



# SurgeFree™

## MODELS

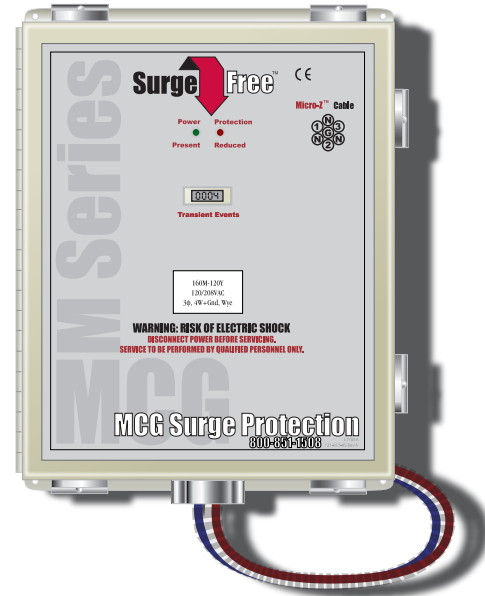
### 160M • 120M

## Main/Branch Panel Protection

The Surge Free 160M and 120M offer powerful modular protection at the main or branch panels for most applications. Computers, sensitive business equipment and other high tech systems are guarded from the damage, errors and downtime that results from high speed transients. All models have extended headroom and a twenty-year warranty.

## FEATURES

- Powerful, redundant surge handling capability:  
Model 160M:  $I_p=160kA$ , Model 120M:  $I_p=120kA$
- Field-replaceable, high capability 40mm protection modules
- High performance, low inductance Micro-Z™ installed cable
- Event counter and front panel LEDs for status indication
- LED internal diagnostics for on-site maintenance
- Audible fault alarm with mute switch
- Personnel safety deadfront disconnect. (Not available in Delta)
- Surge protected remote relay contacts
- All modes protected: L-G, L-N, L-L, N-G
- Filtering standard
- NEMA 4, Powder Coated Steel Enclosure
- Optional NEMA 4X Stainless Steel Enclosure



**$I_{peak}=160,000A / 120,000A$**

**UL 1449, 4th Ed. Listed**

**20-Year Warranty  
Lifetime Module Replacement**

Filter Attenuation	MIL STD 220A (50 Ohm):	120VAC	240VAC	277VAC	480VAC
-30db	100kHz	25kHz	80kHz	80kHz	80kHz
-40db	200kHz	100kHz	180kHz	180kHz	180kHz
-50db	280kHz	180kHz	210kHz	250kHz	250kHz
-60db	310kHz	200kHz	390kHz	390kHz	390kHz

SPD Type:	Type 2
$I_n$ :	10kA
Maximum Continuous Operating VAC (MCOV):	115% Rated Line Voltage
Varistor MCOV:	125% Rated Line Voltage Minimum
SCCR:	100kA AIC, 5kA AIC (Delta models only)
Surge Current/Phase (8/20 $\mu$ s):	1 Event - 160M: 160kA, 120M: 120kA.
Surge Life/Phase (8/20 $\mu$ s):	10,000 Events - 160M: 6kA, 120M: 4kA
Surge Current/Mode (8/20 $\mu$ s), 160M:	L-N: 80kA; L-G: 80kA; N-G: 80kA; L-L: 160kA
Surge Current/Mode (8/20 $\mu$ s), 120M:	L-N: 80kA; L-G: 40kA; N-G: 80kA; L-L: 120kA
Surge Current/Mode (8/20 $\mu$ s), 160M (Delta):	L-L: 160kA; L-G: 80kA
Surge Current/Mode (8/20 $\mu$ s), 120M (Delta):	L-L: 120kA; L-G: 80kA
Response Time:	<5 ns
Status Indicators:	LED Status Indicators, Remote Alarm, Event Counter, Audible Alarm, Protected Dry Contacts
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 for 160M & 120M:	12" x 10" x 5" (305 x 254 x 127mm)
Mounting for 160M & 120M:	12.75" x 8".313" ID - 4 holes, 324 x 203mm/7.9mm ID - 4 holes
Micro-Z Cable Connection:	#10 AWG Micro-Z Cable, 8ft. Provided
Conduit Connector:	1" Rain tight hub
Weight::	160M: 23 lbs., (11kg); 120M: 17 lbs., (7.7kg)
UL File Number:	E322161
UL Certification:	UL Listed to 1449 4th Edition
ARRA Certification:	Complies with ARRA 1605 requirements



**MCG Surge Protection** - Toll Free: 1-800-851-1508 - www.mcgsurge.com - email: info1@mcgsurge.com

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# Specifications

- ANSI/IEEE C62.41-2002
- IEC 61643-1-1998
- UL 1449, 4th Ed.

## Model 160M

Model 160M	Service	VPR L-N	VPR L-G	VPR N-G	VPR L-L	16kV, 8kA** Let-Thru V, L-N
-120Y	120/208VAC, 3 $\phi$ , 4W+Gnd	800	900	700	1500	704
-120T	120/240VAC, 1 $\phi$ , 3W+Gnd	800	900	700	1500	704
-120S	120VAC, 1 $\phi$ , 2W+Gnd	800	900	700	n/a	704
-220Y	220/380VAC, 3 $\phi$ , 4W+Gnd	1500	1500	1200	2500	1320
-220S	220VAC, 1 $\phi$ , 2W+Gnd	1500	1500	1200	n/a	1320
-240Y	240/415VAC, 3 $\phi$ , 4W+Gnd	1500	1500	1200	2500	1320
-240S	240VAC, 1 $\phi$ , 2W+Gnd	1500	1500	1200	n/a	1320
-240DCT*	240/120/120VAC, 3 $\phi$ , 4W+Gnd	800/1500	900/1500	700	1500/2500	704/1320
-277Y	277/480VAC, 3 $\phi$ , 4W+Gnd	1500	1500	1200	2500	1320
-277S	277VAC, 1 $\phi$ , 2W+Gnd	1500	1500	1200	n/a	1320
-240D	240VAC, 3 $\phi$ , 3W+Gnd	n/a	1500	n/a	1500	1320 (L-G)
-380D	380VAC, 3 $\phi$ , 3W+Gnd	n/a	1800	n/a	1800	1480 (L-G)
-480D	480VAC, 3 $\phi$ , 3W+Gnd	n/a	1800	n/a	2000	2080 (L-G)

\* High-leg Delta Center Tapped

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

**Energy Absorption (8/20 $\mu$ s) in joules: 10,300J - 37,400J**

## Model 120M

Model 120M	Service	VPR L-N	VPR L-G	VPR N-G	VPR L-L	10kV, 5kA** Let-Thru V, L-N
-120Y	120/208VAC, 3 $\phi$ , 4W+Gnd	800	900	700	1200	560
-120T	120/240VAC, 1 $\phi$ , 3W+Gnd	800	900	700	1200	560
-120S	120VAC, 1 $\phi$ , 2W+Gnd	800	900	700	n/a	560
-220Y	220/380VAC, 3 $\phi$ , 4W+Gnd	1500	1500	1200	2500	1140
-220S	220VAC, 1 $\phi$ , 2W+Gnd	1500	1500	1200	n/a	1140
-240Y	240/415VAC, 3 $\phi$ , 4W+Gnd	1500	1500	1200	2500	1140
-240S	240VAC, 1 $\phi$ , 2W+Gnd	1500	1500	1200	n/a	1140
-240DCT*	240/120/120VAC, 3 $\phi$ , 4W+Gnd	800/1500	900/1500	700	1200/2500	560/1140
-277Y	277/480VAC, 3 $\phi$ , 4W+Gnd	1500	1500	1200	2500	1140
-277S	277VAC, 1 $\phi$ , 2W+Gnd	1500	1500	1200	n/a	1140
-240D	240VAC, 3 $\phi$ , 3W+Gnd	n/a	1500	n/a	1500	1140 (L-G)
-380D	380VAC, 3 $\phi$ , 3W+Gnd	n/a	1800	n/a	1800	1280 (L-G)
-480D	480VAC, 3 $\phi$ , 3W+Gnd	n/a	1800	n/a	2000	1800 (L-G)

\* High-leg Delta Center Tapped

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

**Energy Absorption (8/20 $\mu$ s) in joules: 8,100J - 28,100J**

**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.