600A Active Harmonic Filter

Rongzhi Electric Power is a large-scale 600A Active Harmonic Filter 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 600A Active Harmonic Filter 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.

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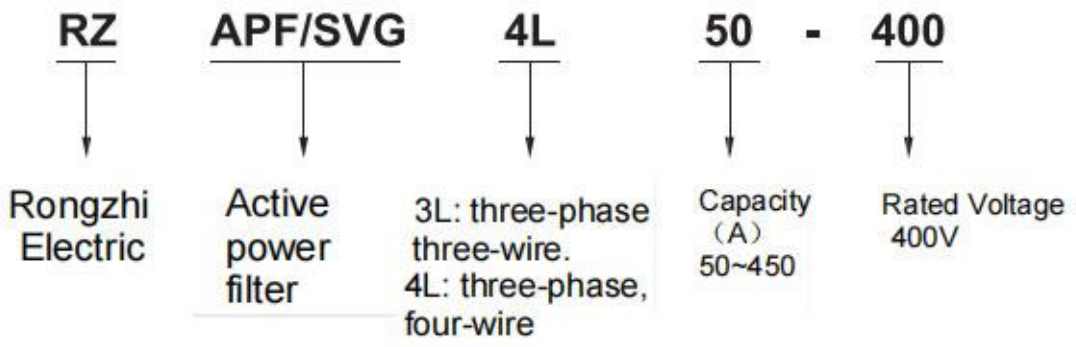
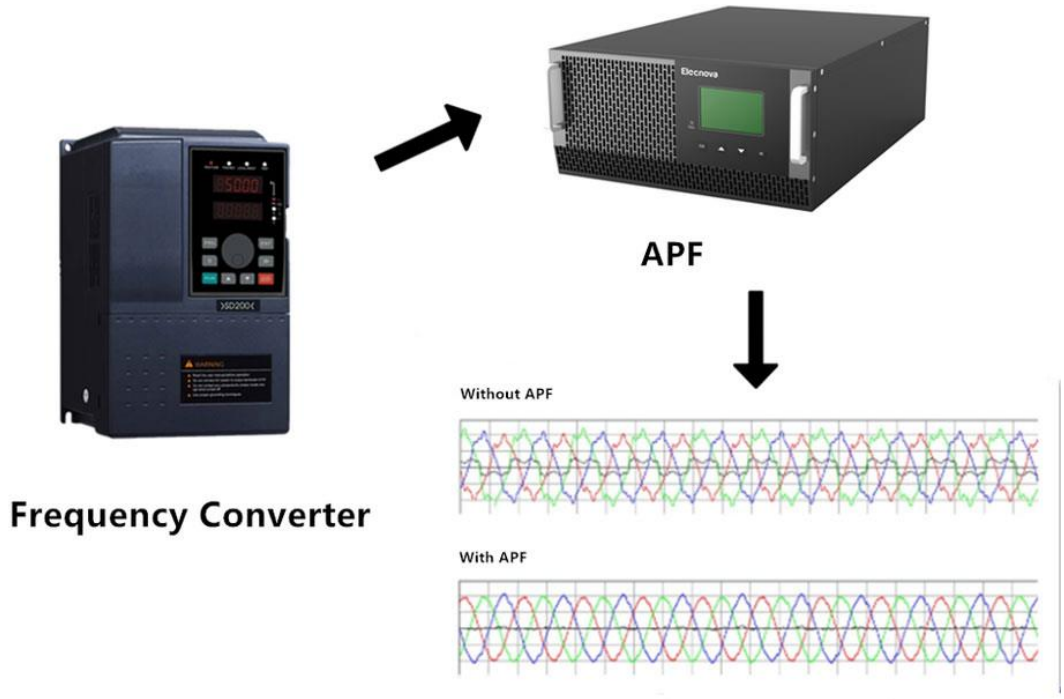
Rongzhi 600A Active Harmonic Filter Model Instruction



Rongzhi 600A Active Harmonic Filter Performance specification

1. Dynamic active filter, comprehensively improve power quality;
2.DSP full digital control, 20KHz switching frequency, quick response to dynamic load changes;
3. The number of harmonic compensation can be selected, the maximum can filter out 50 harmonics;
4. Active power filter can compensate reactive power simultaneously;

5. With three-phase unbalance compensation ability;
6. With automatic current limiting function, no overload occurs;
7. High efficiency, full load loss less than 2.57;
8. Parallel installation mode, simple installation, small volume;
9. Reduce line loss, eliminate transformer and motor heating caused by harmonics, and realize significant energy saving of the system;
10. The filtering effect of active power filter is not affected by the change of system impedance, and can automatically suppress the system resonance;
11. Select partial compensation, partial compensation or total compensation according to the distribution structure. CT can be located on the power side or the load side;
12. Easy to expand and redundancy design, up to 10 parallel operation.



Rongzhi 600A Active Harmonic Filter Parameter (Specification)

Size	400V
	50A-450A
Rated input line	380V(-40%~+20%)

voltage	
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	RS485，CAN, network interface

interface	
communication agreement	General electric protocol. Modbus protocol
Module dis la 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,Beween 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 600A Active Harmonic Filter advantage

Low ripple current and high current response speed

Ripple current and current response speed are two contradictory indicators. As an active power filter, its basic principle is to detect load harmonics, inject reverse harmonics, and achieve the purpose of filtering by canceling harmonics. The general active power filter is a current mode controlled voltage source inverter. The output current is generated by the

inverter output voltage acting on the output inductance. Inverter adopts pulse width modulation, according to the basic principle of electrician, ripple current is determined by the switching frequency, DC bus voltage, the size of the output inductance, and has nothing to do with the current loop control. The higher the switching frequency, the smaller the ripple current, the higher the DC bus voltage, and the larger the ripple current. The larger the output inductance, the smaller the ripple current. The desired output current of the inverter is controlled by the current loop. Active power filter output harmonic current, if the fundamental wave 50Hz, compensation 50 harmonic calculation, the highest harmonic frequency will reach 2.5kHz. Active power filter has high requirement on current response speed. The current response speed is related to the DC bus voltage and the output inductance. The higher the voltage of the DC bus, the faster the current response. The larger the output inductance, the slower the current response. We expect the output ripple current to be as small as possible and the current response to be as fast as possible. This is a contradiction. It can be seen from the above analysis that the solution to the contradiction of two-level active power filter can only be to raise the switch. In some manufacturers of two-level active power filter products, the switching frequency has reached 20kHz. However, the increase of switching frequency brings higher switching loss and drive loss, the capacity of individual active power filters will be limited, and for higher voltage levels of active power filters, high voltage IGBTs do not allow such a high switching frequency. However, three-level active power filter is a solution to the above problem in principle. Three-level inverters can output positive, negative and zero voltages. When calculating ripple current, only half of the voltage of the DC bus is needed. Therefore, under the premise of the same switching frequency, the same DC bus voltage and the same ripple current requirements, the output inductance of the three-level is half of that of the two-level, and the switching loss of the device and the ripple loss on the inductance are also reduced. When calculating the current response speed, it will be all the DC bus voltage that plays a role, and halving the output inductance will accelerate the current response speed, enhance the filtering effect, and improve the capacity of a single machine.

Improve the system voltage, applied to higher voltage system

Usually, the domestic low-voltage grid is 400V, but for some industries, the low-voltage grid will be relatively high. For example, the transmission of oil drilling rig is 600V, and the electricity consumption of mine may be 690V or 1140V, while the voltage level of some industries may be more diverse, but generally above 500V. How to solve these industry harmonic governance needs, is a problem. Generally, in order to improve current response speed and ensure compensation effect, active power filters dealing with harmonics require higher DC bus voltage than those dealing with fundamental wave converters or grid-connected inverters. Generally, the DC bus voltage of a two-level inverter is twice the effective value of the AC grid voltage. For 380V applications, the DC bus voltage is generally 700V ~ 750V, and for 600V, the DC bus voltage needs to reach 1200V. The practice of many companies is to add a transformer, the other levels of voltage to 400V. Through the harmonic transformer is specially designed, the price is relatively high, the volume is relatively large, the loss of transformer will be relatively large. By using the three-level technology, the converter system with high voltage can be

composed of pipes with low voltage, which can be directly connected to the power grid with high voltage, while ensuring better filtering effect and single machine capacity.

Rongzhi 600A Active Harmonic Filter Packing & Delivery

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