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(Expires 16 January 2008)

Australian/New Zealand Standard™

Electrical apparatus for explosive gas atmospheres

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

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-014, Electrical Equipment in Hazardous Areas. It was approved on behalf of the Council of Standards Australia on 14 December 2005 and on behalf of the Council of Standards New Zealand on 21 December 2005.
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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

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Australian/New Zealand Standard™

Electrical apparatus for explosive gas atmospheres

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

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PREFACE

This Interim Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, Electrical Equipment in Hazardous Areas, to supersede AS/NZS 60079.27(Int):2003.

The objective of this Interim Standard is to specify the requirements for design, construction, installation and marking of fieldbus intrinsically safe concept (FISCO) and fieldbus non-incendive concept (FNICO) systems.

This Interim Standard is identical with, and has been reproduced from IEC 60079-27, Ed.1 (2005), *Electrical apparatus for explosive gas atmospheres – Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)*.

The significant changes with respect to the previous edition are listed below:

(a) The Standard contains the requirements for non-incendive Fieldbus systems in addition to those for intrinsically safe systems.

(b) There are small changes in the permitted parameters of field wiring, derived from further experimental work.

As this Interim Standard is reproduced from an International Standard, the following applies:

(i) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(ii) In the source text ‘this part of IEC 60079’ should read ‘this Interim Australian/New Zealand Standard’.

(iii) A full point should be substituted for a comma when referring to a decimal marker.

Standards Australia/Standards New Zealand invites comments on this Interim Standard from persons and organizations concerned with this subject. The date of expiry is two years after publication, at which time this Interim Standard will be confirmed, withdrawn or revised in the light of public comment. The closing date for comment is 18 months after publication at which time the Committee will either consider its withdrawal at the end of its two years life, extend its life for another 2 years or revise it in the light of public comment, with the view to the publication of a Joint Australian/New Zealand Standard before the expiry date.

During the life of this document the Committee will monitor all comment as it is received.

Attention is drawn to the fact that this document is an Interim Joint Australian/New Zealand Standard only and should be regarded as a developmental Standard and liable to future alteration.

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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_o, I_o, P_o, 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.

References to international standards that are struck through in this clause are replaced by references to Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is identified as such.

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*~~

AS/NZS 60079.0, *Electrical apparatus for explosive gas atmospheres,* Part 0: *General requirements* (identical to IEC 60079-0)