

## Facility Filters—Branch Circuit Protection



100% Surge Protection, 0% Failure

Zero Surge series mode products protect connected equipment repeatedly from even worst case surges without degradation or failure. Zero Surge's core technology has been certified for performance and endurance, in addition to safety. It was subjected to 1,000 worst case surges of 6,000 Volts/3,000 Amps in 30 second intervals without any resulting degradation or failure. This equates to 10 years of worst case surges, but Zero Surge's in-service history proves that the products will serve far beyond a 10 year life. There have been no reports of surge failures, no fires, and no recalls since Zero Surge began manufacturing in 1989.

Zero Surge's Spectrum Wide Voltage Range (WVR) technology, effectively senses and suppresses surges on your 120V power line even when the power is low at 85 Volts or high at 175 Volts and anywhere in between. This is especially beneficial when the voltage is variable and unpredictable, during brownout and blackout conditions, and when standby generators are in use. It also provides the benefit of conditioning the power line by removing EMI and RFI disturbances which can disrupt data signals and cause electronic equipment to malfunction. These disturbances can also degrade the electronic components in the equipment, shortening the life expectancy.

The superior power conditioning and high reliability provided by Zero Surge's series mode with Spectrum WVR technology makes it the preferred choice in commercial/industrial market.

### Features:

- NEMA1 Steel Enclosures with Screw Covers
- Protects dedicated lines
- Easy Installation
- Repeatedly suppresses worst case surges
- No metal oxide varistors (non-MOV technology)
- Non-sacrificial—does not wear out or degrade
- Made in USA
- 10 year warranty
- No history of surge damage or product recalls
- X10 Compatible (will not block the signal)

Model	Item #	Max Amperage Voltage (AC) / Hz	Over-current Protection	Wire Connector
FF1-8W-120	#002-00076	1 @ 8A / 120V / 50-60 Hz	5x20mm, 8A, 250V Slow Blow Fuse	.250" Quick Disconnects
FF1-20W-120	#002-00072	1 @ 20A / 120V / 50-60 Hz	Must be installed on a branch circuit with 20A over-current protection.	Screw Terminal Block
FF1-20W-240UB	#002-03073	2 @ 20A / 2-120V Legs with Neutral Lines / 50-60 Hz		30A Euro Connector
FF1-100W-120B	#002-03078	5 @ 20A / 5-120V Legs with Neutral Lines / 50-60 Hz		30A Euro Connector

Technical Specifications	FF1-8W-120 #002-00076	FF1-20W-120 #002-00072	FF1-20W-240UB #002-03073	FF1-100W-120B #002-03078
<b>Current / Voltage Rating</b>	8A / 120V	20A / 120V	20A / 120V* (2-20A Circuits)	20A / 120V (5-20A Circuits)
	*US 120V, single phase (one hot leg and a neutral tied to earth ground at service entrance). Operates over a voltage range of 85-175V. *US 240V, single phase or 208V 3 phase Y systems with 2 hot legs and a common neutral connected to earth ground at service entrance. Operates over a voltage range of 150-265V.			
<b>Over-current Protection</b>	5x20mm, 8A, 250V Slow Blow Fuse	Must be installed on a circuit with 20A over-current protection.		
<b>Operating Temperature Range</b>	0-40° C / 32-104° F ->FF1-20W-120 rating change as of 4/2020: -25-60°C / -13-140°F			
<b>Technology/Mode</b>	Series Mode with Wide Voltage Range (WVR) Technology, Mode 1 applications, L-N (filter operates independent of ground line)			
<b>Agency Certifications</b>	ETL & cETL certified to UL 1283 5th Edition, CSA 22.2 No. 8-M1986 (File #3162119)			
<b>Limiters</b>	Series surge reactor current limiter; cascaded, auto-tracking dual polarity dynamic surge and noise sensing; bi-modal dynamic filtering. Parameters optimized for switch-mode power supply protection.			
<b>Dynamic Filtering Onset</b>	172V nominal, 2V above peak line voltage (auto-tracking, WVR)			
<b>Max Surge Voltage Let-through</b>	130V above peak line voltage @ 6,000V/3,000A for ANSI C62.41 Category B3/C1 Combination Wave			
<b>Max. Applied Pulse Voltage</b>	6,000V (1.2 x 50 μs—ANSI C62.41 Combination Wave)			
<b>Max. Applied Pulse Current</b>	Does not apply due to internal current limiting.			
<b>Joule Rating</b>	No metal oxide varistors to wear out; therefore, not applicable to this technology.			
<b>Endurance Rating</b>	1,000 worst case pulses: ANSI C62.41, Category B3/C1 pulses (6,000V/3,000A); >10,000 pulses @ 4,000V; >100,000 pulses @ 2,000V			
<b>Filter Slew Rate</b>	5,000V/μs disturbance reduced to 35V/μs within AC power wave envelope; 10V/μs outside the power wave envelope			
<b>EMI/RFI Filter Response (50 ohm Rgen., load)</b>	Bi-directional, wave tracking — 3 dB @ 7 kHz; 25 dB @ 100 kHz; 38 dB @ 300 kHz			
<b>Enclosure</b>	NEMA1 steel enclosure, screw cover, with knockouts			
<b>Weight</b>	6 lbs	8.25 lbs	15.5 lbs	28 lbs
<b>Dimensions</b>	10" H x 8" W x 4" D	10" H x 8" W x 4" D	12" H x 12" W x 4" D	18" H X 18" W X 4" D

\*L-N reversal can compromise any appliance's safety and performance. Check line wiring for hot/neutral reversal prior to connecting product. Warning: Must be installed by a licensed electrician following NEC and local codes.

Suggested applications: Dedicated lines to POS, IT and A/V equipment. Fire alarm and security systems, building automation, CNC systems, PLCs, hard wired equipment, scales, and water treatment controls.



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