

## STANDARD INFORMATION

**Standard:** UL 1449

**Standard ID:** Surge Protective Devices [UL 1449:2021 Ed.5+R:21Oct2025]

**Previous Standard ID:** Surge Protective Devices [UL 1449:2021 Ed.5+R:15Dec2022]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **October 21, 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 Reports not updated to this version by the effective date above will be withdrawn.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:

- Addition of Requirement for Type 5 SPDs, Discrete Components Used in Damp Locations
- Surge Testing
- SPDs with Obstructed Capped/Plugged Terminals
- Types 1, 2 and 3 Enclosed SPDs Incorporating Aluminum Rivets

Specific details of new/revise 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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown <del>lined-out</del> below.</i>
3	Info	<b>Glossary</b>
3.9A	Info	DAMP LOCATION – An exterior, interior, or partially protected location that is normally or periodically subject to condensation of moisture in, on, or adjacent to, electrical equipment.
17	Info	<b>Grounding</b>
17.1	Info	<b>General</b>
17.1.11		<p>A copper-base-alloy rivet that is used to secure parts in the grounding path, or that forms a part of the grounding path, shall contain not less than 80 percent copper. <u>An aluminum-base-alloy rivet that is used to secure aluminum-base-alloy parts in the grounding path, or that forms a part of the grounding path, shall contain not less than 90 percent aluminum.</u></p>
		<b><i>New section added;</i></b>
		<b>SPDs with Obstructed Terminals</b>
36A		<p>An SPD requiring obstructed (capped, plugged or blocked) terminals, e.g. second/paired ground terminals, shall be provided with a factory installed obstruction, terminal plug, enclosure cap, dedicated enclosure, adhesive sealant obstruction, equivalent means or combination thereof capable of preventing access to the terminal screw or push-in terminal when the complete terminals (screw, cage, pressure plate, etc.) or complete terminals without only the terminal screw are supplied with the SPD.</p> <p>See standard for details.</p>
42A		<b>Type 5 SPD Component Damp Location Testing (Optional)</b>
		<b><i>New clause added;</i></b>
42A.1		<p>Type 5 SPDs for use in damp locations may be marked as in 85.43 when additionally evaluated for compliance with the following sequence of tests:</p> <ul style="list-style-type: none"><li>a) The Vn @1ma DC test in 42.1(a) or the Breakdown Voltage Measurement Test in 42.1(b), followed by</li><li>b) The Bias Humidity Test in Section 78A, followed by</li><li>c) A Repeat Varistor Voltage measurement within 24 ±4 hours of the Vn @1ma DC test in 42.1(a) or the Breakdown Voltage Measurement Test in 42.1(b).</li></ul>



CLAUSE	VERDICT	COMMENT
		<b><i>New section added;</i></b>
		<b>Types 1CA, 2CA, 3CA, 4CA Surge Testing and Types 1, 2, 3 SPDs Employing MOV and Thermal-link</b>
43		For Type 4 component assemblies surge testing as specified in Section 42 for Type 5 SPDs plus the limited current tests in 45.4 and the disconnect testing as appropriate.  See standard for details.
45	Info	<b>Current Testing</b>
45.2	Info	<b>Short circuit current rating test – For Type 1 and Type 2 SPDs and permanently connected Type 3 SPDs (other than receptacle type)</b>
		For each representative device, the overvoltage is to be applied <del>for 7 hours</del> , or until the SPD becomes disconnected from the ac supply (due, for example, to open circuiting of a thermal or overcurrent protective device). <u>SPD disconnection shall occur within 10 minutes of application of the test voltage.</u>
45.2.3		Exception No. 1: For <del>permanently connected (Type 1, Type 2 and Type 3 SPDs) devices SPDs that do not conduct current (beyond leakage current)</del> <u>disconnect within 10 minutes</u> when subjected to the test, any one of the following options, or any combination thereof, shall be implemented and the test described in 45.2.1 <u>repeated so that the SPD will disconnect within 10 minutes. This process can be applied multiple times as requested by the manufacturer and a separate 10 minute disconnect duration will be applied to each; for example, if the test voltage were increased.</u>
		<u>Exception No. 2: The test shall be conducted for 7 hours for short-circuit type SPDs that are not designed to disconnect.</u>
45.3	Info	<b>Intermediate current test</b>
		For each representative device, the overvoltage is to be applied for 7 hours, or until the SPD becomes disconnected from the ac supply (due, for example, to open circuiting of a thermal or overcurrent protective device). For permanently connected devices, SPD disconnection shall occur within 10 minutes of application of the test voltage.
45.3.2		Exception No. 1: For permanently connected devices that do not <u>disconnect within 10 minutes</u> <del>conduct current (beyond leakage current) nor exhibit any conditions described in 45.1.10</del> when subjected to the test, any one of the following options, or any combination thereof, shall be implemented and the test described in 45.3.1 repeated <u>so that the SPD will disconnect in 10 minutes:</u>



CLAUSE	VERDICT	COMMENT
		<p><u>Exception No. 2: For permanently connected short-circuiting type SPDs that are not designed to disconnect, the Intermediate Current testing shall be conducted for 7 hours. For Intermediate Current testing where these SPDs conduct the test current level for 7 hours AND do not become disconnected from the ac source, the test results are also representative of testing at the lower test current levels.</u></p> <p><u>Exception No. 3: For cord-connected and direct plug-in SPDs, Intermediate Current testing can be waived if the MCOV ratings of the SPD Components are greater or equal to the Test Voltage that would be applied during the Intermediate Current testing.</u></p> <p><u>Exception No. 4: For cord-connected and direct plug-in SPDs, Intermediate Current testing where the SPD conducts the test current level for 7 hours AND does not become disconnected from the ac source, the test results are also representative of testing at the lower test current levels.</u></p> <p><u>Except No. 5: For cord-connected and direct plug-in SPDs, if the measured test current through the SPD after 5 minutes is less than or equal to the measured test current through the SPD after 30 minutes AND the measured test current through the SPD after 30 minutes is less than the as received Leakage Current across the test mode per Section 38 plus 0.25 A, then the test can be stopped. When this Exception is utilized, the test results are also representative of testing at the lower test current levels.</u></p>
78A		<p><b><i>New section added;</i></b></p> <p><b>Biased Humidity Test (Optional)</b></p>
78A.1		<p>Three samples of Type 5 SPDs shall be placed in a humidity chamber maintained at 85 ±2°C/85 ±2% relative humidity or 40 ±2°C/93 ±2% relative humidity and connected to a source of supply at rated MCOV for 1000 hours.</p>
83A		<p><b><i>New section added;</i></b></p> <p><b>Drop Test for SPDs with Capped/Plugged Terminals</b></p> <p>The test shall be conducted on complete SPDs with plugs, caps, obstructions, dedicated enclosures, etc, in place from the factory.</p> <p>See standard for details.</p>
	Info	<b>MARKINGS</b>
85	Info	<b>Details</b>
85.43		<p><b><i>New clause added;</i></b></p> <p>Type 5 SPDs intended for damp location use as specified in 42A.1 shall be marked on the SPD or the smallest unit package with the following or equivalent wording, "Suitable for Damp Location Use".</p>



CLAUSE	VERDICT	COMMENT
	Info	<b>INSTRUCTION MANUAL</b>
86	Info	<b>Details</b>
86.1		<p>An instruction manual or the equivalent shall be provided, shall only reference those applications that have been evaluated, and shall include the following:</p> <p><u>Exception No. 2: The instructions and information required by 24.5, 45.1.13, 56.8, 85.1, 85.4, 85.7, 85.13, 85.14, 85.21, 85.22, 85.37, 85.38, 86.1 (a), (b), and (e), 86.2, 86.4 and 86.5 when applicable shall be marked on the SPD as applicable or provided as printed material along with the SPD. All other instructions may be provided in electronic media format, such as a website (accessible via URL, QR code, or similar means). If electronic media instructions are provided, the instructions and information required by 24.5, 45.1.13, 56.8, 85.1, 85.4, 85.7, 85.13, 85.14, 85.21, 85.22, 85.37, 85.38, 86.1 (a), (b), and (e), 86.2, 86.4 and 86.5 when applicable shall also be included within the electronic media instructions.</u></p> <p><u>Exception No. 3: When the SPD is marked, where visible during installation, that the SPD is to be installed by a licensed electrician or other professionally trained service personnel, or the equivalent, the instructions and information required by 24.5, 45.1.13, 56.8, 85.7, 85.13, 85.14, 85.21, 85.22, 86.2, 86.4 and 86.5 when applicable shall be marked on the SPD or provided as printed material along with the SPD. All other instructions may be provided in electronic media, such as a website (accessible via URL, QR code, or similar means). If electronic media instructions are provided, the instructions and information required by 24.5, 45.1.13, 56.8, 85.7, 85.13, 85.14, 85.21, 85.22, 86.2, 86.4 and 86.5 when applicable shall also be included within the electronic media instructions.</u></p>
		<b><i>New clause added;</i></b>
86.6		<p>When instructions are provided in the form of electronic media format, such as a website (accessible via URL, QR code, or similar means), the SPD is either marked, where visible during and after installation, or provided with printed instructions with the word "IMPORTANT," accompanied by instructions for how to access the electronic read-only media format. The web address may be in the form of a Uniform Resource Locator (URL – <a href="http://www. . com/ /">http://www. . com/ /</a>), or as a Quick Response (QR) Code. The web address link shall take the installer/operator to an internet page containing a link to the installation instruction/Owner’s manual. The file shall be unrestricted and in a file format that is commonly used and downloadable.</p>