ELSPEC TM

Dynamic Reactive Power Compensation with Harmonics Filter

Benefits Quick Look
Optimizes Facility Power Factor
Improves Voltage
Increases Electrical Capacity
Eliminates Power Factor Penalties
Lowers KW consumption and demand
Extends life of equipment
Completely Automatic
140,000+ Hours of service

Smooth Capacitor Switching

ELSPEC™ units switch capacitor groups on and off using state-of-the-art electronic switches. The connection and disconnection of capacitors occur precisely at zero-current crossings. This smooth connection avoids transient effects typically created by electromechanically switched power factor correction (PFC) systems, thus extending the life expectanc y of the unit dramatically.

Fast and Accurate Measurements

The controller uses Fast Fourier Transform (FFT) analysis of all phases for each cycle. Power information, system status, and detailed logs of events are displayed on a large, backlit, LCD screen, or via communication.

Ideal PFC Control

Using exclusive automatic control algorithms and rapid electronic switching, complete compensation of reactive current is achieved, typically, in ¼ cycle irrespective of the number of steps required. For 50Hz systems, this means a total acquisition time of 13.3 ms, and for 60Hz, that time is 4.0 ms. The power factor is controlled, very accurately, through an advanced open and closed-loop control and measuring system that uses information from all three-phases, as well as accounts for the effect of harmonics one (1) through sixty-three (63). Minimum, maximum, and average power factor modes, as well as threshold levels, can be selected for perfect compliance with specific network requirements.

SCAN Mode

The SCAN feature protects capacitors and contributes to longer life expectancy by reducing over current and minimizing capacitor heating. The electronic switching element connects one capacitor group simultaneously as another group is disconnected. This operation occurs every few seconds keeping total compensation unchanged. The result is mean current reduction due to the lower duty cycle, the temperature rise of each uniquely designed reactor is substantially reduced, and the potential for cabinet overheating is minimized.

Consistent Capacity

Conventional electromechanical capacitor banks suffer from an ongoing cumulative reduction in capacity due to the effect of transients during connection and disconnection. This can be especially detrimental in tuned and detuned electromechanically switched systems where changes in the ratio between the capacitors and reactors shift the resonant frequency. This scenario can cause resonance, which can cause extreme damage to equipment in the facility. Our unit prevents this scenario, resulting in longer system life, and lower maintenance costs.