

Item No.: SO4204-7W

## Course - Electric Machines 5: Stepper motors

### Includes:

- Experiment card with 2-phase stepper motor, 200 steps per revolution and Incremental disc
- Driver circuit with 6 control inputs and power amplifier, integrated current regulation, optional switching to resistor current limiting
- Overload and status display via LEDs
- CD-Rom with Labsoft browser and course software

### Course contents:

- Introduction to customary applications of stepper motors
- Introduction to the design and function of stepper motors: Permanent-magnet stepper motors, reluctance and hybrid stepper motors
- Identifying the advantages and disadvantages of various stepper motors
- Introduction to the various principles for controlling stepper motors (unipolar und bipolar)
- Introduction to full-step and half-step operating modes
- Experimental determination of step angle, maximum operating frequency and maximum start frequency
- Investigation by measurement of control signals in half-step and full-step mode
- Analysis of control signals when rotation is reversed
- Introduction to various methods of current regulation for stepper motors
- Experimental determination of the current regulation in use on the basis of control signals
- Writing a program for positioning the stepper motor using relative or absolute positioning
- Course duration: 3.5 h approx.

