Eradicating Harmonics

Improving safety, reliability and capacity

IMPROVE SAFETY

INCREASE CAPACITY

INCREASE RELIABILITY

IMPROVE POWER FACTOR

Harmonics are damaging the electrical installation

Reliability

An optimal quality of voltage and current (Power Quality) is essential to ensure the reliability of electrical installations on yachts.

As a result of the increased use of converters - such as in LED lighting and frequency inverters - excessive harmonic distortions in the voltage and current can arise. This can cause all kinds of problems concerning the safety, reliability and capacity.

Requirements to THDU

To prevent problems, certification companies set requirements to the maximum allowed harmonic pollution at yachts. A requirement that is often set is a maximum of 5% harmonic distortion in the voltage (THDU).

Active Harmonic Filtering

An advanced method to reduce harmonic currents and meet the standard of 5% THDU is implementing active harmonic filtering. This optimizes the Power Quality of the electrical installation on board a yacht.

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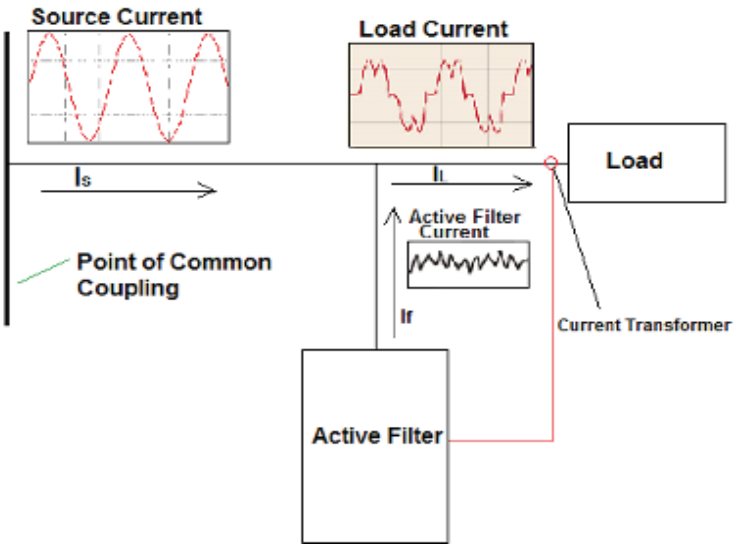
Eradicating Harmonics
Improving safety, reliability and capacity

Active Harmonic Filtering

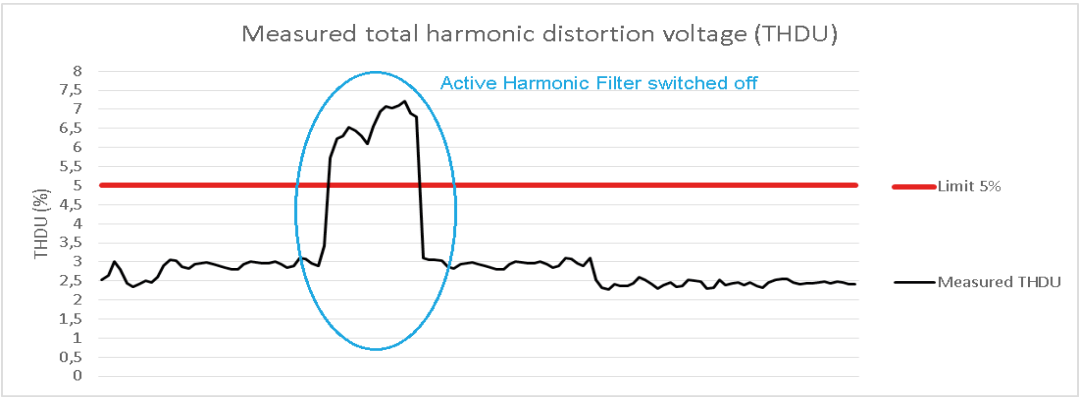
Active Harmonic Filtering is an advanced method to reduce high harmonic currents.

The Active Harmonic Filter (AHF) is installed in parallel to the electrical installation. This allows harmonic distortion created by multiple devices to be reduced with one single Active Harmonic Filter.



Case Study "Active Harmonic Filtering"

An Active Harmonic Filter (AHF) is installed on a yacht. During sea trial, the filter was switched off for a short period of time. The total harmonic distortion of the voltage (THDU) increased immediately to unacceptable values (see graphic).



Possible concequences of harmonic distortion

* Breakdown of sensitive equipment
* Decreased lifespan of equipment
* Overloading
* Capacity losses
* Malfunctioning of instruments and safety and control systems
* Increased temperature in cables, transformers and distributors which can cause energy losses and are an increased fire hazard

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