



UL 379

STANDARD FOR SAFETY

Power Units for Fountain, Swimming Pool, and Spa Luminaires

Copyright 2013 UL LLC

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



Documents

Document Sharing Hub

UL Standard for Safety for Power Units for Fountain, Swimming Pool, and Spa Luminaires, UL 379

First Edition, Dated June 19, 2013

Summary of Topics

This is the first edition of ANSI/UL 379.

The new requirements are substantially in accordance with Proposal(s) on this subject dated April 19, 2013.

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 note following the affected item. 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that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.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

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



Documents

Document Sharing Hub

JUNE 19, 2013



ANSI/UL 379-2013

1

UL 379

Standard for Power Units for Fountain, Swimming Pool, and Spa

Luminaires

First Edition

June 19, 2013

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

The most recent designation of ANSI/UL 379 as an American National Standard (ANSI) occurred on June 19, 2013. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or effective date information.

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 <http://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 © 2013 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

PART I – ALL POWER UNITS FOR FOUNTAIN, SWIMMING POOL, AND SPA LUMINAIRES

INTRODUCTION

1 Scope	5
2 General	5
2.1 Power units	5
2.2 Undated references	5
2.3 Units of measurement	5
2.4 Electrical rating	5
2.5 DC output units	6
3 Components	6
3.1 General	6
3.2 Fuseholders	7
3.3 Fuses	7
3.4 Printed wiring boards	8
3.5 Terminal blocks	8
3.6 Wire connectors	9
3.7 Quick-connect wire connectors	9

CONSTRUCTION

4 Output Circuit Isolation	9
5 Class 2 Circuits Within Power Unit	10
6 Mechanical Assembly	10
7 Enclosures	11
7.1 General	11
7.2 Resistance to corrosion	12
7.3 Conduit connection provisions	13
7.4 Openings	14
7.5 Rain-tight enclosures	14
8 Splices and Connections	15
9 Separation of Circuits	15
10 Field-Wiring Connections	15
10.1 General	15
10.2 Terminals	15
10.3 Pigtail leads	16
11 Bushings for Wiring	17
12 Insulating Material for Mounting Live-Metal Parts	17
13 Coil Insulation	17
14 Wiring Devices	18
15 Electrical Spacings	18
16 Output Overload Protection	19
17 Grounding	19
18 Marking	20

PERFORMANCE

19 General	22
20 Leakage Current Test	23
21 Open-Circuit Voltage Test	23
22 Input Test	23
23 Heating Test	24
24 Dielectric Strength Test	26
25 Abnormal Heating Test followed by Dielectric Strength Test	27
26 Burnout Test	30
27 Pullout, Bending, and Twisting Tests	31
28 Endurance Test on Automatically-Reset Thermostats	31
29 Overload Test on Manually-Reset Thermostats	31
30 Rain Test	32

PART II – POWER UNITS INTENDED FOR DIRECT CONDUIT CONNECTION TO A WET-NICHE OR NO-NICHE LUMINAIRE

31 General	32
------------------	----

PART I – ALL POWER UNITS FOR FOUNTAIN, SWIMMING POOL, AND SPA LUMINAIRES

INTRODUCTION

1 Scope

1.1 These requirements cover field-installed air-cooled transformers and dc output power supplies intended to supply fountain, swimming pool, and spa luminaires in accordance with Article 680 of the National Electrical Code, NFPA 70.

1.2 These requirements do not address designs that vary the magnitude of voltage or current on the output for signal or control purposes. Designs that superimpose a signal on the output for control purposes area also not addressed.

2 General

2.1 Power units

2.1.1 These power units are not intended for installation in specific luminaires.

2.2 Undated references

2.2.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

2.3 Units of measurement

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

2.3.2 Unless indicated otherwise, all voltage and current values mentioned in this standard are root-mean-square (rms).

2.4 Electrical rating

2.4.1 The input is to be rated a nominal 120 volts; the secondary shall be rated 15 volts ac or less or 30 volts dc or less and 1000 volt-amperes or less.

2.5 DC output units

2.5.1 Each output of a direct current (DC) power unit for supply of underwater luminaires for fountains, pools, and spas shall comply with items (a) and (b) below.

- a) The circuit shall be rated 30 VDC or less. The maximum output voltage in normal use and under any single fault condition shall not exceed 30 VDC.
- b) Under all combinations of constant resistive load and single fault conditions, the peak-to-peak value of ripple voltage and ripple current measured on the circuit shall be not more than 10 percent of the measured DC value.

3 Components

3.1 General

3.1.1 A component of a product covered by this Standard shall:

- a) Comply with the requirements for that component as specified in this Section;
- b) Be used in accordance with its rating(s) established for the intended conditions of use;
- c) Be used within its established use limitations or conditions of acceptability; and
- d) Comply with the applicable requirements of this end product Standard.

3.1.2 A component of a product covered by this Standard is not required to comply with a specific component requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product;
- b) Is superseded by a requirement in this Standard; or
- c) Is separately investigated when forming part of another component, provided the component is used within its established ratings and limitations.

3.1.3 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.

3.1.4 A component that is also intended to perform other functions such as overcurrent protection, ground-fault circuit-interruption, surge suppression, any other similar functions, or any combination thereof, shall comply additionally with the requirements of the applicable UL standard(s) that cover devices that provide those functions.

3.1.5 Any component used shall not present the risk of fire, electric shock or casualty hazards.

3.1.6 Components shall be suitable for the intended use and installation environment. This suitability shall assume the following installation parameters:

- a) Outdoor, Pollution Degree 3 installations.
- b) Overvoltage Category III as specified in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840.

3.2 Fuseholders

3.2.1 Fuseholders shall comply with the Standard for Fuseholders – Part 1: General Requirements, UL 4248-1, and:

- a) The Standard for Fuseholders – Part 4: Class CC, UL 4248-4, or
- b) The Standard for Fuseholders – Part 5: Class G, UL 4248-5, or
- c) The Standard for Fuseholders – Part 6: Class H, UL 4248-6, or
- d) The Standard for Fuseholders – Part 8: Class J, UL 4248-8, or
- e) The Standard for Fuseholders – Part 9: Class K, UL 4248-9, or
- f) The Standard for Fuseholders – Part 11: Type C (Edison Base) and Type S Plug Fuse, UL 4248-11, or
- g) The Standard for Fuseholders – Part 12: Class R, UL 4248-12, or
- h) The Standard for Fuseholders – Part 15: Class T, UL 4248-15.

3.3 Fuses

3.3.1 Fuses shall comply with the Standard for Low-Voltage Fuses – Part 1: General Requirements, UL 248-1, and:

- a) The Standard for Low-Voltage Fuses – Part 2: Class C Fuses: UL 248-2, or
- b) The Standard for Low-Voltage Fuses – Part 3: Class CA and CB Fuses: UL 248-3, or
- c) The Standard for Low-Voltage Fuses – Part 4: Class CC Fuses: UL 248-4, or
- d) The Standard for Low-Voltage Fuses – Part 5: Class G Fuses: UL 248-5, or
- e) The Standard for Low-Voltage Fuses – Part 6: Class H Non-Renewable Fuses: UL 248-6, or
- f) The Standard for Low-Voltage Fuses – Part 7: Class H Renewable Fuses: UL 248-7, or
- g) The Standard for Low-Voltage Fuses – Part 8: Class J Fuses: UL 248-8, or
- h) The Standard for Low-Voltage Fuses – Part 9: Class K Fuses: UL 248-9, or

- i) The Standard for Low-Voltage Fuses – Part 10: Class L Fuses: UL 248-10, or
- j) The Standard for Low-Voltage Fuses – Part 11: Plug Fuses: UL 248-11, or
- k) The Standard for Low-Voltage Fuses – Part 12: Class R Fuses: UL 248-12, or
- l) The Standard for Low-Voltage Fuses – Part 15: Class T Fuses: UL 248-15, or

3.4 Printed wiring boards

3.4.1 Printed wiring boards shall comply with the Standard for Printed-Wiring Boards, UL 796. A printed wiring board shall have a temperature rating corresponding to the maximum temperature on the board during the Heating Test, Section 23. Unless wholly in a Class 2 circuit, it shall comply with the direct support of live parts requirements in UL 796.

3.5 Terminal blocks

3.5.1 Terminal blocks shall comply with:

- a) The Standard for Terminal Blocks, UL 1059, or
- b) The Standard for Low-Voltage Switchgear and Controlgear – Part 7-1: Ancillary Equipment – Terminal Blocks for Copper Conductors, UL 60947-7-1, or
- c) The Standard for Low-Voltage Switchgear and Controlgear – Part 7-2: Ancillary Equipment – Protective Conductor Terminal Blocks for Copper Conductors, UL 60947-7-2, or
- d) The Standard for Low-Voltage Switchgear and Controlgear – Part 7-3: Ancillary Equipment – Safety Requirements for Fuse Terminal Blocks, UL 60947-7-3.

The UL 60947-7-x Standards are used in conjunction with the Standard for Low-Voltage Switchgear and Controlgear – Part 1: General Rules, UL 60947-1.

3.5.2 Terminal blocks shall be suitable for the wire size, type (solid or stranded), conductor material (copper or aluminum), voltage and current of the intended use.

3.5.3 Terminal blocks intended for field wiring shall comply with the Standard for Wire Connectors, UL 486A-486B, or the Standard for Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors, UL 486E.