

# Abstract

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## **Stabilized power AC-DC-AC converter using polygon transformer**

Static power converters are used for many applications, like frequency converters for motors, uninterruptible power supplies (UPS's), general power supplies. This paper analyses the performance of high power static 400Hz supply system used in aircraft ground power units. However, the problem of this system is the harmonics coming from the load current towards the supply. This problem can be overcome by using a way to improve the supply wave. One of those is using novel polygon transformer. This paper presents combining of stabilized power AC-DCAC supply using polygon transformer to improve the supply wave and using a passive filter on the output load. The design and simulation of this system has been presented. In [8], the polygon transformer is connected to achieve 18-pulse AC-DC conversion through phase shifting between the two sets of voltages equal  $20^\circ$  with respect to the supply voltage. The disadvantage of this connection is that realizing feasible values for the tapping portion for step up operation is not possible. Therefore, in the proposed system, a novel idea for the 18-pulse conversion is achieved by phase shifting between voltage sets with  $40^\circ$ .