

WHAT EXACTLY IS A VFD?

A Variable Frequency Drive (VFD) is an adjustable-speed motor controller that drives alternating current motors by varying the voltage and frequency supplied to it.

As we embark on what some are hailing as a third industrial revolution, a time where 3D printing and nanotechnology lead the way, it is important to take note of the technological advancement that is VFDs.

VFDs are used in applications ranging from small appliances to the largest of mine mill drives and compressors. Over the last four decades, power electronics technology has reduced VFD cost and size, and improved performance through advances in semiconductor switching devices, drive topologies, simulation and control techniques, and control hardware and software.

The benefits VFDs bring to our everyday life are numerous, among them, efficiencies in production output, motor starting, lessening the strain on the electrical distribution system, increasing the power factor, and drastically increasing energy efficiency. Around 25% of the world's electrical energy is consumed by electric motors in industrial applications, and the invention of the VFD is what allowed for the energy savings you see today.

VFDs PRODUCE HIGHER OUTPUT USING LESS ENERGY!



MAKING A GREAT TOOL MORE RELIABLE!

As it goes with any technology, the more advanced it becomes, the more sensitive it becomes; therefore, it is an inevitable result that problems arise with VFDs due to power fluctuation issues. There are three predominant power quality issues that need be addressed with VFD's; these are harmonics, common mode noise, and transients.

In order to address the transient issue many manufacturers build in basic surge protection. While this can typically prevent some catastrophic failures, many users are still left with unexplainable lockups, downtime and even failures in basic surge protection.

Why SpecPro®?

The typical SPD (Surge Protective Device) is voltage triggered only. The clamping operation of the SPD will occur at a set point above/below the sinewave. These operations, while successful in mitigating the damaging impacts of lightning or utility company events, are useless when dealing with the real source of the problem. It is not just the voltage events to worry about; it's the frequency change events as well! The high inductive load transient events occur in such a manner as to create false zero crossings that create false triggering of diodes, timing issues, errors and resets.

In every known instance of applying Spec-Pro® to existing issues related to power, all have been eliminated and the return on investment has been 10 months or less.



“We ARE the Standard!”®

During a meeting in 2005 we were asked for recommendations to prevent lightning and surge related damage, for something that would go above the normal scope. It was at this point that our SPD's were utilized with VFDs, shattering the industry norm and becoming THE standard.

We watched as the operational expenses and downtime experienced by this client, a major oil producer, decreased radically (over 60%) with the implementation of our unique Frequency Attenuation Network™ and Transient Equalization Network™ based devices. Our basis for design eventually became the standard for all production sites within the country!

SpecPro® in Action!

In Ecuador, a 40-year-old company saw a return on investment within hours of installing the SPD. After experiencing downtime averaging on \$4000/hour because of machines failing, the company upgraded to our product and the problems they were experiencing stopped.

A Colombian textile manufacturing company was implementing automation to increase production. The supplier they used recommended an internationally known surge suppressor, but even with it, the VFDs supplying power to the compressor began to experience downtime, up to 3 months. Post installation of the ECS SPD the plant has been running at near capacity with zero downtime attributed to VFD or related automation equipment.

In South Africa a prominent CNC machine tool company executed a 9-month test to compare before and after when using ECS SPD on the input to their servo-driven and numerically controlled machining centers. The results were a 50% decrease in trouble calls to the tech support team as well as dispatching of technicians on in warranty call-outs.



THE ONLY CHOICE TO MAKE!

While VFD manufacturers design an industrial ruggedized device for global distribution, there are enormous differences in the electrical environments in which they are installed. In the 21st century, all electrical powered motors need a quality surge protector device to balance the power issues and prevent costly downtime. That device is ECS SPD. Do not leave your machines unguarded. Remember...

“We ARE the Standard!”®

call ECS: 817.483.8497 · visit us online: www.ecsintl.com

