



CASE STORY

## ADF active harmonic filters replace PFC equipment at large grain storage facility

» **LOCATION**

UK

» **INDUSTRY**

Grain Storage

» **INSTALLATION DATE**

2023

### BACKGROUND

A large grain storage and drying factory in the UK observed a slow rise in harmonic levels over the past few years. The increase in distortion eventually resulted in several major equipment failures. Furthermore, the increase was having a harmful effect on existing Power Factor Correction (PFC) equipment already installed at the site.





## CHALLENGE

The detuned PFC equipment was designed to prevent the capacitors from increasing the harmonics when the capacitors come into circuit. Nonetheless, this equipment also appeared to be struggling with the high levels of distortion on the site load. In order to figure out what was going on and how to remedy the problem, PFC Engineering, a Comsys partner in the UK, carried out a week-long Power Quality Analysis



## SOLUTION

As a result of the PQ analysis PFC was able to conclude that the best way to reduce these harmonics would be by replacing the existing PFC equipment with a 125A Comsys ADF filter on each supply installed in a Master/Slave configuration. Thanks to the built-in function of reactive power correction, these new active harmonic filters would also be able to correct the Power Factor. The solution utilised the existing power cables that had been feeding the PFC equipment, whilst a new multi-core C.T cable was installed along with new Current Transformers on the main LV tails for the filters to see the site's loads and correct accordingly.



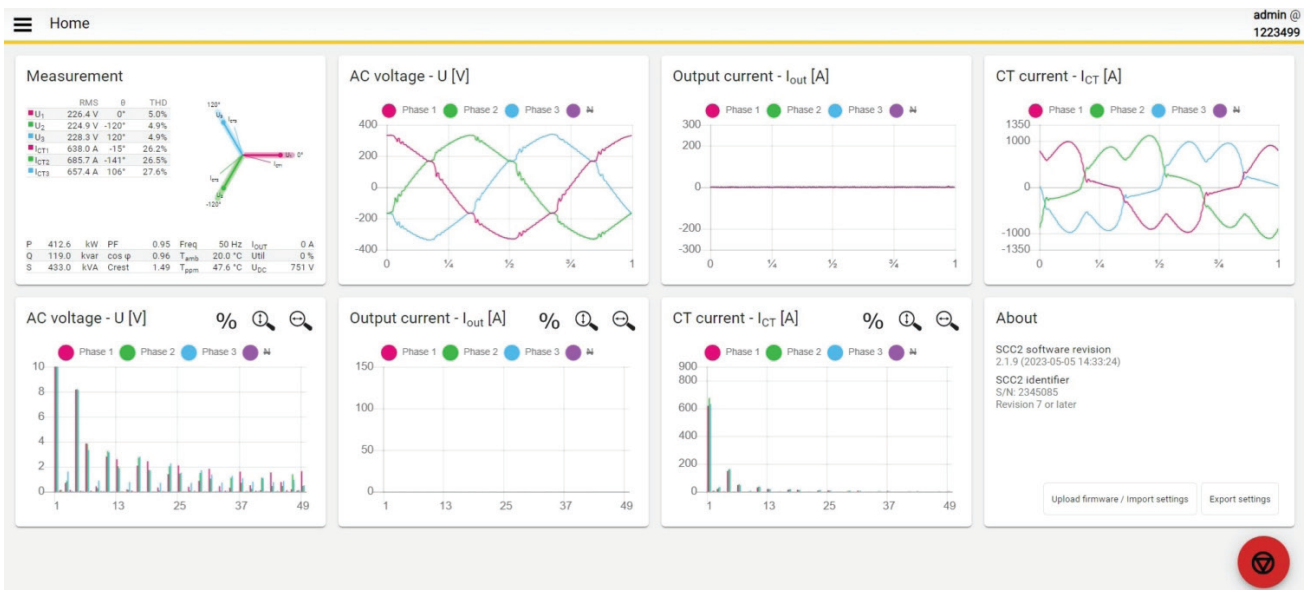
## RESULTS

Following the installation of the new ADF filters a full commissioning was carried out by PFC's engineers. A remote monitoring device was also installed to enable remote access to the ADF active harmonic filters from any desktop PC. Upon completion of

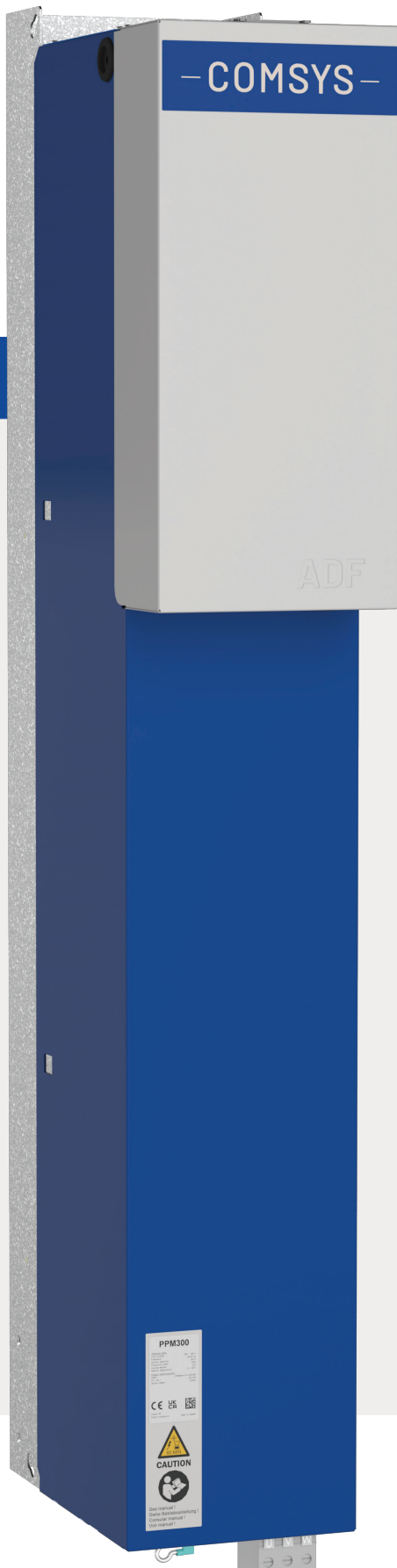
the works, the new Comsys equipment showed to lower the site's average voltage distortion from 6% down to 2% across multiple harmonic ranges, and the Power Factor was corrected from 0.89 inductive to 0.99 inductive.



## Measurements with ADF ON



## Measurements with ADF OFF



PRODUCT USED IN THIS CASE

## PPM300

- » MODULAR BUILDING BLOCK
- » HARMONIC ELIMINATION
- » AIR COOLING OR LIQUID COOLING
- » CLOSED LOOP, OPEN LOOP & SENSORLESS CONTROL
- » SYSTEM INTEGRATION READY
- » AVAILABLE AS UL/CUL LISTED COMPONENTS