

DC Motor Control (EA16)

ELECTRICAL CONTROL SYSTEMS



JOB MASTER

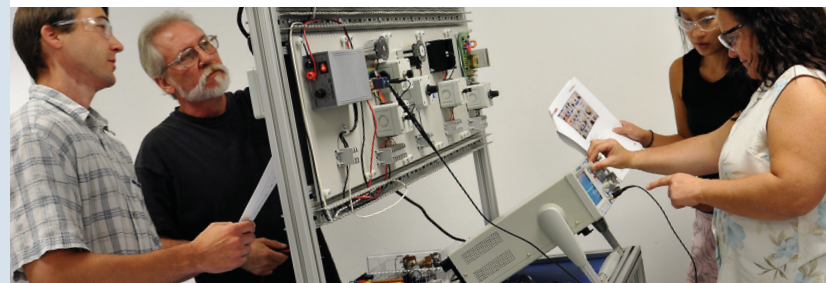
SKILLS-BASED TRAINING

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.

intelitek'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!**



Fully equipped Learning Station shown. Learning station sold separately. Some panels and components shown may be sold separately.

POWERED BY

LearnMate®

JobMaster™ courses are powered by LearnMate™- intelitek's innovative e-learning platform. LearnMate's self-paced interactive content may be deployed stand-alone or through the robust learning management system (LMS). The LearnMate™ e-learning suite provides everything needed for the ultimate blended learning experience:

- SCORM-compliant interactive content
- Anytime, anywhere accessibility
- Student and class management
- Grade tracking
- Skill/competency reporting mapped to national academic skill standards

5.3: Skill Drill

5.3.4: Operating the Circuit-Objective A (continued)

9 Slowly **advance the speed potentiometer** on E025 until fully clockwise.

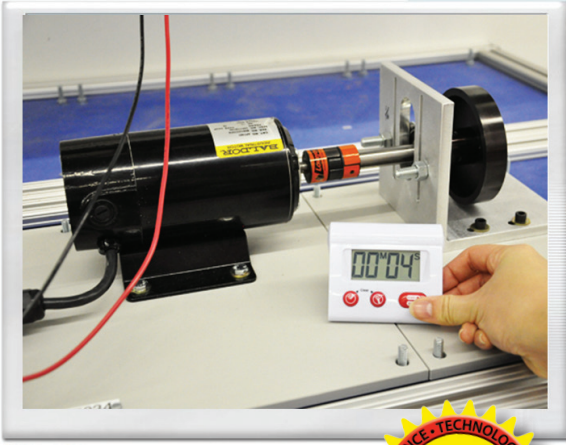
- Verify that the motor accelerates smoothly to full speed.

10 Observe stopping time with regenerative braking.

- Press the **STOP** button.

■ With the **time piece**, observe how quickly the motor shaft stops. You will compare this to the coast-to-stop time in Objective B. RTS time: _____ s

11 Turn OFF the Power Control Panel.



DC Motor Control (EA16) delivers hands-on skills in installing, operating and troubleshooting DC drives used in electric motor circuits. DC Motor Control (EA16) is an add-on to Electromagnetic Motor Starters (EA07), covering eight additional skills including operating SCR speed controllers, PWM speed controllers, DC drives and braking controls.

The skills-based curriculum presents hands-on activities using industrial-grade components mounted on the six included Flexponent™ panels which attach to 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 and wiring diagrams 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!

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DC Motor Control

Materials Included

Order #16-EA16:

- DC Motor Control (EA16) E-Learning Course & Teachers' Guide
- Flexponent™ panels:
 - E007 SCR Speed Controller Panel
 - E017 Digital Relay Panel
 - E025 Potentiometer and Braking Resistor Panel
 - E034 DC Motor Panel
 - E038 PWM Motor Controlled Panel
 - E048 Inertial Load Panel
 - E071 Regenerative Four Quadrant DC Drive Panel

Materials required (sold separately):

- JobMaster™ Learning Station Order #10-LS00-0200
 - Power Control Panel: (120V)* Order #10-PC04-0000
- *International step-down transformer package (Order #10-PC09-0000) required for international applications.*

- Digital Multimeter (Fluke Model 115 or equivalent)
- Prerequisite Courses
 - Electric Motors (EA07) Order #16-EA07

Skills Acquired

- Skill 1: Demonstrating DC Drive Principles
- Skill 2: Connecting and Operating a SCR Speed Controller
- Skill 3: Connecting and Operating a PWM Speed Controller
- Skill 4: Connecting, Setting-up, and Operating a DC Drive
- Skill 5: Connecting and Operating Braking Controls
- Skill 6: Testing a DC Drive
- Skill 7: Troubleshooting a DC Drive
- Skill 8: Performing Preventative Maintenance



ELECTRICAL CONTROL SYSTEMS

DC Motor Control (EA16) is part of the Electrical Control Systems series, which includes motor controls, timers and relays, and variable frequency drives.

The Electrical Control Systems series:

- Electric Motors (EA04)
- Electromagnetic Motor Starters (EA07)
- *and more!*

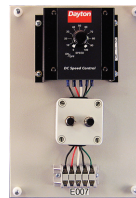
Panel & Hardware Specifications

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

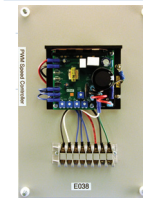
Single panel:	8"W x 11.5"H x 0.375"D (203 mm x 292 mm x 9.525 mm)
Double-wide	16"W x 11.5"H x 0.375"D (406 mm x 292 mm x 9.525 mm)

Panel E007: SCR Speed Controller



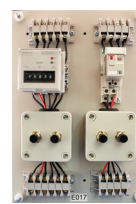
- Panel type: Single
- 1 115V DC SCR Speed Control
 - 2 Fault switches: 4A, 250V push-on/push-off momentary

E038 PWM Motor Control



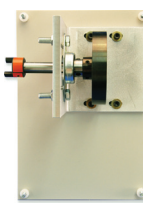
- Panel type: Single
- 1 Pulse Width Modulated (PWM) Speed Control, 115VAC input, 1 HP, 10A, 0-130Vdc output

Panel E017 : Digital Relay



- Panel type: Single
- 1 Relay, 120V 2PDT 15A LED Test PB
 - 1 Socket Relay
 - 1 Time Delay Relay, DPDT, Multi-function
 - 1 Socket Relay, 11 Pin Octal
 - 4 Fault switches: 4A, 250V push-on/push-off momentary

E048 Inertial Load Panel



- Panel type: Single
- 1 Rotor, balanced, 4" diameter, 1141 steel
 - 1 Toggle Shaft coupling, 5/8" bore
 - 1 Flanged bearing and bearing mount

Panel E025: F-O-R Switch and Potentiometer



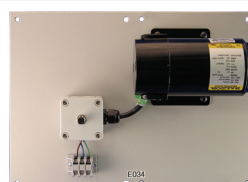
- Panel type: Single
- 1 Toggle switch, SPDT, On-Off-On, contact rating 125V/15A, 250V/10A
 - 1 Potentiometer, linear, 5k ohm, 1/2 w

E071 Regenerative Four Quadrant DC Drive



- Panel type: Single
- 1 4-Quadrant Regenerative DC Drive, 115V/230V input, 0.75HP/1.5HP, 90V/180Vdc Armature

E034 DC Motor Panel



- Panel type: Double
- 1 Motor, 90VDC, 13hp
 - 1 Fault switch: 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.

Affiliated with:



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