

SF160-Family

Surge Suppression 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 C62.41-1991 Location Category C3 environments. Testing per ANSI/IEEE C62.45-1992 using ANSI/IEEE C62.41 Category C3 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.
- Two Green, protection present LED's per phase, on front panel.
- Fused shared current paths. This device contains six fuses.
- 200 kAIC fusing.
- 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 DISTRIBUTION PANEL EQUIPMENT ELECTRICAL REQUIREMENTS

1.3.1 Environmental Requirements:

- Operating Temperature:** Operating temperature range shall be -40 to +70 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 Total (8/20us)	Clamp @1mA	Vpeak L-N 10kA (8/20us)	Vpeak L-N 3kA (8/20us)	UL1449 2 nd Edition SVR
SF160-120T	120/240 VAC	1phase, 3W + gnd	6,230j	220V	730V	540V	500V
SF160-120Y	120/208 VAC	3phase, 4W + gnd, wye	8,722	220V	730V	540V	500V
SF160-220Y	220/380 VAC	3phase, 4W + gnd, wye	23,520	430V	1050V	810V	800V
SF160-240DCT	240/120/120*	3phase, 4W + gnd, hi-leg	15,064	430/220V	1050/730V	810/540V	800/500V
SF160-240Y	240/415 VAC	3phase, 4W + gnd, wye	23,520	430V	1050V	810V	800V
SF160-240D	240 VAC	3phase, 3W + gnd, delta	20,160	430V	1050V	810V	800V
SF160-277Y	277/480 VAC	3phase, 4W + gnd, wye	25,200	510V	1230V	935V	900V
SF160-480D	480 VAC	3phase, 4W + gnd, delta	36,000	865V	2020V	1530V	1500V

*High-leg delta center tapped

- 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-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 10,000 events @6kA. 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: SF160 Family or engineering department approved equal with supporting test data.

2.0 DISTRIBUTION 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 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:** 7.25" x 7.50" x 2.38". Shipping weight: 6lbs 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.

4.0 10 YEAR WARRANTY

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