

oredis®

Distributeur :
WWW.OREDIS.NET



PRODUCT PROFILE
Lighting capacitors,
Motor capacitors,
Capacitors for power electronics,
P.F. correction equipments,
Harmonics reduction filters,
Shunt active filters for active compensation of harmonic currents,
Harmonics analyser devices,
Igniters for metal halide and sodium vapour lamps



COMAR CONDENSATORI S.p.A.
Via del Lavoro, 80 - 40056 Crespellano (Bologna) Italia
Tel. +39 051 733383 - Fax +39 051 733620
sales department: export@comarcond.com
technical department : project@comarcond.com
www.comarcond.com

ED 02.58. ENG. REV.3 - ED 03/13 - Cod. 383025802

COMAR Condensatori

ese IONet

COMAR Condensatori SAF Active Filter

COMAR Condensatori SAF Active Filter

COMAR Condensatori SAF Active Filter

COMAR Condensatori SAF Active Filter

2013

SAF Active Filter

Harmonics compensation in real time

Why filtering

The fast introduction on the market of semiconductor electronic equipment for Drive & Motors, UPSs, Conditioners, Power supplies, Lighting ballasts, Welders, introduce together with their advantages many problems due to their network connection with the energy supplier.

The most dangerous phenomena for the power distribution is the harmonic distortion introduced by equipments: the current absorption is not perfectly sinusoidal but now it has a sum of current each one of different frequency, causing problems to the other equipment in the installation and to the network itself.

Applications

There is a wide range of companies and institutions that can clearly improve the power line quality of manufacturing systems or office facilities using SAF. On the one hand, this filter can be factored-in during the planning and implementation phase of new systems. On the other hand, SAF is also an intelligent solution for existing installation and facilities with power quality problems.

- Automotive industry
- Building automation
- Cement industry
- Data and banking centers
- Elevators
- HVAC installation
- Machines and automation
- Oil and Gas exploration
- Paper mills
- Ship propulsion
- Steel Industry
- Tunnel ventilation
- Uninterruptible power supplies (UPSs)
- Variable-frequency drives
- Water/wastewater treatment
- Welding equipment
- Wind turbines

Operating mode

SAF active filter is designed and manufactured for harmonic distortion suppression and for partially power factor correction of the connected load. The equipment from the load current, calculates and injects, the same harmonics shifted of 180 degree suppressing from the installation these dangerous component of the current. It is so possible to reduce the harmonic distortion, due to non linear load: in fact the algebraic sum of the current of all the order (exceeded the fundamental) is zero and the network is affected by a current having only the rated frequency. At the same way it is possible to correct the power factor of the load, in a partially way, producing three sinusoidal shaped current, with a width depending from the load.

Performances

The combination of filtering and power correction with other important characteristics of the equipment give to the active filter SAF excellent performance in every application.

- The filtering is independent from the impedance network width and from the voltage distortions caused by harmonics and sag.
- Other load connected to the mains or other passive filters in the installation are not affected from the active filter operations and the same SAF is immune from these other loads.
- The active filter can operate in a four wires configuration for the neutral harmonic suppression, with asymmetrical connected.
- It is particularly qualified for the reliable compensation of 3rd harmonic order.
- For a current compensation over the rated, it is possible to connect others active filter in parallel configuration, in order to obtain the same harmonic mitigation.
- The dynamic response of the filters is in the order of 300 μ sec., so the filter is also indicated for all the loads that have very quickly variation of their dynamic

The control

The harmonic content is detected and processed in a digital control structure. The filter can in real-time adapts its action to very fast reactive and harmonics variation of the loads. So that the harmonic suppression is also efficient where very quickly variation of the load condition affects the network. When the load needs to be compensate a current over the rated one of the filter, SAF adapts itself to give a well shaped current up to the rated one without fault or disconnection.

Plug and play: 3 simple steps to better power quality

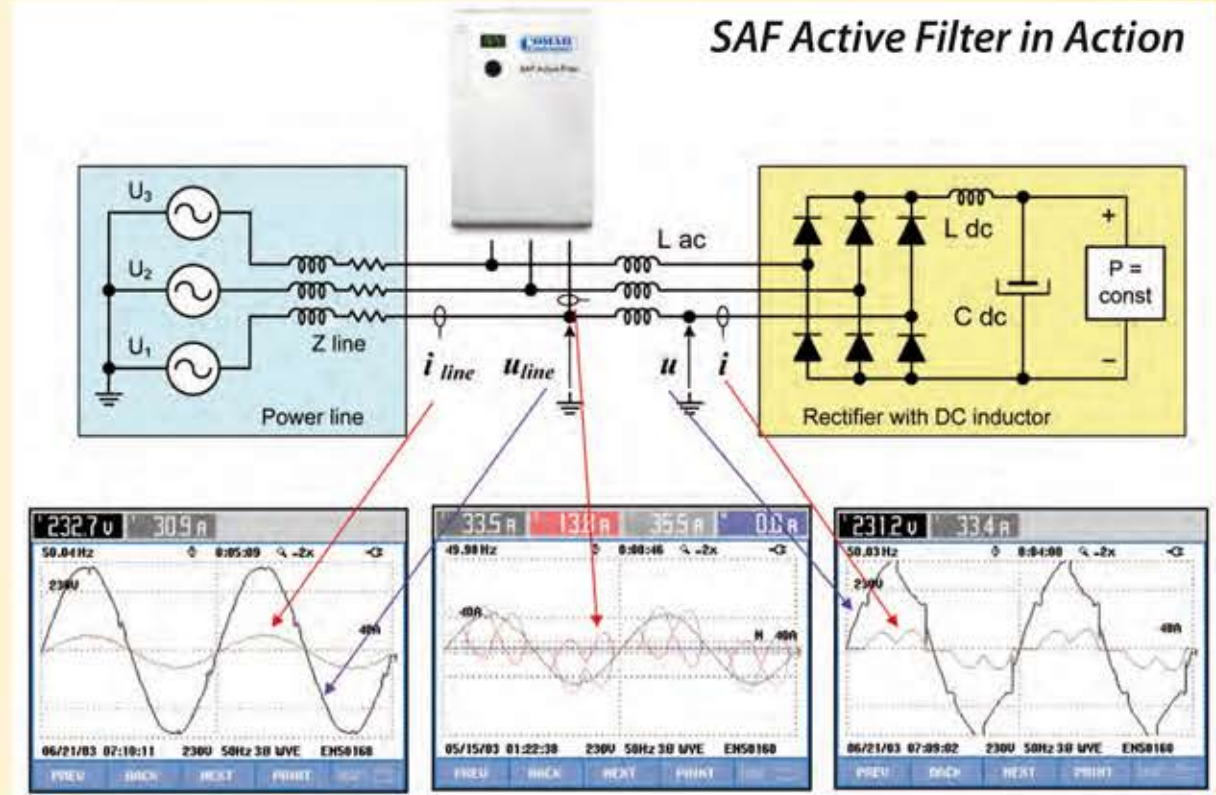
Measure

Install

Configure

* Note:
n°3 CT at customer charge

SAF Active Filter in Action



SAF Technical Datasheet

SAF...	3-wire	..-30S-480-3W	..-50S-480-3W	..-100S-480-3W	..-120S-480-3W	..-200S-480-3W	..-250S-480-3W	..-300S-480-3W
SAF...	4-wire	..-30S-400-4W	..-50S-400-4W	..-100S-400-4W	..-120S-400-4W	..-200S-400-4W	..-250S-400-4W	..-300S-400-4W
Rated comp. current	3-wire	30A	50A	100A	120A	200A	250A	300A
	4-wire	30/90A	—	60/180A	100/300A	120/360A	200/600A	250/750A
Switching frequency	16kHz							
Overload capability ¹	75A for 10ms		125A for 10ms	150A for 10ms	250A for 10ms	250A for 10ms	500A for 10ms	625A for 10ms
Cooling type	Forced air cooling				Forced air cooling (internal liquid cooling)			
Ambient temperature	40° C ³		30° C ^{2,3}	40° C ³	30° C ^{2,3}	40° C ³		
Parallel operation	Up to 5 units							
Interfaces	Modbus RTU (RS485), Modbus TCP/IP (Ethernet)							
Power loss	3-wire	< 900W	< 1300W	—	< 2200W	< 2500W	< 5000W	< 6000W
	4-wire	< 950W	—	< 1800W	< 3000W	< 3000W	< 5500W	< 6300W
Cooling air requirement, speed-controlled fan	3-wire	< 350m ³ /h	< 550m ³ /h	—	< 1400m ³ /h	< 1400m ³ /h	< 2600m ³ /h	< 3100m ³ /h
	4-wire	< 400m ³ /h	—	< 600m ³ /h	< 1700m ³ /h	< 1700m ³ /h	< 2800m ³ /h	< 3300m ³ /h
Noise level (1m)	3-wire	65dBA	65dBA	—	68dBA	68dBA	70dBA	70dBA
	4-wire	63dBA	—	63dBA	69dBA	69dBA	70dBA	70dBA
Filter performance	Up to the 50th order							
Altitude	1,000m / derating up to 4,000m, 1% / 100m							
Mains voltage ⁴	3-wire	380V (AC) ±15% ... 480V (AC) ±10%				50Hz: 380V (AC) ±15% ... 415V (AC) ±10%		
	4-wire	380V (AC) ±15% ... 415V (AC) ±10%				50Hz: 380V (AC) ±15% ... 415V (AC) ±10%		
Mains frequency	47 to 63Hz						50Hz or 60Hz ±5%	
Response time	300μs							
Controller topology	Digital with FFT analysis							
Current limitation	Nominal current							
Current transformer ⁵	100:5 to 50,000:5							
Dimensions (w x h x d) [mm]	3-wire	360x590x290	360x590x290	—	468x970x412	468x970x412	800x2000x600	
	4-wire	415x840x300	—	415x840x300	468x1460x412	468x1460x412	Height plus socket (200mm standard), depth including heat exchanger 760mm	
Weight	3-wire	47kg	47kg	—	105kg	105kg	415kg	415kg
	4-wire	70kg	—	70kg	145kg	145kg	495kg	495kg
Protection class	Standard IP20, optional IP54						IP54	
Approval	CE, UL ⁶						CE, UL ⁶ (pending)	

1 Peak value
2 Derating up to 40°C, 1,2%/K
3 Derating up to 55°C, 2%/K
4 Other voltage on request
5 n°3 CT at customer charge
6 UL only for 3-wire types