

400 Series

Surge Suppression Device
For Installation within Protected Equipment

1.0 GENERAL

1.1 DESCRIPTION

These specifications describe the electrical and mechanical requirements for a series 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 A3 environments. Testing per ANSI/IEEE C62.45-1992 using ANSI/IEEE C62.41 Category **B3/A3** waveforms and amplitudes. UL 1449 recognized. The specified surge protective device shall provide:

- 10,000 transient amps of surge protection.
- L-N, L-G, N-G protected modes.
- Green protection present LED.
- EMI/RFI Filter.
- Low profile construction.
- Barrier strip terminal blocks.
- Ten year warranty.

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 Fire Protection Association (NFPA 20, 70, 75 and 78)
- Underwriters Laboratories (UL Second Edition 1449 Recognized)
- National Electrical Manufacturer Association (NEMA LS-1)
- CAN/C22.2 No. 8-M1986; CSA Electrical Certification Notice No. 516

The system individual units shall be UL recognized under UL 1449 Second Edition Standard for Transient Voltage Surge Suppressors (TVSS)

1.3 LOCAL 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 47-440 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, 1 Phase, 2 Wire Plus Ground, _____A RMS (continuous)

Table 1.0

Model	Voltage	Description and Rated Current	Joules 8/20us	Clamp @1mA	Vpeak L-N (8/20us)
405	120VAC	1PH, 2W+G, 5A RMS	450j	220V	392V
407	120VAC	1PH, 2W+G, 7.5A RMS	540	220V	392V
415	120VAC	1PH, 2W+G, 15A RMS	540	220V	392V
416	120VAC	1PH, 2W+G, 25A RMS	540	220V	420V
417	240VAC	1PH, 2W+G, 25A RMS	900	425V	760V

- C. Unit shall be installed in series with the protected equipment.
- D. 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 10 kA. The surge life (8/20us) shall be at least 10,000 occurrences @ 500A. The transient suppression capability shall be bi-directional and suppress both positive and negative impulses.
- E. 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.
- F. Equipment shall be as manufactured by MCG **Surge Protection**, Inc.; Model: 400 Series or engineering department approved equal with supporting test data.

- G. The suppressor shall contain a common mode noise filter with specifications as in **Table 1.1**:

Table 1.1

Filter attenuation(50 ohm)	405	407	415	416	417
-20db	45 kHz	30 kHz	30 kHz	30 kHz	30 kHz
-30db	75 kHz	95 kHz	90 kHz	90 kHz	80 kHz
-40db	150 kHz	300 kHz	300 kHz	300 kHz	260 kHz
-50db	250 kHz	750 kHz	880 kHz	800 kHz	530 kHz
-60db	450 kHz	1.5 MHz	1.4 MHz	1.0 MHz	700 kHz

2.0 EQUIPMENT LEVEL PROTECTION SYSTEM COMPONENTS

- A. **MOVS:** The suppressor shall be fused and constructed of multiple 20 mm metal oxide varistors.
- B. **Self-Diagnostics:** An illuminated green solid state LED indicator shall be provided on the front cover to indicate protection is present at the device.
- C. **Connection:** Solderless Screw Terminals.
- D. **Enclosure:** High-impact plastic.
- E. **Dimensions:** 4.95" x 2.85" x 1.10" (405 only: 4.95" x 4.36" x 1.10")
- F. **Shipping weight:** <1lb.

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 within the equipment to which it is connected.

4.0 TEN YEAR WARRANTY

Manufacturer to provide 10 year warranty to cover repair or replacement with a new device.