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Optimal Injected Current Control for Shunt Active Power Filter Using Artificial Intelligence

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Abstract : In this paper, a new particle swarm optimization (PSO) based method is proposed for the implantation of optimal harmonic power flow in power systems. In this algorithm approach, proportional integral controller for reference compensating currents of active power filter is performed in order to minimize the total harmonic distortion (THD). The simulation results show that the new control method using PSO approach is not only easy to be implanted, but also very effective in reducing the unwanted harmonics and compensating reactive power. The studies carried out have been accomplished using the MATLAB Simulink Power System Toolbox.

Keywords : shunt active power filter, power quality, current control, proportional integral controller, particle swarm optimization
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