



# SurgeFree™

## MODEL

## 400LS

### Service Entrance Protection

For uncompromising protection at the main service panel, choose the 400LS AC power line protector. The unit offers 400kA/phase, 10 times redundant protection paths/phase and new 40kA varistors with built-in high speed thermal disconnect. Series features mix and match options for a customized protector at stock prices. (See below.)

#### FEATURES

- 400LS: I peak=400,000A/Phase (8 x 20 $\mu$ s waveform)
- UL Listed 1449 3rd Ed., NEMA LS1-1992
- Ten times redundant protection paths per phase
- Employs new 40kA high headroom varistors with built-in high-speed thermal disconnect
- Solid copper bus bar construction
- Field-replaceable modules
- EMI/RFI noise filtering
- Continuously monitored protection circuits
- Internal and external status indicators
- NEMA 4, Powder Coated Steel Enclosure

### Mix & Match!

**Options Available:** Disconnect Switch • Upgraded Front Panel: Surge Event Counter, Beeper, + Status Relay (1 Form C Contacts) • NEMA 4X Enclosure • Low Impedance Micro-Z cable (10AWG) • Flush mount kit



## I<sub>peak</sub>=400,000A

### UL 1449, 3rd Ed. Listed

#### 20-Year Warranty Lifetime Module Replacement

#### Filter Attenuation

MIL STD 220A (50 Ohm):	120VAC	220 VAC	240VAC	277VAC	347VAC	480VAC
-30db	25kHz	25kHz	25kHz	50kHz	50kHz	50kHz
-40db	125kHz	180kHz	180kHz	100kHz	100kHz	100kHz
-50db	210kHz	210kHz	210kHz	180kHz	170kHz	170kHz
-60db	250kHz	250kHz	250kHz	200kHz	190kHz	190kHz

SPD Type: Type 2

I<sub>n</sub>: 20kA

Maximum Continuous Operating VAC (MCOV): 115% Rated Line Voltage

Varistor MCOV: 125% Rated Line Voltage Minimum

SCCR: 100kA AIC

Surge Current/Phase (8/20 $\mu$ s): 1 Event - 400kA.

Surge Life/Phase (8/20 $\mu$ s): 10,000 Events: 19kA.

Surge Current/Mode (8/20 $\mu$ s): L-N: 240kA; L-G: 160kA; N-G: 240kA; L-L: 400kA

Surge Current/Mode, "D" Models (8/20 $\mu$ s): L-G: 400kA; L-L: 400kA

Response Time: <5 ns

Status Indicators: LED Status Indicators (internal & external)

Modes of Protection: L-N, L-G, L-L, N-G

Operating Altitude: 13,000ft. (4000m)

Temp. (Operating/Storage): -40° to +70°C/-40° to +85°C

Enclosure: NEMA 4, 14 gauge steel, powder coated

Dimensions: 17" x 15" x 6" (432 x 381 x 153mm)

Mounting: 17.75" x 13".313"ID - 4 holes, (451 x 330mm/7.9mm ID) - 4 holes

Conduit Fitting Hole: 1" trade size located at the bottom of enclosure

Weight: 43 lbs. (19.5 kg)

UL File Number: E322161

UL Certification: UL Listed to 1449 3rd Edition

UL96A Lightning Protection Master Label Compliant

ARRA Certification: Complies with ARRA 1605 requirements



**MCG Surge Protection** • Toll Free: 1-800-851-1508 • [www.mcgsurge.com](http://www.mcgsurge.com) • E-Mail: [info1@mcgsurge.com](mailto:info1@mcgsurge.com)  
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# Specifications

## Service Entrance Protection

- ANSI/IEEE C62.41-2002
- IEC 61643-1-1998
- UL 1449, 3rd Ed.

### Model 400LS

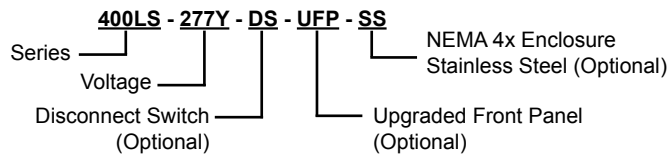
Model 400LS	Service	VPR L-N	VPR L-G	VPR N-G	VPR L-L	6kV (1.2x50µs) 3kA (8x20µs) (L-N)***	20kV (1.2x50µs) 10kA (8x20µs) (L-N)***
-120S	120VAC, 1φ, 2W+Gnd	900	900	800	n/a	480	570
-120T	120/240VAC, 1φ, 3W+Gnd	900	900	800	1200	505	600
-120Y	120/208, 3φ, 4W+Gnd, Wye	900	900	800	1200	505	600
-220Y	220/380, 3φ, 4W+Gnd, Wye	1500	1500	1500	2000	990	1130
-220S	220VAC, 1φ, 2W+Gnd	1500	1500	1500	n/a	940	1070
-240Y	240/415, 3φ, 4W+Gnd, Wye	1500	1500	1500	2000	970	1130
-240S	240VAC, 1φ, 2W+Gnd	1500	1500	1500	n/a	940	1070
-277Y	277/480, 3φ, 4W+Gnd, Wye	1500	1500	1500	2000	970	1130
-347Y	347/600, 3φ, 4W+Gnd, Wye	1500	1500	1500	2500	1260	1400
-240DCT*	240/120/120, 3φ, 4W+Gnd	900/1500**	900/1500**	900	2000/1800** 1200/2000**	970/505	1130/600
-240D	240, 3φ, 3W+Gnd, Delta	n/a	1500	n/a	2000	970 (L-G)	1130 (L-G)
-480D	480, 3φ, 3W+Gnd, Delta	n/a	2000	n/a	4000	1548 (L-G)	1720 (L-G)
-600D	600, 3φ, 3W+Gnd, Delta	n/a	2000	n/a	4000	1755 (L-G)	1930 (L-G)

\* High-leg Delta Center Tapped

\*\* High-leg

\*\*\* Actual Measurements w/6" Lead Length

#### Model Ordering:



**Note:** Additional options: Low-impedance MZ cable (10AWG) and flush mount kit must be ordered as separate line items.

**Energy Absorption (8/20µs) in joules:** 26,496 - 108,000J

**A Note On Headroom** A surge protector responds to increases in voltage. Surge protectors triggered by the nominal line voltage are undesirable, consequently headroom is always factored into surge protector design. Long duration voltage swells occur on power lines and can damage a surge protector, leaving facility equipment vulnerable. By employing higher headroom, continuity of surge protection is guaranteed. This feature is standard in MCG surge protectors. Higher headroom allows varistors to ride out voltage swells while ensuring that let-through voltage remains within CBEMA (now ITIC) guidelines. The CBEMA curve is the most accepted graph worldwide for equipment susceptibility analysis.

**A Note On LS Series VPR** These VPR represent standard wiring plus the upstream overcurrent safety device (circuit breaker). For best performance, use MCG's Micro-Z Cable (optional).