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Explosive atmospheres - Part 39: Intrinsically safe systems with electronically controlled spark duration limitation

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. 10/19

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# CLC IEC/TS 60079-39

June 2019

ICS 29.260.20

**English Version** 

# Explosive atmospheres - Part 39: Intrinsically safe systems with electronically controlled spark duration limitation (IEC/TS 60079-39:2015)

Atmosphères explosives - Partie 39 : Systèmes de sécurité intrinsèque à limite de la durée d'étincelle contrôlée électroniquement (IEC/TS 60079-39:2015) Explosionsgefährdete Bereiche - Teil 39: Eigensichere Systeme mit elektronisch gesteuerter Begrenzung der Funkendauer (IEC/TS 60079-39:2015)

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# Annex ZA

## (normative)

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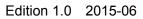
NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

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

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Publication	Year	<u>Title</u>	<u>EN/HD</u>	Year
IEC 60079-0	-	Explosive atmospheres Part 0: Equipmen	t EN 60079-0	-
		- General requirements		
IEC 60079-11	-	Explosive atmospheres - Part 11: Equipmer	tEN 60079-11	-
		protection by intrinsic safety "i"		
IEC 60079-14	-	Explosive atmospheres - Part 14: Electrical	EN 60079-14	-
		installations design, selection and erection		
IEC 60079-25	-	Explosive atmospheres - Part 25:	EN 60079-25	-
		Intrinsically safe electrical systems		







# TECHNICAL SPECIFICATION



Explosive atmospheres – Part 39: Intrinsically safe systems with electronically controlled spark duration limitation





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IEC Central Office	Tel.: +41 22 919 02 11
3, rue de Varembé	Fax: +41 22 919 03 00
CH-1211 Geneva 20	info@iec.ch
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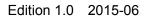
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# **IEC TS 60079-39**



# TECHNICAL SPECIFICATION



Explosive atmospheres – Part 39: Intrinsically safe systems with electronically controlled spark duration limitation

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

# **EXPLOSIVE ATMOSPHERES –**

# Part 39: Intrinsically safe systems with electronically controlled spark duration limitation

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IEC TS 60079-39, which is a technical specification, has been prepared by subcommittee 31G: Intrinsically safe apparatus, of IEC technical committee 31: Equipment for explosive atmospheres.

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The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
31G/236A/DTS	31G/242/RVC

Full information on the voting for the approval of this technical specification 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

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# INTRODUCTION

This part of IEC 60079, which is a Technical Specification, is being issued as a "prospective standard for provisional application" in the field of *Explosive Atmospheres – Intrinsically safe systems with electronically controlled spark duration limitation* because there is an urgent need for guidance on how standards in this field should be used to meet an identified need.

Intrinsically safe systems with electronically controlled spark duration can provide more power available in intrinsically safe circuits while maintaining the level of protection "ib" or "ic". In addition to limiting the voltage and current (similar to conventional intrinsically safe circuits), the duration of the spark is limited, which also restricts the amount of energy available for ignition.

The general requirements for the installation of IS equipment are applicable to Power-i circuits.

This new technology allows an expansion in the field of industrial applications using the type of protection Intrinsic Safety 'i.

This technology, however, requires a new and more extensive approach of the type of protection Intrinsic Safety "i".

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## **EXPLOSIVE ATMOSPHERES –**

# Part 39: Intrinsically safe systems with electronically controlled spark duration limitation

### 1 Scope

This Technical Specification specifies the construction, testing, installation and maintenance of Power-i apparatus and systems which utilise electronically controlled spark duration limitation to maintain an adequate level of intrinsic safety.

This Technical Specification contains requirements for intrinsically safe apparatus and wiring intended for use in explosive atmospheres and for associated apparatus intended for connection to intrinsically safe circuits entering such atmospheres.

This Technical Specification excludes the level of protection "ia" and the use of softwarecontrolled circuits.

This Technical Specification applies to electrical equipment utilising voltages not higher than 40 V d.c. and a safety factor 1,5 for Groups IIB, IIA, I and III. It is also applicable to Group IIC "ic" apparatus with a safety factor 1,0. Group IIC "ib" apparatus with a safety factor 1,5 are restricted to voltages up to 32 V d.c.

This type of protection is applicable to electrical equipment in which the electrical circuits themselves are incapable of causing an explosion of the surrounding explosive atmospheres.

This Technical Specification is applicable to intrinsically safe apparatus and systems which utilise electronically controlled spark duration limitation with the aim of providing more electrical power while maintaining an adequate level of safety.

This Technical Specification is also applicable to electrical equipment or parts of electrical equipment located outside hazardous areas or protected by another type of protection listed in the IEC 60079 series, where the intrinsic safety of the electrical circuits in explosive atmospheres depends on the design and construction of such electrical equipment or parts of such electrical equipment. The electrical circuits located in the hazardous area are evaluated for use in such locations by applying this Technical Specification.

This Technical Specification supplements and modifies the requirements of IEC 60079-0, IEC 60079-11, IEC 60079-14, IEC 60079-17 and IEC 60079-25.

### 2 Normative references

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.

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* 

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IEC 60079-25, *Explosive atmospheres – Part 25: Intrinsically safe electrical systems* 

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