

# TRANSIENTS AND POWER QUALITY

It is most desirable for electrical equipment to operate from clean, sinusoidal voltage and current waveforms in order to achieve maximum efficiency.

Poor power quality does involve pollution on the line resulting from high frequency induced electrical noise, switching transients, and nonlinear and unbalanced load reflections. Power surges, both voltage and current, are occurring continually in today's power systems. Whether they occur naturally, such as from lightning and static electricity, or are man made, such as inductive surges from motors, transformers, solenoids, etc., power surges are a fact of life. These power surges have a very high voltage and current level as compared to electrical noise alone.

⇒ Electric systems endure abuse largely from spikes and transients (resulting in high frequency noise on the line) generated internally that perpetuate their own distortions indefinitely.

⇒ This then reduces operating efficiency and creates excess heat that displaces normal power distribution and output.

⇒ That in turn causes electrical systems and equipment to ultimately deteriorate and to malfunction.

In a digital logic control system, where binary bit streams are used to implement control signals, random impulsive noise can knock out bits or put in bits where it should not exist. Thus, the control signal is altered, and the desired action is lost. The solution is to inhibit the impulsive noise by clamping, filtering, absorbing and removing the disturbances from within a facility, before the disturbances reach sensitive circuitry.

## *And this is the bottom line of power quality.*

This is the advantage of the *Environmental Potentials* tracking filter devices. The EP products act upon the over-voltage and high frequency disturbances by tracking, filtering, and absorbing the high frequency anomalies, thus presenting to the load a clean sinusoidal wave. Over time the resulting increase in efficiency gives rise to increased productivity and lower operating costs.

