

CASE STORY

# Improving power quality aboard M/Y Menorca with Comsys ADF

» **LOCATION**
La Spezia, Italy

» **INDUSTRY**
Marine

» **LOCAL PARTNER**
Art.El

» **TIMELINE**
2026

## BACKGROUND

M/Y Menorca is a private pleasure vessel that relies on a stable electrical supply for its onboard equipment. During sailing, electronic boards were repeatedly overheating and burning out, while intermittent false alarms added to concerns about electrical reliability.

The customer contacted Art.El. to investigate the problems and identify a lasting solution. The investigation identified harmonic distortion as a possible contributing factor, directing attention toward the electrical conditions supplying the affected equipment.

## CHALLENGE

Measurements taken before installation recorded voltage total harmonic distortion (THDv) of 9.8-10.9% across the three phases. Current total harmonic distortion (THDi) measured 18.3-20.7%. Art.El. also reported electrical unbalance in the network.

These measurements established harmonic distortion as a power-quality issue requiring attention. Alongside the measured distortion, the recurring overheating, board failures and false alarms highlighted the practical need for more dependable equipment operation.

The challenge was to bring harmonic distortion within the applicable power-quality limits and improve the electrical conditions supplying connected equipment. The customer needed a lasting solution that would help prevent further component failures and resolve the recurring alarms.

## SOLUTION

Art.El. recommended the Comsys ADF P100 G4 active harmonic filter to address the harmonic distortion measured aboard M/Y Menorca. Reliability and efficiency were key factors in the selection, with the customer seeking a lasting solution to the vessel's recurring electrical problems.

The unit was installed in the vessel's electrical network, where it injects controlled compensation currents to counteract harmonics. This compensation reduces voltage distortion in the supply to connected equipment.

By improving the electrical supply conditions, the installation addressed a contributing factor to the overheating, electronic board failures and false alarms identified during the investigation

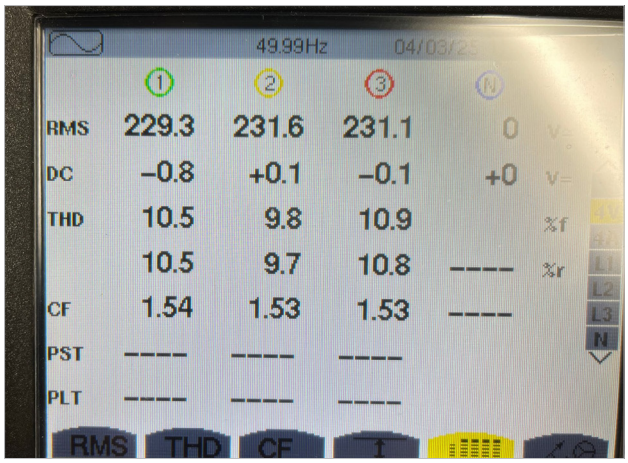


# RESULTS

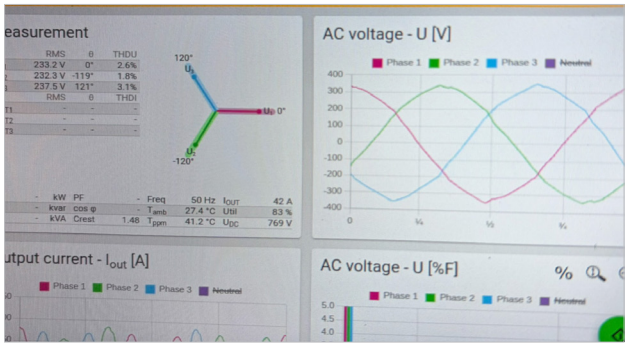
Following installation and commissioning of the Comsys ADF P100 G4, a clear improvement in power quality was observed. Voltage total harmonic distortion decreased from approximately 10% to around 2–3% with lower readings across all three phases, bringing levels within the applicable compliance limits.

The improvement was also reflected in the operational feedback. According to Art.El., no further false alarms or electronic board failures were reported following commissioning.

For M/Y Menorca, these results indicated more dependable onboard operation and an improvement in the recurring problems that had prompted the investigation.




## Measurements before **ADF installation**




## Measurements with **ADF ON**




PRODUCT USED IN THIS CASE

## ADF P100 G4

- HARMONIC ELIMINATION
- MODULAR & SCALABLE DESIGN
- MULTIPLE CONTROL MODES
- NON OVERLOADABLE
- DYNAMIC VAR COMPENSATION
- ROBUST DESIGN FOR RELIABLE OPERATION
- UP TO 15 ADF P100 G4s CAN BE COMBINED FOR HIGHER POWER