DYNAMIC REACTIVE POWER COMPENSATION
WITH THE USE OF 1-PHASE ACTIVE POWER FILTER

Tomasz ADRIKOWSKI, Dawid BUŁA, Marian PASKO

ABSTRACT   A certain group of electrical power loads consumes fast time-varying reactive power. To this group belong office circuits containing computers. This circuit gets the reactive power with high dynamic changes at the level of minutes or seconds and fractions of seconds, making it impossible to efficiently compensate by compensators with standard battery based on capacitors. They need several to tens of seconds to switch between each sector of capacitor banks which directly results from the time required for their discharge.

The subject of considerations will be the application of a one-phase active filter to compensate the dynamic changes of the reactive power. A modified pq algorithm will be used to control of the one-phase active filter. Considerations will be supported by simulations carried out in the MATLAB-Simulink environment.

Keywords: one-phase active power filter, extension p-q theorem, dynamic reactive power compensation, power factor correction