

## ADAPTABLE CONTROL OF UNIDIRECTIONAL AC-DC BOOST CONVERTERS TO IMPROVE GRID POWER QUALITY

M. MALATHI<sup>1</sup> & C. CHRISTOBER ASIR RAJAN<sup>2</sup>

<sup>1</sup>Department of Electrical & Electronics Engineering Pondicherry Engineering College, Pondicherry, India

<sup>2</sup>Professor, Department of Electrical & Electronics Engineering Pondicherry Engineering College, Pondicherry, India

### ABSTRACT

*This paper introduces an adaptable control of unidirectional ac-dc boost converters for the purpose of mitigating grid power quality. The unidirectional ac-dc boost converter using passive filter with controller design to compensate the harmonic current and reactive power. The unidirectional ac-dc boost converter has three modes of operation are power factor correction, harmonic current compensation and reactive power compensation. Hence both HCC and RPC can operate simultaneously to reduce the distortion of the grid current. Estimate the distortion levels of the current under reactive power compensation mode. The effectiveness of the present control method was validate and simulates the results showing improved power factor and total harmonic distortion of the grid. Simulation results are validated with the effectiveness of the proposed control method.*

**KEYWORDS:** *Harmonic Current Compensation and Reactive Power Compensation, Harmonic Distortion of the Grid*

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