



CASE STORY

ADF ensures critical harmonic mitigation at new Data Center

» LOCATION

Europe

» INDUSTRY

Data Center

» INSTALLATION DATE

2025

BACKGROUND

A major infrastructure project involving a new data center in Europe brought together a powerful collaboration between Comsys and Danfoss. System modelling and filter sizing/selection was performed by Danfoss and their DrivePro Sales and Service Partner, Greenville IDC, were utilised to design and build a number of IP66 rated outdoor enclosures utilising active filter system integration components from Comsys. With Greenville managing the integration of the electrical panels, Danfoss UK providing technical support, and Comsys handling the commissioning, the project aimed to ensure reliable power quality performance from the outset.

CHALLENGE

The primary challenge in the project was the presence of significant harmonic distortion caused by the facility's chillers connected to each transformer within the system. This issue was compounded by existing background distortion, leading to voltage total harmonic distortion (THDv) levels reaching approximately 19%—far above acceptable standards for stable data center operation.

Given the high sensitivity of data centers to power quality disturbances, it was essential to reduce THDv to levels that would satisfy the client's requirements and ensure the integrity and efficiency of the facility's operations.

SOLUTION

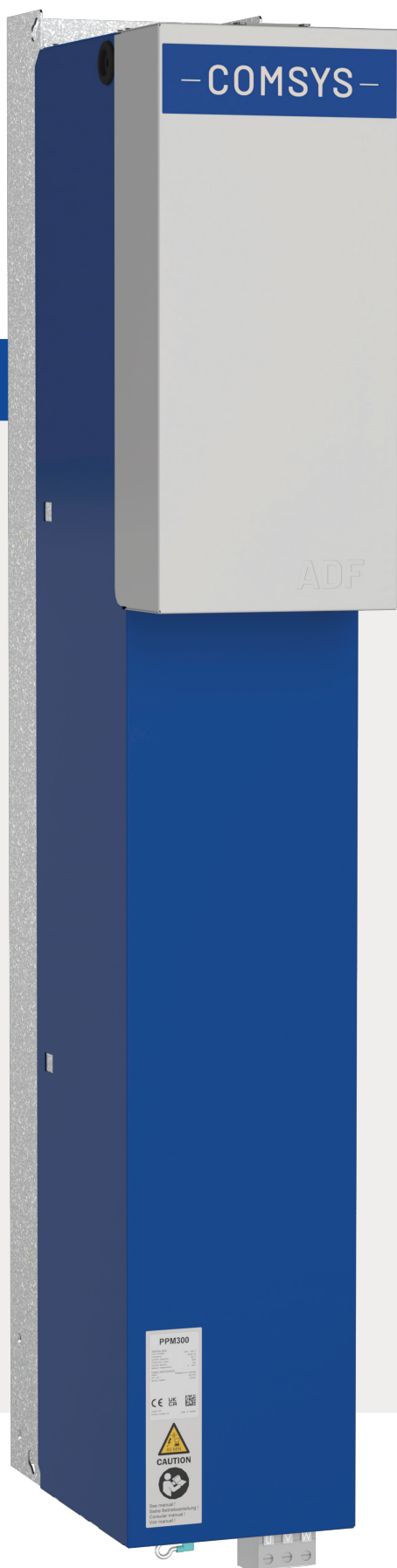
To address the harmonic distortion, the customized ADF PPM300 250A systems were added to the existing infrastructure. These active harmonic filters were integrated into fully enclosed IP66 outdoor cabinets placed on the rooftop of the facility by Greenville. The ADF units employed impedance control technology, enabling them to operate effectively without current transformers (CTs) or multimaster communication between filters. This streamlined design allowed for a robust and scalable solution capable of addressing high levels of harmonic distortion while ensuring reliable operation in a demanding environment.



RESULTS

The installed ADF systems successfully mitigated voltage harmonics, bringing THDv down to the client's targeted level. This achievement ensured compliance with power quality standards and secured stable performance for the data center's critical infrastructure.

The choice of Comsys ADF active filters was driven by its proven reliability, robustness, and ability to handle anticipated high harmonic levels through impedance control. This project exemplifies how tailored power quality solutions and strong technical collaboration can meet the complex needs of mission-critical facilities like modern data centers.



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