

# Surge Filter

## Main Surge Filter



### Features

- All mode protection
- Highest safety standard design
- Multi - stage protection for surges suppression and filtering
- Exceptional high surge handling capability
- Redundant protection and staged LED status indication
- Remote monitoring

### Overview

Unsurpassed performance in surges and transients filtering ensures a clean , filtered supply of electricity is provided to all the equipment connected at the output

#### All mode protection

MSF series surge filters provide unsurpassed surges and transients filtering for main or branch panels as well as critical loads using any power distribution systems such as TT, TN-C, TN-S etc. They offer all mode(L-N, L-E and N-E) and repeated protection in lightning intense environment.

#### Highest safety standard design

It has been engineered to the industry's safest criteria for full compliance with IEC 61643 and ULL1449 Edition2 &3. Also with its patented thermal and short circuit fusing included, it ensures safe isolation during sustained abnormal over-voltage events and component failure. A MCB is also included to ensure safety isolation under overloaded condition.

#### Multi - stage protection for surges suppression and filtering

No single technology can provide overall protection, so MSF surge filter utilizes multi-stage design. The first stage rapidly diverts excess transient surges to ground. The second stage uses low pass filter to discriminate the noise, harmonics and remaining surges from the normal supply. The third stage ensures the impulses generated by the connected load will not return to the supply.

#### Exceptional high surge handling capability up to 140KA per line

Its 250KA to 1120KA unit total unparalleled surge handling capability makes MSF series protector the ultimate choice for total facility protection.

#### Redundant protection and staged LED status indication

Each phase employs two redundant and independent fused and thermal overload protection elements to provide back-up protection for continued equipment survival. There are two LED indicators per phase to monitor the integrity of the protection. This pre-failure warning indication design means you will never be unprotected.

#### Remote monitoring

All models features NO/NC voltage free contacts which change state to indicate a fault. An optional Remote Monitoring Panel can also be chosen which offers both visual and audible alarm at remote location from the protector.



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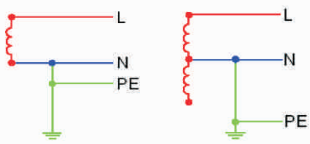
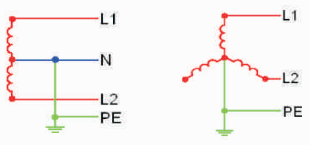
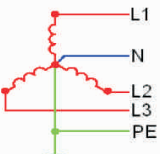
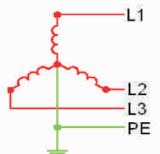
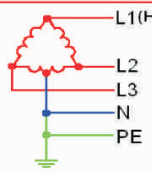
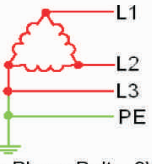
## Main Surge Filter

Technical Specification	
SPD class(EN/IEC):	Class I+II/Type 1+2
Nominal voltage, Un:	See page 3
Max. working voltage, Uc:	See page 3
Operating frequency:	40-60Hz
Connection type:	Series
Protection stage:	First stage - by Metal oxide varistor
	Second stage - by LC filtering circuit
	Third stage - by Metal oxide varistor
Max. discharge current, I <sub>max</sub> :	
MSFx-50	100KA(8/20μs)/phase - First stage
MSFx-80	160KA(8/20μs)/phase - First stage
MSFx-140	280KA(8/20μs)/phase - First stage
Impulse discharge current, I <sub>imp</sub> :	
MSFx-50	20KA(10/350μs)/phase - First stage
MSFx-80	30KA(10/350μs)/phase - First stage
MSFx-140	50KA(10/350μs)/phase - First stage
Voltage protection level, U <sub>p</sub> :	See page 3
Overload/short circuit protection:	MCB
Protection mode:	L-N, L-PE, N-PE
Response time, t <sub>A</sub> :	<5ns
Efficiency:	99%
Load current:	>125A
Standards compliance:	BS EN/IEC61643-11, AS1768-2007 cat.A.B.C, IEEE C62.41 cat.A.B.C, CP33-1999 cat.A.B.C
	UL1449 2nd & 3rd edition
EMC compliance:	BS EN 60950: 2001, BS EN 61000-6-7: 2015
Alarm isolation:	4KV
Status indicator:	LED (Green=OK)
Optional RMP remote alarm:	Siren sound, OK and FAIL LED
Other options:	Surge counter(add " /C " )
Alarm (volt free contact):	N/O, N/C(2A @250Vac)
Case material:	Galvanized steel alloy(powder coated)
Mounting:	Back panel screw mount
IP rating:	IP55
Operating temperature & Humidity:	-40-85°C (0-95% R.H.)

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XX = 32, 40, 50, 63, 80, 100, 125 (ampere), yy=50, 80, 140 (KA)

Power Source Configurations	Model Voltage Code	Nominal System Voltage, Un (Vac)			MCOV, Uc (Vac)	Voltage protection level, Up (V)
		L-N	L-L	L-E		
 <p>Single Phase, L-N, 2W+E</p>	MSF1xx-yyL	100	-----	100	150(L-N)	@ 3KA, 8/20µs 195
		110	-----	110		
		120	-----	120		
		127	-----	127		
	MSF1xx-yyM	220	-----	220	275(L-N)	350
		230	-----	230		
		240	-----	240		
	MSF1xx-yyH	277	-----	277	350(L-N)	455
		305	-----	305		
	MSF1xx-yyU	347	-----	347	460(L-N)	600
380		-----	380			
 <p>Split Phase, 3W+E</p>	MSF3xx-yyL/S	100	173-200	100	150(L-N)	195
		110	190-220	110		
		120	208-240	120		
		127	220-254	127		
	MSF3xx-yyM/S	220	380-440	220	275(L-N)	350
		230	400-460	230		
		240	415-480	240		
	MSF3xx-yyH/S	277	480-554	277	350(L-N)	455
		305	525	305		
	MSF3xx-yyU/S	347	600	347	460(L-N)	600
380		657	380			
 <p>Three Phase Wye, 4W+E</p>	MSF3xx-yyL	100	173	100	150(L-N)	195
		110	190	110		
		120	208	120		
		127	220	127		
	MSF3xx-yyM	220	380	220	275(L-N)	350
		230	400	230		
		240	415	240		
	MSF3xx-yyH	277	480	277	350(L-N)	455
		305	525	305		
	MSF3xx-yyU	347	600	347	460(L-N)	600
380		657	380			
 <p>Three Phase Wye, 3W+E</p>	MSF3xx-yyL/Y	-----	173	100	150(L-E)	195
		-----	190	110		
		-----	208	120		
		-----	220	127		
	MSF3xx-yyM/Y	-----	380	220	275(L-E)	350
		-----	400	230		
		-----	415	240		
	MSF3xx-yyH/Y	-----	480	277	350(L-E)	455
		-----	525	305		
	MSF3xx-yyU/Y	-----	600	347	460(L-E)	600
-----		657	380			
 <p>Three Phase Delta Hi Leg, 4W+E</p>	MSF3xx-yyL/H	120	240	120	150(L-N)	195
 <p>Three Phase Delta, 3W+E</p>	MSF3xx-yyM/D	-----	200	200	275(L-E)	350
		-----	208	208		
		-----	220	220		
		-----	230	230		
		-----	240	240		
	MSF3xx-yyE/D	-----	380	380	575V(L-E)	750
		-----	400	400		
		-----	415	415		
		-----	440	440		
		-----	480	480		

Notes:

- (1) For other voltages or source configurations, consult LEPS
- (2) Ensure the model selected is compatible with the voltage level and source configuration in use
- (3) MCOV = Maximum Continuous Operating Voltage