



UL 61058-1

STANDARD FOR SAFETY

Switches for Appliances – Part 1: General Requirements

UL Standard for Safety for Switches for Appliances – Part 1: General Requirements, UL 61058-1

Fifth Edition, Dated November 3, 2017

Summary of Topics

This revision of ANSI/UL 61058-1 dated June 30, 2021 includes a correction in [Table 16](#) – Minimum requirements for capacitors, to correct the value of “X1” to “X2” in the column titled “Without overcurrent protection¹⁾”.

UL 61058-1 shall be used in conjunction with the First Edition of the Standard for Switches for Appliances – Part 1-1: Requirements for Mechanical Switches, UL 61058-1-1 and the First Edition of the Standard for Switches for Appliances – Part 1-2: Requirements for Electronic Switches, UL 61058-1-2. Please note that the National Difference document incorporates all of the U.S. national differences for UL 61058-1.

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 March 12, 2021.

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



CSA Group
CAN/CSA-C22.2 No. 61058-1:17
Third Edition
(IEC 61058-1:2016, MOD)



Underwriters Laboratories Inc.
UL 61058-1
Fifth Edition

Switches for Appliances – Part 1: General Requirements

November 3, 2017

(Title Page Reprinted: June 30, 2021)

This national standard is based on publication IEC 61058-1, Fourth Edition (2016).



ANSI/UL 61058-1-2021



This is a preview. [Click here to purchase the full publication.](#)

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 anytime. 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 978-1-4883-1115-4 © 2017 Canadian Standards Association

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 review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. The technical content of the IEC and ISO publications is kept under constant review by IEC and ISO. To submit a proposal for change, please send the following information to inquiries@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 www.csagroup.org/store/ or call toll-free 1-800-463-6727 or 416-747-4044.

Copyright © 2021 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.

This ANSI/UL Standard for Safety consists of the Fifth Edition including revisions through June 30, 2021. The most recent designation of ANSI/UL 61058-1 as an American National Standard (ANSI) occurred on May 3, 2021. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface. The National Difference Page and IEC Foreword are also excluded from the ANSI approval of IEC-based standards.

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

PREFACE	7
NATIONAL DIFFERENCES	9
FOREWORD	11
1 Scope	13
1DV.1 Modification of Clause 1 to add the following to indicate which switches do not apply:	14
1DV.2 Modification of Clause 1 to add the following note:	14
2 Normative References	14
2DV Modification of Clause 2 to add the following:	16
3 Terms and Definitions	17
3.1 General terms and definitions	17
3.2 Terms and definitions relating to voltage and current	19
3.3 Terms and definitions relating to the different types of switches	20
3.4 Terms and definitions relating to the operation of the switch	21
3.5 Terms and definitions relating to connections to the switch	22
3.6 Terms and definitions relating to terminals and terminations	22
3.7 Terms and definitions relating to insulation	23
3.8 Terms and definitions relating to pollution	24
3.9 Terms and definitions relating to manufacturers' tests	24
4 General Requirements	25
5 General Information on Tests	25
5.1 Testing shall be performed according to the general guideline information provided in Clause 5	25
5.1.10DV Addition of Clauses 5.1.10DV.1 – 5.1.10DV.3:	26
5.2 Electrical information	26
5.3 Test loads on multiway switches	27
5.4 Test specimens	27
6 Rating	27
7 Classification	28
7.1 According to nature of supply	28
7.2 According to type of load to be controlled by each circuit of the switch	28
7.3 According to ambient temperature	28
7.4 According to number of operating cycles	29
7.5 Degree of protection against solid foreign objects	29
7.6 Degree of protection against ingress of water	29
7.7 According to degree of protection against electric shock for an incorporated switch for use in	30
7.8 According to degree of pollution inside the switch	30
7.9 According to degree of pollution outside the switch	30
7.10 According to marking	30
7.11 According to resistance to ignitability by the glow wire temperature	30
7.12 According to the rated impulse withstand voltage	31
7.13 According to the rated overvoltage category	31
7.14 According to type of disconnection	31
7.15 According to the type of coating for rigid printed board assemblies	31
7.16 According to type and/or connection of switches	32
7.17 According to configuration of switching device	32
7.18 According to duty type	32
7.19 According to linkage between contact and actuator speed	32
7.20 According to the type of terminals	33

7.21	According to the type of built in protection	34
7.22	According to the type of forced cooling	34
7.23	According to the capacitor provided with the switch	34
8	Marking and Documentation	42
8.1	Switch information	42
8.2	Symbols	45
8.3	Load rating	46
8.4	Temperature rating	48
8.5	Operating cycles	49
8.6	Switches intended for use in Class II equipment or appliances	49
8.7	Required marking	49
8.8	Legibility and durability of marking	49
8.9	Switches with their own enclosure	50
9	Protection Against Electric Shock	50
10	Provision for Earthing	52
	10.10DV Addition of the following clause to provide requirements for push-in type terminals:	53
11	Terminals and Terminations	54
11.1	Common requirements to terminals	54
11.2	Fixing of terminals	55
11.3	Location and shielding of terminals	55
11.4	Terminals for interconnection of more than one conductors	56
11.5	Thermal stress	56
11.6	Test sequences	56
11.7	Conductor escape test (TT1)	56
11.8	Terminal displacement test (TT2)	57
11.9	Strand escape test (TT3)	59
11.10	Multiple conductors (TT4)	59
12	Construction	59
12.1	Constructional requirements relating to protection against electric shock	59
12.2	Constructional requirements relating to safety during mounting and normal operation of the switch	60
12.3	Constructional requirements relating to the mounting of switches and to the attachment of cords	61
13	Mechanism	61
14	Protection Against Ingress of Solid Foreign Objects, Ingress of Water and Humid Conditions ..	62
14.1	Protection against ingress of solid foreign objects	62
14.2	Protection against ingress of water	63
14.3	Protection against humid conditions	64
15	Insulation Resistance and Dielectric Strength	64
15.1	General requirements	64
15.2	Measurement of insulation resistance	65
15.3	Insulation test voltage	66
16	Heating	66
16.1	General requirements	66
16.2	Contacts and terminals	67
16.3	Other parts	67
16.4	Heating test	67
17	Endurance	68
18	Mechanical Strength	68
18.1	General requirements	68
18.2	Impact	69
18.3	Pull	69
18.4	Push	70
19	Screws, Current-Carrying Parts and Connections	70
19.1	General requirements for electrical connections	70

19.2	Screwed connections	70
19.3	Current-carrying parts	73
20	Clearances, Creepage Distances, Solid Insulation and Coatings of Rigid Printed Board Assemblies	73
20.1	General requirements	73
20.2	Clearances	74
20.3	Clearances for disconnection	75
20.4	Creepage distances	76
20.5	Solid insulation	79
20.6	Coatings of rigid printed board assemblies	79
21	Fire Hazard	80
21.1	Resistance to heat	80
21.2	Resistance to abnormal heat	81
22	Resistance to Rusting	82
23	Abnormal Operation and Fault Conditions for Switches	82
24	Components for Switches	83
24.1	General requirements	83
24.2	Protective devices	83
24.3	Capacitors	85
24.4	Resistors	86
25	EMC Requirements	86
25.1	General	86
25.2	Immunity	87
25.3	Emission	90

Annex A (normative) Measurement of clearances and creepage distances

ANNEX B (informative) Diagram for the Dimensioning of Clearances and Creepage Distances

ANNEX C (normative) Proof Tracking Test

ANNEX D (informative) Switch Application Guide

D.1	General	114
D.2	Resistive load current ratings	114
D.3	Resistive and/or motor load current ratings	114
D.4	Combination capacitive and resistive load ratings	115
D.5	Declared specific load ratings	115
D.6	Current ratings not exceeding 20 mA	115
D.7	General purpose load	115

ANNEX E (normative) Relation Between Rated Impulse Withstand Voltage, Rated Voltage and Overvoltage Category

ANNEX F (normative) Pollution Degree

ANNEX G (normative) Impulse Voltage Test

ANNEX H (normative) Altitude Correction Factors**ANNEX I (normative) Types of Coatings for Rigid Printed Board Assemblies****ANNEX J (normative) Measuring the Insulation Distance of a Coated Printed Board with Type 1 Coating****ANNEX K (normative) Routine Tests****ANNEX L (informative) Sampling Tests**

L.1	General	123
L.2	General considerations	123
L.3	Tests	123

ANNEX M (normative) Switch Families

M.1	Overview	125
M.2	General	125
M.3	Guidelines for selection of switches in switch families for testing	125

ANNEX N (informative) Dimensions of Tabs Forming Part of a Switch**ANNEX O (informative) Common End Product Standards****Annex DVA (informative) Television rating for switches**

Annex DVA	Addition of Annex DVA for television rating for switches.....	129
-----------	---	-----

BIBLIOGRAPHY

PREFACE

This is the harmonized CSA Group and UL standard for Switches for Appliances – Part 1: General Requirements. It is the third edition of CAN/CSA-C22.2 No. 61058-1, and the fifth edition of UL 61058-1. This edition of CAN/CSA-C22.2 No. 61058-1 supersedes the previous edition published in 2009 as CAN/CSA-C22.2 No. 61058-1 (adopted IEC 61058-1:2000+A1:2001+A2:2007). This edition of UL 61058-1 supersedes the previous edition published on August 10, 2009. This harmonized standard has been jointly revised on June 30, 2021. For this purpose, CSA Group and UL are issuing revision pages dated June 30, 2021.

This harmonized standard is based on IEC Publication 61058-1: fourth edition Switches for Appliances – Part 1: General Requirements issued July 2016. IEC 61058-1 is copyrighted by the IEC.

This harmonized standard was prepared by CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of the International Harmonization Committee on Switches for Appliances are gratefully acknowledged.

This standard is considered suitable for use for conformity assessment within the stated scope of the standard.

This standard was reviewed by the CSA Integrated Committee on Wiring Devices, under the jurisdiction of the CSA Technical Committee on Wiring Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

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.

This CAN/CSA-C22.2 No. 61058-1 Part 1 is to be used in conjunction with the appropriate CAN/CSA-C22.2 No. 61058-1-1 – Part 1-1 or CAN/CSA-C22.2 No. 61058-1-2 – Part 1-2, which contains clauses to supplement or modify the corresponding clauses in the Part 1, to provide relevant requirements for each type of product. This is the UL Standard for Safety for Switches for Appliances – Part 1: General Requirements. This UL Part 1 is to be used in conjunction with the appropriate UL 61058-1-1 Part 1-1 or UL 61058-1-2 Part 1-2, which contains clauses to supplement or modify the corresponding clauses in the Part 1, to provide relevant requirements for each type of product.

Level of Harmonization

This standard adopts the IEC text with national differences.

This standard is published as an identical standard for CSA Group and UL.

An identical standard is a standard that is exactly the same in technical content except for national differences resulting from conflicts in codes and governmental regulations and basic safety principles and requirements. Presentation is word for word except for editorial changes.