



# SurgeFree™

MODEL

120LS

## Branch Panel Protection

Protect branch panels with the 120kA/phase 120LS Series. The units offer three times redundant protection paths/phase and continuous monitoring of protection status. Sensitive equipment remains online and undamaged by transients, surges and lightning. Mix and match options for a customized protector.

### FEATURES

- 120LS: I<sub>peak</sub>=120,000A/Phase (8 x 20μs waveform)
- UL Listed 1449 3rd Ed., NEMA LS1-1992
- Three 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



I<sub>peak</sub> = 120,000A

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

## 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

SPD Type:	Type 2
I <sub>n</sub> :	5kA
Maximum Continuous Operating VAC (MCOV):	115% Rated Line Voltage
Varistor MCOV:	125% Rated Line Voltage Minimum
SCCR:	100kA AIC
Surge Current/Phase (8/20μs):	1 Event - 120kA.
Surge Life/Phase (8/20μs):	10,000 Events: 6kA.
Surge Current/Mode (8/20μs):	L-N: 80kA; L-G: 40kA; N-G: 120kA; L-L: 120kA
Surge Current/Mode, "D" Models (8/20μs):	L-G: 120kA; L-L: 120kA
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:	30 lbs. (14.4kg)
UL File Number:	E322161
UL Certification:	UL Listed to 1449 3rd Edition
ARRA Certification:	Complies with ARRA 1605 requirements



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# Specifications

## Branch Panel Protection

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

### Model 120LS

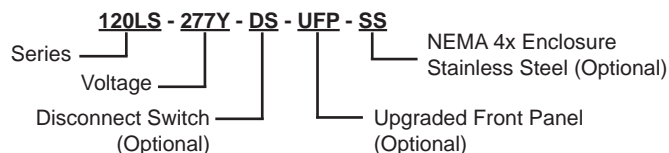
Model	Service	VPR L-N	VPR L-G	VPR N-G	VPR L-L	6kV (1.2x50μs) 3kA (8x20μs) (L-N)***	20kV (1.2x50μs) 10kA (8x20μs) (L-N)***
-120S	120VAC, 1φ, 2W+Gnd	900	900	800	n/a	520	625
-120T	120/240VAC, 1φ, 3W+Gnd	900	900	800	1200	550	660
-120Y	120/208, 3φ, 4W+Gnd, Wye	900	900	800	1200	550	660
-220Y	220/380, 3φ, 4W+Gnd, Wye	1500	1500	1200	2000	1110	1270
-220S	220VAC, 1φ, 2W+Gnd	1500	1500	1200	n/a	1050	1190
-240Y	240/415, 3φ, 4W+Gnd, Wye	1500	1500	1200	2000	1110	1270
-240S	240VAC, 1φ, 2W+Gnd	1500	1500	1200	n/a	1050	1190
-277Y	277/480, 3φ, 4W+Gnd, Wye	1500	1500	1200	2000	1110	1270
-347Y	347/600, 3φ, 4W+Gnd, Wye	1800	1800	1500	2500	1350	1580
-240DCT*	240/120/120, 3φ, 4W+Gnd	900/1500**	900/1500**	800	2000/1800** 1200/2000**	1110/550	1270/660
-240D	240, 3φ, 3W+Gnd, Delta	n/a	1500	n/a	2000	1110 (L-G)	1270
-480D	480, 3φ, 3W+Gnd, Delta	n/a	2000	n/a	4000	1640 (L-G)	1890
-600D	600, 3φ, 3W+Gnd, Delta	n/a	2500	n/a	4000	1830 (L-G)	2410

\* 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: 8,832 - 32,400J

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).

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