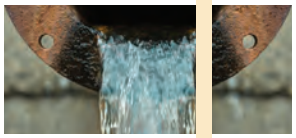

PRODUCT APPLICATION NOTE

Water Management Protection

Variable Frequency Drives Protecting Water Management Systems

Variable frequency drives (VFDs) are integrated into critical systems such as intelligent motor or pump controllers that manage the water flow of large operations. These systems are used extensively in irrigation, to regulate municipal water supplies, for power plant cooling, or for storm water control.

These newer, intelligent controllers are replacing older mechanical pump solutions to achieve more efficient flow control and save energy.

As with any electrical equipment that is exposed to environmental conditions, protection must be in place to ensure that the systems remain operational. This becomes even more critical when the equipment is located in hard to access areas such as inside irrigation systems on large farms or at remote installations on lakes or rivers. The variable frequency drives control the speed of the motor which maintains the amount of water pressure needed for the application. The critical role that these water systems play, and the expense involved in replacing them, has owners and operators becoming more and more concerned with protecting the equipment and the entire operation from severe damage and downtime.

125 hp Drive Using Strikesorb 40 Modules

Raycap's Strikesorb® Class I/II surge protective devices are integrated into the electrical control systems and protect the variable frequency drives from direct or indirect lightning strikes and other overvoltage events that can result in destroyed crops, contaminated water systems, flooding, and millions in lost revenues.

Solution

The unique properties of Raycap's Strikesorb technology ensure that no internal fuses are needed, thus eliminating a potential cause of failure to the protection device. Figure 1 illustrates a typical configuration of Strikesorb protection installed in an irrigation application. The electrical requirements for power line surge protection in variable frequency drives under 600 volts requires that the protection be in compliance with IEEE C62.41.1, IEEE C62.41.2, and IEEE Standard 519.

Typical requirements state that surge protection is installed inside the control panel to protect the unit from damaging transient voltage surges. The surge protection must always be mounted near the incoming power source and properly wired to all three phases and ground. Figure 2 illustrates a typical wiring application.

Conclusion

Raycap solutions, featuring Strikesorb SPDs, are the ideal way to protect critical equipment from catastrophic failure and ensure the reliability and availability of all operating functions.

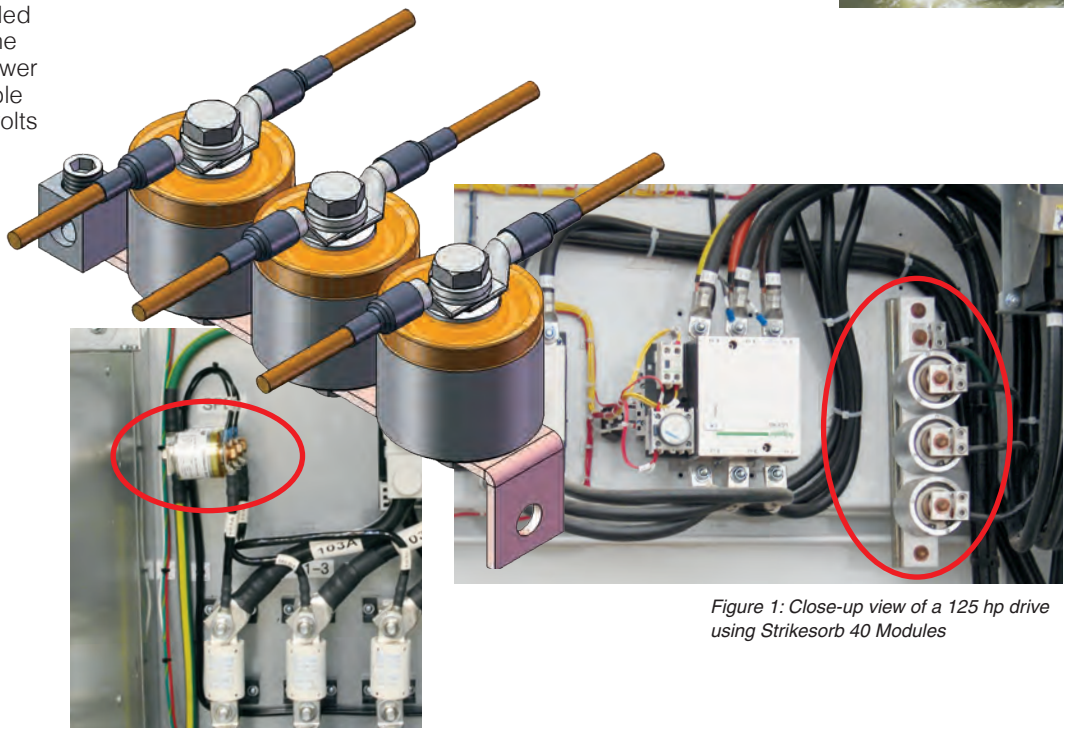

Figure 1: Close-up view of a 125 hp drive using Strikesorb 40 Modules

Figure 2: A variable frequency drive using Strikesorb 30 modules.

"Raycap's expertise in electrical protection for solid-state motor control products is supported by its relationships to the key systems integrators and electrical contractors in these markets."

Strikesorb Benefits

- Maintenance-free operation
- Safe operation: No smoke, fire or explosion
- Unique capability to withstand multiple high-energy transients
- Ultra-high short circuit current rating
- Low let-through voltage, therefore providing excellent protection compared with competitive SPD products
- Class I/Class II compliant SPD per IEC 61643-11
- Global standards compliance: UL 1449 5th Edition, IEC, IEEE, NEMA
- 10 year global product warranty
- Extended life cycle
- Eliminates the need for fuses
- Ease of installation

Raycap is a trusted partner, providing maintenance-free electrical protection solutions for mission-critical applications in hundreds of thousand installations worldwide. For a detailed presentation on how Raycap's Strikesorb-based variable frequency drives solutions or others like them can be implemented contact a local dealer, distributor, integrator or Raycap today!

Raycap

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