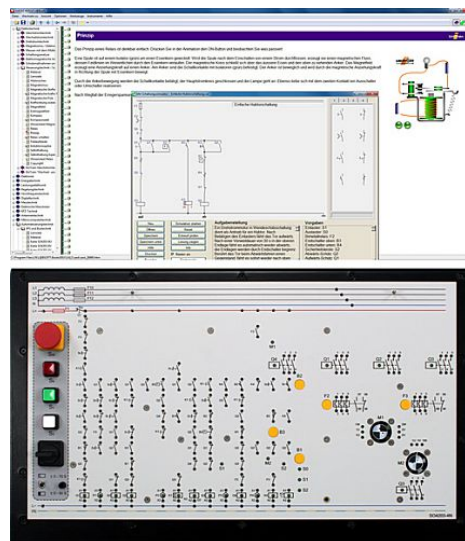


Item No.: SO4204-4N

## Course - Installation engineering 2: Control systems/protective circuitry

### Includes

- Experiment board for contactor controls with the following features:
- 4 Primary contactors
- 3 Motor protection switches
- 2 Auxiliary contactors
- 1 Universal time-delay relay
- 1 Current surge relay
- 6 Indicator lights
- 3 Limit switches
- 1 Emergency shut-down switch
- 3 Buttons
- 1 Manual-automatic switch
- 25 Project overlay masks
- Set of measuring leads and jumpers
- CD-ROM with LabSoft browser and course software



### Training contents

- Familiarisation with control components
- Planning control projects
- Testing functionality with circuit simulators
- Function testing and troubleshooting in control projects
- Project contents:
  - Two-handed operation of a cutting machine (AND circuit)
  - Turning on a ventilator from various locations (OR circuit)
  - Self-latching pump control (dominant off)
  - Self-latching pump control (dominant on)
  - Pump control with contactor interlock
  - Pump control with inching circuit
  - Pump control with self-latching or inching circuit
  - Pump control with sequence control circuit
  - Drill control with external fan (sequence control circuit)
  - Direction control for a drill (simple reversing contactor circuit)
  - Sliding door control with button interlock
  - Crane control with direct change of direction
  - Crane control with delayed change of direction

Time-dependent conveyor-belt control  
Time-dependent fan control  
Manually controlled star-delta circuit  
Automatically controlled star-delta circuit with no load  
Automatically controlled star-delta circuit with load  
Automatic star-delta reversing contactor circuit  
Simple roller shutter control with safety bar  
Enhanced roller shutter control with remote monitoring  
Time-dependent speed control for Dahlander motors  
Speed control for Dahlander motors  
Immersion bath control  
Pump control with current surge relays

- Course duration: 25 h approx.