



# NETWORK DISTORTIONS NEVER AGAIN



## AHF ACTIVE FILTERS

The IREM active filters AHF series, also known as "active harmonic compensators", eliminate harmonics through the generation of a reverse waveform that compensate for distortion.

The active filters of the AHF series ensure optimal suppression of harmonics regardless of the number of loads and their usage profile.

These filters, installed in parallel to the network, are sized to eliminate a specified amount of harmonic current from the system.

Typical applications include loads present in complex industrial plants; in melting, rolling mill and welding plants; in the oil and gas sector; in generation plants, in commercial and residential buildings, in tunnel ventilation systems and in data processing centers.



## HARMONICS IN THE POWER SUPPLY

The voltage and current harmonics superimposed on the fundamental have combined effects on the equipment and devices connected to the electrical network.

Voltage harmonics can disturb the control devices used in electronic systems, just think of the errors induced by zero displacement, or disturbances on control devices that use frequencies close to those of the harmonic components.

The electrodynamic forces produced by the instantaneous currents containing harmonics cause vibrations and acoustic disturbances, especially in electromagnetic devices (transformers, reactors, etc.). Furthermore, the presence of harmonics in the rotating fields can produce vibrations in the rotating machines, due to pulsating pairs.

The appliances that give rise to the harmonics are present both in the industrial sector and in the tertiary sector and lately also in the domestic sector: the harmonics are essentially due to non-linear loads or those that give rise to current absorption with a trend different from the supply voltage.

The types of "distorting" load are: power electronics (rectifiers, inverters, etc.), but also welding machines, arc furnaces, speed variators, office equipment, monitors, even devices affected by saturation (transformers) can give rise to harmonics.

The alternators that supply non-linear loads must be derated due to the additional losses created by the harmonic currents.

## IREM PROPOSAL



The IREM active harmonic filter AHF series implements a process of compensation of the harmonic content: the harmonic current produced by the load is constantly monitored and an adaptive waveform is generated, that corresponds to the exact shape of the non-linear portion of the load current. The AHF introduces this adaptive current into the load at the connection point with a reaction time of 50  $\mu$ s and a response time of 5ms.

Unlike passive harmonic filters, these filters can provide harmonic mitigation in any load condition up to their nominal capacity.

The active harmonic filter works in parallel and compensates the harmonic content current, it can be chosen for applications consisting of a single or a multiple load of different types.

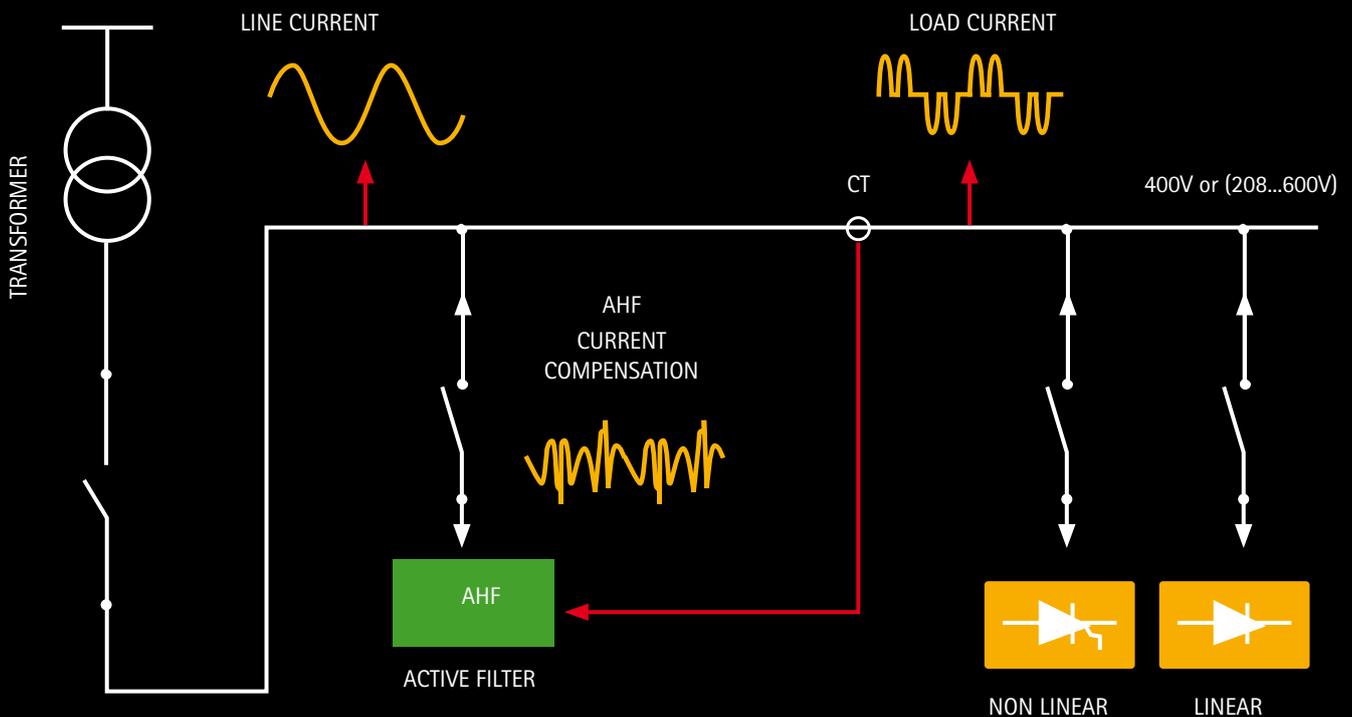
# ACTIVE FILTERS FOR HARMONICS

## AHF SERIES



### GENERAL CHARACTERISTICS

Input voltage	400Vac, on demand 208Vac, 480Vac and 600Vac
Frequency	50/60 Hz -5/+3% selectable
Harmonic compensation	from 50 to 150A
Efficiency	>97%
Electrical distribution	Three-phase or three-phase with neutral
Current transformer	150:5 - 10.000:5
Harmonics filtering range	from the 2nd to the 50th
Reaction time	<50 $\mu$ s
Response time	<5 ms
Communication port	RS485, Ethernet
Communication protocol	Modbus, TCP/IP
Interface	color display HMI LCD 4.3 touch screen
Altitude	1500m - above this altitude 1% derating each 100m
Operating temperature	-10°C / + 40°C
Protection degree	IP 20
Noisiness	<56 dB
Color	RAL 7035, light gray



## ACTIVE FILTERS FOR HARMONICS AHF SERIES



Model	Voltage (Vac)	Current (A)	THDi (%)	Width (mm)	Depth (mm)	Height (mm)	Weight (Kg)
AHF.050	400	50	5	483	653	132	32
AHF.100	400	100	5	483	653	266	38
AHF.150	400	150	5	483	653	266	40

IREM Active Filters are designed to be installed in parallel with each other until the compensated current value required by the system is reached. Available for 208Vac, 480Vac and 600Vac.





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