

ACTIVE HARMONIC FILTERS

The main purpose of the PQSine Active Harmonic Filter (AHF) series is to reduce the harmonic currents generated by the several distorting loads that are connected to the electrical system. The AHF is able to check every single current phasor, up to the 50th order, that is coming from the load and to inject as many in phase opposition, in order to get a remarkable reduction of unwanted harmonics. The AHF behaviour does not depend on the number of loads connected to system and its response time is very short, lower than 5 ms. In this way it is possible to gain a reduction of the Total Harmonic Distortion in Current expressed in %, THDC%, higher than 97%. Moreover the 3-phase/4 wires (3P/4W) model allows to delete the neutral current that may be created by a third harmonic current or by the 1-phase loads that are connected to the system. Another important feature is the compensation of the Power Factor; in this case the AHF injects a current phasor that leads the voltage in order to reach the target Power Factor. These three features can quickly come to operation thanks to 3-level-topology inverter that belongs to the AHF. The NPC 3-level-topology ensures three values of voltage output (positive, 0 and negative) for deleting the ripple of the waveform and for reducing the transistors internal losses.

AHF working principle:

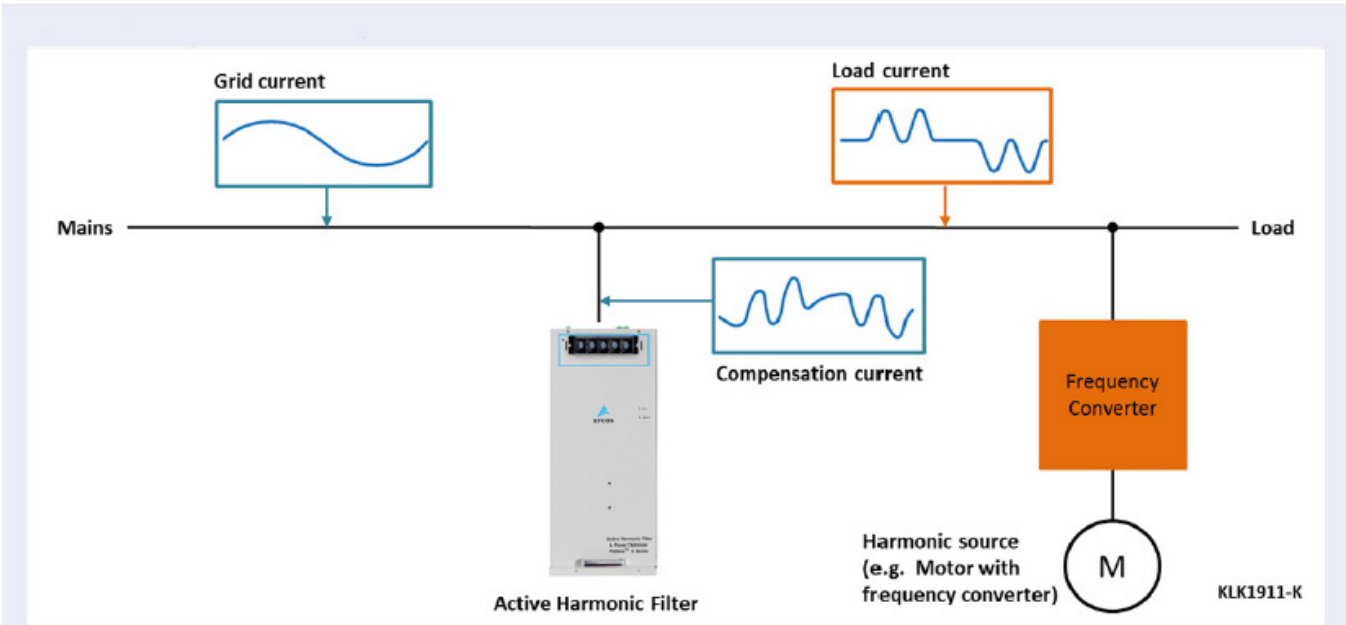


Figure 2: Total harmonic current distortion without active filter

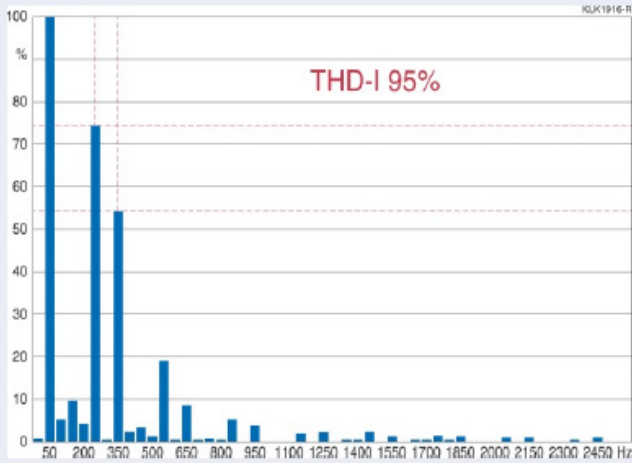
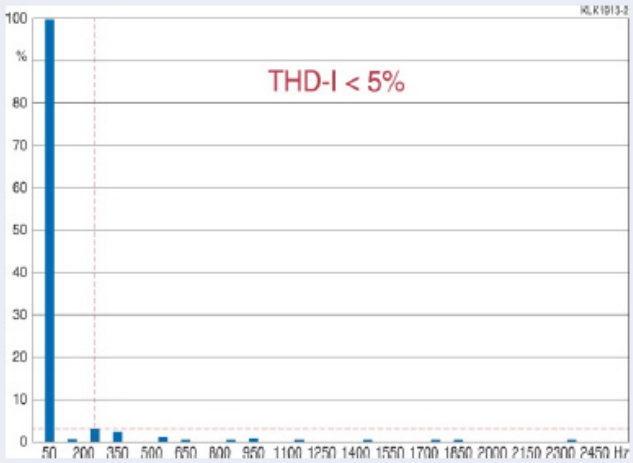


Figure 3: Total harmonic current distortion with active filter



AHF - WM	Nominal Current A	Weight kg	Dimensions (wxhxd) mm	S/N 3P/3W
AHF - WM - 25 - 400 V	25	18	440x470x150	AFW0252303W
AHF - WM - 35 - 400 V	35	18	440x470x150	AFW0352303W
AHF - WM - 50 - 400 V	50	35	440x610x190	AFW0502303W
AHF - WM - 60 - 400 V	60	35	440x610x190	AFW0602303W
AHF - WM - 100 - 400 V	100	46	440x625x232	AFW1002303W
AHF - WM - 150 - 400 V	150	48	500x585x270	AFW1502303W

AHF - FM	Nominal Current A	Weight and Dimensions	S/N 3P/3W
AHF - FM - 200 - 400 V	200	According to the required configuration	AFF2002303W
AHF - FM - 250 - 400 V	250		AFF2502303W
AHF - FM - 300 - 400 V	300		AFF3002303W
AHF - FM - 400 - 400 V	400		AFF4002303W
AHF - FM - 500 - 400 V	500		AFF5002303W
AHF - FM - 600 - 400 V	600		AFF6002303W

- 3-phase/4 wires (3P/4W) solution:
S/N: A F ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 4 ☐
- IP54 Solution:
S/N: A F ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 5 ☐ ☐ ☐

TECHNICAL FEATURES

- Supply voltage: 228 V - 456 V*
- Frequency: 43 Hz - 62 Hz
- Reaction time: 50 us
- Response time: < 5ms
- Switching frequency: 20 kHz
- Harmonics compensation: 100% odd and even
- Reactive power compensation: inductive and capacitive
- Efficiency: > 97%
- Ventilation: Forced

CE Certification and ETL Certification (UL 508, CSA C22.2#2014**) Standards: IEEE 61000, IEEE 519, ER G5/4

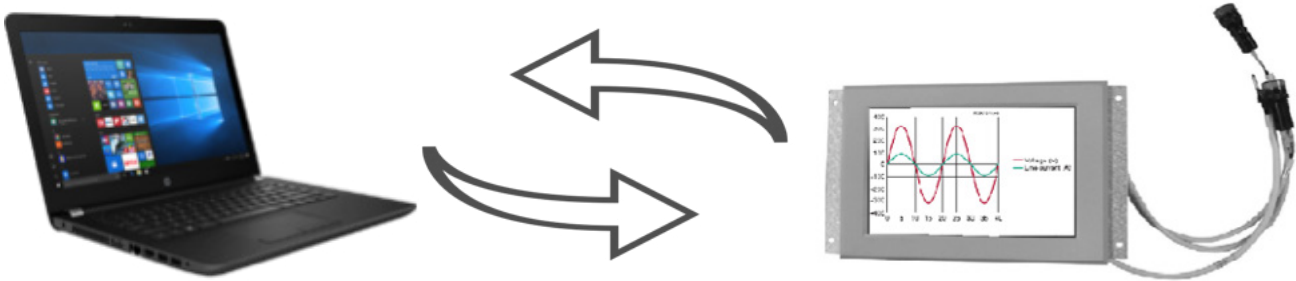
* other supply voltages on request
** only for AHF-WM models



AHF - FM

AHF - WM

Remote connection through the RS485 or ETHERNET ports



Request the software for a remote monitoring of the AHF!