

有源滤波器简介

●概述

有源滤波器/柜模块通过外部电流互感器 CT，实时检测负载电流，通过内部 DSP 计算来提取出负载电流的谐波成分。然后通过 PWM 信号发送给内部 IGBT，控制逆变器产生一个和负载谐波大小相等、方向相反的电流注入到电网中来补偿谐波电流，从而实现滤波的效果。

The active filter/cabinet module detects the load current in real time through an external current transformer CT, and extracts the harmonic components of the load current through internal DSP calculation. Then, the PWM signal is sent to the internal IGBT, and the inverter is controlled to generate a current with the same magnitude and opposite direction of the load harmonic injected into the power grid to compensate the harmonic current, thereby realizing the filtering effect.

》》》 主要应用

主要适用于 380V 配电系统中非线性负载较多的场所，在轨道交通、医疗机构、通信、商业建筑、港口、冶金、石化工矿等行业中，包含多种类型的非线性负载，如 UPS、变频器、充电机、办公设备、无极灯、电梯、空调、大功率变频器、中频炉、交流弧焊机、感应加热装置、轧机和直流调速器等，这些负载在运行过程中产生大量的谐波，造成电能的严重污染，甚至干扰各种控制系统，导致生产中断和次品率上升。

It is mainly used in places with large non-linear loads in 380V power distribution systems. It includes various types of non-linear loads, such as UPS, in rail transit, medical institutions, communications, commercial buildings, ports, metallurgy, petrochemicals and other industries. Inverters, chargers, office equipment, induction lamps, elevators, air conditioners, high-power inverters, intermediate frequency furnaces, AC arc welding furnaces, induction heating devices, rolling mills and DC converters, etc. These loads generate a large amount of during operation. Harmonics, causing serious pollution of electrical energy, and even interfering with various control systems, leading to production interruptions and defective product rates.

☞ 高效率 ☞ 快速响应 ☞ 功能齐全 ☞ 滤除范围广

●技术参数

工作电压	380V±20%	快速响应时间	<300 μs	过载保护	自动限流
Operating Voltage	380V±20%	Fast response time	<300 μs	Overload protection	Automatic current limiting
工作频率	45Hz~63Hz	全响应时间	<5ms	通讯接口	Rs485
Frequency	45Hz~63Hz	Full response time	<10ms	Communication	Rs485
整机效率	>97%	中性线滤波能力	3 倍于相线	海拔高度	常规 2000m
Machine efficiency	>97%	Neutral line filtering capability	3 times the phase line	Highest altitude	Conventional 2000m
滤波能力	THDi<5%	IGBT 开关频率	20KHz	运行温度	-10℃~55℃
Filtering ability	THDi<5%	IGBT switching frequency	20KHz	Operating temperature	-10℃~55℃
滤波范围	2~50 次，可达 71 次	自诊断及保护功能	有	储存温度	-40℃~75℃
Filter range	2nd-50th	Self-diagnosis and protection	Y	Storage temperature	-40℃~75℃
补偿容量	25-600A	功率因数校正	有，可设定	相对湿度	≤95%
Compensation capacity	25-600A	Power factor correction	Y	Relative humidity	≤95%

● 产品特性

响应速度快、滤波能力强、运行损耗小。

- 采用矢量筛选技术，可对 2 到 71 次之间的谐波进行有选择的补偿或者对全部的谐波进行补偿。
- 在滤除谐波的同时动态补偿基波无功，提高功率因数。也可以在 0 无功功率的情况下滤除谐波，避免无功反送情况出现；
- 安全性好，不存在谐振或电压放大，可自动限制输出电流，装置永不过载，保证装置安全可靠工作；
- 可对不平衡进行补偿，避免负序电流对电网及电气设备影响；
- 智能启动系统，一键并网，系统断电恢复后自动投入；

The response speed is fast, the filtering ability is strong, and the running loss is small.

■ Use vector filtering technology to selectively compensate for harmonics between 2 and 71 times or to compensate for all harmonics.

■ Dynamically compensates for fundamental reactive power while filtering harmonics, improving power factor. It is also possible to filter harmonics with 0 reactive power to avoid reactive power reversal;

■ Good safety, no resonance or voltage amplification, can automatically limit the output current, the device will never overload, and ensure the safe and reliable operation of the device;

■ It can compensate for imbalance and avoid the influence of negative sequence current on power grid and electrical equipment;

■ Intelligent startup system, one-button grid connection, automatic input after system power failure recovery;

● 产品选型

接线类型	容量 (A)	类型	配置	型号
Wiring type	Capacity	Style	Configuration	Model
三相四线 Three-phase four-wire	50	模块式、壁挂式+W Modular、Wall-mounted	德国英飞凌 IGBT Germany Infineon IGBT	MD4MAPF-50A-400V
	75	模块式、壁挂式+W Modular、Wall-mounted	德国英飞凌 IGBT Germany Infineon IGBT	MD4MAPF-75A-400V
	100	模块式、壁挂式+W Modular、Wall-mounted	德国英飞凌 IGBT Germany Infineon IGBT	MD4MAPF-100A-400V
	200	整柜式 Cabinet type	2×100A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD4LAPF-200A-400V
	250	整柜式 Cabinet type	2×100A+1×50A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD4LAPF-250A-400V
	300	整柜式 Cabinet type	3×100A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD4LAPF-300A-400V
	350	整柜式 Cabinet type	3×100A+1×50A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD4LAPF-350A-400V
三相三线 Three-phase three-wire	50	模块式、壁挂式+W Modular、Wall-mounted	德国英飞凌 IGBT Germany Infineon IGBT	MD3MAPF-50A-400V
	75	模块式、壁挂式+W Modular、Wall-mounted	德国英飞凌 IGBT Germany Infineon IGBT	MD3MAPF-75A-400V
	100	模块式、壁挂式+W	德国英飞凌 IGBT	MD3MAPF-100A-400V

		Modular、Wall-mounted	Germany Infineon IGBT	
200	整柜式 Cabinet type		2×100A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD3LAPF-200A-400V
250	整柜式 Cabinet type		2×100A+1×50A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD3LAPF-250A-400V
300	整柜式 Cabinet type		3×100A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD3LAPF-300A-400V
350	整柜式 Cabinet type		3×100A+1×50A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD3LAPF-350A-400V
400	整柜式 Cabinet type		4×100A, 高速动态测控液晶屏 High-speed dynamic measurement and control LCD screen	MD3LAPF-400A-400V