

SURGE PROTECTION DEVICES

PART 1 GENERAL

1.00 DESCRIPTION:

- A. This section describes the materials and installation requirements for Surge Protection Devices, (SPD), formally known as Transient Voltage Surge Suppressors (TVSS), as shown on the drawings and herein specified at main and branch circuit distribution panels.

PART 2 PRODUCTS:

2.1 GENERAL REQUIREMENTS:

The Surge Protection Device shall be listed to UL 1449 Edition 4 as a SPD **Type 1** Product. The UL 1449 Edition 3 Nominal Discharge Current (In) for the Surge Protection Device shall be 20 kA. A Surge Protection Device with a UL 1449 Edition 4 Nominal Discharge Current listing of 3 kA, 5 kA or 10 kA will not be accepted.

MCOV shall be greater than 115% of the nominal operating voltage.

The Surge Protection Device shall have a stand-off voltage rating twice the nominal voltage. The Surge Protection Device shall be able to withstand 2X Temporary Over Voltage Conditions (twice the nominal voltage) for an **indefinite** period of time, without damage, removing components from the circuit, or interrupting power.

The Surge Protection Device shall protect all modes via L-N, L-G and N-G modes of protection. For Delta power systems L-L and L-G protection modes shall be provided, with the ability to configure L-G to L-L for ungrounded systems.

Independent certification shall be provided proving that the Surge Protection Device meets the required 8/20 μ s per phase single shot surge rating, without failure of any fusing, disconnects or surge module. Bypassing of any fusing/disconnects for purpose of this test is not acceptable.

Each mode of the Surge Protection Device shall be rated to exceed the life cycle testing of ANSI/IEEE C62.45 by withstand of at least 200 operations at 10kA 8/20 μ s and at least 100 operations at 20 kA without failure.

The Surge Protection Device shall have a Short Circuit Current Rating (SCCR) of 200 kAIC, per UL 1449 Edition 4.

The Surge Protection Device shall be capable of withstanding **multiple** temporary over-voltages per UL 1449 Edition Section 36 "Overvoltage Test", & 37 "Abnormal Overvoltage Tests" without failure or need to reset or replace modules/fuses.

2.2 **Main Service Switchgear (Category C Locations):**

Omega Power, Model FDC ___ Compact Series or approved alternate.

2.3 **Distribution Switchgear and Small Service Entrance Locations (Category B and C locations):**

Omega Power, Model FDB ___ Compact Series or approved alternate.

2.4 **High Exposure Panel and Equipment Locations (Category B and C locations):**

Omega Power, Model FDB ___ Compact Series or approved alternate:

2.5 **Protected Branch Panel and Equipment Locations (Category A and B locations):**

Omega Power, Model FDA ___ C Compact Series or approved alternate:

PART 3 EXECUTION:

3.01 INSTALLATION:

- A. At locations indicated on drawing(s), install Surge Protection Devices in full accordance with manufacturer's written instructions and comply with all applicable codes.
- B. At Distribution, MCC and Branch Panels, Surge Protection Devices with a UL 1449 Edition 3, Listing as a SPD **Type 2** shall have a 30-Amp Circuit Breaker or other size as recommended by the manufacturer's installation manuals. This independent Circuit Breaker will serve as a means of disconnect for servicing the Surge Protection Device with the protected panel remaining energized.
- C. Surge Protection Devices with a UL 1449 Edition 4 Listing as a SPD **Type 1**, and an integrated disconnect can be connected directly to the buss without a designated circuit breaker.
- D. The Surge Protection Device shall be installed with the shortest possible leads, or wire length.