



# UL 5085-1

## **STANDARD FOR SAFETY**

### Low Voltage Transformers – Part 1: General Requirements



UL Standard for Safety for Low Voltage Transformers – Part 1: General Requirements, UL 5085-1

First Edition, Dated April 17, 2006

### **Summary of Topics**

***This revision of ANSI/UL 5085-1 is being issued to reaffirm approval as an American National Standard. No changes in requirements are involved.***

***As noted in the Commitment for Amendments statement located on the back side of the title page, UL and CSA are committed to updating this harmonized standard jointly. However, the revision pages dated January 17, 2018 will not be jointly issued by UL and CSA as these revision pages only address UL ANSI approval dates.***

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated November 10, 2017.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

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.

No Text on This Page



CSA Group  
CSA C22.2 No. 66.1-06  
First Edition



Underwriters Laboratories Inc.  
UL 5085-1  
First Edition

## Low Voltage Transformers – Part 1: General Requirements

April 17, 2006

(Title Page Reprinted: January 17, 2018)



ANSI/UL 5085-1-2013 (R2018)

## **Commitment for Amendments**

This standard is issued jointly by the Canadian Standards Association (operating as “CSA Group”) and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to CSA Group or UL at any time. Revisions to this standard will be made only after processing according to the standards development procedures of CSA Group and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue.

---

## **ISBN 1-55436-830-8 © 2006 CSA Group**

All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher.

This Standard is subject to periodic review, and suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to [inquires@csagroup.org](mailto:inquires@csagroup.org) and include “Proposal for change” in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

To purchase CSA Group Standards and related publications, visit CSA Group’s Online Store at [shopcsa.ca](http://shopcsa.ca) or call toll-free 1-800-463-6727 or 416-747-4044.

---

## **Copyright © 2018 Underwriters Laboratories Inc.**

UL’s Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL’s Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

The most recent designation of ANSI/UL 5085-1 as an American National Standard (ANSI) occurred on January 17, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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 <https://csds.ul.com>.

To purchase UL Standards, visit UL’s Standards Sales Site at <http://www.shopulstandards.com/HowToOrder.aspx> or call toll-free 1-888-853-3503.

---

## CONTENTS

<b>Preface</b> .....	<b>5</b>
1 Scope .....	7
2 Definitions .....	8
3 General .....	9
3.1 Components .....	9
3.2 Reference Publications .....	10
3.3 Units of Measurement .....	10B
4 Construction .....	10B
5 Mechanical Assembly .....	10B
6 Enclosures .....	13
6.1 General .....	13
6.2 Nonmetallic enclosures .....	14
6.3 Enclosures – specific environmental conditions .....	15
6.4 Mounting .....	15
6.5 Openings .....	16
6.6 Barriers for openings .....	17
6.7 Covers .....	17
7 Corrosion Resistance .....	18
8 Connections .....	20
8.1 General .....	20
8.2 Wiring terminals .....	20
8.3 Wire-binding screws and studs .....	20
8.4 Pressure terminal connectors .....	21
8.5 Leads .....	22
9 Internal Wiring .....	22
10 Grounding .....	22
11 Spacings and Insulation .....	24
11.1 General .....	24
11.2 Insulating material for mounting of low voltage live parts .....	25
11.3 Coil insulation .....	25
11.4 Insulation used in lieu of spacings .....	26
11.5 Double insulation .....	28
12 Switches, Protective Devices, and Wiring Devices .....	28
12.1 General .....	28
12.2 Switches .....	28
12.3 Protective devices .....	28A
13 Current-Carrying Parts .....	28A
14 Cord-Connected Transformers .....	28B
15 Strain Relief .....	28B
16 Bushings for Low Voltage Wiring .....	29
17 Markings .....	31
17.1 General .....	31
17.2 Miscellaneous .....	32
18 Tests .....	33
19 Insulating Barriers Test .....	34
20 Pullout, Bending, and Twisting Tests .....	34
21 Bonding Conductor Test .....	34
22 Moisture Absorption Test .....	35
23 Hot, Flaming Oil Test .....	35