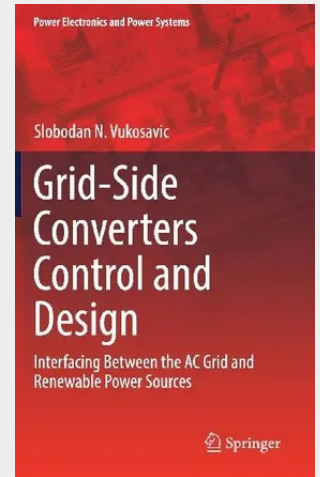


Grid-Side Converters Control and Design

This textbook is intended for engineering students taking courses in power electronics, renewable energy sources, smart grids or static power converters. It is also appropriate for students preparing a capstone project where they need to understand, model, supply, control and specify the grid side power converters. The main goal of the book is developing in students the skills that are required to design, control and use static power converters that serve as an interface between the ac grid and renewable power sources. The same skills can be used to design, control and use the static power converters used within the micro-grids and nano-grids, as the converters that provide the interface between such grids and the external grid. The author's approach starts with basic functionality and the role of grid connected power converters in their typical applications, and their static and dynamic characteristics. Particular effort is dedicated to developing simple, concise, intuitive and easy-to-use mathematical models that summarize the essence of the grid side converter dynamics. Mathematics is reduced to a necessary minimum, solved examples are used extensively to introduce new concepts, and exercises are used to test mastery of new skills.

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