This is a free page sample. Access the full version online.

AS/NZS 60079.25:2004
IEC 60079-25:2003

Australian/New Zealand Standard™

Electrical apparatus for explosive gas atmospheres

Part 25: Intrinsically safe systems

STANDARDS AUSTRALIA

STANDARDS NEW ZEALAND
Paerewa Aotearoa

This is a free page sample. Access the full version online.

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 24 November 2003 and on behalf of the Council of Standards New Zealand on 27 November 2003. It was published on 27 January 2004.

The following are represented on Committee EL-014:

Auckland Regional Chamber of Commerce
Australian Association of Certification Bodies
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Australian Gas Association
Australian Industry Group
Australian Institute of Petroleum
Department of Mineral Resources, N.S.W.
Department of Mines and Energy, Qld
Electricity Supply Association of Australia
Institute of Electrical Inspectors
Institute of Instrumentation and Control Australia
Institution of Engineers Australia
Ministry of Economic Development (New Zealand)
National Electrical and Communications Association
New Zealand Association of Marine, Aviation and Power Engineers
New Zealand Employers and Manufacturers Association
New Zealand Hazardous Areas Electrical Coordinating Committee
Regulatory authorities (electrical)
WorkCover New South Wales

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Australia web site at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

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 International or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 03453.

This is a free page sample. Access the full version online.

Australian/New Zealand Standard™

Electrical apparatus for explosive gas atmospheres

Part 25: Intrinsically safe systems

First published as AS/NZS 60079.25:2004.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 5654 9

This is a free page sample. Access the full version online.

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, Electrical Equipment in Hazardous Areas.

The objective of this Standard is to set out the specific requirements for construction and assessment of intrinsically safe electrical systems, type of protection 'i', intended for use, as a whole or in part, in explosive atmospheres in Group II locations.

This Standard is identical with, and has been reproduced from, IEC 60079-25:2003, *Electrical apparatus for explosive gas atmospheres* – Part 25: *Intrinsically safe systems*.

Footnotes have been added to the original text of IEC 60079-25:2003, under C.4, to provide clarification on the specific items/aspects marked with * and †.

Variations to IEC 60079-25:2003 are indicated at the appropriate places throughout this standard. Strikethrough (~~example~~) identifies IEC text, tables and figures which, for the purposes of this Australian/New Zealand Standard, are deleted. Where text, tables or figures are added, each is set in its proper place and identified by shading (example). Added figures are not themselves shaded, but are identified by a shaded border.

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

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

(b) In the source text 'this international standard' should read 'this Australian/New Zealand Standard'.

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

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a Standard, whereas an informative annex is only for information and guidance.

This is a free page sample. Access the full version online.

CONTENTS

Page

1 Scope 1
2 Normative references 1
3 Definitions 2
4 Descriptive system document 3
5 Grouping and classification 3
6 System categories 3
7 Ambient temperature rating 4
8 Field wiring 4
9 Earthing and bonding of intrinsically safe systems 4
10 Protection against lightning and other electrical surges 5
11 Assessment of an intrinsically safe system 5
12 Marking 8

Annex A (normative) Assessment of a simple intrinsically safe system 9
Annex B (normative) Assessment of circuits with more than one source of power 11
Annex C (informative) Interconnection of non-linear and linear intrinsically safe circuits 14
Annex D (normative) Verification of inductive parameters 51
Annex E (informative) A possible format for descriptive systems drawings and installation drawings 53
Annex F (informative) Surge protection of an intrinsically safe circuit 56

Figure 1 – Systems analysis 7
Figure A.1 – Interconnection of intrinsically safe apparatus with associated apparatus 10
Figure B.1 – Sources of power connected in series 12
Figure B.2 – Sources of power connected in parallel 13
Figure B.3 – Sources of power not deliberately connected 13
Figure C.1 – Equivalent circuit and output characteristic of resistive circuits 15
Figure C.2 – Current and/or voltage addition for interconnections 17
Figure C.3 – Output characteristic and equivalent circuit of a source with trapezoidal characteristic 21
Figure C.4 – Example of an interconnection 25
Figure C.5 – Sum characteristics for the circuit as given in Figure C.4 26
Figure C.6 – Current and/or voltage addition for the example given in Figure C.4 28
Figure C.7 – Limit curve diagram for universal source characteristic – Group IIC 39
Figure C.8 – Limit curve diagram for universal source characteristic – Group IIB 49
Figure C.9 – Copy pattern for universal source diagrams 50
Figure D.1 – Typical inductive circuit 52
Figure E.1 – Typical block diagram for IS system descriptive system document 54
Figure E.2 – Typical installation drawing for IS system 55
Figure F.1 – Surge protection requirements of an instrument loop 58
Table C.1 – Parameters necessary to describe the output characteristic 19
Table C.2 – Assignment of diagrams to apparatus groups and inductances 22

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation