

# EATON

# Powerware

## Powerware SPFi 3 Phase Surge Power Filter

Product Focus

Series Power and Noise Filter with Shunt surge diverter, 3 Phase 100-400A, 80-240kA



The SPFi is designed to provide point-of-entry and sub-circuit protection against power surges caused by external sources such as lightning strikes and substation switching as well as providing a measure of protection from surge events generated on the secondary side of the filter.

The SPFi is a 3-stage protection system utilising primary and secondary MOV protection in conjunction with a Low-Q LC filter. The unit provides filtering of the line harmonics, noise and RF transmitters with a cut-off frequency of <math><10\text{kHz}</math> and a minimum attenuation of 40dB above 1MHz. Special care has been taken in the design of the filter to minimise ringing caused by light loads, surge diverter operation and inductive load back-EMF.

All models in the SPFi Series are fully enclosed in wall mounting IP24 steel enclosures. A graphical mimic display provides at-a-glance indication of the status of the SPFi with indicators showing correct functions in green and faults in red. The alarm function provides a summary alarm output for protection failure and power failure.

### Features

- Surge suppression and filtering in a single package
- Standard Current ratings from 100A to 400A
- Surge suppression ratings from 80kA to 240kA
- 2 mode, 3 stage protection
- Provides extensive high frequency and RF filtering
- Panel-mounted mimic display
- Protection Fail Alarm Relay
- Enclosed in IP24 painted steel cabinet
- 5 Year Warranty

### Typical applications:

- All Power Circuits including "Point-of-Entry"
- Telecommunications Systems and Rectifiers
- Process and Control Systems and UPS Systems
- Computer Systems and Medical Systems
- AV circuits for clubs and hotels
- All sensitive Electronic Equipment

### Options:

- Custom configurations
- Current ratings to 2500A
- Surge suppression ratings up to 360kA
- Isolation switches and circuit breakers
- Custom cabinets
- Chassis Mount versions



# Technical Specifications

## POWERWARE SPFi

Model	SPFXXX3CEi	SPFXXX3DEi	SPFXXX3EEi
Input voltage	380 - 440VAC 3 Phase		
Maximum continuous voltage – MCOV	285VAC L-N		
Temporary overvoltage - TOV	300VAC L-N, 15 mins		
Service type	TT, TN, TN C-S or any 3-phase system with a grounded neutral. This unit must not be connected to an ungrounded system		
Test classification	Class II		
Energy Absorption rating - per mode (Joules)			
Primary protection L-N: Secondary protection L-N: Common mode protection N-E: Aggregate rating:	1,200J/ph, 3,600J total. 600J/ph, 1,600J total. 2,130J. 7,530J.	1,800J/ph, 5400J total. 600J/ph, 1800J total. 710J. 7,910J.	3,600J/ph, 10,800J total. 600J/ph, 1,800J total. 710J. 13,310J.
Current rating – continuous (standard models)	100A, 150A, 200A, 250A, 315A, 400A		
Recommended maximum over current protection	100A, 150A, 200A, 250A, 315A, 400A		
Residual current	<1 mA		
Short circuit withstand (1 sec)	29kA		
Protection modes	Line-Neutral, Neutral-Earth	Line-Neutral, Neutral-Earth	Line-Neutral, Neutral-Earth
In 8/20us (Line-Neutral) Nominal Surge Life	30kA x 20 hits per Phase	45kA x 20 hits per Phase	90kA x 20 hits per Phase
In 8/20us (Neutral-Earth) Nominal Surge Life	45kA x 20 hits	15kA x 20 hits	15kA x 20 hits
I <sub>max</sub> 8/20us (Line-Neutral) Max surge level	80kA per Phase	120kA per Phase	240kA per Phase
I <sub>max</sub> 8/20us (Neutral-Earth) Max surge level	120kA	40kA	40kA
Filter attenuation	40dB nominal above 1MHz		
Initial clamp voltage (Line-Neutral)	560V (350Vac RMS)		
Initial clamp voltage (Line-Earth)	1240V (700Vac RMS)		
Initial clamp voltage (Neutral-Earth)	680V (420Vac RMS)		
Residual voltage (V <sub>pl</sub> ) Line-Neutral	<900Vac (3kA, 8/20uS)		
Residual voltage (V <sub>pl</sub> ) Line-Earth	<1100Vac (3kA, 8/20uS)		
Residual voltage (V <sub>pl</sub> ) Neutral-Earth	<1000Vac (3kA, 8/20uS)		
Internal protection (fusing)	All surge diverter connections are fused via HRC fuses to IEC269-2-1		
Terminations	Bolted lug. 8mm bolts for phase and neutral connections. 8mm PE (earth) stud provided on geartray.		
Alarms/indicators	Mimic panel display via LED (2 colour), OK - Green; Protection Fault - Red. Dry contact alarm relay output – 250Vac/32Vdc, 10A, 4kV isolation, Alarm under-voltage cutoff 180Vac.		
Enclosure rating	IP24		
Design standards:	IEC61643-1, IEC610006-1,2,3,4 ANSI/IEEE C62.41 Cat B,C,D,E AS1768-1991 Cat B,C,D,E AS3000, AS3100, CE mark		
Dimensions	100A to 250A = 600 x 200 x 800 mm (W x D x H) 315A & 400A = 800 x 400 x 1000 mm (W x D x H)		
Weight	100A & 150A = 50 kg, 200A & 250A = 60kg, 315A & 400A = 100 kg		
Environment	-10 to 65 C, 10 to 90%RH (non-condensing)		

Due to continuing product improvement programs, specifications are subject to change without notice.

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