

This paper presents a new family of buck type power factor corrector rectifiers that operates in continuous-conduction mode (CCM) and generates a multilevel voltage waveform at the input. Due to CCM operation, commonly used ac-side capacitive filter and dc-side inductive filter are removed from the proposed modified packed U-cell rectifier structure. Dual dc output terminals are provided to have a five-level voltage waveform at the input points of the rectifier where it is supplied by a grid via a line inductor. Producing different voltage levels reduces the voltage harmonics which affects the grid current harmonic contents directly. Low switching frequency of the proposed rectifier is a distinguished characteristic among other buck type rectifiers that reduces switching losses and any high switching frequency related issues, significantly. The proposed transformerless, reduced filter, and multilevel rectifier topology has been investigated experimentally to validate the good dynamic performance in generating and regulating dual 125-V dc outputs terminals as telecommunication boards feeders or industrial battery chargers under various situation including change in the loads and change in the main grid voltage amplitude.