

## STANDARD INFORMATION

**Standard:** ANI/CAN/UL 2735

**Standard ID:** Electric Utility Meters [ANSI/CAN/UL 2735: Ed.2]

**Previous Standard ID:** Electric Utility Meters [UL 2735:2013 Ed.1]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **August 25, 2027**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

**Overview of Changes:** Specific details of new/revised requirements are found in table below.

- Additional requirements for polymeric materials
- New requirements for Solid Insulation
- New requirements for Single Components Bridging Insulation
- New requirements for Limiting Impedance
- New requirements for Service Switches
- New requirements for Temporary Overvoltage Test
- New requirements for Tests for Cemented Joints
- New requirements for Strain Relief Test
- Push-Back Relief Test

Specific details of new/revised requirements are found in table below

***Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.***



## STANDARD INFORMATION

| CLAUSE  | VERDICT | COMMENT   |
|---|---------|---|
| <p><i>Additions to existing requirements are <u>underlined</u> and deletions are shown <u>lined out</u> below.</i></p>                                      |         |   |
|   | Info    | <b>CONSTRUCTION</b>   |
| 6   | Info    | <b>General</b>  |
| <p>Meters provided with auxiliary wiring leads for connection of isolated secondary circuits or auxiliary power supply shall comply with the following:</p> |         |   |
| 6.5   |         | <p>a) Auxiliary wiring leads shall be insulated for the highest rated voltage of the meter or shall be routed and secured away from live parts of the mains circuit internal to the meter, such that the creepage distance and clearance distance requirements between mains and isolated secondary circuits are maintained. <u>When the insulation voltage rating of the auxiliary wiring leads is lower than the highest rated voltage of the meter, the creepage distance and clearance distance requirements shall be evaluated as if there were no insulation on the auxiliary wiring leads;</u></p> |
|   |         | <p>b) Auxiliary wiring leads shall be protected against abrasion and sharp bends at the point where the conductors enter the meter and the meter-mounting equipment, by an inlet or bushing with a smoothly rounded opening;</p>  |
|   |         | <p>c) Auxiliary wiring leads shall be protected against being pushed into the meter enclosure through the auxiliary wiring leads opening when such displacement results in any of the following:</p>  |
|   |         | <p>1) Mechanical damage to the auxiliary wiring leads;</p>  |
|   |         | <p>2) Exposure of the auxiliary wiring leads to a temperature higher than that for which they are rated;</p>  |
|   |         | <p>3) Reduction of creepage or clearance distance (such as to a metal strain-relief clamp) below the minimum required values; or</p>  |
|   |         | <p>4) Damage to internal meter connections or components.</p>   |
|   |         | <p><u>Compliance shall be determined by the Push Back Relief Test, Section 24.</u></p>  |
|   |         | <p><b>New clause added:</b></p>   |
| 6.8   |         | <p>Polymeric materials in contact with uninsulated live parts shall comply with Annex B Requirements for Polymeric Materials in Contact with Live Parts.</p>  |
| 7   | Info    | <b>Enclosure</b>  |
| <p><b>New clause added:</b></p>   |         |   |
| 7.1   |         | <p>Meters shall comply with the performance requirements of IEC 60529 for the IP Codes designated in Table 7.1 as demonstrated by the tests in Enclosure Tests, Section 21.</p>   |



| CLAUSE | VERDICT | COMMENT |
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***New table added;***

#### **IP Code Requirements**

Table 7.1

|   | Indoor only <sup>a</sup> | Outdoors <sup>b</sup> |
|---|--------------------------|-----------------------|
| IP Code   | 51                       | 55                    |
| <sup>a</sup> Protected against dust infiltration and dripping water.                      |                          |                       |
| <sup>b</sup> Protected against moderate volume hose directed water and dust infiltration. |                          |                       |

***New clause added;***

7.5

If a protective ground terminal is provided, it shall comply with the requirements for grounding terminals in ANSI C12.10.

***New section added;***

#### **Clearance and Creepage Distances**

8

A risk of electric shock shall not exist on any accessible parts of the meter both in normal use and in single fault conditions.

See standard for details.

***New section added;***

#### **Solid Insulation**

9

Solid insulation shall meet the requirements of this Section when applied between (reference Safety Insulation 'SI' in Figure 8.1 – Figure 8.4):

See standard for details.

***New section added;***

#### **Single Components Bridging Insulation**

10

Capacitors bridging insulation (or forming limiting impedance) shall comply with the requirements of CSA 60384-14 or UL 60384-14 and shall be used in accordance with their ratings. Such capacitors shall not be subjected to the testing in single fault conditions in 16.1.

See standard for details.



| CLAUSE | VERDICT | COMMENT  |
|--------|---------|--|
|        |         | <p><b><i>New section added;</i></b></p>  |
|        |         | <p><b>Limiting Impedance</b></p>   |
| 11     |         | <p>A component or group of components forming the limiting impedance relied upon to isolate secondary circuits from mains circuits shall comply with 11.2 – 11.9.</p>  |
|        |         | <p>See standard for details.</p>   |
|        |         | <p><b><i>New section added;</i></b></p>  |
|        |         | <p><b>Batteries and Battery Charging</b></p>   |
| 12     |         | <p>Battery charging and monitoring circuits shall be designed to minimize the risk of an explosion or fire as a result of:</p>   |
|        |         | <p>See standard for details.</p>   |
|        |         | <p><b><i>New section added;</i></b></p>  |
|        |         | <p><b>Service Switches</b></p>   |
| 13     |         | <p>If provided with a service switch, the service switch shall comply with the endurance test requirements of CSA C22.2 No. 14 or UL 508, except a lesser number of operations may be performed with:</p>  |
|        |         | <p>See standard for details.</p>   |
| 16     | Info    | <p><b>Testing in Single Fault Condition</b></p>  |
| 16.2   | Info    | <p><b>Application of fault conditions</b></p>  |
|        |         | <p><b><i>New clause added;</i></b></p>   |
| 16.2.5 |         | <p>Clearance and creepage distances which do not meet the requirements in 8.7 and 8.8, shall be shorted. Where a circuit analysis shows that bridging the insulation will not result in risk of fire or risk of electric shock, the distance need not be subject to this test.</p> |
|        |         | <p><b><i>New section added;</i></b></p>  |
|        |         | <p><b>Tests Based on ANSI C12.1</b></p>  |
| 17     |         | <p>Meters shall be subjected to the tests in ANSI C12.1 as specified in this Section. The test conditions shall be as described in 17.2 – 17.7. Compliance with the test requirements shall be determined in accordance with 17.8.1.</p>   |



| CLAUSE | VERDICT | COMMENT   |
|--------|---------|---|
| 18     | Info    | <b>Flammability Test – 127 mm (5 inch) Flame</b>  |
| 18.1   | Info    | <b>General</b><br><br><i>New clause added;</i>  |
| 18.1.1 |         | All polymeric enclosure parts shall be subjected to the Flammability Test – 127 mm (5 inch) Flame.<br>Exception: Materials rated 5VA at the thickness used in accordance with CSA C22.2 No. 0.17 or UL 94 need not be subjected to this test.   |
| 18.1.2 |         | <i>New clause added;</i><br><br>The purpose of this test is to demonstrate the ability of the enclosure parts to contain a flame that results from an internal fault within the meter.  |
| 19     |         | <b>Temporary Overvoltage Test</b><br><br>The meter shall be subjected to this test in accordance with one of the methods described in 19.2 and 19.3. If the test method of 19.2 is chosen and the test results are not acceptable, the test in 19.3 may be conducted at the manufacturer's discretion. If the test results of 19.3 are acceptable, the meter shall be considered in compliance with this requirement. |
| 20     |         | <i>New section added;</i><br><br><b>Tests for Cemented Joints</b><br><br>If required by 8.15, three representative cemented joints are to be subjected ten times to the following thermal cycling sequence. The period of time taken for the transition from one temperature to another is not specified, but the transition is permitted to be gradual:  |
| 21     |         | <i>New section added;</i><br><br><b>Enclosure Tests</b><br><br>To demonstrate compliance with 7.1, meters shall be tested as Category 2 devices as defined in IEC 60529, for protection against solid objects in accordance with 21.1.2 or 21.1.3 as applicable.  |



| CLAUSE | VERDICT | COMMENT  |
|--------|---------|--|
| 22     | Info    | <b>Mechanical Tests</b>  |
| 22.2   | Info    | <b>Impact test</b>   |
|        |         | <i>New clause added;</i>   |
| 22.2.1 |         | An impact shall be applied to meter surfaces which are easily accessible in normal use. A minimum of two surfaces shall be tested: the front face and the side of the meter cover. The test shall be applied on each surface at one location which is likely to be the most susceptible to impact, or where a risk of fire or risk of electric shock is likely to occur if the surface is damaged.   |
| 22.3   | Info    | <b>Conformity</b>  |
|        |         | <i>New clause added;</i>   |
|        |         | At the conclusion of the mechanical tests specified in 22.1 and 22.2, the meter shall meet the following conditions:   |
| 22.3.1 |         | <ul style="list-style-type: none"><li>a) No meter parts where the risk of electrical shock exists shall become accessible;</li><li>b) No damage to the meter enclosure that results in apparent reduction in the IP rating, as defined in Section 7 Enclosure. In cases of doubt, the tests for IP ratings shall be performed following the preceding tests;</li><li>c) No loss of structural integrity to a degree that the equipment collapses or experiences such displacement of parts that there is a risk of short-circuiting or grounding of current-carrying parts; or</li><li>d) No reduction of the meter ability to pass the Insulation Test in 17.3.</li></ul> |
|        |         | <i>New section added;</i>  |
|        |         | <b>Strain Relief Test</b>  |
| 23     |         | The supply cord or auxiliary wiring leads shall withstand without damage or displacement a direct pull of 44.5 N (10 pounds) for 1 minute applied to a lead, a cord, or a group of leads if they share the same strain relief.   |
|        |         | See standard for details.  |
|        |         | <i>New section added;</i>  |
|        |         | <b>Push-Back Relief Test</b>   |
| 24     |         | The supply cord or auxiliary wiring leads are to be held 25.4 mm (1 inch) from the point where the cord or lead emerges from the product and are then to be pushed back into the product.  |
|        |         | See standard for details.  |



| CLAUSE | VERDICT | COMMENT   |
|--------|---------|---|
|        |         | <p><i>New section added;</i></p>  |
|        |         | <p><b>Thermal Fault Test</b></p>  |
| 25     |         | <p>The failure mode where an SPD degrades causing excessive leakage current and overheating at the nominal operating voltage shall be evaluated using one of the test procedures described in 25.2 or 25.3. A Metal Oxide Varistor (MOV) is a type of SPD that upon degrading causes excessive leakage current and overheating.</p> |
|        |         | <p>See standard for details.</p>  |
|        | Info    | <p><b>RATINGS</b></p>   |
| 26     | Info    | <p><b>General</b></p>   |
|        |         | <p><i>New clause added;</i></p>   |
| 26.5   |         | <p>For transformer rated meters, the short circuit current rating shall be no less than 20 times the class current applied for 0.5 seconds.</p>   |
|        |         | <p><i>New clause added;</i></p>   |
| 26.6   |         | <p>The rating shall include the rated ambient temperature of the meter.</p>   |
|        |         | <p><i>New clause added;</i></p>   |
| 26.7   |         | <p>The rating shall include the maximum operating altitude.</p>   |
|        |         | <p><i>New section added;</i></p>  |
|        |         | <p><b>MARKINGS</b></p>  |
| 27     |         | <p>Meters shall be provided with the following safety-related nameplate markings:</p>   |
|        |         | <p>See standard for details.</p>  |
|        |         | <p><i>New section added;</i></p>  |
|        |         | <p><b>INSTRUCTIONS</b></p>  |
| 28     |         | <p>Meter packaging shall indicate that:</p>   |
|        |         | <p>See standard for details.</p>  |



| CLAUSE  | VERDICT | COMMENT  |
|---------|---------|--|
| Annex B |         | <p><i>New section added;</i></p> <p><b>REQUIREMENTS FOR POLYMERIC MATERIALS IN CONTACT WITH LIVE PARTS</b></p> <p>Polymeric materials in contact with live parts shall comply with the minimum material characteristics, based on the flame rating of the material, as indicated in Table B1.1. See B1.2 and B1.3 for alternative methods when the HWI or HAI requirements of Table B1.1 are not met.</p> <p>See standard for details.</p> |