

SPA3.5-Family

Surge Suppression Device

1.0 GENERAL

1.1 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 C62.41-1991 Location Category **C3/B3/A3** environments. Testing per ANSI/IEEE C62.45-1992 using ANSI/IEEE C62.41 Category **C3/B3/A3** waveforms and amplitudes. UL 1449 second edition listed. The specified surge protective device shall provide:

- **160,000** transient amps, per phase, of surge protection.
- Protection modes: L-N, L-G, L-L, N-G
- 200 kAIC fusing
- Green, power present LED, red, protection reduced LED on front panel.
- Ten year warranty on entire system.

1.2 STANDARDS

The specified suppressor 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 (FIP PUB 94)
- National Electrical Manufacturer Association (NEMA LS-1)
- National Fire Protection Association (NFPA 20, 70, 75 and 78)
- Underwriters Laboratories (UL 1449 second edition) listed
- CAN/C22.2 No. 8-M1986; CSA Electrical Certification Notice No. 516

The system individual units shall be UL listed under UL 1449 Second Edition Standard for Transient Voltage Surge Suppressions (TVSS) and the surge ratings shall be permanently affixed to the TVSS.

1.3 LOCAL PANEL EQUIPMENT ELECTRICAL REQUIREMENTS

1.3.1 Environmental Requirements:

- Operating Temperature:** Operating temperature range shall be -40 to +71 degrees C (-40 to +160 degrees F)
- Storage Temperature:** Storage temperature range shall be -40 to +85 degrees 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 shall be 115% of the nominal rated line voltage.
- F. Power Frequency:** The power frequency range shall be at 47 to 440 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 8/20us	Clamp @1mA	UL1449 2 nd Edition 500A (8/20us)
SPA3.5-120S	120VAC	1phase, 2W + gnd	3115	220V	600V
SPA3.5-220S	220VAC	1phase, 2W + gnd	8400	220V	800V
SPA3.5-240S	240VAC	1phase, 2W + gnd	8400	240V	800V
SPA3.5-277S	277VAC	1phase, 2W + gnd	9000	277V	900V

- 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 **SPA3.5**: L-N **80** kA, L-G **80** kA, L-L **160** kA, N-G **80** 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 200 events @ **20**kA and 20,000 events @**6**kA. The transient suppression capability shall be bi-directional and suppress both positive and negative impulses.
- F.** The suppressor 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: **SPA3.5** Family or engineering department approved equal with supporting test data.
- H. The suppressor shall be capable of interrupting a 200 kA, short circuit current delivered from the AC power line.

2.0 LOCAL PANEL PROTECTION SYSTEM COMPONENTS

- A. **MOVS**: The suppressor shall be fused and constructed of multiple **40** mm metal oxide varistors.
- B. **Self-Diagnostics**: Solid state red and green LED indicators shall be provided on the front cover to indicate AC power present at the device and protection status.
- C. **NEMA 1 Enclosure**: 18 gauge steel provided with mounting flanges.
- D. **Dimensions**: 7.25" x 4.25" x 2.75"
- E. **Shipping weight**: 3 lbs maximum
- F. Furnished with No. 12 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.
- C. Detailed maintenance instructions shall be printed on the front panel to insure safety of maintenance personnel.

4.0 10 YEAR WARRANTY

Manufacturer to provide 10 year warranty to cover repair or the providing of a new device.