The application of a Quasi Z-source AC-AC converter in voltage sag mitigation

Abstract:

This paper deals with the employment of a single-phase Quasi Z-source AC-AC converter in voltage sag mitigation application. The proposed structure overcomes the traditional structure drawbacks and has the following features: input and output voltages sharing the same ground, operating in the continuous current mode (CCM), using direct AC-AC converter, using safe-commutation strategy, capable of extending the output voltage range, improves reliability and provides the suitable output voltage with reduced harmonic. The results of a simulation study conducted on the proposed voltage sag mitigation structure have revealed its capability in compensating voltage sag.