



UL 1238

STANDARD FOR SAFETY

Control Equipment for Use with
Flammable Liquid and LP-Gas
Dispensing Devices

UL Standard for Safety for Control Equipment for Use with Flammable Liquid and LP-Gas Dispensing Devices, UL 1238

Seventh Edition, Dated January 19, 2022

Summary of Topics

This new edition of ANSI/UL 1238 dated January 19, 2022 includes the following changes:

- **UL 1238 title change;**
- **Addition of zone designations; [1.2](#), [5.7](#) and [49.1](#)**
- **Addition of reference to NFPA 30A; [1.2](#) and [6.3](#)**
- **Revision to the Glass Panel Test; [7.6.7](#)**
- **Clarification to [Table 7.1](#), [Table 7.2](#) and [10.1](#);**
- **Clarification of requirements for components used to make an enclosure rainproof or raintight; [8.6](#), [38.1](#) and [38.3](#)**
- **Clarification of requirements for motors; [19.1](#) and [19.3](#)**
- **Revision to secondary circuit requirements; [23.3](#)**
- **Editorial clarification; [39.1.1](#)**
- **Revision to the Flammability Test; [41.3.5](#)**
- **Rain Test clarification; [43.3](#)**
- **Typo correction; [45.1](#)**
- **Updates to Appendix [A](#)**

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated November 19, 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

JANUARY 19, 2022



1

UL 1238

Standard for Control Equipment for Use with Flammable Liquid and LP-Gas

Dispensing Devices

First Edition – August, 1975
Second Edition – March, 1996
Third Edition – September, 2001
Fourth Edition – March, 2006
Fifth Edition – May, 2008
Sixth Edition – July, 2015

Seventh Edition

January 19, 2022

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

The most recent designation of ANSI/UL 1238 as an American National Standard (ANSI) occurred on January 19, 2022. 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 © 2022 UNDERWRITERS LABORATORIES INC.

No Text on This Page

CONTENTS

INTRODUCTION

1	Scope	7
2	Components	7
3	Units of Measurement	8
4	Undated References	8
5	Glossary	8
6	Instructions	9

CONSTRUCTION

7	Frame and Enclosure	10
	7.1 General	10
	7.2 Covers	10
	7.3 Cast metal	11
	7.4 Sheet metal	11
	7.5 Nonmetallic	13
	7.6 Glass panels	14
	7.7 Openings	14
	7.8 Ventilating openings	15
	7.9 Other openings	15
	7.10 Wiring openings	17
	7.11 Speaker openings	18
8	Raintight and Rainproof Enclosures	18
9	Operating Mechanism	19
10	Corrosion Protection	19
11	Protection of User and Service Personnel	20
12	Field Wiring Connections	20
	12.1 Permanently connected devices	20
	12.2 Terminal compartments	21
	12.3 Wiring terminals and leads	21
	12.4 Cord- and plug-connected devices	22
13	Internal Wiring	23
	13.1 General	23
	13.2 Wires	23
	13.3 Splices and connections	24
	13.4 Interconnecting cords and cables	24
14	Grounding	25
15	Bonding of Internal Parts	26
	15.1 General	26
	15.2 Construction and connections	26

ELECTRICAL COMPONENTS

16	Switching Devices	27
17	Capacitors	27
18	Transformers	28
19	Motors	28
20	Heaters	29
21	Insulating Material	29
22	Insulating Barriers	31
23	Secondary Circuits	32
24	Separation of Circuits	33

25	Low-Voltage Class-2 Circuits.....	35
26	Limited Current Circuits	35
27	Barriers	35
28	Printed-Wiring Boards.....	35

SPACINGS

29	General	36
----	---------------	----

PERFORMANCE

30	General	39
30.1	Test voltage.....	39
30.2	Additional tests	39
31	Input Measurement Test	39
32	Output Measurement Test.....	39
33	Maximum Voltage Output Measurement Test.....	40
34	Normal Temperature Test.....	40
35	Operation	43
36	Overload and Endurance Test	43
36.1	General.....	43
36.2	Overload	43
36.3	Endurance	44
37	Dielectric Voltage-Withstand Test	44
38	Aging Test.....	45
39	Low-Voltage Class-2 Transformer Test.....	45
39.1	General.....	45
39.2	Open-circuit secondary voltage.....	45
39.3	Current output	45
39.4	Volt-ampere capacity	46
39.5	Burnout.....	46
39.6	Dielectric withstand	46
40	Limited Current Test	47
41	Nonmetallic Enclosures	47
41.1	General.....	47
41.2	Thermal aging conditioning.....	48
41.3	Flammability test.....	48
41.4	Elevated temperature test	49
41.5	Impact test	49
42	Snap-On Covers	49
42.1	General.....	49
42.2	Squeezing force test	49
42.3	Pull force test	50
42.4	Impact test of snap-on covers	50
43	Rain Test	50
44	Water Penetration Test	53
45	Component Faults	53
46	Heater Maximum Temperature Test	53

MANUFACTURING AND PRODUCTION LINE TESTS

47	General	54
47.1	Details	54
47.2	Production line dielectric voltage-withstand test.....	54