EnergyAce Active Harmonic Filter Solution

EnergyAce Ltd are the official UK partner of Schaffner Group and specialist integrators of the ecosine active sync series of Active Harmonic Filters assembled and delivered in the UK as a co-branded EnergyAce product while Schaffner are an international leader in the field of electromagnetic compatibility and power quality systems who are setting standards with its offering for harmonic mitigation.

Harmonic distortion can manifest a number of undesirable effects as detailed below:

- Damage to sensitive electronic equipment
- Increase in energy costs
- Unexplained tripping of devices
- Destruction of standard capacitor circuits & power factor correction
- Increase RMS currents in the electrical systems
- Distortion of supply voltage & current waveform
- Reduction in power quality
- Stress of electrical plant & machinery
- Increase in operating temperate of cables & switchgear
- Increase in vibration levels

An EnergyAce Active Harmonic Filter creates a dynamic solution to automatically negate the negative effects of harmonic distortion and ensure compliance by measuring the load current and calculating the harmonic spectrum for every harmonic up to the 50th and automatically applying a solution.

Benefits

- Fully modular design from 60A – 1200A
- 3 & 4 Wire solutions
- Load balancing
- Reactive power compensation
- Low loss operation
- Ultra-low loss operation with Active Sync
- UK remote and on-site support
- Easy to understand and operate
- Meets or exceeds all international standards
- Assembled by EnergyAce in the UK

Advanced features

- Active Sync Modules
- Standby power management to reduce losses
- Increased life span of IGBT's
- Equalises operating hours of individual modules
- Manages redundancy and stand by modules for critical applications

Technical specification EnergyAce active sync cabinet versions

Number of phases (system input)		3-phase 3-wire or 3-phase 4-wire				
Mains frequency		50/60Hz ± 3 Hz				
Mains voltage[i]		3-wire: 200VAC - 480VAC± 10% 4-wire: 200VAC - 415VAC± 10%				
Inverter topology		3-level NPC topology, IGBT				
Switching frequency		16 kHz				
Response time		<100 µs				
Harmonic mitigation performance		Up to the 50th harmonic				
Total harmonic current distortion THDi		< 5%				
Power factor correction		cosφ = -0.7 … 1 … 0.7(inductive and capacitive compensation)				
Number of Modules		1	2	3	4	5
Rated phase mitigation current		60A	120A	180A	240A	300A
Rated neutral conductor mitigation current		180A	360A	540A	720A	900A
Overload capability (for 10 ms)		150A	300A	450A	600A	750A
Weight		224kg	268kg	312kg	356kg	400kg
Power Losses full mitigation performance		< 1300W	<2400W	<3500W	<4600W	<5700W
Power Losses typical operation		< 1170W	<2100W	<3100W	<4000W	<5000W
Dimensions cabinet	Height	1000mm	2055mm	2055mm	2055mm	2255mm
	Width	600mm	600mm	600mm	600mm	600mm
	Depth	400mm	600mm	600mm	600mm	600mm
Current transformer placement		Mains side or load side				
Current transformer ratio		50…50000:5A or 50…50000:1A				
Mounting		Floor mounting				
Cooling type		Air cooling				
Communication interface		Ethernet TCP/IP, Modbus RTU RS485				
Digital I/O		2 DIO + 2 DO				
Ambient temperature		0 …40°C full performance, up to 50°C with derating of 3% per Kelvin[iii]				
Protection class		IP 54				
Noise level		< 75 dB A (depending on load situation)				
Self-protection		Yes				
Overheat protection		Yes				
Overvoltage and undervoltage protection		Yes				
Earthing system		TT, TN-C, TN-S, TN-C-S, IT, corner grounded delta				
Altitude		<1000m without derating; Up to 4000m with derating 1% / 100m				
Ambient conditions		Pollution degree 2 Relative humidity < 95% non-condensing, 3K3 Temperature: Storage 55°C, 1K3, 1K4, Transportation -25°C to 75°C, 2K3				
Approval		CE, RoHS, cUL[iv]				
Design standards		IEC 61000-4-2, 4-4, 4-5, 4-6 EN 61000-3-11, 3-12 EN 61000-6-2 EN 55011 EN 62477-1 EN 61800-3				