

Item No.: SO4204-7M

Course - Power electronics 2: Self-commutated power converters

Includes:

- 1 Experiment card with self-commutated power converter, microcontroller controlled PWM with 6 MOSFET transistors and intermediate voltage circuit (40 V, 1A), Software-controlled multiplexer for simultaneous measurement of multiple voltages and currents, visualisation of MOSFET switching states via LED
- 1 Experiment card with three-phase resistive/resistive-inductive load and visualisation of load current and rotating field vector
- CD-ROM with Labsoft browser and course software

Course contents:

- Introduction to the principle of PWM for generating variable DC voltage
- Investigation of load response for single-quadrant and four-quadrant operation
- Recording the control and operating characteristics for single-quadrant and four-quadrant operation
- Introduction to the principle of PWM for generating variable AC voltage
- Signal measurements over time of amplitude and signal modulation by AC converters
- Introduction to design and function of three-phase converters
- Introduction to the principles of block commutation, sine, super-sine and space-vector modulation for generating three-phase alternating voltages
- Analysis of the various modulation methods by measuring signal response over time
- Determining the control response for various modulation methods
- Investigating the influence of operating frequency by measurement
- Comparison of various modulation methods using harmonic analysis (FFT)
- Course duration: 5 h approx.

