

# HIGH CURRENT SURGE FILTER



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

- ◆ 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



**All mode protection** - HSF series high current surge filters provide unsurpassed surges and transients filtering for main panels used in medium to high exposure areas 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 ULI1449 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.

**Multi-stage protection for surges suppression and filtering** - No single technology can provide overall protection, so HSF surge filters utilize 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.

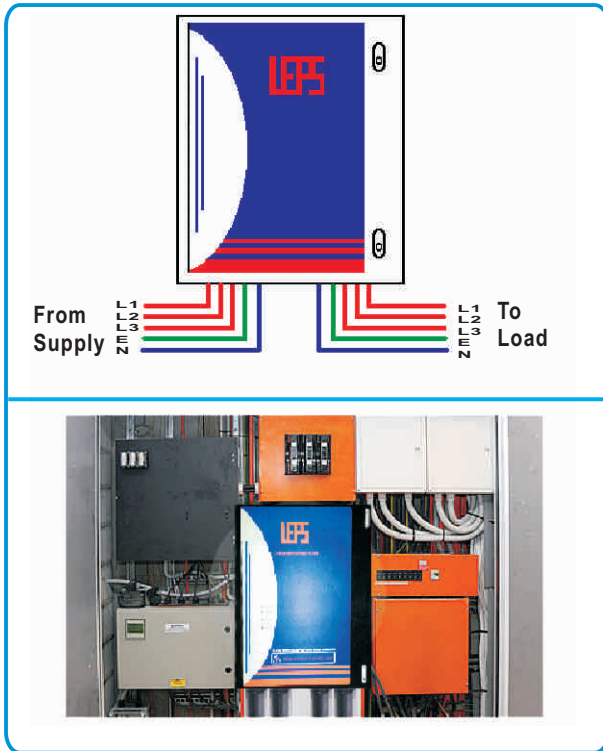
**Exceptional high surge handling capability up to 140KA per line** - Its 700KA to 1120KA unit total unparalleled surge handling capability makes HSF series protectors the ultimate choice for total facility protection.

**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.

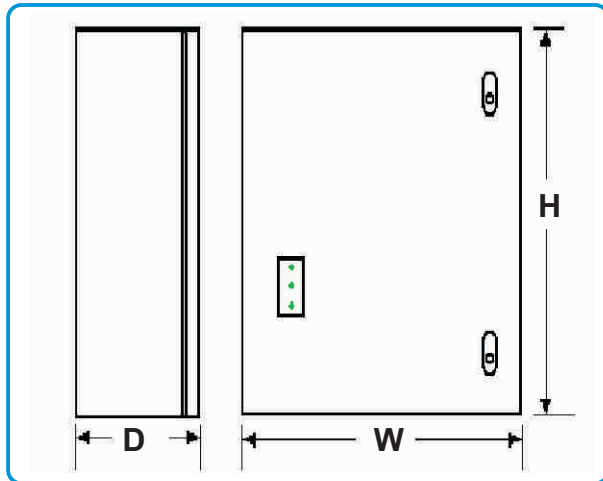
**Remote monitoring** - All models features voltage free contacts with normal open/normal close contacts which change state to indicate a fault. An optional Remote Monitoring Panel can also be chosen which offers both visual and audible alarm at remote location from the protector.

## Installation

The filter is connected in series with the protected system (load) as illustrated below:



## Dimensions & weight



MODEL	WEIGHT	D	H	W
HSF3200	~90kg	300	800	600
HSF3315	~108kg	300	800	600
HSF3400	~125kg	300	800	600
HSF3630	~135kg	300	1000	800
HSF3800	~220kg	300	1000	800
HSF31000	~230kg	300	1400	800
HSF31250	~250kg	300	1400	800
HSF31600	~250kg	300	1400	1000
HSF32000	~350kg	300	1400	1000

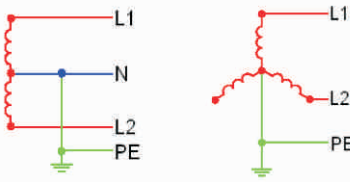
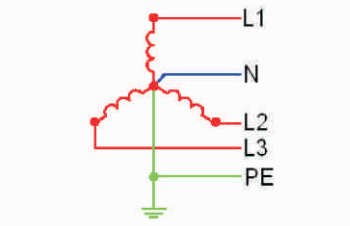
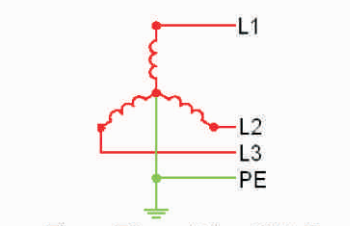
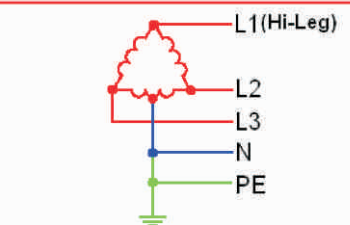
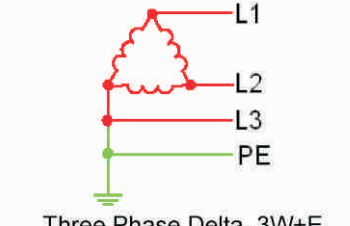
## General Specifications

<b>SPD class(EN/IEC):</b>	Class I+II/Type 1+2				
<b>Nominal voltage, <math>U_n</math>:</b>	See page 3				
<b>Max. working voltage, <math>U_c</math>:</b>	See page 3				
<b>Load current, <math>I_L</math>:</b>	200A-2000A				
<b>Operating frequency:</b>	40-60Hz				
<b>Connection type:</b>	Series				
<b>Protection stage:</b>	First stage - by MSF surge diverter Second stage - by LC filtering circuit Third stage - by MDD surge diverter				
<b>Max. discharge current, <math>I_{max}</math>:</b>	<table border="0"> <tr> <td>HSFx-80</td> <td>160KA(8/20<math>\mu</math>s)/phase - First stage</td> </tr> <tr> <td>HSFx-140</td> <td>280KA(8/20<math>\mu</math>s)/phase - First stage</td> </tr> </table>	HSFx-80	160KA(8/20 $\mu$ s)/phase - First stage	HSFx-140	280KA(8/20 $\mu$ s)/phase - First stage
HSFx-80	160KA(8/20 $\mu$ s)/phase - First stage				
HSFx-140	280KA(8/20 $\mu$ s)/phase - First stage				
<b>Impulse discharge current, <math>I_{imp}</math>:</b>	<table border="0"> <tr> <td>HSFx-80</td> <td>30KA(10/350<math>\mu</math>s)/phase - First stage</td> </tr> <tr> <td>HSFx-140</td> <td>50KA(10/350<math>\mu</math>s)/phase - First stage</td> </tr> </table>	HSFx-80	30KA(10/350 $\mu$ s)/phase - First stage	HSFx-140	50KA(10/350 $\mu$ s)/phase - First stage
HSFx-80	30KA(10/350 $\mu$ s)/phase - First stage				
HSFx-140	50KA(10/350 $\mu$ s)/phase - First stage				
<b>Voltage protection level, <math>U_p</math>:</b>	See page 3				
<b>Overload/short circuit protection:</b>	MCCB/HRC fuse				
<b>Protection mode:</b>	L-N, L-E, N-E				
<b>Response time, <math>t_A</math>:</b>	<5ns				
<b>Efficiency:</b>	99%				
<b>Frequency response:</b>	3dB (at 800Hz)				
<b>Standards compliance:</b>	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				
<b>EMC compliance:</b>	BS EN 60950: 2001 BS EN 61000-6-7: 2015				
<b>Alarm isolation:</b>	4KV				
<b>Status indicator:</b>	LED (Green=OK)				
<b>Optional RMP remote alarm:</b>	Siren sound, OK and FAIL LED				
<b>Alarm(volt free contact):</b>	N/O, N/C(2A @250Vac)				
<b>Alarm conductor size:</b>	2.5mm <sup>2</sup>				
<b>Wiring terminals:</b>	10mm-12mm Stud, input/ouput				
<b>Case material:</b>	Galvanized steel alloy(powder coated)				
<b>Mounting:</b>	Back panel screw mount				
<b>IP rating:</b>	IP55				
<b>Operating temperature, <math>T_u</math>:</b>	-40-85°C				
<b>Humidity:</b>	0-95%(R.H.)				
<b>Altitude:</b>	0-3650m				

# VOLTAGE RATINGS & POWER SOURCE CONFIGURATIONS



XX = 80KA, 100KA, 120KA, 140KA, 160KA, 200KA

Power Source Configurations	Model Voltage Code	Nominal System Voltage, $U_n$ (Vac)			MCOV, $U_c$ (Vac)	Voltage protection level, $U_p$ (V) @ 3KA, 8/20 $\mu$ s				
		L-N	L-L	L-E						
 <p>Split Phase, 3W+E</p>	HSF3-xxL/S	100	173-200	100	150(L-N)	195				
		110	190-220	110						
		120	208-240	120						
	HSF3-xxM/S	127	220-254	127	275(L-N)	350				
		220	380-440	220						
		230	400-460	230						
	HSF3-xxH/S	240	415-480	240	350(L-N)	455				
		277	480-554	277						
	HSF3-xxU/S	305	525	305	460(L-N)	600				
		347	600	347						
	 <p>Three Phase Wye, 4W+E</p>	HSF3-xxL	100	173	100	150(L-N)	195			
			110	190	110					
120			208	120						
HSF3-xxM		127	220	127	275(L-N)	350				
		220	380	220						
		230	400	230						
HSF3-xxH		240	415	240	350(L-N)	455				
		277	480	277						
HSF3-xxU		305	525	305	460(L-N)	600				
		347	600	347						
 <p>Three Phase Wye, 3W+E</p>		HSF3-xxL/Y	-----	173	100	150(L-E)	195			
			-----	190	110					
	-----		208	120						
	HSF3-xxM/Y	-----	220	127	275(L-E)	350				
		-----	380	220						
		-----	400	230						
	HSF3-xxH/Y	-----	415	240	350(L-E)	455				
		-----	480	277						
	HSF3-xxU/Y	-----	525	305	460(L-E)	600				
		-----	600	347						
	 <p>Three Phase Delta Hi Leg, 4W+E</p>	HSF3-xxL/H	120	240	120	150(L-N)	195			
			 <p>Three Phase Delta, 3W+E</p>	HSF3-xxM/D	-----			200	200	275(L-E)
-----					208			208		
-----					220			220		
HSF3-xxE/D				-----	230			230	575V(L-E)	750
				-----	240			240		
				-----	380			380		
HSF3-xxE/D				-----	400			400	575V(L-E)	750
				-----	415			415		
HSF3-xxE/D				-----	440			440	575V(L-E)	750
				-----	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







# ORDERING INFORMATION



MODEL	PRODUCT DESCRIPTION	PHOTO/DRAWING
<b>HIGH-CURRENT SURGE FILTERS-AC POWERLINE PROTECTION</b>		
<b>Main Switch Board (MSB) 80kA – 200kA per mode, High Load Current(200A-2000A), 277/305V(L-N), 480/525V(L-L)</b>		
<b>HSF3200-80H</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 4W+E of Y system, 277/305V(L-N), 80KA, metal enclosure and watertight cable gland	
<b>HSF3200-140H</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF3400-80H</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 4W+E of Y system, 277/305V(L-N), 80KA, metal enclosure and watertight cable gland	
<b>HSF3400-140H</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF3630-80H</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 4W+E of Y system, 277/305V(L-N), 80KA, metal enclosure and watertight cable gland	
<b>HSF3630-140H</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF3800-80H</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 4W+E of Y system, 277/305V(L-N), 800KA, metal enclosure and watertight cable gland	
<b>HSF3800-140H</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF31000-80H</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 4W+E of Y system, 277/305V(L-N), 80KA, metal enclosure and watertight cable gland	
<b>HSF31000-140H</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF31250-80H</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 4W+E of Y system, 277/305V(L-N), 80KA, metal enclosure and watertight cable gland	
<b>HSF31250-140H</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF31600-80H</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 4W+E of Y system, 277/305V(L-N), 80KA, metal enclosure and watertight cable gland	
<b>HSF31600-140H</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF32000-80H</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 4W+E of Y system, 277/305V(L-N), 80KA, metal enclosure and watertight cable gland	
<b>HSF32000-140H</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 4W+E of Y system, 277/305V(L-N), 140KA, metal enclosure and watertight cable gland	
<b>HSF3200-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 3W+E of Y system, 277/305V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF3200-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF3400-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 3W+E of Y system, 277/305V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF3400-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF3630-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 3W+E of Y system, 277/305V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF3630-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF3800-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 3W+E of Y system, 277/305V(L-E), 800KA, metal enclosure and watertight cable gland	
<b>HSF3800-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF31000-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 3W+E of Y system, 277/305V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF31000-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF31250-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 3W+E of Y system, 277/305V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF31250-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF31600-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 3W+E of Y system, 277/305V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF31600-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF32000-80H/Y</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 3W+E of Y system, 277/305V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF32000-140H/Y</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 3W+E of Y system, 277/305V(L-E), 140KA, metal enclosure and watertight cable gland	






# ORDERING INFORMATION

MODEL	PRODUCT DESCRIPTION	PHOTO/DRAWING
<b>HIGH-CURRENT SURGE FILTERS-AC POWERLINE PROTECTION</b>		
<b>Main Switch Board (MSB) 80KA - 200KA per mode, High Load Current(200A-2000A), 347/380V(L-N), 600/657V(L-L)</b>		
<b>HSF3200-80U</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 4W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF3200-140U</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF3400-80U</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 4W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF3400-140U</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF3630-80U</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 4W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF3630-140U</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF3800-80U</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 4W+E of Y system, 800KA, metal enclosure and watertight cable gland	
<b>HSF3800-140U</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF31000-80U</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 4W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF31000-140U</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF31250-80U</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 4W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF31250-140U</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF31600-80U</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 4W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF31600-140U</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF32000-80U</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 4W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF32000-140U</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 4W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF3200-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 3W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF3200-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF3400-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 3W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF3400-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF3630-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 3W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF3630-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF3800-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 3W+E of Y system, 800KA, metal enclosure and watertight cable gland	
<b>HSF3800-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF31000-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 3W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF31000-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF31250-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 3W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF31250-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF31600-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 3W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF31600-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	
<b>HSF32000-80U/Y</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 3W+E of Y system, 80KA, metal enclosure and watertight cable gland	
<b>HSF32000-140U/Y</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 3W+E of Y system, 140KA, metal enclosure and watertight cable gland	



# ORDERING INFORMATION



MODEL	PRODUCT DESCRIPTION	PHOTO/DRAWING
<b>HIGH-CURRENT SURGE FILTERS-AC POWERLINE PROTECTION-FOR 3W+E of DELTA SYSTEM</b>		
<b>Main Switch Board (MSB) 80kA - 200kA per mode, High Load Current(200A-2000A), 380/400/415/440/480V(L-E)</b>		
<b>HSF3200-80E/D</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF3200-140E/D</b>	High-current Surge Filter, active tracking & filtering, 200A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF3400-80E/D</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF3400-140E/D</b>	High-current Surge Filter, active tracking & filtering, 400A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF3630-80E/D</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF3630-140E/D</b>	High-current Surge Filter, active tracking & filtering, 630A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF3800-80E/D</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 800KA, metal enclosure and watertight cable gland	
<b>HSF3800-140E/D</b>	High-current Surge Filter, active tracking & filtering, 800A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF31000-80E/D</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF31000-140E/D</b>	High-current Surge Filter, active tracking & filtering, 1000A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF31250-80E/D</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF31250-140E/D</b>	High-current Surge Filter, active tracking & filtering, 1250A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF31600-80E/D</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF31600-140E/D</b>	High-current Surge Filter, active tracking & filtering, 1600A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>HSF32000-80E/D</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 80KA, metal enclosure and watertight cable gland	
<b>HSF32000-140E/D</b>	High-current Surge Filter, active tracking & filtering, 2000A, 3ph for 3W+E of $\Delta$ system, 380/400/415/440/480V(L-E), 140KA, metal enclosure and watertight cable gland	
<b>* Other surge ratings: 100KA, 120KA, 160KA, 200KA are available on request</b>		



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