

# SUCCESS STORY

## VFD TACKLES HARMONICS IN RETROFIT ON COLLEGE CAMPUS

### INFORMATION

**Industry**

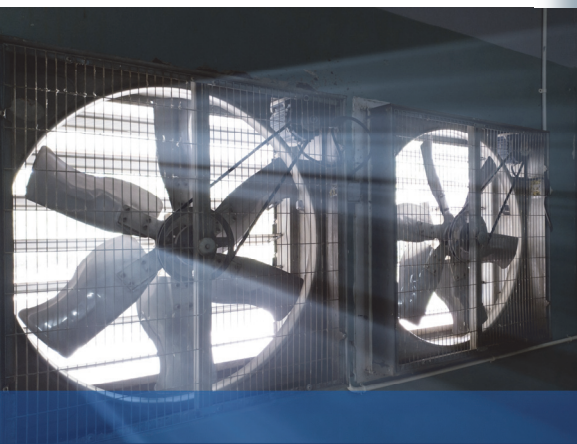
Building Automation

**Application**

Fan

**Product**

Yaskawa Z1000U MATRIX VFD



*The Yaskawa Z1000U Matrix Variable Frequency Drive (VFD) eliminates the need for 18-pulse transformers, reducing costs and complexity while ensuring compliance with IEEE-519 standards.*

### COMPANY HIGHLIGHTS

This customer, a university campus on the East Coast, has a large base of non-Yaskawa variable frequency drives (VFDs). Over the years, Yaskawa has demonstrated its expertise through various installations on campus. However, it has yet to become the customer's standard drive manufacturer.

### THE VFD APPLICATION

When the customer was looking to standardize on a VFD manufacturer, a local motor repair company, in collaboration with a Yaskawa sales representative, coordinated a series of **Z1000U Matrix VFD** classes for the customer's facility engineers. However, their facility was filled with non-Yaskawa VFDs that were about 15 years old, and the customer had already received a quote from the competitor to update and replace all the VFDs. They asked for the same from Yaskawa, who quoted standard VFDs and **Z1000U Matrix VFD** retrofits.

### APPLICATION CHALLENGES

That summer, when one of the non-Yaskawa 18-pulse VFDs failed at the campus, the customer contacted the local motor repair company to evaluate the VFD, which was positioned side-by-side with an identical VFD. The motor repair company concluded that the VFD was not worth repairing. They believed they could significantly improve the system's efficiency by retrofitting the failed non-Yaskawa 18-pulse VFD with a Yaskawa **Z1000U Matrix VFD**. After the customer's engineers reviewed information about the **Z1000U Matrix VFD**, the Yaskawa sales representative and the motor repair company presented an idea to complete the retrofit by installing a 60 HP **Z1000U Matrix VFD** into the existing enclosure. This solution would maintain many current components without the bulky 18-pulse transformer of the non-Yaskawa VFD.

### THE YASKAWA SOLUTION

The customer's engineers agreed to move forward with the proposal. The installation of the **Z1000U Matrix VFD** not only resulted in a more electrically efficient system but also a significantly cleaner cabinet, thanks to the removal of the 18-pulse transformer and an external diode bridge.

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<https://www.yaskawa.com/z1000umatrix>



#### Find a Yaskawa representative:

<https://www.yaskawa.com/support-training/support/sales-search>



### THE YASKAWA SOLUTION

The photo of the side-by-side VFDs (left) tells the story of how much the system has been simplified. All components in the enclosure's bottom right half are not required with the Yaskawa **Z1000U Matrix VFD** installation. The second 18-pulse non-Yaskawa VFD is still operational, but harmonics are being monitored on both drives and will be compared over time. Also, note that the Yaskawa **Z1000U Matrix VFD** does not require line reactors, further simplifying the installation process. Its user-friendly interface and intuitive controls make it easy for the customer's engineers to operate and maintain.

### KEY Z1000U FEATURES

The Yaskawa **Z1000U MATRIX VFD** brings a set of notable advantages:

- Adheres to the 5% input Total Harmonic Distortion (ITHD) standard as per IEEE 519 guidelines for harmonic mitigation at the input stage
- Adjustable torque limit and overtorque settings for optimized acceleration and machine protection
- Equipped with a Safe Torque Off (STO) safety feature, meeting the requirements of IEC62061 (SIL3) and EN/ISO 13849-1 (PLe)
- The Yaskawa **Z1000U MATRIX VFD** is designed to be reliable, as it does not rely on bus capacitors that degrade over time, contributing to a long product lifespan
- Built-in fusing
- Access to Yaskawa's award-winning 24-hour technical support is free of charge. We are committed to providing our customers the highest level of service and support, ensuring they can rely on us for any assistance they need with our products

Contact Yaskawa today to learn how to use Yaskawa AC drives to perfect your facility's HVAC installations!