UL 414

STANDARD FOR SAFETY

Meter Sockets

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER
REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

UL Standard for Safety for Meter Sockets, UL 414

Tenth Edition, Dated September 9, 2025

Summary of Topics

This revision of ANSI/UL 414 dated May 6, 2026 includes Alignment of Annex C Removable Housing Member Requirements with Annex B: B5.1, B7.1.8, B14.18, C7.1.10 – C7.1.13, and C14.13.

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated April 3, 2026.

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 ULSE Inc. (ULSE).

ULSE 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 ULSE 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 ULSE or an authorized ULSE representative has been advised of the possibility of such damage. In no event shall ULSE'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 ULSE 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.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

No Text on This Page

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

SEPTEMBER 9, 2025
(Title Page Reprinted: May 6, 2026)

ANSI/UL 414-2026

1

UL 414

Standard for Meter Sockets

First Edition – October, 1957
Second Edition – May, 1973
Third Edition – August, 1974
Fourth Edition – January, 1979
Fifth Edition – December, 1986
Sixth Edition – May, 1994
Seventh Edition – March, 1999
Eighth Edition – December, 2009
Ninth Edition – January, 2016

Tenth Edition

September 9, 2025

This ANSI/UL Standard for Safety consists of the Tenth Edition including revisions through May 6, 2026.

The most recent designation of ANSI/UL 414 as an American National Standard (ANSI) occurred on May 6, 2026. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 414 on November 20, 1987. 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 ULSE at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at https://csds.ul.com.

Our Standards for Safety are copyrighted by ULSE Inc. Neither a printed nor electronic copy of a Standard should be altered in any way. All of our Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of ULSE Inc.

© 2026 ULSE Inc. All rights reserved.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

No Text on This Page

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

CONTENTS

INTRODUCTION

1 Scope 9
2 Components 10
3 Units of Measurement 10
4 Referenced Publications 10

ALL METER SOCKETS AND METERING TRANSFORMER CABINETS

CONSTRUCTION

5 General 12
6 Enclosure 12
7 Bases – Insulating Material 15
8 Current-Carrying Parts 17
8.1 General 17
8.2 Washers 19
8.3 Test blocks 19
9 Wiring Terminals 21
10 Spacings 24
11 Barriers 27
11.1 Insulating barriers 27
11.2 Restricting barriers 29
11.3 Isolating barriers 29
12 Wire-Bending Distance 29
13 Wiring Space 34
14 Provisions for Bonding and Grounding 37

PERFORMANCE

15 General 39
16 Heating Test 39
17 Short-Circuit Current Test 50
18 Short-Circuit Current Test with Specific Circuit Breaker 52
18.1 General 52
18.2 Test circuit calibration 52
18.3 Sample preparation 53
18.4 Closing 54
18.5 Peak let-through current 54
19 Rain Test 55
20 Concentric Knockout Rain Test 55
21 Insertion and Withdrawal Force Test for Meter Jaws 55
22 Dielectric Voltage-Withstand Test 56
22.1 General 56
22.2 Insulating barriers 56
23 Clamped Insulating Joint Test 56
24 Bonding Continuity Test 56
25 Test of Insertion and Withdrawal Force on Meter Base 57
26 Strength Test of Insulating Base and Support 57
27 Test of Torque and Force on Test Block 58

RATINGS

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

28 Voltage and Current Ratings 58

MARKINGS

29 General 59
29.1 Location 59
29.2 Identification 59
29.3 Ratings 60
29.4 Enclosure 60
29.5 Top (overhead) or bottom (underground) feed 61
29.6 Accessories 61
29.7 Circuit closers and disconnects 61
29.8 Neutral 62
29.9 Field installation 62
29.10 Terminals 62
29.11 Test blocks 64
29.12 Short circuit ratings 64
29.13 Low voltage rating 65
30 Permanence of Marking 65

POST AND PEDESTAL TYPE METER SOCKETS

CONSTRUCTION

31 General 65
32 Enclosure 67
33 Ventilation Openings 67
34 Mounting 69
35 Grounding 69
36 Grade Level 69

PERFORMANCE

37 Sprinkler Test 69
38 Crushing Deformation Test 69
39 Torque Deformation Test 70
40 Beam Loading Deflection Test 72

MARKINGS

41 Post Type Enclosures 73
42 Pedestal Type Enclosures 73

METERING TRANSFORMER CABINETS AND METERING TRANSFORMER CABINET INTERIORS

GENERAL

43 Details 73

CONSTRUCTION

44 General 73
44.1 Cabinets and interiors 73

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

44.2 Bus-to-bus and bus-to-wire connections 74
44.3 Sizing of bus bars 74
44.4 Spacings 74

PERFORMANCE

45 Short-Circuit Test Performed 74
45.1 General 74
45.2 Tensile force 75
45.3 Cantilever force 76
46 Short-Circuit Test Not Performed 77
46.1 General 77
46.2 Construction 77
46.3 Supports 82
46.4 Bus bar rotation 84

RATINGS

47 Details 84

MARKINGS

48 Details 85

TEST SWITCHES

GENERAL

49 Details 86

CONSTRUCTION

50 General 86

PERFORMANCE

51 Temperature Test 86

ANNEX A (Normative) – METER SOCKET ADAPTERS

A1 Scope 89
A2 Construction 89
A3 Performance 89
A4 Heating Test 90
A4.1 General 90
A4.2 Meter socket adapters not intended for use in a specific meter socket 90
A4.3 Meter socket adapters intended for use only in a specific meter socket 90
A5 Short-Circuit Current Test 90
A5.1 General 90
A6 Moment Test 90
A7 Markings 91
A8 Instructions 92

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

ANNEX B (Normative) – METER SOCKET ADAPTERS FOR USE WITH DISTRIBUTED GENERATION EQUIPMENT

B1 Scope 93
B2 General 93
B3 Ventilation 94
B4 Overtemperature Detection and Protection 94
B5 Overcurrent Protection and Disconnection Means 94
B6 Spacings 95
B7 Wiring Connections 96
B7.1 External connections to power circuits 96
B7.2 External connections for low energy communication and control circuits 97
B8 Switching Components Installed in Meter Socket Adapters 98
B9 Metering Circuits in Meter Socket Adapters 98
B10 Communication Circuits in Meter Socket Adapters 98
B11 Performance 99
B12 Heating Test 99
B12.1 General 99
B12.2 Meter socket adapters not intended for use in a specific meter socket 99
B12.3 Meter socket adapters intended for use only in a specific meter socket 100
B12.4 Meter socket adapters with provisions for connection of an distributed generation source 100
B13 Short-Circuit Current Test 100
B13.1 General 100
B13.2 Test circuit calibration 101
B13.3 Sample preparation 101
B13.4 Closing 104
B13.5 Test duration 104
B13.6 Meter socket adapters with connections for distributed generation equipment and internal overcurrent protection for those circuits 104
B13.7 Meter socket adapters with connections for distributed generation equipment and no internal overcurrent protection for those circuits 105
B13.8 Meter socket adapters containing switching devices 105
B13.9 Compliance 106
B14 Markings 106
B15 Electronic Access to Information in lieu of Optional Product Markings 108
B16 Instructions 108
B17 Electronic Access to Installation Instructions 110

ANNEX C (Normative) – METER SOCKET ADAPTERS WITH BRANCH CIRCUIT CONNECTIONS

C1 Scope 112
C2 General 112
C3 Ventilation 113
C4 Overtemperature Detection and Protection 113
C5 Overcurrent Protection and Disconnection Means 113
C6 Spacings 114
C7 Wiring Connections 115
C7.1 External connections to power circuits 115
C7.2 External connections for low energy communication and control circuits 116
C8 Switching Components Installed in Meter Socket Adapters 116
C9 Metering Circuits in Meter Socket Adapters 116
C10 Communication Circuits in Meter Socket Adapters 117
C11 Equipment Grounding Connections 117
C12 Service Equipment 118
C12.1 General 118

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

C12.2 Grounding electrode connections 119
C12.3 Disconnecting means 119
C12.4 Neutral disconnect..... 119
C12.5 Provision for bonding and grounding..... 120
C12.6 Accessibility..... 120
C13 Performance..... 121
C13.1 General 121
C13.2 Accessibility test..... 121
C14 Markings 123
C15 Electronic Access to Information in lieu of Optional Product Markings 125
C16 Instructions..... 125
C17 Electronic Access to Installation Instructions 126

ANNEX D (Informative) – EXPLANATORY INFORMATION REGARDING WIRE-BENDING DISTANCE

D1 General..... 128

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

No Text on This Page

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

INTRODUCTION

1 Scope

1.1 These requirements cover meter sockets for use with:

a) Watthour and similar meters;

b) Test switches;

c) Metering transformer cabinets; and

d) Metering transformer cabinet interiors.

for installation in accordance with NFPA 70®, *National Electrical Code®* (NEC®).

NFPA 70®, *National Electrical Code®*, and NEC® are registered trademarks of the National Fire Protection Association, Quincy, MA.

1.2 Meter sockets are marked with a continuous duty ampere rating and may in addition have a maximum use (intermittent) ampere rating of 125 % or less of the continuous duty ampere rating.

1.3 A meter socket, as covered by these requirements, is an assembly of wiring terminals and jaw type contacts for one or more plug-in watthour meters in an enclosure having provisions for securing the meter to the socket.

1.4 Some meter sockets may be housed in a metal pedestal enclosure intended for mounting on a concrete slab or in a metal post enclosure intended to be sunk in the ground with or without concrete poured around the post at ground level and either self-supported or intended for separate support. Such posts or pedestals are not intended to serve as the sole support of masts for overhead wiring.

1.5 Some meter sockets may be intended for mounting on a mounting post or pedestal for distribution equipment.

1.6 Except as indicated in 1.10, as covered by these requirements, a meter socket does not include:

a) A meter;

b) An overcurrent device;

c) An instrument transformer;

d) An arcing or switching part; or

e) A similar component.

A meter socket does not have provision for installation of instrument transformers within the meter socket enclosure.

1.7 These requirements cover meter sockets rated:

a) 300 volts alternating current or less, or 600 volts alternating current; and

b) 400 amperes maximum per meter position.

1.8 These requirements cover metering transformer cabinets and metering transformer cabinet interiors rated maximum 6000 amperes at maximum 600 volts.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

1.9 As covered by these requirements, a metering transformer cabinet or metering transformer cabinet interior does not include the current transformers.

1.10 This Standard contains requirements in Annex A that cover meter socket adapters and Annex B, that covers meter socket adapters with provisions for connection of distributed generation equipment, that may contain overcurrent protection.

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this Standard shall comply with the requirements for that component.

2.2 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.

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

2.4 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.

3 Units of Measurement

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

3.2 Unless indicated otherwise, voltages and current values mentioned in this Standard are root-mean-square (rms).

4 Referenced Publications

4.1 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.

4.2 The following publications are referenced in this Standard:

ANSI C12.10, *Physical Aspects of Watthour Meters – Safety Standard*

ASTM E230/E230M, *Standard Specification and Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples*

ISO 7000, *Graphical Symbols for Use on Equipment – Registered symbols*

NEMA C12.7, *Requirements for Watthour Meter Sockets*

NFPA 70®, *National Electrical Code®* (NEC®)

NFPA 70E, *Standard for Electrical Safety in the Workplace*

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

UL 50, *Enclosures for Electrical Equipment, Non-Environmental Considerations*

UL 50E, *Enclosures for Electrical Equipment, Environmental Considerations*

UL 94, *Tests for Flammability of Plastic Materials for Parts in Devices and Appliances*

UL 360, *Liquid-Tight Flexible Metal Conduit*

UL 486A-486B, *Wire Connectors*

UL 489, *Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures*

UL 514B, *Conduit, Tubing, and Cable Fittings*

UL 746A, *Polymeric Materials – Short Term Property Evaluations*

UL 746C, *Polymeric Materials – Use in Electrical Equipment Evaluations*

UL 796, *Printed-Wiring Boards*

UL 840, *Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment*

UL 891, *Switchboards*

UL 1310, *Class 2 Power Units*

UL 1449, *Surge Protective Devices*

UL 1660, *Liquid-Tight Flexible Nonmetallic Conduit*

UL 1741, *Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources*

UL 1998, *Software in Programmable Components*

UL 3141, *Outline of Investigation for Power Control Systems*

UL 5085-3, *Low Voltage Transformers – Part 3: Class 2 and Class 3 Transformers*

UL 60730-1, *Automatic Electrical Controls – Part 1: General Requirements*

UL 60730-2-9, *Automatic Electrical Controls – Part 2-9: Particular Requirements for Temperature Sensing Controls*

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.