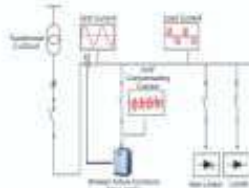


Active Harmonic Filter (SHR-SPC)

The effect of harmonic pollution is an increasing problem caused by growth of sophisticated power electronics and proliferation of non-linear loads in power system. Such loads are used in industrial, commercial and residential installations. Shreem introduced first of its advanced power electronics product, in power conditioning family is Active Harmonic Filter. This is the outcome of long term continuous, indigenous development effort by Shreem R & D team. The SHR-SPC is equipped with recent generation, fast, low loss IGBTs that are intelligently and digitally controlled using Artificial Neural Network (ANN) based architecture with Self-Adaptive Algorithm (ADALINE). SHR-SPC active harmonic filter save money by improving power quality, increasing process reliability & productivity while helping to comply with power quality standards. This is the most advanced, effective and efficient power quality improvement solution to mitigate harmonics, load unbalance correction and reactive current compensation.



Working Principle

SHR-SPC is power quality conditioning device which is solid state IGBT based power converter acts as a harmonic generator, which monitor harmonic current generated by non-linear load. It generates equal & opposite phase shifted harmonic current of the same amplitude and inject in the network to cancel out load harmonic current.



Technical Specifications

Input Conditions	2 Level Design	3 Level Design
Rated voltage (RMS)	400V (±10%), 440V (±10%)	400V (±10%), 440V (±10%)
Rated frequency	50 Hz (± 5%)	50 Hz (± 5%)
Operating temperature range	0 to 45°C (Non-condensing)	0 to 45°C (Non-condensing)
Module Specifications		
Semiconductor device	2 Level IGBTs inverter	High speed 3 Level IGBTs inverter
Rated RMS current output	25A, 50A, 100A, 150A, 200A, 300A standalone panel design. Any higher rating is possible with paralleling above units	25A, 50A, 100A, 150A in wall/ rack module mounted in cabinet design. modules can be paralleled to increase the capacity
SHR-SPC AHF	3P3W / 3P4W	3P4W
Harmonic compensation ranges	2 nd to 51 st harmonics (all selectable)	2 nd to 51 st harmonics, desired harmonic level can pre-set for each order
Power factor correction	Both inductive and capacitive	Both inductive and capacitive
Load current balancing	Negative sequence (3P3W), negative, zero sequence option available with 3P4W model	Mitigate negative & zero sequence less than 5% & neutral filtering capacity 3 times rated current
Internal thermal losses	< 2.5	< 2 %
Protection	Under voltage, over voltage over current, over temperature over DC link voltage, unbalance, other hardware & S.C etc.	Under Voltage, over voltage over current, over temperature over DC link voltage, unbalance, other hardware & S.C etc.
color	Siemens Gray RAL 7035 & DA gray 630	Siemens Gray RAL 7035
Cooling	Air forced cooling	Air forced cooling
Module protection level	IP31	IP31
Control and Paralleling		
Dynamic response time	100 µSec	50 µsec
Correction time	20 mS	5 mS
Parallel communication	CAN Bus	CAN Bus

SHR-SPC is capable to perform

- Harmonic current mitigation in phase current with 98% attenuation factor
- Reactive current compensation in real time & three phase loadbalancing.
- Neutral current mitigation less than 5%
- Closed loop, 32 bit FPU DSP FPGA based fully digital control philosophy is designed to reduce the equipment losses to major extent which made product available in market.
- Fast response time less than 5mS
- Fully functional power analyzer with real time Oscilloscope with 7" multi touch TFT display.
- Fastest switching frequency 25.6KHz
- Reference standard : IEEE519-2014 for compensated harmonics.
- Leading dissipation technology
- Type tested as per IEC 61326-1 2020, EN 61010 A1-2019
- CE certified product



HMI with Fully Functional Power Analyzer with Real time Oscilloscope with 7" multi touch Capacitive TFT Display

Dimensions

AHF rating	25A	50A	100A	150A	200A	300A	400A
Type No	SHR-SPC25	SHR-SPC50	SHR-SPC100	SHR-SPC150	SHR-SPC200	SHR-SPC300	SHR-SPC400
	Standalone Panel	Standalone Panel	Standalone Panel	Standalone Panel	Standalone Panel	Standalone Panel	Standalone Panel
Length (L)	600	600	640	640	690	1240	1150
Depth (D)	590	590	590	620	680	690	750
Height (H)	835	835	1005	1050	1425	1625	1650

■ Dimensions may vary as the development is continuous process ■ Both cabinet and wall mounting design are available

Applications

- Steel industry
- Foundry divisions
- Rolling Mills
- Chemical industry
- Welding load
- Sugar factory
- Data centers & Telecom facilities
- Medical facilities
- Shopping malls & Theme park
- Culture & performance centers
- High rise office buildings
- Food processing industries
- Waste water treatment plants
- Automotive industries with many single phase load
- Automated production & assembly line
- Logistic centers with large conveyor system