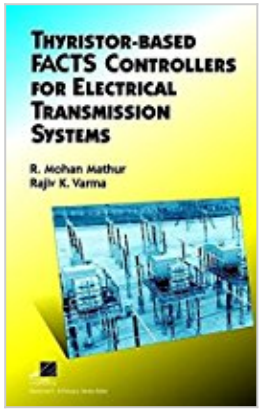

Thyristor-Based FACTS Controllers for Electrical Transmission Systems

By R. Mohan Mathur, Rajiv K. Varma

Thyristor-Based FACTS Controllers for Electrical Transmission Systems By R. Mohan Mathur, Rajiv K. Varma

An important new resource for the international utility market

Over the past two decades, static reactive power compensators have evolved into a mature technology and become an integral part of modern electrical power systems. They are one of the key devices in flexible AC transmission systems (FACTS). Coordination of static compensators with other controllable FACTS devices promises not only tremendously enhanced power system controllability, but also the extension of power transfer capability of existing transmission corridors to near their thermal capacities, thus delaying or even curtailing the need to invest in new transmission facilities.

Offering both an in-depth presentation of theoretical concepts and practical applications pertaining to these power compensators, Thyristor-Based FACTS Controllers for Electrical Transmission Systems fills the need for an appropriate text on this emerging technology. Replete with examples and case studies on control design and performance, the book provides an important resource for both students and engineers working in the field.

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Editorial Review

From the Back Cover
An important new resource for the international utility market

Flexible AC Transmission System (FACTS) technology is fast becoming a mainstay of modern electrical power systems. Thyristor-based controllers such as Static Var Compensator (SVC) and Thyristor Controlled Series Capacitor (TCSC) constitute the key components of FACTS technology that have wide application potential around the world, especially in the restructured power system environment.

By integrating material from several publications in the available literature, this comprehensive reference book makes an elaborate presentation on:

- Operating principles, control systems, and modeling of different SVCs and TCSC
- Control system performance, including the influence of measurement systems, network resonances, and harmonic interactions
- Controller design for enhancing power transfer, stability and damping, mitigating subsynchronous resonances, preventing voltage instability, etc.
- Controller interactions and techniques for coordinating FACTS controllers
- Emerging FACTS controllers-STATCOM, SSSC, and UPFC

Thyristor-based FACTS Controllers for Electrical Transmission Systems offers an in-depth discussion of both theoretical concepts and practical applications, enhanced by examples and case studies of control design and system performance. Filling the need for a comprehensive text in this area, the book will prove to be an important resource for academics, students, and practicing engineers involved in FACTS technology.

About the Author
R. MOHAN MATHUR is Vice President, Training Support and Services Division, Ontario Power Generation, Toronto, Canada. Until 1999 he was Dean, Faculty of Engineering Science and Professor of Electrical Engineering at the University of Western Ontario, London, Canada, where he continues to be a Professor Emeritus. For over two decades he has been engaged in research in the area of electronic controllers for power transmission systems, including ac/dc converters and active and reactive power compensators for ac transmission lines.

RAJIV K. VARMA is Professor of Electrical Engineering at Indian Institute of Technology, Kanpur, India. He was awarded the Government of India BOYSCAST Young Scientist Fellowship in 1992-93 to conduct research on FACTS at the University of Western Ontario, London, Canada. Since then he has maintained active research collaboration with researchers at the University of Western Ontario. With Wayne Litzenberger he has coedited two editions of the *Annotated Bibliography of HVDC Transmission and FACTS Devices, 1994-95 and 1996-97*. For preparing the Second Edition, he was awarded the Fulbright Scholarship of U.S. Educational Foundation in India to travel to the United States. His teaching and research interests include Flexible AC Transmission System and Power System Stability. He is a member of the faculty of the Department of Electrical and Computer Engineering, University of Western Ontario, London, Canada.

Users Review

From reader reviews:

Sandra Murray:

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