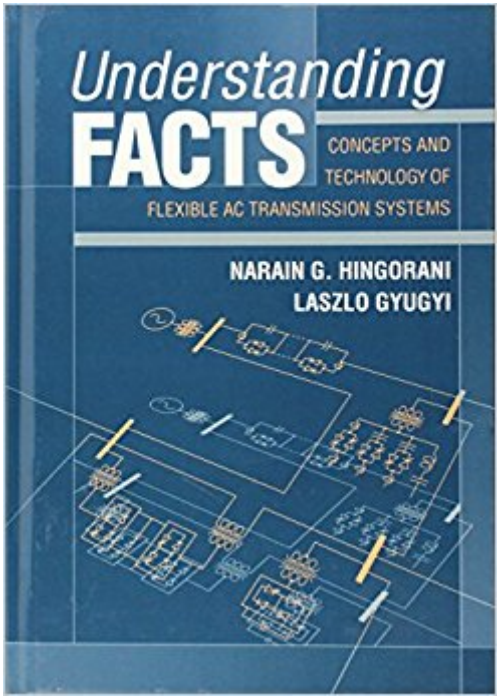
Understanding FACTS: Concepts And Technology Of Flexible AC Transmission Systems



Synopsis

"The Flexible AC Transmission System (FACTS) -- a new technology based on power electronics -- offers an opportunity to enhance controllability, stability, and power transfer capability of AC transmission systems. Pioneers in FACTS and leading world experts in power electronics applications Narain G. Hingorani and Laszlo Gyugyi have teamed together to bring you the definitive book on FACTS technology. Hingorani and Gyugyi present a practical approach to FACTS that will enable electrical engineers working in the power industry to understand the principles underlying this advanced system. UNDERSTANDING FACTS will also enhance expertise in equipment specifications and engineering design, offering an informed view of the future of power electronics in AC transmission systems. This comprehensive reference book provides an in-depth look at: * Power semiconductor devices * Voltage-sourced and current-sourced converters * Specific FACTS controllers including SVC, STATCOM, TCSC, SSSC, UPFC, IPFC plus voltage regulators, phase shifters, and special controllers with a detailed comparison of their performance attributes * Major FACTS applications used in the United States. UNDERSTANDING FACTS is an authoritative resource that is essential reading for electrical engineers who want to stay on the cusp of the power electronics revolution." Sponsored by: IEEE Power Engineering Society.

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Electrical Engineering Understanding FACTS Concepts and Technology of Flexible AC Transmission Systems The Flexible AC Transmission System (FACTS)—a new technology

based on power electronics—offers an opportunity to enhance controllability, stability, and power transfer capability of ac transmission systems. Pioneers in FACTS and leading world experts in power electronics applications, Narain G. Hingorani and Laszlo Gyugyi, have teamed together to bring you the definitive book on FACTS technology. Drs. Hingorani and Gyugyi present a practical approach to FACTS that will enable electrical engineers working in the power industry to understand the principles underlying this advanced system. Understanding FACTS will enhance your expertise in equipment specifications and engineering design, and will offer you an informed view of the future of power electronics in ac transmission systems. This comprehensive reference book provides in-depth discussions on: Power semiconductor devices Voltage-sourced and current-sourced converters Specific FACTS Controllers, including SVC, STATCOM, TCSC, SSSC, UPFC, IPFC plus voltage regulators, phase shifters, and special Controllers with a detailed comparison of their performance attributes Major FACTS applications in the U.S. Understanding FACTS is an authoritative resource that is essential reading for electrical engineers who want to stay on the cusp of the power electronics revolution.

About the Authors... Narain G. Hingorani is credited with originating the concepts of FACTS and Custom Power. He is a retired vice president of Electrical Systems at EPRI and provides consulting services that help utilities plan and purchase power electronics technology. Dr. Hingorani has published widely on HVDC and ac transmission and is coauthor of High Voltage Direct Current Power Transmission (Garaway Ltd., 1960). Dr. Hingorani is the recipient of the 1985 Uno Lamm Medal of the IEEE Power Engineering Society for outstanding contributions to High Voltage Direct Current Technology and the 1995 IEEE Lamme Medal for leadership and pioneering contributions to the transmission and distribution of electric power. He is a Fellow of the IEEE and in 1988 he was elected to the National Academy of Engineering. Laszlo Gyugyi is technical director at Siemens FACTS & Power Quality Division in Orlando, Florida. His research covers a broad range of power electronic circuits and systems. In collaboration with B. R. Pelly, Dr. Gyugyi established the theoretical foundations of ac to ac switching converters in Static Power Frequency Changers (John Wiley & Sons, 1976). Subsequently, he has focused on the development of new power electronic technologies for electric transmission and distribution systems, and has pioneered the converter-based approach for FACTS. Dr. Gyugyi has published more than 50 papers in the field and holds 76 U.S. patents. He is the recipient of the 1992 Westinghouse Order of Merit, the 1994 William E. Newell Power Electronics Award of the IEEE Power Electronics Society, and the first Flexible AC Transmission System (FACTS) Award given by the IEEE Power Engineering Society in

1999. He is a Fellow of the IEE.

A good general overview of the role of FACTS devices and their capabilities. This book is sure to become a classic reference book as the technology develops over the next few years, primarily because it is authored by the original developer of FACTS devices - Dr Hingorani. The technical content is acessable to both undergraduates and practicing engineers.

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