MCG SURGE PROTECTION http://www.sentinelpowerinc.com
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530P-Family

Surge Protective Device 299-500-30
For Installation at Local Panels, Control Cabinets,
and Equipment.

1.0 GENERAL

1.1 DESCRIPTION

These specifications describe the electrical and mechanical requirements for a high-energy transient voltage surge suppressor. The specified surge protective device shall provide effective high-energy surge diversion for application in ANSI/IEEE C62.41-2002 Location Category B3 environments. Testing per ANSI/IEEE C62.45-2002 using ANSI/IEEE C62.41 Category B3 waveforms and amplitudes. UL 1449 4th Edition. The specified surge protective device shall provide:

- Ipk (8/20) total: 60kA – 100kA (model dependent)
- NEMA 4X enclosure with padlock eyes - standard
- Field repairable
- Field replaceable protection module and fuses
- SCCR: 50kA AIC
- I_n : 5kA
- Protection in all modes, L-N, L-G, N-G.
- Dedicated status LED per varistor. Cartridge fuse status indicator
- Thermally protected varistors with integral thermal fuse
- 200k AIC fuses
- EMI/RFI Filtering standard
- Available OEM style model (no enclosure – assembly only)
- Optional remote relay contacts (surge protected) and beeper with mute
- Twenty year warranty on entire system.
- LIFETIME "NO NONSENSE" WARRANTY ON FIELD REPLACEABLE PROTECTION MODULES AND FUSES. Replacement protection modules and fuses are sent from factory stock, located in Deer Park, Long Island, New York, USA.

1.2 STANDARDS

The specified SPD 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)
- UL(models with enclosure): SPD Type 2, USL/CNL, UL1449, 4th Ed./CSA C22.2 No. 269.2
- UL(models without enclosure): SPD Type 4CA, USR, UL1449, 4th Ed./SPD Type 5, CNR, CSA C22.2 No 269.5

The system individual units shall be UL listed under UL 1449 4th. Ed. Standard for Safety for Surge Protective Devices and the Voltage Protection Ratings (VPR) shall be permanently affixed to the SPD.

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1.3 LOCAL PANEL EQUIPMENT ELECTRICAL REQUIREMENTS

1.3.1 Environmental Requirements:

A. **Operating Temperature:** Operating temperature range shall be -40 to +71 degrees C (-40 to +160 degrees F)

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 not less than 125% 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 and UL VPR:** The nominal unit operating voltage and UL VPR shall be indicated **Table 1.0**

Table 1.0

Model 500 Series

Model 500 Series	Service	VPR L-N	VPR L-G	VPR N-G	VPR L-L
530P-120/240V	120/240VAC, 1ϕ, 3W+Gnd	800	800	700	1200
530P-120V	120VAC, 1ϕ, 2W+Gnd	800	800	700	n/a
530P-220V	220VAC, 1ϕ, 2W+Gnd	1500	1500	1500	n/a
530P-240V	240VAC, 1ϕ, 2W+Gnd	1200	1200	1200	n/a
530P-240V-LLG	240VAC, 1ϕ, 2W+Gnd*	n/a	1200	n/a	1100

*Line 1, Line 2, and Ground (No Neutral)

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B. Unit shall be installed in parallel with the protected equipment. No series connected protective elements shall be used. Connection terminal block shall be cage clamp type with a wire range of 20 – 6 AWG (0.52 – 13.3mm^2).

C. Surge current per mode shall be no less than:

For 120/240V (split phase) model: 20kA L1-N, 20kA L2-N, 20kA L1-G, 20kA L2-G, 20kA N-G
For 120V/220V/240V (Line, Neutral, and Ground) models: 40kA L1-N, 40kA L2-N, 20kA N-G
For 240VAC (L1, L2, & G) models: 20kA L1-G, 20kA L2-G, 20kA L1-L2

D. The maximum surge current (8/20) capacity per mode (minimum) of the specified system, based on the standard IEEE 8/20 microsecond waveform, shall be at least: 1 Event at 20,000 Amps. The surge life (8/20) shall be at least 5,000 occurrences @ 1,000 Amps. The transient suppression capability shall be bi-directional and suppress both positive and negative impulses.

E. The SPD shall be capable of interrupting a 50 kA, short circuit current delivered from the AC power line. The interrupt capability must be confirmed and documented by a recognized independent testing laboratory.

F. The SPD 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 Electronics, Inc.; Model: 530P-Family or engineering department approved equal with supporting test data.

2.0 ENTRANCE PANEL PROTECTION SYSTEM COMPONENTS

A. Replaceable module: The SPD shall be constructed using a single field replaceable plug-in, plug-out module and fuse(s). The module shall consist of multiple 20kA (8 x 20 microsecond), three-terminal, thermally protected metal oxide varistors. The status of each varistor shall be locally monitored with 4 or 5 LEDs. 4 for 240V (L1,L2, & G models), 5 for all other models.

B. Self-Diagnostics: Blue solid state LED indicators shall be provided and viewable from the front of the protector. LEDs shall be viewable without having to open enclosure door. A green LED (also viewable from the front of the protector) monitors the status of the cartridge fuses. Models with relays shall include one dedicated relay per varistor. Models with relays shall contain surge protected contacts. Models with audible alarm shall contain a mute switch. Neon indicators are not permitted.

C. NEMA 4X Enclosure: Enclosure shall be listed to NEMA 4X specifications and contain padlock eyes.

D. Dimensions: 8" by 6" by 4". Shipping weight: 3.5 lbs. (1.6kg) maximum.

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.

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B. Units shall be installed as close as possible to the panel board or equipment input 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.

D. Plug-in, plug-out modules and field replaceable fuses are required for simple maintenance. Internal construction should facilitate rapid repair. Repair time should not exceed 5 minutes.

4.0 20 YEAR WARRANTY

Manufacturer to provide 20-year warranty to cover repair or replacement with a new device. Manufacturer to provide no cost replacement of protection modules with coordinated fuses for the life of the SPD.