



UL 634

STANDARD FOR SAFETY

Connectors and Switches for Use with
Burglar-Alarm Systems

ULNORM.COM : Click to view the full PDF of UL 634 2020

ULNORM.COM : Click to view the full PDF of UL 634 2020

UL Standard for Safety for Connectors and Switches for Use with Burglar-Alarm Systems, UL 634

Ninth Edition, Dated October 12, 2007

Summary of Topics

This revision of ANSI/UL 634 dated April 16, 2020 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

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 revised requirements are substantially in accordance with Proposal(s) on this subject dated January 31, 2020.

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

[ULNORM.COM](#) : Click to view the full PDF of UL 634 2020

OCTOBER 12, 2007
(Title Page Reprinted: April 16, 2020)



ANSI/UL 634-2015 (R2020)

1

UL 634

Standard for Connectors and Switches for Use with Burglar-Alarm Systems

First Edition – December, 1962
Second Edition – September, 1972
Third Edition – June, 1973
Fourth Edition – October, 1978
Fifth Edition – November, 1985
Sixth Edition – November, 1990
Seventh Edition – April, 1995
Eighth Edition – February, 2000

Ninth Edition

October 12, 2007

This ANSI/UL Standard for Safety consists of the Ninth edition including revisions through April 16, 2020.

The most recent designation of ANSI/UL 634 as a Reaffirmed American National Standard (ANS) occurred on March 27, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 634 on July 16, 1991. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

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 © 2020 UNDERWRITERS LABORATORIES INC.

No Text on This Page

ULNORM.COM : Click to view the full PDF of UL 634 2020

CONTENTS

INTRODUCTION

1	Scope	7
2	General	7
2.1	Components	7
2.2	Units of measurement	7
2.3	Undated references	8
2.4	Terminology	8
3	Glossary	8

CONSTRUCTION

ASSEMBLY

4	General	9
5	Frame and Enclosure	9
5.1	General	9
5.2	Cast metal	9
5.3	Sheet metal	9
5.4	Nonmetallic	9
6	Corrosion Protection	12

FIELD WIRING CONNECTIONS

7	General	13
7.1	Common requirements	13
7.2	Terminals – qualified application	14
7.3	Leads	15
7.4	Strain relief	15
7.5	Bushings	15

INTERNAL WIRING AND ASSEMBLY

8	General	16
9	Wiring Methods	16
10	Separation of Circuits	17

ELECTRICAL COMPONENTS

11	General	17
11.1	Mounting of parts	17
11.2	Insulating materials	18
11.3	Current-carrying parts	18
12	Capacitors	18
13	Semiconductors	18
14	Key-Operated Shunting Devices	18

SPACINGS

15	General	19
----	---------------	----

PERFORMANCE

16	Test Units and Data	20
17	Test Samples and Miscellaneous Data	20
18	Instrumentation	20
	18.1 Test voltages	20
	18.2 Temperature measurements	20
19	Operation Test	21
	19.1 General	21
	19.2 Magnetically actuated switches	21
	19.3 Special security products	22
	19.4 Heat and smoke detectors for vault protection	22
	19.5 Retractable flexible connectors	22
	19.6 Floor mats	22
	19.7 Floor traps	22
	19.8 Supplementary devices	23
20	Vibration Detector Sensitivity Test	23
21	Vibration Detector Stability Test	23
22	Adhesives Test	23
23	Test for Heat and Smoke Detectors for Vault Protection	24
	23.1 Test enclosure	24
	23.2 Test	24
24	Vibration Test	24
25	Temperature Test	24
26	Corrosion Tests – Indoor Use	25
	26.1 General	25
	26.2 Millivolt drop test	25
	26.3 Hydrogen sulfide (H ₂ S) test	25
	26.4 Sulfur dioxide-carbon dioxide (SO ₂ -CO ₂) test	25
27	Electromagnetic Interference Test	26
28	Overload Test	26
29	Endurance Test	26
30	Rough-Usage Test	27
31	Immersion Test	27
32	Impact Test	27
33	Variable Ambient Test	27
34	Humidity Test	28
35	Dielectric Voltage-Withstand Test	28
36	Electronic Component Malfunction Test	28
37	Strain Relief Pull Test	28
38	Tests on Polymeric Materials	29
	38.1 General	29
	38.2 Temperature test	29
	38.3 Flame test	29
39	Special Terminal Assemblies Tests	29
	39.1 General	29
	39.2 Disconnection and reconnection	29
	39.3 Mechanical secureness	29
	39.4 Flexing test	30
	39.5 Millivolt drop test	30
	39.6 Temperature test	30
40	Power-Limited Circuits	30
	40.1 General	30
	40.2 Maximum voltage	33
	40.3 Maximum current	33
	40.4 VA _{max} (Not inherently limited circuits only)	33

SHORT RANGE RADIO FREQUENCY (RF) DEVICES

41	General	33
----	---------------	----

MARKING INSTRUCTIONS

42	General	34
43	Marking Application	35

OUTDOOR USE EQUIPMENT**ASSEMBLY**

44	General	36
----	---------------	----

PERFORMANCE

45	Rain Test	36
46	Variable Ambient Test – Outdoor Use	40
47	Dust Test	40
48	Corrosion Tests – Outdoor Use	40
48.1	General	40
48.2	Salt-spray test	40
48.3	Hydrogen sulfide (H ₂ S) test	41
48.4	Sulfur dioxide-carbon dioxide (SO ₂ -CO ₂) test	41

HIGH SECURITY SWITCHES – LEVELS 1 AND 2**GENERAL**

49	Details	41
----	---------------	----

CONSTRUCTION

50	Mechanical Protection Against Tampering	41
51	Electrical Protection Against Tampering	42

PERFORMANCE

52	General	42
53	Compromise Test – Mechanical and Mercury Switches	42
54	Compromise Test – Magnetic Switches (Level 1 and Level 2)	43
55	Compromise Test – Enclosures	44
56	Test for Electrical Protection Against Tampering	44

MARKING

57	General	44
----	---------------	----

PERFORMANCE TESTING – HIGH SECURITY LEVEL 2 SWITCHES

58	Detection Test	45
59	Nuisance Alarm Test	45
60	Cover or Enclosure Tamper Test (When Applicable)	45

61 Magnet Assembly Cover Removal Alarm Test (When Applicable)46
62 Switch Assembly Removal Tamper Test (When Applicable).....46
63 Foreign Magnetic Field Tamper Alarm Test.....46
64 Foreign Magnetic Field Compromise Tests (Level 2)47
65 Extended Endurance Test.....50

APPENDIX A

Standards for Components51

ULNORM.COM : Click to view the full PDF of UL 634 2020

INTRODUCTION

1 Scope

1.1 These requirements cover connectors and switches for use with burglar-alarm systems in mercantile premises, mercantile safes and vaults, bank safes and vaults, government and corporate locations, and residences. They are intended to be used in circuits of limited energy, for these applications, in accordance with Article 725 of the National Electrical Code, NFPA 70.

1.2 The connectors and switches covered by these requirements include insulated contact springs and mating brackets; magnetically actuated and mercury switches; heat, smoke, and vibration detectors; floor mats; floor traps, special contacts for safes and vaults; flexible connectors; foil connectors; and shunting devices.

1.3 Switches covered by these requirements are intended for use in protective circuits to supervise doors, windows, hatches, vents, trap doors, and the like, to initiate an alarm signal when actuated.

1.4 Connectors covered by these requirements are intended to join various parts of protective circuit components and wiring.

1.5 The products covered by these requirements may require an external source of electrical energy not integral with the product.

1.6 The products covered by these requirements are intended to be installed in accordance with the Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681, or with the Standard for Installation and Classification of Residential Burglar Alarm Systems, UL 1641.

2 General

2.1 Components

2.1.1 Except as indicated in [2.1.2](#), a component of a product covered by this standard shall comply with the requirements for that component. See Appendix [A](#) for a list of standards covering components generally used in the products covered by this standard.

2.1.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

2.1.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.1.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.2 Units of measurement

2.2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.