

UL 1449 Ed. 5-2021

Surge Protective Devices

1.1 These requirements cover enclosed and open-type Surge Protective Devices (SPDs) designed for repeated limiting of transient voltage surges as specified in the standard on 50 or 60 Hz power circuits not exceeding 1000 V and for PV applications up to 1500 V dc and designated as follows:

Type 1 – One port, permanently connected SPDs, except for watt-hour meter socket enclosures, intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures and Molded Case SPDs intended to be installed without an external overcurrent protective device. Type 1 SPDs for use in PV systems can be connected between the PV array and the main service disconnect.

Type 2 – Permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device; including SPDs located at the branch panel and Molded Case SPDs.

Type 3 – Point of utilization SPDs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel to the point of utilization, for example cord connected, direct plug-in, receptacle type and SPDs installed at the utilization equipment being protected. See marking in 4. The distance (10 meters) is exclusive of conductors provided with or used to attach SPDs.

Type 4 Component Assemblies – Component assembly consisting of one or more Type 5 components together with a disconnect (integral or external) or a means of complying with the limited current tests in 4.

Type 1, 2, 3 Component Assemblies – Consists of a Type 4 component assembly with internal or external short circuit protection.

Type 5 – Discrete component surge suppressors, such as MOVs that may be mounted on a PWB, connected by its leads or provided within an enclosure with mounting means and wiring terminations.

1.2 Except as indicated in 3, the products covered by this Standard are rated and intended for connection to circuits or supply sources having nominal voltage ratings as specified in .

1.3 A product intended for connection to an ac circuit or supply source other than that specified in 2 may be examined and tested in accordance with the intent of the requirements in this standard and, if found to be substantially equivalent, may be judged to comply with this Standard.

1.4 These requirements cover cord-connected direct plug-in, and permanently connected SPDs intended for indoor and outdoor use in accordance with the National Electrical Code, ANSI/NFPA 70.

1.5 These requirements do not cover the interconnection of multiple field installed SPDs.

1.6 These requirements cover SPDs that may include components specifically intended to function as filters for conducted electromagnetic interference (EMI) or noise, in addition to limiting transient voltage surges. See Section 27.

1.7 These requirements cover SPDs employing circuit components intended to provide secondary protection for telephone communication circuits and circuit components intended to protect data communication or fire alarm circuits. See Section 28.

1.8 These requirements cover SPDs employing antenna connections for audio-video products. See Section 29.

1.9 An SPD that has a battery backup feature or other uninterruptible power supply equipment shall also comply with the applicable requirements in the Standard for Uninterruptible Power Supply Equipment, UL 1778. See Section 31.

1.10 These requirements cover SPDs/Panelboard Extension Modules. These products shall also comply with the Standard for Panelboards, UL 67. See Section 32.

1.11 These requirements do not evaluate the effect of SPDs on connected loads, the effect of SPDs on harmonic distortion of the supply voltage, the degree of attenuation provided by SPDs, nor the adequacy of the voltage protection rating of SPDs to protect specific connected equipment from upset or damage.

1.12 This standard does not cover cord connected or direct plug-in SPDs intended for use with medical equipment. Medical equipment is typically intended for use in General Patient Care Areas or Critical Patient Care Areas as defined by Article 517 of the National Electrical Code for Health Care Facilities. SPDs intended for such use shall comply with the requirements of the Standard for Safety of Medical Electrical Equipment, Part 1: General Requirements, UL 60601-1, and the Standard for Safety Requirements for Medical Electrical Systems, IEC 60601-1-1.

1.13 An SPD intended to serve as an outlet cover plate or outlet box hood shall comply with the requirement for faceplates in the Standard for Cover Plates for Flush Mounted Wiring Devices, UL 514D.

1.14 An SPD intended for use in a Lightning Protection System (LPS) shall comply with the Surge Protection requirements in the Standard for Installation Requirements for Lightning Protection Systems, UL 96A.

1.15 A Type 3 SPD may employ additional low voltage supplementary circuitry to power a USB charger.

1.16 A cord-connected or direct plug-in Type 3 SPD may employ a replaceable or non-replaceable rechargeable battery to power a USB output circuit.

1.17 A direct plug-in SPD employing more than two receptacles shall also comply with the applicable requirements in the Standard for Current Taps and Adapters, UL 498A.

1.18 A cord-connected SPD employing more than two receptacles shall also comply with the applicable requirements in the requirements in the Standard for Relocatable Power Taps, UL 1363 or the Standard for Furniture Power Distribution Units, UL 962A.