

LoadGuard™

Series-connected Suppression Filter System

The LoadGuard MSU is engineered for hard-wired installation within or adjacent to electrical loads such as robotics, process automation systems, motors, HVAC systems, pumps, heaters, programmable logic controllers and other point-of-use applications.

Compact and powerful, the LoadGuard MSU protects these and other individual components from damaging electrical transients, high-frequency noise and high-energy disturbances. LoadGuard is available in two models with ratings of 45kA or 65kA.



STANDARD FEATURES

- Industry's best surge current rating
- Series-connected design
- Rugged, nonmetallic enclosure
- Sand-encapsulated
- Integral components
- High-frequency noise filtering
- Compact footprint/easy installation
- Status indicator light
- X and Y capacitors

BENEFITS

- Extends equipment life
- Increases uptime
- Provides higher system reliability
- Increases product value
- Offers low-cost protection
- Reduces maintenance costs
- Provides point-of-use protection
- Eliminates system upset

SURGE CURRENT PROTECTION

Parallel MOV Arrays: LoadGuard products employ metal oxide varistors (MOVs) in parallel arrays placed at the input and output terminals to protect critical loads from high-energy transient damage. MSU surge current capacities range up to 65kA per mode.

EMI/RFI NOISE ATTENUATION

Capacitors and Inductors: The LoadGuard MSU45 uses UL-recognized inductors and X and Y capacitors to filter error-producing high-frequency noise. Frequency-specific noise attenuation values are published per NEMA LS-1 across the bandwidth of 1KHz to 100MHz.

COMPONENT INTEGRITY

Sand-filled Enclosure: LoadGuard MOV arrays, capacitors and inductors are encapsulated in sand, the arc-quenching compound typically used in fuses. This ensures protection at the surge protection device level and overall system safety for the user.

LOADGUARD MSU APPLICATIONS

Choose from two models for unequalled surge current protection and high-frequency noise attenuation.

MSU45 — The most requested LoadGuard model, the MSU45 has the highest noise attenuation capabilities and a surge rating of 45kA per mode.

MSU65 — Used primarily in high-exposure applications such as outdoor lighting, the MSU65 protects at 65kA in L-N and 55kA in L-G, L-L and N-G modes.



Power & Systems Innovations

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Manufactured by Danaher Power Solutions

SPECIFICATIONS

Surge capacity per mode	45kA or 65kA
Voltage (single-phase applications)	120, 220 or 277
Voltage (three-wire applications)	120/240, 220/380 or 277/480
Ampacity rating	20A or 40A
Modes of protection	3 or 6
Connection	Series/in-line; terminal block termination
Dimensions	5.8" W x 3-15/16" H x 1-7/8" D
Enclosure	Nonmetallic
Humidity	5% to 95% noncondensing
Max. wire size	#8 AWG THHN
Temp. range	-40° to 60°C
Weight	2.25 lbs.
Warranty	Five years

Input Voltages

120V	1 phase
120/240V	Split phase
220V	1 phase
220/380V	2 of 3 phases
277V	1 phase
277/480V	2 of 3 phases

Maximum Continuous Operating Voltage (MCOV)

120V	>125%	220/380V	>125%
120/240V	>125%	277/480V	>115%

Load Current Ratings

20-Amp
40-Amp

Line Frequency Range

50-60 Hz

Standards Compliance

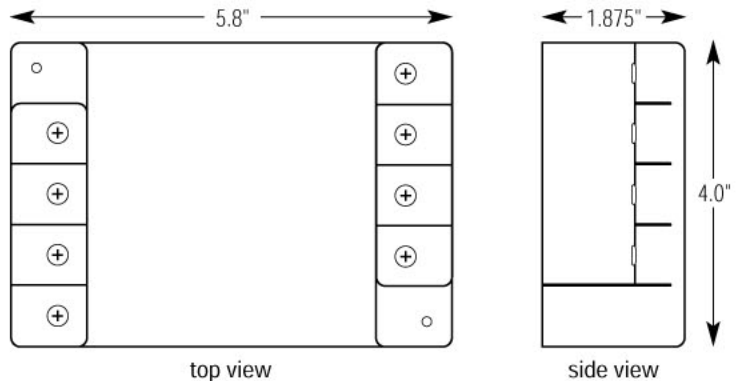
UL 1449-Recognized (2nd Edition)	NEMA LS-1 1992 ANSI/IEEE C62.41
UL 1283	ANSI/IEEE C62.45



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TESTED SINGLE-PULSE SURGE CURRENT CAPACITIES

Model No.	Voltage	Protection Mode		
		L-N	L-G	N-G
20-Amp Models				
MSU45-xxx-1G-20A-3	1 PHASE	45,000A	45,000A	45,000A
MSU45-xxx-2G-20A-6	2 of 3 PHASES	45,000A	45,000A	45,000A
40-Amp Models				
MSU65-xxx-1G-40A-3	1 PHASE	65,000A	65,000A	65,000A
MSU65-xxx-2G-40A-6	2 of 3 PHASES	65,000A	65,000A	65,000A

CLAMPING VOLTAGE RATINGS (6kV / 500-AMP Combination Waveform)

Model No.	Voltage	Clamping Voltages		
		L-N	L-G	N-G
20-Amp Models				
MSU45-120-1G-20A-3	120V	360V	360V	360V
MSU45-220-2G-20A-6	220V	660V	700V	640V
MSU45-277-2G-20A-6	277V	820V	820V	860V
40-Amp Models				
MSU65-1G-40A-3	120V	360V	360V	360V
MSU65-2G-40A-6	220V	660V	690V	670V
MSU65-2G-40A-6	277V	800V	830V	780V

This table represents select MSU configurations. Inquire about additional voltages.

HIGH-FREQUENCY NOISE FILTRATION

Model No.	Voltage Mode	1KHz	10KHz	100KHz	1MHz	10MHz	100MHz	
20-Amp Models								
MSU45-120-1G-20A-3	120V	L-N	6 dB	16 dB	42 dB	25 dB	21 dB	36 dB
		L-G	6 dB	6 dB	16 dB	55 dB	81 dB	80 dB
MSU45-220-2G-20A-6	220V	L-N	6 dB	16 dB	42 dB	25 dB	21 dB	36 dB
		L-G	6 dB	6 dB	16 dB	55 dB	81 dB	80 dB
MSU45-277-2G-20A-6	277V	L-N	6 dB	16 dB	42 dB	25 dB	21 dB	36 dB
		L-G	6 dB	6 dB	8 dB	36 dB	82 dB	81 dB
40-Amp Models								
MSU65-1G-40A-3	120V	L-N	6 dB	16 dB	42 dB	23 dB	8 dB	6 dB
		L-G	6 dB	6 dB	8 dB	24 dB	30 dB	11 dB
MSU65-2G-40A-6	220V	L-N	6 dB	16 dB	42 dB	23 dB	8 dB	6 dB
		L-G	6 dB	6 dB	8 dB	24 dB	30 dB	11 dB
MSU65-2G-40A-6	277V	L-N	6 dB	16 dB	42 dB	23 dB	8 dB	6 dB
		L-G	6 dB	6 dB	6 dB	8 dB	30 dB	11 dB

This table represents select MSU configurations. Inquire about additional voltages.