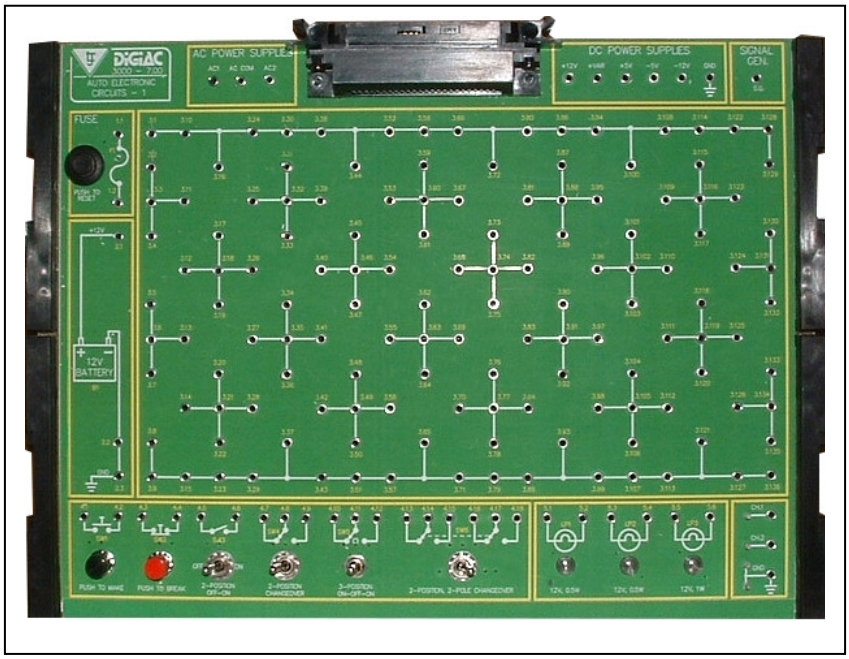
D3000 7.00 – Auto Electronic Circuits



The D3000 7.00 Auto Electronic Circuits module allows students to build a variety of introductory automotive electronic circuits using a range of on-board and carrier-mounted components.

The study module has been designed specifically to operate within a DIGIAC modular electronics program. It comprises a circuit board, component set, 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 and the component set.

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:

- Simple circuits and measurements
- Lamps in series circuits
- Lamps in parallel circuits
- Lamps in series-parallel circuits
- Switches
- Resistance

Typical activities include:

- Construct a simple circuit containing a battery and lamp.
- Measure DC voltage using a digital multimeter.
- Investigate the operation of a switch.
- Investigate the operation of a fuse.
- Investigate the concept of a common ground connection.
- Construct a circuit from a schematic diagram.
- Measure DC current using a digital multimeter.
- Calculate power use in lamp circuits.
- Measure voltage drops across lamps connected in series.
- Measure current through lamps connected in parallel.
- Measure voltages and currents in a series-parallel lamp circuit.
- Use a multimeter to investigate the operation of a range of switches.
- Investigate the effect of different switch types on circuit operation.
- Investigate switches connected in series and parallel.
- Measure resistance.
- State Ohm's Law.

The circuit board provides the following features:

- 2mm matrix patching area
- 12V DC source with battery symbol
- Resettable fuse
- Switches:
  - Push-to-make
  - Push-to-break
  - 2-position off-on
  - 2-position changeover
  - 3-position on-off-on
  - 2-position, 2-pole changeover
- Lamps:
  - 12V, 0.5W (x2)
  - 12V, 1W
- On-board access to a range of DC and AC power supplies
- On-board access to signal generator
- Oscilloscope connection panel

Items provided with D3000 7.00:

- Auto Electronic Circuits board
- Component set providing a range of carrier-mounted components
- 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 7.00 Auto Electronic Circuits solutions book
- D3000 CAI 7.00 computer aided instruction package (single user)
- D3000 CAI 7.00/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.

LJ Technical Systems
Web site: www.ljgroup.com

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