DESCRIPTION

The comprehensive resource on reactive power compensation, presenting the design, application and operation of reactive power equipment and installations

The area of reactive power compensation is gaining increasing importance worldwide. If suitably designed, it is capable of improving voltage quality significantly, meaning that losses in equipment and power systems are reduced, the permissible loading of equipment can be increased, and the over-all stability of system operation improved. Ultimately, energy use and CO₂ emission are reduced.

This unique guide discusses the effects of reactive power on generation, transmission and distribution, and looks at the compensation of existing installations in detail. It outlines methods for determination of reactive power and answers the questions that arise when controlling it, for example, at parallel operation with generators. There is also a chapter devoted to installation, maintenance and disturbances.

Key features include:

• A concise overview as well as deep specific knowledge on the segment power factor regulation and network quality

• Theory of reactive power compensation coupled with typical application examples such as car manufacturing, metal rolling and chemical works

• Chapter summaries with charts explaining how to put the theory into practice
• Coverage on the cost-saving aspects of this technology, including the efficient use of energy and the reduction of CO₂

A practical guide for electrical engineers and technicians in utilities, this is also essential reading for maintenance engineers, designers, electrical contractors, manufacturing companies, and researchers, also those in industry and planning agencies. Insightful and clear, the book will also appeal to senior undergraduate and graduate electrical engineering students and professors.

⚠️ ABOUT THE AUTHOR

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Dr Hofmann has been the leading expert in the development of reactive power controllers and energy multimeters for more than thirty years at Beluk GmbH. Having started his career as a high voltage electrician and studying electrical engineering at Oskar-von-Miller-Polytechnikum in Munich, he is now currently working as a consulting engineer in the field of power factor correction at Beluk GmbH.

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Professor Schlabbach attained a doctorate in electrotechnology from the Technical University Darmstadt in 1982. Since then he has been primarily active in the planning and project engineering of electric power nets at home and abroad, in an internationally active engineer enterprise. He currently lectures on electrical and renewable energy production at the Bielefeld College of further education, teaching specifically in the areas of training and distribution.

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Dr Just studied electrical engineering at the University of Applied Sciences FH Gelsenkirchen. He worked at City works Gelsenkirchen with the focus energy techniques and environmental protection group. He is now working as consulting engineer in the field of power factor correction. He is also a master electrician.

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