

Active Harmonic Filters

有源滤波器

PART / 01

- Low-Voltage
Power Factor Correction
低压功率因数校正

PART / 02

PART / 03

PART / 04



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Harmonic Solution

Active Harmonic Filters is a solid state power converter that gives the following benefits:

- Eliminates all harmonic currents from non-linear loads;
- Compensates reactive power factor of lagging loads;
- Acts as a virtual damping resistor to prevent possible harmonic resonance.

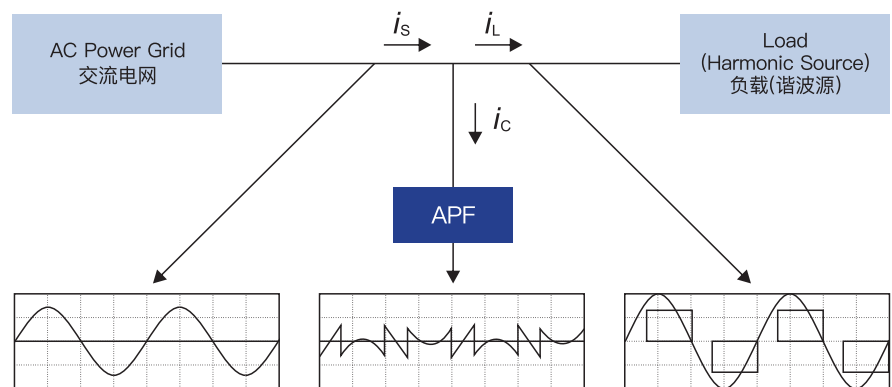
EAF series behaves like a harmonic current generator. It measures the harmonics generated from non-linear loads and cancels these harmonics with a newly generated current opposite to the load harmonic current of the same amplitude.

谐波问题的解决方案

有源滤波器是一个固态的功率转换设备，它具有以下特点：

- 能够滤除来自非线性负载的各次谐波；
- 补偿感性负载的无功功率；
- 在系统中充当调谐的作用，避免系统发生谐振。

EAF系列滤波器起到一个谐波发生器的职能，它检测系统中非线性负载产生的谐波值，通过产生一个幅值相等，方向相反的谐波值来抵消系统中的谐波。



Easy Selection

The selection of EAF series is based on the known estimated load harmonics current amplitude to be compensated current rating greater than that of amplitude.

As per thumb rule, we recommend a 25% higher rating than the amplitude to be compensated. for example, if the known load harmonics current amplitude is 80 Amps, then the appropriate rating the Active Harmonic Filters should be 100 Amps.

便捷的选型

EAF系列滤波器的选型是基于对系统中的已知谐波幅值的估算得来的，滤波器的额定值要大于系统的实际值。

按照常规，我们推荐留有25%的余量，例如：如果已知系统负载的谐波电流值为80安培，那么滤波器恰当的选型应当是100安培。

Main Features

- Its modular structure enables scaling up easily.
- No limitation on the maximum number of parallel units.
- Hotswap supported on floor-mount rack type configuration.
- Modules available for floor-mount and wall-mount application.
- Filtering capability up to 51st harmonic.
- Ultra-fast reactive power support for power factor correction.
- Balances unbalanced loads.
- Eliminates neutral currents.
- High performance dynamic filtering.
- Reliable operation.
- User-friendly touch screen user interface.
- Easy setup and commissioning.
- Immune to grid interferences, overvoltages and faults.

主要特点

- 模块化结构便于扩展
- 不限制并联装置的最大数量
- 机架式配置支持热插拔
- 模块可用于机架式和壁挂式
- 滤波能力高达51次谐波
- 超快速无功功率支持功率因数校正
- 平衡不平衡负载
- 消除中性电流
- 高性能动态过滤
- 运行可靠
- 友好的人机界面
- 易于安装和调试
- 不受电网干扰、过电压和故障的影响

Application Areas

EAF series active harmonic filters are successfully applied to facilities with high harmonic distortion, dynamic load variations, load imbalances and high neutral currents and harmonic currents on neutral wires. They are ideal for applications where neutral conductors have to be off-loaded and problems related to high neutral to earth voltages have to be addressed.

- Any facility with sensitivity to grid conditions
- Plastic industry – injection, extrusion and molding
- Office buildings and shopping malls (especially 3rd harmonics and overloaded neutral conductor)
- Industrial production machines
- Induction furnaces
- UPS systems
- Data Centers
- Photovoltaic systems and wind turbines

应用领域

EAF系列有源谐波滤波器已成功应用于高谐波失真、动态负载变化、负载不平衡以及中性线上的高中性电流和谐波电流的设备。它们非常适用于中性导线必须卸载以及与高中性点对地电压相关的问题的应用。

- 对电网条件敏感的任何设施
- 塑料工业-注塑、挤出和成型
- 办公楼和购物中心(尤其是3次谐波和过载中性线)
- 工业生产机器
- 感应炉
- UPS系统
- 数据中心
- 光伏系统和风力涡轮机

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Features and Technical Details

技术参数

	Unit	25A	50A	75A
Electrical Specifications / 电气参数				
For example: EAF-34/400/100, 3 phase 4 wires, 100A				
Line voltage 线性电压		400±15%		
Phase/wires 相数/线数		3 phase 3 wires, 3 phase 4 wires.		
Frequency 频率	Hz	50/60 (1±10%)		
Compensating current in phase 相间补偿电流	Arms	25	50	75
Compensating current in neutral*1 中性线补偿电流	Arms	75	150	225
Harmonic orders that can be cut 可滤除的谐波范围		2nd~51st		
Synchronous operation ability 兼容性		>10APFs within the complete machine		
Efficiency 效率		up to 98%		
Active power loss 有功损耗				
Transient response time*2 传输反映时间	msec	< 10		
Cooling mode 冷却方式		Forced or cooling		
Inrush current 冲击电流		Less than rated current		
Soft start 软启动时间	Sec	10		
Audible noise from 1 meter 噪声	dBA	60	60	63
Mechanical Specifications / 机械参数				
Color 颜色		PAL7035		
Protection index 防护等级		IP20		
Dimension(WxHxD) 尺寸 (长×高×深)	floor-mount (mm)	359×200×557	359×200×557	400×200×612
Dimension(WxDxH) 尺寸 (长×宽×高)	wall-mount (mm)	359×200×557	359×200×557	359×200×557

*1 Applicable for 3 phase 4 wires series only
仅应用于3相4线系列

*2 The total time from detection to steady compensation at 100% load step is less than 40 msec
从检测到补偿到满负载的总时间不大于40毫秒

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Features and Technical Details

技术参数

	Unit	100A	150A
Electrical Specifications / 电气参数			
For example: EAF-34/400/100, 3 phase 4 wires, 100A			
Line voltage 线性电压		400±15%	
Phase/wires 相数/线数		3 phase 3 wires, 3 phase 4 wires.	
Frequency 频率	Hz	50/60 (1±10%)	
Compensating current in phase 相间补偿电流	Arms	100	150
Compensating current in neutral*1 中性线补偿电流	Arms	300	450
Harmonic orders that can be cut 可滤除的谐波范围		2nd-51st	
Synchronous operation ability 兼容性		>10APFs within the complete machine	
Efficiency 效率		up to 98%	
Active power loss 有功损耗			
Transient response time*2 传输反映时间	msec	< 10	
Cooling mode 冷却方式		Forced or cooling	
Inrush current 冲击电流		Less than rated current	
Soft start 软启动时间	Sec	10	
Audible noise from 1 meter 噪声	dBA	63	65
Mechanical Spectfications / 机械参数			
Color 颜色		PAL 7035	
Protection index 防护等级		IP20	
Dimension(WxHxD) 尺寸 (长x高x深)	floor-mount (mm)	484x232x645	554x250x656
Dimension(WxDxH) 尺寸 (长x宽x高)	wall-mount (mm)	500x232x612	570x250x621

*1 Applicable for 3 phase 4 wires series only
仅应用于3相4线系列

*2 The total time from detection to steady compensation at 100% load step is less than 40 msec
从检测到补偿到满负载的总时间不大于40毫秒