Adaptive Industrial Solutions
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(877) 818-5009

Electrical Surges & Protection

Voltage transients are generated by both natural and man-made sources.

Some of the more common sources are:

Atmospheric

The effects of lightning are well known; however many people think only in terms of damage from a direct strike. In fact, most of the damage done to electronic equipment is not caused by the direct strike, but rather the voltages induced in nearby conductors (power lines, telephone lines, data cables, etc.) by the power strike. **Harmful voltages can appear on a line as far as 15 miles away from a strike.** Static discharges can also cause harm. These are caused by variation over distance of the static atmospheric electrical field of an overhead line.

Man-made

Inductive voltage kickbacks are caused by the interruption of current in motors, transformers, solenoids, and relays. Transients up to several thousand volts are common from these sources. Voltage induced in adjacent conductors by power line shorts, especially three phase systems, can be extremely large. Contact between power lines and signal lines results in high AC current flowing on the signal lines.

By using a surge voltage protector (a hermetically sealed, gas discharge tube consisting of two electrodes spaced by insulators and filled with a rare gas) we can provide a conductive path for the unwanted and excessive transients. By shunting the surge away from the pressure transducer electronics, failure of the unit is prevented. When the surge subsides the unit returns to normal operation. While no one can offer 100% protection from all surges - especially lightning, our Option "JV" (Voltage Surge Protection) can protect from surges up to 500 V (10 Amps) and can be added to standard 200 (Vdc) or 300 (mA) series units. Other additional measures can be taken, such as inserting a transient protector in line with pressure transducer, providing further electronic protection.

For more information on transient protection contact:

Joslyn Electronic Systems
6868 Cortona Dr.
Goleta, CA 93116
(805) 968-3551

Also, additional mechanical protection/insulation from a metal pipe or tank can be achieved by the insertion of a non-conductive piping such as Teflon or PVC between the transducer port and the conductor. Dielectric pipe unions offer a more rugged approach while still providing a level of protection, and some are rated to 600 V. A source for Dielectric Pipe Union is:

Watts Regulator
RTE 114 Chestnut St.
Lawrence, MA 01842
(508) 688-1811