Thyristor Electric Motor Drives (EB03) delivers hands-on skills in operating the same industrial-grade components used extensively in industrial electric motor drives. Students learn SCR control and PWM principles while acquiring skills including operating full-wave SCR DC motor drives, DIAC-controlled TRIAC AC motor drives and Schmitt Trigger-Controlled TRIAC AC Motor Drives.

The skills-based curriculum builds on the concepts learned in the prerequisite Industrial Power Electronics series. Thyristor Electric Motor Drives (EB03) presents fifteen additional skills and eight additional Flexponent™ panels for use with the JobMaster Learning Station (not included). Panels are easily added and exchanged allowing the workspace to be re-configured as multiple students progress through the course.

Core concepts are taught through self-paced e-learning curriculum. All the necessary resources, including printable instructions, wiring diagrams and troubleshooting charts, are available online, ready for use at the JobMaster Learning Station.

Instructors are also provided comprehensive resources, including a detailed instructors’ guide. Teachers’ versions of schematics and wiring diagrams as well as tips and tricks are all one click away.

With JobMaster, you can be sure your training program will deliver the skills needed for success in automated manufacturing careers!

The JobMaster™ Industrial Maintenance and Mechatronics Training teaches the specialized skills required for today’s industrial technicians. JobMaster™ provides a superior blended learning solution for automated manufacturing training by combining industrial-grade components with engaging e-learning curriculum.

JobMaster™ courses are entirely skill-based, consisting of individual exercises that reproduce essential tasks performed by maintenance technicians, equipment operators, and machine repairmen. Each skill has been analyzed and field-tested by qualified technicians to teach the specific skills needed in the industrial environment.

inteltek’s partners in development of the curriculum include twelve major US industrial companies, including Boeing, Caterpillar, Ford, GE, and US Steel.

JobMaster™, the new standard in industrial maintenance and mechatronics training!
Thyristor Electric Motor Drives (EB03)

Materials Included

Order #14-EB03:
- Thyristor Electric Motor Drives (EB03) Course and Teachers’ Guide
- Flexponent™ panels:
  - E034 DC Motor Panel
  - E081 SCR Panel
  - E082 Full-Wave SCR Drive
  - E083 TRIAC Panel
  - E084 DIAC Adjustable Resistors Panel
  - E085 TRIAC with Schmidt Trigger Panel
  - E088 Pulse Width Modulation (PWM) Motor Driver Panel
  - E157 Universal AC/DC Motor and PMDC Motor Panel

Materials required (sold separately):
- JobMaster™ Learning Station  Order #10-L00-0200
- Power Control Panel (120V): Order #10-PC04-0000
* International step-down transformer package (Order #10-PC09-0000) required for international applications.

Prerequisite courses
- Single-phase and Three-phase Power Supplies (EB02B) Order #14-EB02B

Skills Acquired

Skill 1 Locating an SCR and Drawing the Schematic Symbol
Skill 2 Testing an SCR
Skill 3 Connecting and Operating an SCR
Skill 4 Confirming Full-Wave SCR Control
Skill 5 Connecting and Operating a Full-Wave SCR DC Motor Drive
Skill 6 Troubleshooting a Full-Wave SCR DC Motor Drive
Skill 7 Locating the TRIAC and drawing the TRIAC Symbol
Skill 8 Testing a TRIAC
Skill 9 Demonstrating TRIAC Control Principles
Skill 10 Locating a DIAC and Drawing the Schematic Symbol
Skill 11 Connecting and Operating a DIAC-Controlled TRIAC AC Motor Drive
Skill 12 Connecting and Operating a Schmitt Trigger-Controlled TRIAC AC Motor Drive
Skill 13 Troubleshooting a TRIAC Motor Drive
Skill 14 Demonstrating PWM Principles
Skill 15 Connecting and Operating a PWM DC Motor Drive

Panel & Hardware Specifications

All included Flexponent™ panels meet the following specifications:
- Construction: 3/8” (9.5 mm) thick environmentally stabilized, chemically resistant, non-conductive, high density polyethylene.
- Terminal strips: Industry-standard recessed and insulated fasteners rated for 50-amps at 600 volts.
- Dimensions: 8”W x 11.5”H x 0.375”D (203 mm x 292 mm x 9.525 mm)

Panel E081: SCR
- Panel Type: Single
- 1 x Heatsink, TO-3, 76.2mm
- 1 x SCR thyristor, 25A
- 2 x Fault switches: 4A, 250V push-on/push-off momentary

Panel E082: Full-Wave SCR Drive
- Panel Type: Single
- 1 x Speed control, DC 115V, SCR
- 2 x Fault switches: 4A, 250V push-on/push-off momentary

Panel E083: TRIAC
- Panel Type: Single
- 1 x Heatsink, TO-3, 76.2mm
- 1 x TRIAC thyristor, 25A
- 2 x Fault switches: 4A, 250V push-on/push-off momentary

Panel E084: DIAC Adjustable Resistors
- Panel Type: Single
- 1 x DIAC, 36V
- 1 x Capacitor, 0.1uf, 600VDC, radial, metallized polyester
- 1 x 50K-ohm linear potentiometer 0.125 shaft
- 1 x 500K-ohm linear potentiometer 0.125 shaft

Panel E085: TRIAC with Schmidt Trigger
- Panel Type: Single
- 1 x Speed control, triac
- 1 x Switch, toggle, DPDT, flat lever

Panel E088: PWM Motor Drive
- Panel Type: Single
- 1 x Speed control, PWM

Panel E157: AC/DC Motor and PMDC Motor
- Panel Type: Single
- 1 x 1-phase motor, 0.8hp, 1725rpm
- 2 x Fault switches: 4A, 250V push-on/push-off momentary

Most courses require a JobMaster™ Learning Station, sold separately. Some courses require other hardware purchased separately or as part of prerequisite courses in the same series. All included and required materials are noted on each product data sheet.