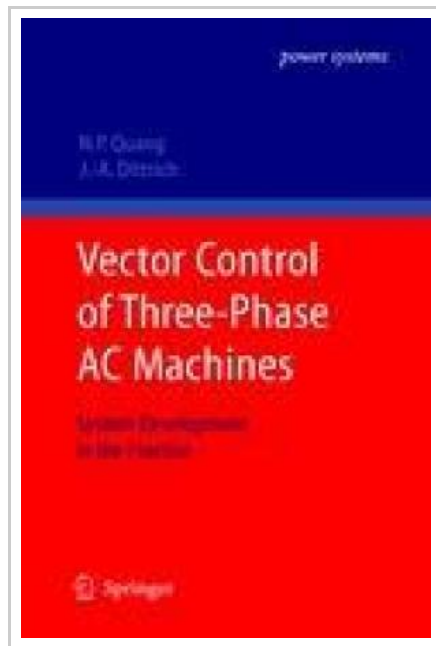




Vector Control of Three-Phase AC Machines

By Jörg-Andreas Dittrich

Springer Okt 2010, 2010. Taschenbuch. Book Condition: Neu. 235x155x19 mm. This item is printed on demand - Print on Demand Titel. Neuware - This monograph covers the area of vector control of three-phase AC machines, in particular induction motors with squirrel-cage rotor (IM), permanent excited synchronous motors (PMSM) and doubly-fed induction machines (DFIM), from the viewpoint of the practical design and development. Main focus is on the application of the IM and the PMSM in electrical drive systems, where the method of the field-orientated control has been successfully established in the practice, and on the use of the grid voltage orientated controlled DFIM in the wind power plants. After a summary of the basic structure of a field-oriented controlled three-phase AC drive as well as of a grid voltage orientated controlled wind power plant the inverter control by space vector modulation is extensively discussed with the help of many examples to illustrate the practical application. Based on the basic machine equations, the continuous and the discrete machine models of IM, PMSM and DFIM are derived and questions regarding feedback acquisition and the practical implementation of the field-oriented control are highlighted. The design of vectorial two-dimensional current controllers using the discrete models...



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