

## **New technique for decreasing of total harmonic distortion of three- phases bridge rectifier by using the method of harmonic injection**

### **ABSTRACT**

Bridge rectifier of three-phases is has widely applications in power systems. This rectifier consummates a wave form that has been shaped by a non-linear of the input current, though in the power system. The harmonic parts caused by such power electronic devices have critical effects on a number of aspects of power networks, particularly, on distribution. In accumulation, the value of Total Harmonic Distortion (THD) is high; it causes unwanted distortion on the sinusoidal figure of the wave for the input current. The outcomes propose a new circuit for a three-phase rectifier, making use of harmonic current injection method. The MATLAB software has been used to simulate the proposed circuit. A prototype has been developed to prove the actual results and compare them with the simulation results of the proposed circuit. The proposed circuit applies active harmonic current injection method with a capacitor bank, which, compared to conventional circuits, is not sophisticated. The model has been verified with feedback injection harmonic current to demonstrate the strength of the system. The evaluation of the simulation results and experimental outcomes from the prototype represents an unimportant difference. The proposed circuit has minimized the THD drawn from the input current supply down to 5.5%.

**Keyword:** Converters; Input cuuent; Sinsoidal waveform; Three-phases; Total harmonic distortion