité intrinsèque (FISCO)
et concept de réseau de terrain
non incendiaire (FNICO)
(CEI 60079-27:2005)

Elektrische Betriebsmittel für
gasexplosionsgefährdete Bereiche
Teil 27: Konzept für eigensichere
Feldbussysteme (FISCO) und
Konzept für nichtzündfähige
Feldbussysteme (FNICO)
(IEC 60079-27:2005)

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This European Standard was approved by CENELEC on 2006-02-01. 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, 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

Foreword

The text of document 31G/138/FDIS, future edition 1 of IEC 60079-27, prepared by SC 31G, Intrinsically-safe apparatus, of IEC TC 31, Electrical apparatus for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60079-27 on 2006-02-01.

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) 2006-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-02-01

This European Standard was prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and supports the essential requirements of 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 60079-27:2005 was approved by CENELEC as a European Standard without any modification.

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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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-426	– ¹⁾	International Electrotechnical Vocabulary (IEV) – Electrical apparatus for explosive atmospheres	–	–
IEC 60079-0 (mod)	– ¹⁾	Electrical apparatus for explosive gas atmospheres Part 0: General requirements	EN 60079-0	– ²⁾
IEC 60079-11	– ¹⁾	Part 11: Intrinsic safety "i"	–	–
IEC 60079-14	2002	Part 14: Electrical installations in hazardous areas (other than mines)	EN 60079-14	2003
IEC 60079-15	– ¹⁾	Part 15: Type of protection "n"	EN 60079-15	2005 ³⁾
IEC 60079-25	– ¹⁾	Part 25: Intrinsically safe systems	EN 60079-25	2004 ³⁾
IEC 61158-2	– ¹⁾	Digital data communications for measurement and control - Fieldbus for use in industrial control systems Part 2: Physical layer specification and service definition	EN 61158-2	2004 ³⁾

¹⁾ Undated reference.

²⁾ To be published.

³⁾ Valid edition at date of issue.

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 94/9/EC:

- ER 1.0.1 to ER 1.0.4, ER 1.0.5 (partly)
- ER 1.1
- ER 1.2.1, ER 1.2.2, ER 1.2.4 (partly), ER 1.2.6, ER 1.2.7 (partly)
- ER 1.3.1, ER 1.3.2
- ER 1.4.1
- ER 2.01, ER 2.0.2
- ER 2.1.1, ER 2.2.1

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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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60079-27

Première édition
First edition
2005-04

**Matériel électrique pour atmosphères
explosives gazeuses –**

**Partie 27:
Concept de réseau de terrain de sécurité
intrinsèque (FISCO) et concept de réseau
de terrain non incendiaire (FNICO)**

**Electrical apparatus for explosive
gas atmospheres –**

**Part 27:
Fieldbus intrinsically safe concept (FISCO)
and Fieldbus non-incendive concept (FNICO)**

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International Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

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*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

CONTENTS

FOREWORD.....	5
1 Scope	9
2 Normative references	9
3 Terms and definitions	11
4 Power supplies	11
4.1 General	11
4.2 Additional requirements of FISCO power supplies	13
4.3 Additional requirements of FNICO power supplies	13
5 Field devices	15
5.1 General	15
5.2 FISCO field devices	15
5.3 FNICO field devices	15
6 Terminator.....	17
6.1 General	17
6.2 FISCO terminator	17
6.3 FNICO terminator	17
7 System requirements	17
7.1 General	17
7.2 FISCO system requirements	19
7.3 FNICO system requirements	21
8 Marking	21
8.1 FISCO marking	21
8.2 FNICO marking	21
9 Examples of marking	23
9.1 Examples of FISCO marking	23
9.2 Examples of FNICO marking	25
10 System diagram.....	27
Figure 1 – Typical system	27
Table 1 – Assessment of maximum output current for use with FISCO rectangular supplies.....	13
Table 2 – Assessment of maximum output current for use with FNICO rectangular supplies.....	13

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SIST EN 60079-27:2006
<https://standards.iteh.ai/catalog/standards/sist/812fc233-1f9c-49b1-9291-82bf784502ba/sist-en-60079-27-2006>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES –

Part 27: Fieldbus intrinsically safe concept (FISCO) and
Fieldbus non-incendive concept (FNICO)

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 60079-27 has been prepared by subcommittee 31G: Intrinsically safe apparatus, of IEC technical committee 31: Electrical apparatus for explosive atmospheres.

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This first edition cancels and replaces the technical specification issued in 2002. It constitutes a technical revision and now has the status of an International Standard.

The significant changes with respect to the technical specification are listed below:

- the standard contains the requirements for non-incendive Fieldbus systems in addition to those for intrinsically safe systems;
- there are small changes in the permitted parameters of field wiring, derived from further experimental work.

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

FDIS	Report on voting
31G/138/FDIS	31G/142/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.

The following standards are also part of the same series (non-exhaustive list), under the general title *Electrical apparatus for explosive gas atmospheres*:

Part 25: Intrinsically safe systems

Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

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ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES –

Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)

1 Scope

This part of IEC 60079 contains the details of apparatus, systems and installation practice for use with the Fieldbus Intrinsically Safe Concept (FISCO) and the Fieldbus Non-Incendive Concept (FNICO). It is based on the concepts of Manchester encoded, bus powered systems designed in accordance with IEC 61158-2 which is the physical layer standard for Fieldbus installations.

The constructional and installation requirements of FISCO and FNICO apparatus and systems are determined by IEC 60079-11, IEC 60079-14, IEC 60079-15 and IEC 60079-25, except as modified by this standard. Part of a Fieldbus device may be protected by any of the methods of explosion protection listed in IEC 60079-0, appropriate to the Zone of intended use. In these circumstances, the requirements of this standard apply only to that part of the apparatus directly connected to the intrinsically safe or non-incendive trunk or spurs.

NOTE 1 Certification to the FISCO requirements does not prevent apparatus also being certified and marked to IEC 60079-11 in the conventional manner so that they may be used in other systems. Some apparatus certified before this standard was published but not necessarily complying with the electrical parameters of this standard may be marked 'Suitable for FISCO systems'. This apparatus may be accepted in a FISCO system, if the comparison of the electrical parameters U_0, I_0, P_0 , with U_i, I_i, P_i , demonstrate compatibility with the remainder of the system, and all the other requirements of this standard are met.

NOTE 2 A typical system is illustrated in Clause 10.

NOTE 3 Generally, FNICO systems are intended for use in Zone 2 locations. FISCO systems are predominantly intended for use in Zone 1 and 2 locations, but may enter Zone 0 locations if specifically permitted to do so by the documentation.

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 60050-426, *International Electrotechnical Vocabulary (IEV) – Electrical apparatus for explosive atmospheres*

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

IEC 60079-11, *Electrical apparatus for explosive gas atmospheres – Part 11: Intrinsic safety "i"*

IEC 60079-14:2002, *Electrical apparatus for explosive gas atmospheres – Part 14: Electrical installations in hazardous areas (other than mines)*