

## TECHNICAL SPECIFICATION

### MSF401CCMi SURGE FILTER

(Single phase, 40A, 160kA Primary)

#### APPLICATIONS

- All Power Circuits including "Point-of-Entry"
- Telecommunication Systems / Rectifiers
- Process and Control Systems / UPS's up to 8kVA
- Computer and Medical Systems / AV circuits for clubs & hotels
- All sensitive Electronic Equipment

#### FEATURES

- |   |   |
|---|---|
| ✓ Surge suppression and filtering in a single package | ✓ Enclosed in IP24 cabinet                |
| ✓ Small mounting footprint / Modular design           | ✓ Protection fail alarm relay             |
| ✓ 3 mode protection (L-N, L-E, N-E)                   | ✓ 3 stage protection (MOV, Inductor, MOV) |
| ✓ Very high surge suppression rating of 160kA (L-N)   | ✓ 5 year warranty                         |



#### FUNCTIONAL DESCRIPTION

The MSF401CCMi is designed to provide point-of-entry 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 unit has been designed in accordance with AS3100, AS1768, IEC61643-1, IEC61000-6-1, 2, 3, 4 and other standards and codes as applicable.

The MSF401CCMi is a 3-stage protection unit 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 <10kHz 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.

#### OPERATION

**Indicators** - The operation status of the MSFi series is indicated by lamps on the front panel. The 'NORMAL' light indicates that power is applied to the MSFi. The 'PROTECTION FAULT' light indicates that the surge protection circuitry is damaged and the unit should be replaced. When the fault indicator lights, the protection relay contacts change over. The power failure alarm will operate when mains voltage falls below 180VAC.

**Enclosures** – All models in the MSFi Series are fully enclosed. Enclosures are manufactured in powder-coated mild steel for exposure category IP24. The Enclosure includes 63mm, 40mm and 16mm access on opposing sides for cable entry and exit and is supplied with mounting brackets.

#### WARRANTY

Eaton Power Quality warrants the MSFi series against faulty parts and workmanship for a period of 5 years from the date of purchase. For further information, refer to EATON Powerware warranty statement.

## PHYSICAL AND ELECTRICAL SPECIFICATIONS

Model	MSF401CCMi	
Number of ports	2 Port	
Method of mounting	Fixed. Brackets supplied.	
Input voltage – Uc	200-250VAC 1Ø	
Maximum continuous operating voltage – MCOV	285VAC L-N	
Temporary overvoltage - TOV	300VAC L-N, 15 mins	
Service type	TT, TN, TN C-S or any 1-phase system with a grounded neutral. This unit must not be connected to an ungrounded system	
Test classification (according to IEC61643-1)	Class II	
Energy absorption rating - per mode (Joules)	Primary protection L-N = 2,400J Secondary protection L-N = 600J Common mode protection L-E & N-E = 1,420 Joules. Aggregate rating 4,420J	
Current rating - continuous	40A	
Recommended maximum over current protection	40A	
Residual current	<1 mA	
Short circuit withstand (1 sec)	29kA	
Protection modes	Line-Neutral, Line-Earth, Neutral-Earth	
In 8/20us (Line-Neutral). Nominal surge lifetime.	60kA x 20 hits	
In 8/20us (Line-Earth). Nominal surge lifetime.	15kA x 20 hits	
In 8/20us (Neutral-Earth). Nominal surge lifetime.	15kA x 20 hits	
Ismax 8/20us (Line-Neutral). Maximum surge level.	160kA	
Ismax 8/20us (Line-Earth). Maximum surge level.	40kA	
Ismax 8/20us (Neutral-Earth). Maximum surge level.	40kA	
Filter attenuation	40dB nominal above 1MHz	
Initial clamp voltage (Line-Neutral)	560V	
Initial clamp voltage (Line-Earth)	680V	
Initial clamp voltage (Neutral-Earth)	680V	
Residual voltage (Vpl) (Line-Neutral). (Let through voltage)	<900V (3kA, 8/20uS)	
Residual voltage (Vpl) (Line-Earth). (Let through voltage)	<1100V (3kA, 8/20uS)	
Residual voltage (Vpl) (Neutral-Earth). (Let through voltage)	<1000V (3kA, 8/20uS)	
Internal protection (fusing)	All surge diverter connections are fused via HRC fuses to IEC269-2-1	
Thermal Fusing	On all MOV elements, 126°C	
External disconnecter requirements	Line side:	3 pole, HRC or GL 40A fuse, 500v, >25KAIC matched to supply.
	Load side:	3 pole, 40A MCB.
Terminations	Bolted lug. 8mm bolts for phase and neutral connections. 8mm PE (earth) stud provided on geartray. All connections identified on unit.	
Alarms/indicators	2 LED display, dry contact alarm relay output – 250VAC/32VDC, 10A, 4kV isolation. Alarm under-voltage cutoff 180VAC.	
Location Category	Indoor	
Enclosure rating	IP24	
Standards. Designed in accordance with :	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	
Installation instructions	Supplied with unit.	
Dimensions	210 x 160 x 560 mm (W x D x H)	
Weight	9Kg	
Environment	-10 to 65°C, 10 to 90%RH (non-condensing)	
Warranty	5 years, workmanship and materials	

NOTE:- Installation must be carried out by suitably qualified personnel. Please refer to installation instructions for details.

FRONT  
PANEL  
DISPLAY



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