ZGR FAA / AHF
ACTIVE HARMONIC FILTER

ZGR FAA / AHF is a system that helps to eliminate harmonic distortion in the power grid

The ZGR FAA / AHF helps to eliminate harmonic contamination in the grid, reducing power quality problems and enhancing a more efficient and safe use of energy.

The presence of harmonics increases the RMS current in electricity grids. The transmission of currents harmonics through system impedance creates harmonics which produce voltage distortions and in this way deteriorate the quality of the grid voltage. This leads to increased operation and energy costs, production/process stops, overheating and malfunctioning of electrical equipment.

The ZGR FAA / AHF is designed according to the latest state of the art in power electronics technology. The technology is installed in parallel with non-linear electrical loads. The active filter analyses the phase current together with the associated harmonics, generating a compensation current, which neutralizes the harmonic currents creating a practically sinusoidal waveform.

Applications

Characteristics

- High security and reliability
- Harmonic compensation up to the order of 50º (individually selectable)
- Flicker Compensation
- Ultra-fast reactive power compensation (inductive and capacitive)
- Phase and neutral cable balance
- Compact design
- Scalable modular system (25 A - 600 A)
- Resonance detection
- Digital control with intelligent FFT algorithm
- Ethernet and Ethercat connection system
- High performance and reliability
- Insensitive to grid conditions
- Protections:
  - Overload protection
  - Internal short circuit protection
  - Over temperature protection
  - Over and under voltage protection
  - Inverter bridge
  - Resonance protection
  - Fan failure alarm

Connectivity and monitorization

Communication via Modbus RTU 485 and Modbus TCP-IP. It allows the user to access all the data shown on the screen: status, measurements, configuration, alarms, control, network, equipment, etc.

7” LCD screen for displaying and debugging rack mounted modules. User-friendly operation interface, with 800*400 colour graphic display. Allows the user to check the operating status of the Filter and the status of the grid in real time.

TECHNICAL SPECIFICATIONS			
Model	ZGR FAA / AHF		
Nominal voltage	380 V (228 to 456 V)	480 V (384 to 552 V)	690 V (480 to 790 V)
Frequency	43–62 Hz		
Compensation current (module)	25 A, 35 A, 50 A, 60 A, 100 A, 150 A	75 A, 90 A	75 A, 90 A
Compensation capacity in neutral terminal	3 times the compensation current (in case of 4 wire system)		
Compensation range of harmonic currents	2nd - 50th harmonic order, or specified order of harmonics 0 - 110%		
Harmonic reduction rate	>95%		
Power factor (PF)	Adjustable from -1 to 1		
Switching frequency/control	20 kHz / 20 kHz		
Reaction time	<50 µs		
Global response time	<5 ms		
Harmonic compensation	Yes		
Reactive power compensation	Yes		
Unbalance compensation	Yes		
MONITORING			
Screen	TFT 7” colour		
Communication ports	RS485, network port (RJ45)		
Communication protocols	Modbus RTU, TCP/IP (Ethernet)		
PROTECTIONS			
Failure alarm	Yes, 500 alarm logs max.		
Protections	Overvoltage, under voltage, short-circuit, inverter bridge, over compensation		
MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS			
Working temperature range	-10ºC ~ +40ºC (without derating)		
Protection degree	IP20		
Working altitude	1500 m (without power loss)		
Noise level	< 56 dB (depending on the model)	<65 dB (depending on the model)	
Relative humidity	5 to 95 % (without condensation)		
Cooling	Forced		
STANDARDS			
Certifications	CE, IEEE 61000	CE, ETL (UL508), IEEE 61000	
Standards	IEEE 519, ER G5/4		

These specifications may change without notice