

UL 61496-2

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Electro-Sensitive Protective Equipment, Part 2: Particular Requirements for Equipment Using Active Opto-Electronic Protective Devices (AOPDs)

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UL Standard for Safety for Electro-Sensitive Protective Equipment, Part 2: Particular Requirements for Equipment Using Active Opto-Electronic Protective Devices (AOPDs), UL 61496-2

First Edition, Dated January 29, 2002

Revisions: This Standard contains revisions through and including February 27, 2007.

Summary of Topics

This revision to ANSI/UL 61496-2 is issued to reaffirm the ANSI approval. No technical changes have been made to the document.

As indicated on the title page (page 1), this UL Standard for Safety is an American National Standard. Attention is directed to the note on the title page of this Standard outlining the procedures to be followed to retain the approved text of this ANSI/UL Standard.

The UL Foreword is no longer located within the UL Standard. For information concerning the use and application of the requirements contained in this Standard, the current version of the UL Foreword is located on ULStandardsInfoNet at: <http://ulstandardsinfo.net/ulforeword.html>

The master for this Standard at UL's Northbrook Office is the official document insofar as it relates to a UL service and the compliance of a product with respect to the requirements for that product and service, or if there are questions regarding the accuracy of this Standard.

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The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the preface. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

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 Listed and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

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This Standard consists of pages dated as shown in the following checklist:

Page	Date
1-6.	February 27, 2007
7-38	January 29, 2002
39	February 27, 2007
A2	January 29, 2002
A1-A2	January 29, 2002

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JANUARY 29, 2002
(Title Page Reprinted: February 27, 2007)



ANSI/UL 61496-2-2007

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UL 61496-2

**Standard for Electro-Sensitive Protective Equipment, Part 2: Particular
Requirements for Equipment Using Active Opto-Electronic Protective
Devices (AOPDs)**

First Edition

January 29, 2002

The most recent designation of ANSI/UL 61496-2 as a Reaffirmed American National Standard (ANS) occurred on February 19, 2007.

This ANSI/UL Standard for Safety, which consists of the First edition with revisions through February 27, 2007, is under continuous maintenance, whereby each revision is ANSI approved upon publication.

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this Standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements. 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>.

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Preface (UL)

This UL Standard 61496-2, Standard for Safety for Electrosensitive Protective Equipment, Part 2: Particular Requirements for Equipment Using Active Opto-Electronic Protective Devices (AOPDs), is to be used in conjunction with the first edition of UL 61496-1. The requirements for 61496-2 are contained in this Part 2 Standard and UL 61496-1.

Requirements of this Part 2 Standard, where stated, amend the requirements of UL 61496-1.

Where a particular subclause of UL 61496-1 is not mentioned in UL 61496-2, the UL 61496-1 subclause applies.

The text, figures and tables of IEC Publication Safety of Machinery – Electro-Sensitive Protective Equipment – Part 2: Particular Requirements for Equipment Using Active Opto-Electronic Protective Devices (AOPDs), IEC 61496-2 copyright 1997 are used in this Standard with the consent of the IEC and the American National Standards Institute (ANSI). The IEC copyrighted material has been reproduced with permission from ANSI. ANSI should be contacted regarding the reproduction of any portion of the IEC material. The IEC Foreword and Introduction are not a part of the requirements of this Standard but are included for information purposes only. Copies of IEC Publication 61496-2 may be purchased from ANSI, 11 West 42 nd Street, New York, New York, 10036, (212) 642- 4900.

Note – 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.

UL Effective Date

As of July 29, 2004 all products Listed or Recognized by UL must comply with the requirements in this standard.

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DEVIATIONS

GENERAL

Deviations from the text of International Electrotechnical Commission (IEC) Publication 61496-2, copyright 1997 are indicated by notations (deviations) and are presented in bold text.

There are five types of deviations as noted below. The deviation type is noted on the first line of the deviation in the standard. The standard may not include all types of these deviations.

DR – These are deviations based on the **National Electrical Code (NEC)** and **other U.S. Regulatory Requirements**.

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

D2 – These are deviations based on **safety practices**. These are deviations 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 deviations 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 deviations based on **editorial comments or corrections**.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF MACHINERY – ELECTRO-SENSITIVE PROTECTIVE EQUIPMENT – Part 2, Particular Requirements for Equipment Using Active Opto-Electronic Protective Devices (AOPDs)

Foreword (IEC)

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61496-2 has been prepared by IEC technical committee 44: Safety of machinery – Electrotechnical aspects, in collaboration with CENELEC technical committee 44X: Safety of machinery – Electrotechnical aspects

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

FDIS	Report on voting
44/208/FDIS	44/212/RVD

Full information on the voting for the approval of this standard can be found in the report of voting indicated in the above table.

INTRODUCTION (IEC)

An electro-sensitive protective equipment (ESPE) is applied to machinery that presents a risk of personal injury. It provides protection by causing the machine to revert to a safe condition before a person can be placed in a hazardous situation.

This part of International Standard IEC 61496 provides general design and performance requirements of ESPEs for use over a broad range of applications. Essential features of equipment meeting the requirements of this standard are the appropriate level of safety-related performance provided and the built-in periodic functional checks/self-checks-that are specified to ensure that this level of performance is maintained.

This part supplements or modifies the corresponding clause in IEC 61496-1.

Where a particular clause or subclause of part 1 is not mentioned in this part 2, that clause or subclause applies as far as is reasonable. Where this part states "addition", "modification" or "replacement", the relevant text of part 1 is to be adapted accordingly.

This standard has the status of a product family standard and may be used as a normative reference in a dedicated product standard for the safety of machinery.

Each type of machine presents its own particular hazards and it is not the purpose of this standard to recommend the manner of application of the ESPE to any particular machine. The application of the ESPE should be a matter for agreement between the equipment supplier, the machine user and the enforcing authority; in this context, attention is drawn to the relevant guidance established internationally, for example ISO/TR 12100.

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