

Active Harmonic Compensation Filter System



Rongzhi Electric Power is a large-scale Active Harmonic Compensation Filter System manufacturer and supplier in China. We have been specialized in High voltage equipment for many years. Our products have a good price advantage and cover most of the South America, Middle East, Africa, Southeast Asia markets. We look forward to becoming your long-term partner in China.

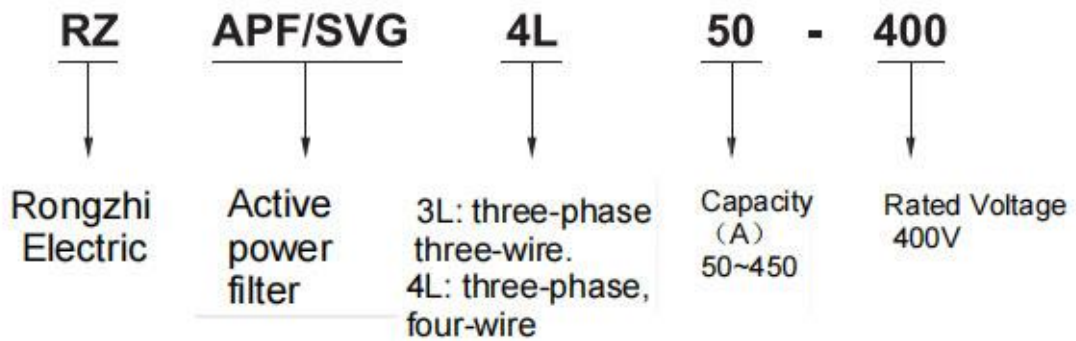
Rongzhi Active Harmonic Compensation Filter System

Introduction

Active power filter (APF: Active power filter (Active power filter) is a new type of power electronic device used for dynamic suppression of harmonics and compensation of reactive power. It can quickly track and compensate harmonics of different sizes and frequencies. The reason why it is called active is that compared with passive LC filter, it can only passively absorb harmonics of fixed frequency and size. APF can control and actively output the size, frequency and phase of current by sampling load current and separating each harmonic and reactive power, and quickly respond to offset the corresponding current in the load, realizing dynamic tracking compensation, and can complement both harmonic and reactive power and unbalance.



Rongzhi Active Harmonic Compensation Filter System Model Instruction



Rongzhi Active Harmonic Compensation Filter System Parameter (Specification)

Size	400V
	50A-450A

Zhejiang Rongzhi Electric CO.,LTD.

Tel: +86-577-62968671

E-mail: rz_start@vip.163.com

Rated input line voltage	380V(-40%~+20%)
Power frequency	50/60Hz(Range45Hz~62Hz)
Number of Parallelable	unlimited
overall efficiency	≥97%
Power network structure	Three phase three wire four phase four wire
Current transformer	150/5~10000/5
circuit topology	Three level
performance index	
harmonic compensation	support
reactive compensation	support
unbalance compensation	support
harmonic range	>97%
fast response time	<100us
total reponse time	<10ms
Target power factor	Capacitive sensibility is continuously adjustable
Switch frequency	10kHz
Cooling Type	Intelligent air cooling
noise label	<65dB

communication interface	RS485, CAN, network interface
communication agreement	General electric protocol. Modbus protocol
Module display interface	LCD multi-function touch color screen
Protection function	Protection of overvoltage .short circuit, inverter reverse and over compensation
Fault Alarm	Yes
Environmental requirement	
Altitude	≤ 1500mm,Between 1500 and 4000m, according to GB/T3859-2, every 100m increase, the power is reduced by 1%
Operating temperaturel	-10℃~+40℃
Relative humidity	5%~95%, without condensation
Protection Grade	Other IP levels can be customized

Rongzhi Active Harmonic Compensation Filter System

Basic application

Main hazards of harmonics:

- Increase the load of power facilities, reduce the system power factor, reduce the effective capacity and efficiency of power generation, transmission and electrical equipment, resulting in equipment waste, line waste and power loss;
- Cause reactive compensation capacitor resonance and harmonic current amplification, resulting in capacitor banks damaged or unable to be put into operation due to overcurrent or overvoltage;
- Pulsating torque will cause motor vibration, affecting product quality and motor life;
- Due to eddy current and skin effect, motors, transformers, transmission lines, etc. generate additional power loss and overheat, waste electric energy and accelerate insulation aging;

Zhejiang Rongzhi Electric CO.,LTD.

Tel: +86-577-62968671

E-mail: rz_start@vip.163.com

- Harmonic voltage increases the electric field intensity of insulating medium in direct proportion to its peak voltage and reduces the service life of equipment;
- Zero sequence (multiple times of 3) harmonic current will cause the center line of three-phase four-wire system to overload, and generate circulation in the transformer winding of triangular connection, making the winding current exceed the rated value, and even cause accidents in serious cases.
- Harmonics will change the operation characteristics of protective relays, cause the misoperation of relay protection facilities, and cause the working disorder of automatic devices such as relay protection;
- Harmonic variation changes the change rate and peak value of voltage or current, delaying the quenching of arc and affecting the breaking capacity of circuit breaker;
- Make metering errors of metering instruments, especially induction meters;
- Interference with adjacent power electronic equipment, industrial control equipment and communication equipment, affecting the normal operation of the equipment.

Economic benefits of harmonic control:

1. energy saving 5% ~ 8%

7 400KVAUPS uninterruptable power supplies in an IDC room cost about 15 million yuan in 2008. After harmonic control, the annual electricity cost was saved 1.1 million yuan, and the energy saving effect was 7.3%.

2. reduce capacity to reduce transformer, circuit breaker, cable investment

A factory installed Guodian own source filter, returned a transformer to the power supply bureau, saving more than 1 million investment protection equipment, reduce equipment investment;

Harmonics generated by frequency converters in a paper factory in Henan burn two fans every month, causing a monthly loss of 30,000 yuan.

3. improve productivity and maintain continuous power supply

The daily output of Daqing Acrylic plant increased from 197 tons to 210 tons after harmonic control.



Rongzhi Active Harmonic Compensation Filter System

Advantages and disadvantages

Advantages: the harmonic can be dynamically filtered out, the harmonics in the system can be completely absorbed; It doesn't resonate.

Disadvantages: high cost; Due to hardware limitations, it cannot be used in large-capacity situations: the capacity of active filter should not exceed 100KVA per set, and the maximum applicable grid voltage should not exceed 690V.