

Voice of Reason: “Integrated vs. External” TVSS

◆ LEARN THE REAL TRUTHS AND MYTHS OF INSTALLING INTERNAL VS. EXTERNAL TVSS

INTEGRATION PROVIDES BETTER PERFORMANCE THROUGH SHORTER LEAD LENGTHS –

“**Truth**” – Integrated products generally have longer lead lengths because of distance to the Neutral /Ground bus bar.

A well placed wall mounted TVSS or a TVSS using low impedance cabling greatly outperforms an integrated TVSS.



HAVING ALL THE SAME EQUIPMENT PROVIDES BETTER OVERALL PERFORMANCE –

“**Truth**” – Switchgear and Panel board companies do not have test data of the TVSS inside their own panels because of the sheer cost of all the variations found in panelboards. Their performance sheets only reflect their surge product outside the integration, same as the wall-mounted TVSS manufacturers.

INTEGRATED TVSS IS SAFER BECAUSE THE ELECTRICAL CONTRACTOR IS NOT INVOLVED IN THE INSTALLATION –

“**Truth**” – New installations are usually not completed “LIVE”. Installing a wall-mounted product is no more dangerous than hooking any other wire to a breaker.

“**Truth**” – Failed integrated TVSS can actually trigger an Arc Flash from expelled smoke from the failed product. This is because the smoke from a failed TVSS typically contains carbon and metal byproducts, decreasing the overall dielectric between phases and ground. Arc flashes cause massive damage to the electrical system of a building.

“**Truth**” – Integrated TVSS product forces employees to work on “Live” gear, greatly decreasing their personal safety. Because the product is inside the gear, live parts are exposed every time a part is replaced or maintained; surge modules, alarm modules, even changing out the surge counter battery puts an installer at risk.



A company cannot afford to overlook the safety issues connected to arc flash explosions. An arc flash is instantaneous and can cause significant equipment damage, severe burns and loss of life.

INTEGRATED TVSS IS LESS EXPENSIVE AS A SYSTEM BECAUSE ELECTRICAL CONTRACTOR IS NOT PAID TO INSTALL EXTRA PRODUCTS –

“**Truth**” – IEEE 1100 (Emerald Book) Section 8.4.2.5 states the risk of integration may cause significant collateral damage inside the switchboard or panelboards including compromising the insulation causing faults – ie. “Arc Flash”

“**Truth**” – While the initial installation may be less expensive, the routine maintenance costs are significantly higher with the integrated TVSS because of inherent weakness in the design concept.

“**Truth**” – By and large, when an integrated TVSS protection module fails, so does the whole electrical power panel including breakers and wiring terminations, thus greatly increasing the overall replacement costs.

“**Truth**” – While the electrical components can be covered under warranty like the breakers and TVSS, the customer pays for both replacement labor and surrounding components damaged that were attached to the panel.