



UL 1004-7

STANDARD FOR SAFETY

Electronically Protected Motors

UL 1004-7 2018

*UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL*



Documents

Document Sharing Hub

*UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL*



Documents

Document Sharing Hub

UL Standard for Safety for Electronically Protected Motors, UL 1004-7

Third Edition, Dated June 21, 2018

Summary of Topics

This new edition of ANSI/UL 1004-7 was issued to incorporate editorial updates. No technical changes were made. These revisions are considered to be non-sustantive and not subject to UL's STP process.

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.

No Text on This Page

*UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL*



Documents

Document Sharing Hub

JUNE 21, 2018

1



ANSI/UL 1004-7-2017

UL 1004-7

Standard for Electronically Protected Motors

First Edition – October, 2009

Second Edition – July, 2012

Third Edition

June 21, 2018

This ANSI/UL Standard for Safety consists of the Third Edition.

The most recent designation of ANSI/UL 1004-7 as an American National Standard (ANSI) occurred on October 2, 2017. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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>.

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.

COPYRIGHT © 2018 UNDERWRITERS LABORATORIES INC.

**UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL**



Documents

Document Sharing Hub

No Text on This Page

*UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL*



Documents

Document Sharing Hub

CONTENTS

INTRODUCTION

1 Scope	4
2 Components	4
3 Glossary	4
4 Application of Requirements	5

CONSTRUCTION

5 Spacings	6
------------------	---

PERFORMANCE

6 Application of UL 60730-1 to Controls used to Provide Overtemperature Protection for Motors ..6	
7 Test Method on Controls used to Provide Overtemperature Protection for Motors	8
8 Running Heating Endurance Test	8

UL 60335-1 BASED REQUIREMENTS FOR MOTORS USED IN APPLIANCES

9 General	9
10 Components	9
10.1 Capacitors	9
10.2 Isolation devices	9
10.3 Switch mode power supplies	10
10.4 Temperature sensing, thermistor devices	10
10.5 Transformers	10
11 Evaluation of the Motor Protection Scheme	11
12 General Conditions for the Tests	12
12.1 Details	12
12.2 Intentionally weak parts	12
12.3 Test results determined by overcurrent protection operation	12
13 Low-Power Circuits	13
14 Abnormal Operation and Fault Tests	14
15 Low-Power Circuit Fire Tests	15
16 Programmable Component Reduced Supply Voltage Test	15
17 Electromagnetic Compatibility (EMC) Requirements – Immunity	16

MARKINGS

18 General	17
------------------	----

INSTRUCTIONS

19 General	17
------------------	----

**UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL**



Documents
Document Sharing Hub