

UL 60691

Thermal-Links – Requirements and Application Guide



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UL Standard for Safety for Thermal-Links – Requirements and Application Guide, UL 60691

Third Edition, Dated September 26, 2003

Revisions: This Standard contains revisions through and including December 21, 2007.

Summary of Topics

Revision pages for UL 60691 are being issued to reflect the recent reaffirmation of UL 60691 as an American National Standard.

UL Standards for Safety are developed and maintained in the Standard Generalized Markup Language (SGML). SGML -- an international standard (ISO 8879-1986) -- is a descriptive markup language that describes a document's structure and purpose, rather than its physical appearance on a page. Due to formatting differences resulting from the use of UL's new electronic publishing system, please note that additional pages (on which no requirements have been changed) may be included in revision pages due to relocation of existing text and reformatting of the Standard.

Text that has been changed in any manner is marked with a vertical line in the margin. Changes in requirements are marked with a vertical line in the margin and are followed by an effective date note indicating the date of publication or the date on which the changed requirement becomes effective.

The revisions dated December 21, 2007 include a reprinted title page (page1) for this Standard.

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 Recognition 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	December 21, 2007
2-3	January 24, 2006
4-5	September 26, 2003
6	January 24, 2006
7-46	September 26, 2003

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1

UL 60691

Standard for Thermal-Links – Requirements and Application Guide

The first and second editions of the Standard for Thermal-Links – Requirements and Application Guide were not printed. Efforts have been made to synchronize the UL edition number with that of the corresponding IEC standard. As a result, one or more edition numbers have been skipped in the process. The list of UL editions included here is a complete list of published UL editions.

Prior to the Third Edition of UL 60691, the requirements for the products covered by this Standard were included in UL 1020.

First Edition – Not Printed
Second Edition – Not Printed

Third Edition

September 26, 2003

The most recent designation of UL 60691 as a Reaffirmed American National Standard (ANS) occurred on December 20, 2007. The ANSI approval for this standard does not include the Cover Page, Transmittal Pages, or Title Page.

This ANSI/UL Standard for Safety, which consists of the Third Edition including revisions through December 21, 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. and is not part of the ANSI approved standard.

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 is based on IEC Publication 60691: third edition Thermal-links – Requirements and application guide. IEC Publication 60691 is copyrighted by the IEC.

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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.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION**THERMAL-LINKS – REQUIREMENTS AND APPLICATION GUIDE****FOREWORD**

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 specifications, 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 60691 has been prepared by subcommittee 32C: Miniature fuses, of IEC technical committee 32: Fuses.

This third edition cancels and replaces the second edition published in 1993, its amendment 1 (1995) and its amendment 2 (2000). This third edition constitutes a technical revision.

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

FDIS	Report on voting
32C/321/FDIS	32C/329/RVD

Full information on the voting for the approval of this standard 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.

The US national standard UL 1020 (fifth edition) which deals with thermal cutoffs/thermal-links, has served as a basis for the elaboration of this new edition.

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

INTRODUCTION

THERMAL-LINKS, defined as non-resettable devices functioning once only without refunctioning, are widely applied for the thermal protection of equipment in which, under fault conditions, one or more parts may reach hazardous temperatures.

As these devices have several aspects in common with miniature fuse-links and are used for obtaining a comparable degree of protection, this standard has endeavored to lay down a number of basic requirements for such devices.

THERMAL-LINKS – REQUIREMENTS AND APPLICATION GUIDE

1 Scope and object

1 effective September 26, 2005

This International Standard is applicable to THERMAL-LINKS intended for incorporation in electrical appliances, electronic equipment and component parts thereof, normally intended for use indoors, in order to protect them against excessive temperatures under abnormal conditions.

NOTE 1 The equipment need not be designed to generate heat.

NOTE 2 The effectiveness of the protection against excessive temperatures logically depends upon the position and method of mounting of the THERMAL-LINK, as well as upon the current which it is carrying.

NOTE 3 Attention is drawn to the fact that the external CREEPAGE DISTANCES and CLEARANCES specified in Table 3 may in some cases be smaller than those required by certain appliance or equipment standards. In such cases, additional means should be provided when a THERMAL-LINK is mounted in the equipment in order to adjust the CREEPAGE DISTANCES and CLEARANCES to the values required by the relevant equipment standard.

This standard may be applicable to THERMAL-LINKS for use under conditions other than indoors, provided that the climatic and other circumstances in the immediate surroundings of such THERMAL-LINKS are comparable with those in this standard.

This standard may be applicable to THERMAL-LINKS in their simplest forms (e.g. melting strips or wires), provided that molten materials expelled during function cannot adversely interfere with the safe use of the equipment, especially in the case of hand-held or PORTABLE EQUIPMENT, irrespective of its position.

This standard is applicable to THERMAL-LINKS with a RATED VOLTAGE not exceeding 690 V a.c. or d.c. and a RATED CURRENT not exceeding 63 A.

The object of this standard is:

- a) to establish uniform requirements for THERMAL-LINKS;
- b) to define methods of test;
- c) to provide useful information for the application of THERMAL-LINKS in equipment.

This standard is not applicable to THERMAL-LINKS used under extreme conditions such as corrosive or explosive atmospheres.

This standard is not applicable to THERMAL-LINKS to be used in circuits on a.c. with a frequency lower than 45 Hz or higher than 62 Hz.

2 Normative references

2 effective September 26, 2005

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.