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PT160 (Delta)-Family

Surge Protective Device
For Installation at the Service Entrance Panel

1.0 GENERAL DESCRIPTION

These specifications describe the electrical and mechanical requirements for a shunt installed AC power line surge suppressor. The specified surge protective device shall provide effective energy surge diversion for application in ANSI/IEEE C62.41-2002 Location Category C3 environments. Testing per ANSI/IEEE C62.45-2002 using ANSI/IEEE C62.41 Category C3 waveforms and amplitudes. UL 1449 listed to UL1449 3rd Ed Safety Standard for Surge Protective Devices. The specified surge protective device shall provide:

- 160,000 transient amps, per phase, of surge protection.
- Double Redundant: Two fused surge paths per phase.
- Protection modes: L-G, L-L.
- SCCR: 100kA AIC
- I_n=5kA
- MCOV (UL1449 3rd Ed): 115% minimum of nominal voltage
- MCOV (Varistors): 125% minimum of nominal voltage
- Two Green, protection present LED's per phase, on front panel.
- Surge Protected 1 Form C relay with Green "Relay Energized" LED on side panel.
- UL recognized, 200 kAIC fuses. All fuses monitored, including thermal varistor fuses.
- Filtering.
- Thermally protected varistors standard. Surge event counter optional.
- Twenty year warranty on entire system.

1.2 STANDARDS

The specified protector shall be designed, manufactured, tested and installed in compliance with:

- American National Standards Institute and Institute of Electrical and Electronic Engineers (ANSI/IEEE C62.11, C62.41, and C62.45)
- Federal Information Processing Standards Publication 94 (FIPS PUB 94)
- National Fire Protection Association (NFPA 20, 70, 75 and 78)
- Underwriters Laboratories (UL 1449, 3rd Ed.) listed
- CAN/C22.2 No. 8-M1986; CSA Electrical Certification Notice No. 516

The system individual units shall be UL listed under UL 1449 3rd. Ed. Standard for Safety for Surge Protective Devices and the Voltage Protection Ratings (VPR) shall be permanently affixed to the SPD.

1.3 DISTRIBUTION PANEL EQUIPMENT ELECTRICAL REQUIREMENTS

1.3.1 Environmental Requirements:

A. **Operating Temperature:** Operating temperature range shall be -40 to +70 degrees C(-40 to +160 degrees F).

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B. Storage Temperature: Storage temperature range shall be -40 to +85 degrees C.

C. Relative Humidity: Operation shall be reliable in an environment with 0% to 95% non-condensing relative humidity.

D. Operating Altitude: The system shall be capable of operation up to an altitude of 13,000 feet above sea level.

E. Operating Voltage: Maximum continuous operating voltage of varistors shall be no less than 125% of the nominal rated line voltage.

F. Power Frequency: The power frequency range shall be at 47 to 63 Hertz.

1.3.2 Electrical Requirements:

A. Unit Operating Voltage: The nominal unit operating voltage shall be indicated in **Table 1.0**.

B. Nominal System Operating Voltage shall be:

_____ VAC, _____ Phase, _____ Wire Plus Ground, _____Type

Table 1.0

Model	Voltage	Description	Joules Total (8/20us)	UL1449 3rd Edition VPR L-G	UL1449 3rd Edition VPR L-L	Vpeak L-G 3kA (8/20us)
-240D	240 VAC	3 phase, 3W+gnd	26,880j	1200V	2000V	960
-480D	480 VAC	3 phase, 3W+gnd	37,440j	1800V	4000V	1770

C. Unit shall be installed in parallel with the protected equipment. No series connected protective elements shall be used.

D. Protection per mode shall be: L-G 160 kA, L-L 160 kA

E. The maximum surge current capacity per phase of the specified system, based on the standard IEEE 8/20 microsecond waveform, shall be at least: 1 Event at 160 kA, the surge life shall be at least 10,000 events @ 6kA. The transient suppression capability shall be bi-directional and suppress both positive and negative impulses.

F. The protector shall be designed so as to minimize the internal surge path impedance. Direct point-to-point internal wiring is inherently inductive and not acceptable. Connection to the power service shall be constructed as shown in the installation notes for best performance.

G. Equipment shall be as manufactured by MCG Surge Protection; Model: PT160 Delta Family or engineering department approved equal with supporting test data.

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2.0 DISTRIBUTION PANEL PROTECTION SYSTEM COMPONENTS

A. MOVS: The protector shall be fused and constructed of multiple 40 kA metal oxide varistors with internal thermal disconnect mechanism.

B. Self-Diagnostics: Solid state green LED indicators shall be provided on the front cover to indicate protection status.

C. NEMA 1 Enclosure: 16 gauge steel provided with mounting flanges.

D. Dimensions: 13.25" x 9.0" x 4.5" (337mm x 229mm x 108.0mm). Shipping weight: 10 lbs. (4.53kg) maximum.

F. Furnished with No. 10 AWG leads having a nominal length of 36 inches.

3.0 INSTALLATION AND MAINTENANCE

A. The unit shall be installed in accordance with the manufacturer's printed instruction to maintain warranty. All local and national codes must be observed.

B. Units shall be installed as close as possible to the panelboard to which it is connected - preferably within 2 feet.

4.0 20 YEAR WARRANTY

Manufacturer to provide 20 year warranty to cover repair or the providing of a new device.