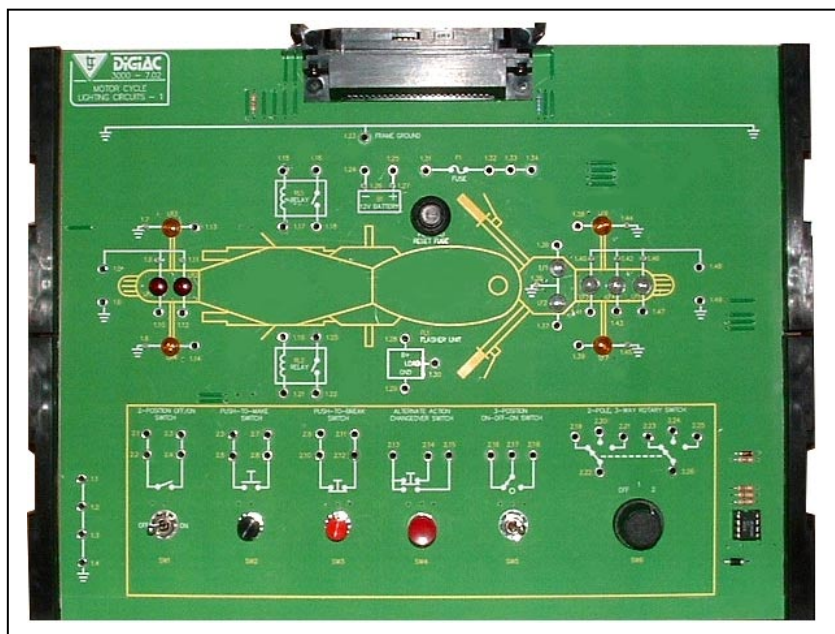


# D3000 7.02 – Motorcycle Lighting Circuits



The D3000 7.02 Motorcycle Lighting Circuits module introduces students to the lighting circuits that are used on motorcycles.

The study module has been designed specifically to operate within a DIGIAC modular electronics program. It comprises a circuit board and laboratory manual housed in an injection molded storage case.

The laboratory manual provides a range of hands-on practical activities that students carry out using the circuit board.

An optional solutions book is available separately. This provides solutions and typical results for all of the activities contained in the laboratory manual.

An optional computer aided instruction (CAI) package provides on-screen student learning materials and PowerPoint® presentations.

The on-screen student learning materials include practical activities and student assessment questions. When used in conjunction with a PC, these materials are fully compatible with the LJ ClassAct computer managed learning system.

The PowerPoint® presentations provide supporting theory for the practical activities contained in the on-screen student learning materials.

## Topics covered:

- Using a multimeter
- Introduction to faultfinding
- Brake (stop) lamps
- Dip/main (Lo/Hi) beam lamps
- Direction indicator (turn signal) lamps
- Park and tail (side) lamps
- Introduction to headlamp circuits
- Relay circuits
- Relay-controlled headlamp circuits

## Typical activities include:

- Use a digital multimeter to measure DC voltage, resistance continuity.
- Use a multimeter to investigate an instrument lighting circuit fault.
- Investigate a brake (stop) lamp circuit using a multimeter.
- Troubleshoot a faulty brake (stop) lamp circuit with a multimeter.
- Construct a dip/main (Lo/Hi) beam circuit.
- Troubleshoot a faulty dip/main (Lo/Hi) beam circuit using a multimeter.
- Investigate how a flasher unit works.
- Build a direction indicator (turn signal) circuit.
- Troubleshoot a faulty direction indicator circuit.
- Add direction indicator repeaters on instrument panel.
- Troubleshoot a faulty park and tail circuit.
- Construct a relay-operated headlamp circuit.
- Build a complete motorcycle front lighting system.

## The circuit board provides the following features:

- On-board mimic of a motorcycle, with access to the following circuit components:
  - 12V battery
  - Fuse (resettable)
  - Two relays
  - Flasher unit
  - Six different types of switches
  - Headlamp circuit with dip/main (Lo/Hi) beams
  - Park and tail (side) lamps
  - Brake (stop) lamp
  - Direction indicator (turn signal) lamps
  - Instrument panel repeater lamps

## Items provided with D3000 7.02:

- Motorcycle Lighting Circuits board.
- Laboratory manual
- Storage case

## Additional items required:

- D3000 Experiment Platform (EXP) or Virtual Instrument Platform (VIP)
- Digital multimeter (DMM)\*

\* Note that separate test instruments are not needed if the D3000 VIP is used, as all required test equipment is provided in the form of on-screen 'virtual' instruments.

## Optional items:

- D3000 IS 7.02 Motorcycle Lighting Circuits solutions book
- D3000 CAI 7.02 computer aided instruction package (single user)
- D3000 CAI 7.02/SL computer aided instruction package (lab license)
- ST520/SRS ClassAct®/SRS Student Response System. This allows students to respond to questions in instructor-delivered PowerPoint® presentations via remote keypads.



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