

In February 2005, the UL 1449 2nd edition safety standard for Transient Voltage Surge Suppression (TVSS) devices was revised to expand the existing fault current testing. This new standard becomes effective February 9, 2007.

To assist you in understanding the new standard, this document contains answers to commonly asked questions. It explains how Strikesorb® surge suppression technology conforms to the new standard without compromise to its patented, fuseless design, and explains how Strikesorb maintains its outstanding surge suppression performance even in the most demanding application environments.

Q. Why did Underwriters Laboratories (UL) revise the 1449 standard?

A. UL revises its standards as a result of the industry's awareness of potentially dangerous failure modes of UL listed or recognized products available in the market. Reported catastrophic failures of surge protection systems derived an initiative at UL to revise its UL 1449 2nd edition safety standard. Effective February 9, 2007 all UL listed or recognized surge protection devices sold in the market must meet the revised testing requirements of the standard.

Q. What are the main changes in the UL 1449 2007 revision?

A. In 1998, the UL 1449 2nd edition standard became effective with special provisions to address the "slow burn" or "thermal runaway" failure mode of surge protection devices, responsible for catastrophic events which could compromise the safety of electrical installations. In its 2007 revision, the UL 1449 standard extends the limit of the abnormal overvoltage short circuit current tests from 5 Amps to 1000 Amps with test duration of up to seven hours.

Q. How does the Strikesorb module perform against the new testing requirements of the revised UL standard?

A. UL testing requires that surge protection modules withstand test conditions with available short circuit currents up to 1000 Amps for seven hours. Strikesorb surge protection modules are UL recognized components and fulfill the new test requirements without being disconnected from the testing circuit. Strikesorb modules remain connected for the full seven hour period, conducting the 1000 Amps, successfully dissipating the thermal energy created

in the modules, and maintaining their safe operation. This is due to the robustness and the unique mechanical design of Strikesorb modules.

Q. How do other technologies pass the new UL testing requirements?

A. Other technologies rely on thermal and overcurrent fusing to comply with the revised UL standard requirements. The use of disconnects inside surge protection systems is not a new idea. Existing surge protectors complying with the current (1998) revision of UL 1449 use fuses and thermal disconnects to meet the UL requirements for testing at 5 Amps for seven hours. When exposed to the test conditions, these devices actually disconnect from the circuit within a few seconds. The revised standard (by introducing new intermediate current testing levels at 100, 500 and 1000 Amps) makes the design of the fusing or thermal disconnection mechanism more challenging. The engineering approach many manufacturers take is to make the disconnection mechanism react to these currents very fast in order to prevent the full amount of the current (100, 500, and 1000 Amps) from passing through the device. However, a more sensitive disconnect makes the surge protectors more vulnerable to failures from surge currents. The end result is a compromise in the protection levels these devices will be offering. Strikesorb, by not relying on fuses or thermal disconnects, does not suffer from this engineering compromise.

Q. What does safety mean to a surge protection system?

A. A surge protection system should never become a safety hazard to the protected equipment, personnel

questions & answers

or the establishment in which it is installed. Explosions, fires, smoke or soot emission are absolutely unacceptable. The role of a surge protection system is to secure the reliability of an installation and not to compromise it. Improperly engineered protectors cost the customer much more than their own replacement cost. A surge protection failure may result in damages to critical systems and contribute to the operational budget expenses due to incremental costs for cleaning, decontaminating and/or equipment replacement. One always needs to make sure that the products are UL listed (for TVSS stand-alone, permanently connected panels) or UL recognized (for surge protection components) and meet the requirements of the latest revision (Feb. 9, 2007) of the UL 1449 standard. UL (www.ul.com) keeps files of all listed products and recognized components and provides the manufacturers with reports for the compliance of their products to the standards. Ask for this information.

Q. How can I make sure that when I purchase surge suppression systems, the products deliver what they promise?

A. It should be noted that UL listing ensures that the device meets the testing requirements of the standards organization. It does not mean that the device meets the surge suppression capabilities promoted by the manufacturer. Surge ratings quoted for the surge protection device are most often calculated and not proven. For example, there are products that are rated at 250 kA but fail at a fraction of this level. It is always prudent to ask for test reports from independent laboratories that prove that the surge rating claims of the product are met in practice according to the procedure described in the NEMA LS-1 standard. Manufacturers who respect their customers will have these reports immediately available.

Q. How long has the Strikesorb been in the market?

A. Strikesorb was introduced to the market in 1999 and since then more than quarter of a million modules have been installed throughout the USA, Canada,

Central and South America, Africa, Europe and Southeast Asia. Customers using the Strikesorb technology include wireless and wireline telecommunication companies, large industrial groups, OEMs, civil aviation authorities, mining and oilfield services companies, windmill farm operators and high end residential users.

Q. What are the main advantages of the Strikesorb technology?

A. Strikesorb is a unique overvoltage and surge protective device. It provides low clamping voltages at surge currents up to 200 kA, with unparalleled robustness and reliability. It guarantees safe operation and, due to its patented design, it eliminates explosions, fires and catastrophic failures common to many surge suppression products available in the market. It does not contain internal fusing, thermal or otherwise, and provides continuous protection to the load. Its design lends itself to easy integration in larger electrical systems to provide the best protection possible and eliminate the need for long connection leads. Furthermore, it is absolutely maintenance-free, contributing to significant operational savings for the installation.

Q. How can Strikesorb be used in the industry?

A. Strikesorb modules can be used either within stand alone TVSS systems or as surge and overvoltage protection modules integrated inside larger power systems where overvoltage and surge protection is required by the end customer or by the system manufacturer or integrator as an added value feature. Integration offers the best possible option due to the reduction or elimination of the connection lead length.

Q. What does Strikesorb offer to the customer in summary?

A. Strikesorb technology offers system integrators and end users the ultimate maintenance-free overvoltage and surge protection, coupled with safety, reliability and versatility. For more information on Strikesorb TVSS please visit

<http://www.rayvoss.com>

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