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Designing Control Strategies for Harmonic Power Filters to Improve the Power Quality in Distribution Networks

Harmonic Power Filters Design

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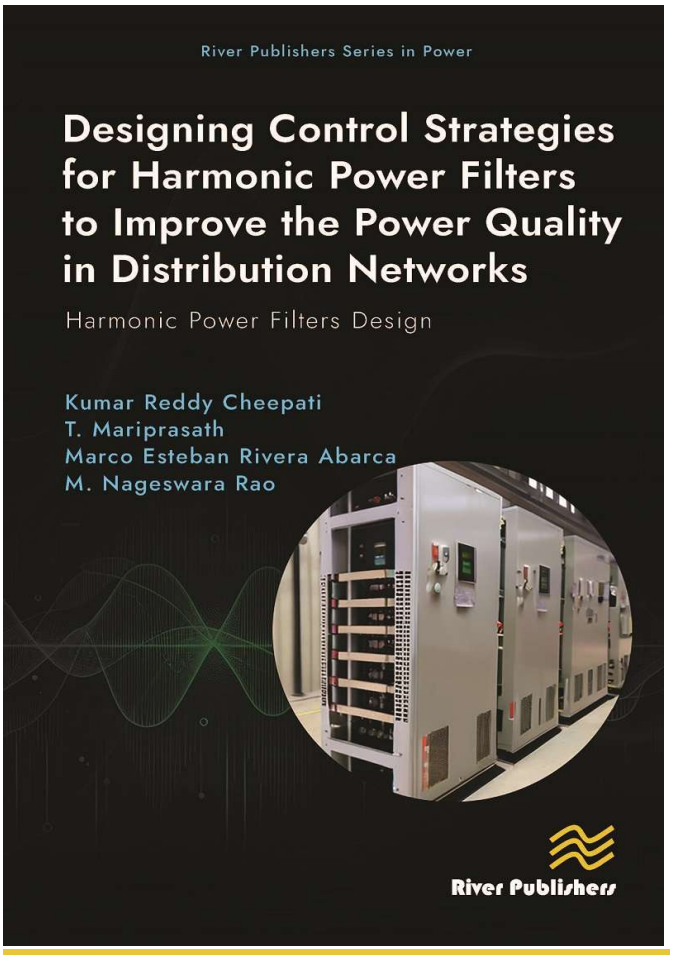
In today's complex and interconnected electrical power systems, maintaining high power quality is crucial for efficient operation and reliability. This book delves into the intricacies of power quality issues, with a special focus on harmonics and their mitigation through advanced filter design and control strategies. It is tailored for both professionals and students in electrical engineering, power systems, and power electronics. It offers a detailed exploration of the following key topics:

- Fundamentals of power quality: Understand the basic concepts of power quality, its importance, and the common issues encountered in modern distribution networks.
- Harmonic analysis: Learn about the sources of harmonics, their effects on electrical systems, and the methodologies for their analysis.
- Filter design techniques: Discover various types of harmonic filters, including passive, active, and hybrid filters, and the principles behind their design.
- Control strategies: Gain insights into advanced control techniques for harmonic filters, focusing on improving system stability, efficiency, and performance.
- Future trends and innovations: Stay ahead with the latest developments and future trends in harmonic filtering and power quality improvement.

Written by leading experts in the field, this text/reference combines theoretical foundations with practical insights, making it an essential resource for anyone looking to deepen their understanding of power quality and harmonic filtering. Whether you are an academic, a practicing engineer, or a researcher, this book provides the knowledge and tools needed to tackle the challenges of modern power distribution networks and ensure high-quality power delivery.

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