

SECTION 16610
TRANSIENT VOLTAGE SURGE SUPPRESSION

PART 1 GENERAL

PART 2 PRODUCTS**2.1 MANUFACTURERS:**

- A. Equipment by all manufacturers meeting this specification shall be considered for approval.

2.2 TVSS DEVICES

- A. Surge Protective Devices shall be UL 1283 listed as an electromagnetic interference filter.
- B. Surge Protective Devices shall be listed in accordance with UL 1449-1998, Second Edition-Transient Voltage Surge Suppressors (TVSS) and be marked in accordance with referenced standard and shall be approved for the location in which they are installed.
- C. Surge Protective Devices shall be either close nipped to the device being protected or mounted internally in a position which will minimize lead length between suppressor and the panel circuit breaker to which the suppressor manufacturer's recommended maximum lead length is not exceeded without specific approval of the Engineer.
- D. Surge Protective Devices shall be designed for the specific type and voltage of electrical service and shall have interrupting rating (AIC) equal to or greater than the available fault currents at the terminal of the panel that is being protected but the unit AIC shall not be less than 25,000 amps, symmetrical.
- E. Surge Protective Devices shall be designed to withstand a maximum continuous operating voltage of not less than 115% of nominal RMS line voltage.
- F. Surge Protective Devices shall contain internal safety surge rated fusing which is designed to disconnect the suppressor from the electrical source if the suppressor fails.
- G. Surge Protective Devices shall be failsafe, shall have no holdover current, shall have repeated surge capability, shall be solid state and self-restoring and shall be fully automatic.
- H. Surge Protective Devices shall contain a visual indication on the front door of the enclosure of the SPD unit to verify that either the suppressor has failed or that the suppressor is operational and functional.
- I. Surge Protective Devices shall have an operating temperature range of -40°C to $+60^{\circ}\text{C}$.

2.3 SUPPRESSOR CRITERIA

- A. Surge Protective Device for service entrance equipment (switchboard/panel board):
 - 1. 277/480 volt, 3 phase, 4 wire, WYE
 - a. Seven modes protection: line to neutral, line to ground and neutral to ground.
 - b. Suppression voltage of 800 volts.
 - c. Surge capacity of 100,000 AMPS.
 - d. Audible alarm after failure.
 - 2. 120/208 volt, 3 phase, 4 wire, WYE
 - a. Seven modes protection: line to neutral, line to ground and neutral to ground.
 - b. Suppression voltage of 450 volts.
 - c. Surge capacity of 100,000 AMPS.
 - d. Audible alarm after failure.
- B. Surge Protective Device for distribution and branch panels:
 - 1. 277/480 volt, 3 phase, 4 wire, WYE
 - a. Normal modes protection: line to neutral and neutral to ground.
 - b. Suppression voltage of 800 volts.
 - c. Surge capacity of 70,000 AMPS.
 - d. Audible alarm after failure.
 - 2. 120/208 volt, 3 phase, 4 wire, WYE
 - a. Normal modes protection: line to neutral and neutral to ground.
 - b. Suppression voltage of 450 volts.
 - c. Surge capacity of 70,000 AMPS.
 - d. Audible alarm after failure.

PART 23 EXECUTION

3.1 INSTALLATION

- A. Suppressors shall be installed as close as practical or mounted internally to the electric panel or electronic equipment to be protected, consistent with available spaces.
- B. Suppressors shall be installed in a neat, workmanlike manner. Lead length shall be as short (36 inches maximum length) and as straight as possible and be consistent with recommended industry practices for the system on which these devices are installed.
- C. Supplementary grounding and bonding connections required between the bonding bus or ground plane for each equipment cluster and other locations as indicated shall be accomplished using #6 AWG copper conductor and approved connections unless otherwise noted.
- D. Surge Protective Devices shall be installed and located in accordance with requirements of all applicable National Fire Protection Association (NFPA) codes.

END OF SECTION