

Assemble by

engineer



Power Quality Solutions

PQS

AHF

Active Harmonic Filter

HARMONIC CONTROL IN ELECTRIC POWER SYSTEMS



Active Harmonic Filter can realize 2nd to 50th harmonic compensation, compensation ratio can be set selectively by the customers, output compensation current follows the system harmonic variation, devoted to green power quality.

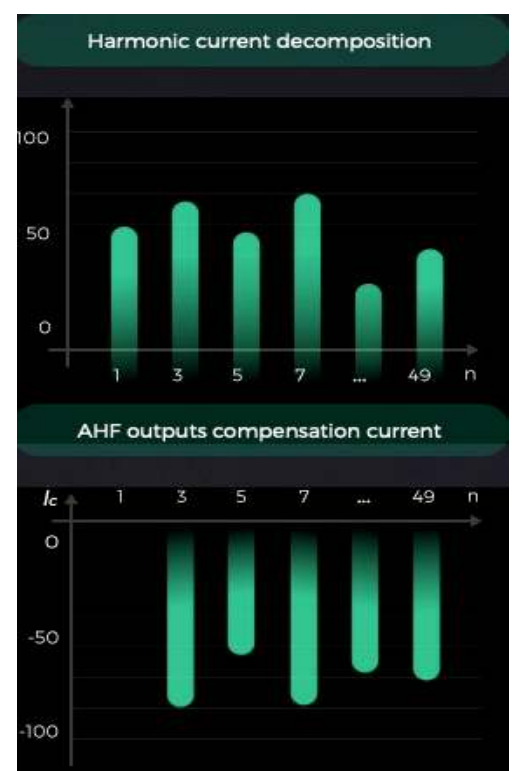
Different loads generate variety harmonic content which changes dynamically during different working conditions.



INTELLIGENT FAST FOURIER TRANSFORM

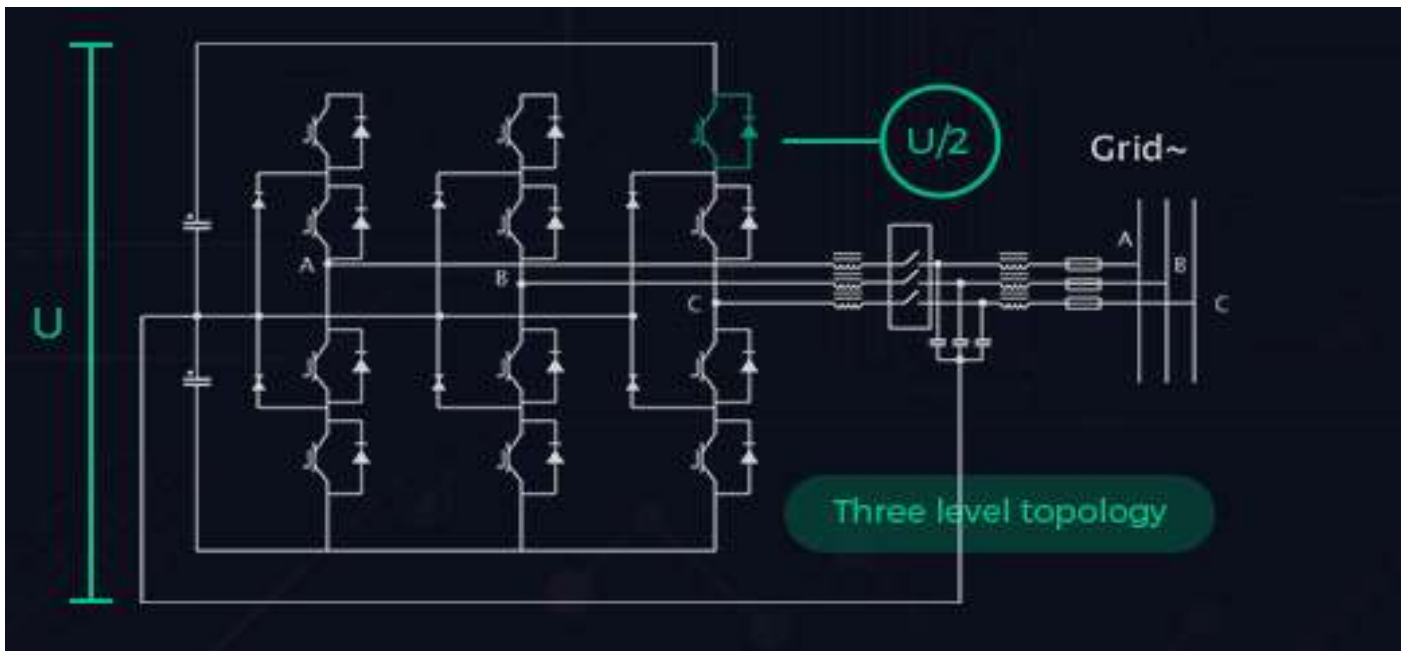
One of the biggest characteristics of Active PQ solution is to use information technology to manage energy. With the characteristics of high accuracy and high speed of computing power, empower users PQ will obtain continuous, stable and infinitely close to the highest energy efficiency of power energy.

Intelligent FFT is an iterative FFT algorithm based on updated computing power and ten years of experience in field harmonic waveform database.



3-LEVEL TOPOLOGY

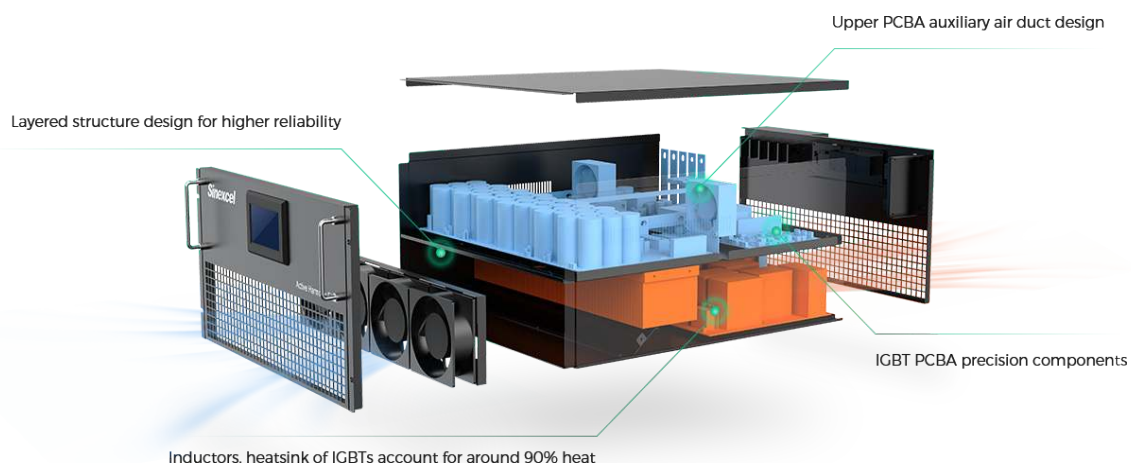
- One more output level, less ripple current content.
- Output PWM waveform is more similar to sinusoidal wave, better harmonic compensation effect.
- The volume of LCL filter is reduced, beneficial for AHF module design.
- Less inductance loss, improving the system efficiency.
- IGBT withstand voltage stress cut into half, effectively reduce the switching loss.
- Less switching loss of IGBTs, more thermal margin, higher switching frequency.



INDEPENDENT AIR DUCT DESIGN

Upper and lower layer design, IGBT heatsink and inductor, which account for most heat of AHF, are concentrated in the lower layer, forcing air cooling, fast heat dissipation, and do not affect the upper PCBA

Upper PCBA auxiliary air duct design, expansion of heat dissipation channel, wide angle heat dissipation.



NONLINER LOADS

INDUSTRIAL EQUIPMENT

Induction furnaces, static converters, VFD, welding machines.

WHY HARMONIC HURT YOUR SYSTEM?

Higher harmonic current would lead to capacitors' inner swelling, oil spilling and fire risk, severe discharge, flashover and overheat, resulting in over-current and over-voltage, accelerating the aging of the capacitor dielectric, lower safety levels of installations, which cause the unnecessary financial losses.

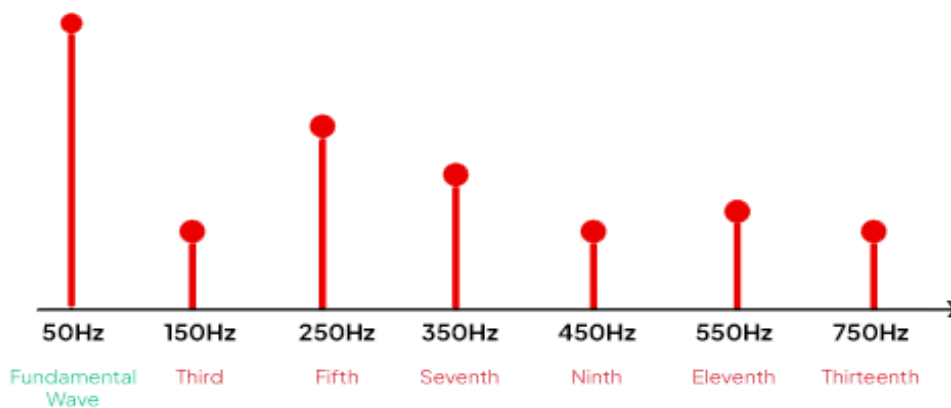
OFFICE EQUIPMENT

Computers, servers, printers.

Higher orders harmonic cause more serious distortion on the grid voltage and current waveform, which will increase the transformer copper and iron losses or load imbalance.

UNINTERRUPTIBLE POWER SUPPLIES (UPS)

Affect the equipment efficiency and occupy unnecessary grid capacity cause overheating of equipment and shortening the lifetime.



STANDARD AHF

Capacity:

100/150/300kvar

Voltage: 220V/400V/480V/600V/690V

Efficiency: $\geq 99\%$

Monitoring: LED/4.3inch HMI/7inch HMI

Harmonic Filtering range: 2~50 orders

Switching frequency: average 20KHz

Wiring method: 3P4W

Rated frequency: 50Hz/60Hz



ULTRA AHF

Ultra Series Active Harmonic Filter

The revolutionary **SiC Mosfet technology** has driven the design optimization of power quality products, which delivering unparalleled improvements in performance and application of Ultra Series. This transformation has reshaped the business model for power quality solutions, setting a new industry benchmark for excellence.



Performance breakthrough brought by SiC technology

99%

Ultra high
efficiency

97%

Enormous
harmonic
compensation rate

>165 CFM

Less ventilation
requirement

>18 KG

Tiny dimension but
huge capacity

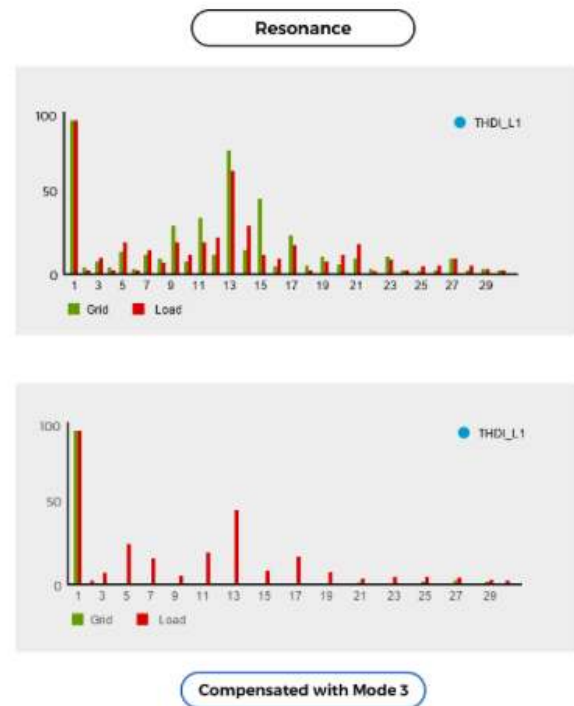
Benefits to user

- Efficiency improvement
- Energy saving
- Electricity fee saving
- Higher ROI
- Longer lifetime of electrical equipment
- Reduced risk of resonance
- Harmonic distortion reduction
- Improved power quality
- Lower transformer and cable losses
- Reduced equipment overheating



RESONANCE SUPPRESSION

In the process of solving power quality problems, how to solve the resonance is the direction that the industry has been focusing on; when the system resonates, it will generate a voltage several times higher than the power supply. And will be applied in the capacitors, transformers, circuit breakers, and other equipment in the circuit, even causing insulation damage to high-voltage electrical equipment.





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