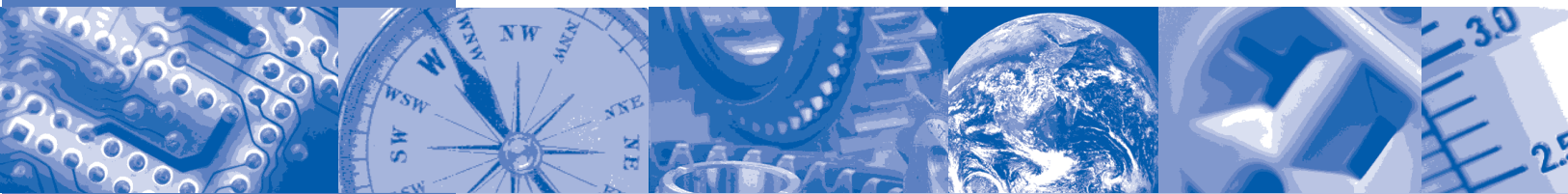


ANSI/ISA-60079-18 (12.23.01)-2005

Supersedes ANSI/ISA-12.23.01-2002 (IEC 60079-18 Mod)



Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations Type of Protection — Encapsulation "m"



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Approved 15 August 2005



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The most recent designation of ANSI/ISA-60079-18 and ANSI/UL 60079-18 and as an American National Standard occurred on 15 August 2005.

This ANSI/UL Standard for Safety, which consists of the second edition, is under continuous maintenance, whereby each revision is ANSI approved upon publication. Comments or proposals for revisions on any part of the standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

ISA
ANSI/ISA-60079-18
Second Edition

Underwriters Laboratories Inc.
ANSI/UL 60079-18
Second Edition



**ISA—The Instrumentation, Systems,
and Automation Society**



**Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations:
Type of Protection – Encapsulation “m”**

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General Notes

This is the common ISA and UL standard for Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations Type of Protection – Encapsulation "m". It is the second edition of ANSI/ISA-60079-18 and the second edition of ANSI/UL 60079-18. The ISA suffix "Mod" indicates the document is a modification of the IEC document and includes U.S. deviations encompassing both additions and deletions of information.

ANSI/ISA-60079-18 and ANSI/UL 60079-18 contain identical requirements, and identical publication dates. The presentation and format of the standards material may differ between the two published standards.

This common standard was prepared by ISA and Underwriters Laboratories Inc. (UL). Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

Level of harmonization

This standard adopts the IEC text with deviations.

The requirements are presented in different formats. The ISA version of the standard illustrates the national differences from the IEC text through the use of legislative text (strike-out and underline). The UL version of the standard illustrates national differences immediately following the IEC text. National differences between the UL version and the ISA version shall be word for word except for editorial changes.

Interpretations

The interpretation by the SDO of an identical or equivalent standard shall be based on the literal text to determine compliance with the standard in accordance with the procedural rules of the SDO. If more than one interpretation of the literal text has been identified, a revision shall be proposed as soon as possible to each of the SDOs to more accurately reflect the intent.

UL Effective Date

The requirements in this standard are effective 31 January 2008.

New product submittals made prior to a specified future effective date will be judged under all of the requirements in this standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if the applicant elects this option, it should be noted that compliance with all the requirements in this standard will be required as a condition of continued Listing, Recognition, Classification, and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

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Preface

This ISA standard is based on IEC Publication 60079-18. It is the intention of the ISA SP12 Committee to develop an ANSI Standard that is harmonized with IEC 60079-18 to the fullest extent possible. This preface is included for informational purposes and is not part of ANSI/ISA 60079-18. The document is a modification of the IEC document and includes U.S. deviations encompassing both additions and deletions of information.

The standards referenced within this document may contain provisions which, through reference in this text, constitute requirements of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated within this document. Members of IEC and ISO maintain registers of currently valid International Standards. ANSI maintains registers of currently valid U.S. National Standards.

This document has been prepared as part of the service of ISA, toward a goal of uniformity in the field of instrumentation. To be of real value, this document should not be static but should be subject to periodic review. Toward this end, the Society welcomes all comments and criticisms and asks that they be addressed to the Secretary, Standards and Practices Board; ISA; 67 Alexander Drive; P. O. Box 12277; Research Triangle Park, NC 27709; Telephone (919) 549-8411; Fax (919) 549-8288; E-mail: standards@isa.org.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards. The Department is further aware of the benefits to USA users of ISA standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavour to introduce SI-acceptable metric units in all new and revised standards, recommended practices, and technical reports to the greatest extent possible. *Standard for Use of the International System of Units (SI): The Modern Metric System*, published by the American Society for Testing & Materials as IEEE/ASTM SI 10-97, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

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This document was approved for publication by the ISA Standards and Practices Board on 20 June 2005.

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National Differences

GENERAL

National Differences from the text of International Electrotechnical Commission (IEC) Publication 60079-18, Electrical apparatus for explosive gas atmospheres – Part 18: Construction, test and marking of type of protection encapsulation “m” electrical apparatus, copyright 2004, are indicated by notations (differences) and are presented in bold text.

In the ISA publication of this standard, National Differences are presented using legislative text (strike-out and underline). The national difference type is identified in an informative annex.

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

The UL printed standard includes the national difference types within the body of the text. The ISA printed standard includes the national difference types in an annex at the back of the standard.

D1 – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

D2 – These are National Differences based on **safety practices**. These are differences for IEC requirements that may be acceptable, but adopting the IEC requirements would require considerable retesting or redesign on the manufacturer's part.

DC – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

DE – These are National Differences based on **editorial comments or corrections**.

DR – These are National Differences based on the **national regulatory requirements**.

Each national difference contains a description of what the national difference entails. Typically one of the following words is used to explain how the text of the national difference is to be applied to the base IEC text:

Addition / Add – An addition entails adding a complete new numbered clause, subclause, table or figure. Addition is not meant to include adding select words to the base IEC text.

Deletion / Delete – A deletion entails complete deletion of an entire numbered clause, subclause, table or figure without any replacement text.

Modification / Modify – A modification is an altering of the existing base IEC text such as the addition, replacement or deletion of certain words or the replacement of an entire clause, subclause, table, or figure of the base IEC text.

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Foreword

The entire text of IEC 60079-18:2004 is included in this document. U.S. National Deviations are shown by ~~strikeout~~ through deleted text and underlining of added text. There are four annexes in this standard. Annexes B and C are normative and form part of the requirements of this standard. Annexes A and D are informative and are not considered part of this standard.

The significant technical changes with respect to the previous edition are as follows:

- a) introduction of new techniques such as multilayer;
- b) incorporation of two levels of protection.