H-CAI Electricity and Electronic Kits

Educational Training Equipment for the 21st Century

Bulletin 286-2B

Basic Electronics Model H-CAI-BE

The Hampden H-CAI-BE Kit teaches students about the behavior of electricity, basic electrical devices and basic circuit designs by providing complete resources for the quick assembly and disassembly of simple breadboard experiments. (No Soldering Required)

A Student Workbook guides students in the connection of circuits, making measurements and observations, and arriving at conclusions. All experiments are performed at low voltage levels. Each concept is presented simply with easy-to-follow circuit diagrams.

Description

This kit provides all necessary components and breadboarding apparatus required to complete the topics covered in **Grob's *Experiments in Basic Electronics***.

Experiments in Basic Electronics provides the basis of coverage for DC/AC circuits, network theorems, measurements, filters, magnetism, resonance, solid-state electronics, transistor amplifiers and integrated circuits as well as digital electronics.

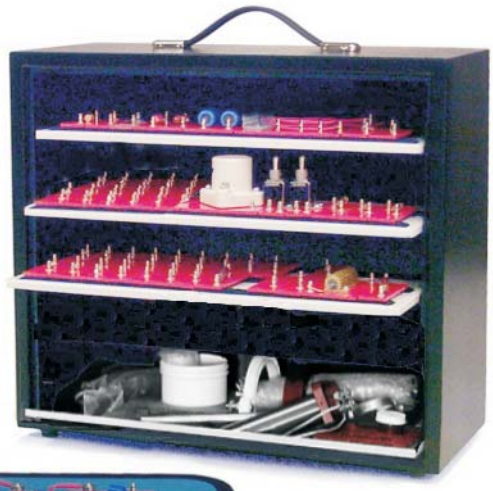
Each component is permanently secured to its own sturdy plastic base—Velcro® backed for fast and easy assembly of circuits on the supplied Velcro work board. This "Velcro" attachment system has become the preferred method for laboratory circuit assembly due to its simplicity, ease of use and durability.

All components are secured to Velcro-covered sliding trays. All kits can be ordered as drawer storage kits using the supplied glue-on tray support panels (two per drawer) or with heavy-duty lockable cabinets. (Specify -D or -C)

Optional Drawer Storage Available

All the necessary components & breadboarding apparatus required to complete ▶

Grob's *Basic Electronics*



Hardware Features

- Lockable Storage & Carrying Case
- Neat Work Areas
- Ease of Circuit Assembly & Disassembly
- Individually Mounted Components
- Low Voltage

Courseware Features

- Background Theory
- Easy to Follow Sequence
- Experiments and Tests

All Hampden units are available for operation at any voltage or frequency

Hampden® ENGINEERING CORPORATION

051904

P.O. Box 563, East Longmeadow, MA 01028 • Tel 413-525-3981 • Fax 413-525-4741 • E-mail sales@hampden.com **800-253-2133**

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Topics

1. Introduction to Equipment and Components
2. How to Use Basic Lab Equipment Ohm's Law
3. Series Circuits
4. Series-Aiding and Series-Opposing Voltages
5. Parallel Circuits
6. Series-Parallel Circuits
7. Additional Series-Parallel Circuits
8. Opens and Shorts in Series-Parallel Circuits
9. Kirchhoff's Laws
10. The Wheatstone Bridge
11. Voltage Dividers with Loads
12. Current Dividers
13. Voltage Divider Design
14. Positive & Negative Voltages to Ground
15. Ammeters
16. Voltmeters
17. Ohmmeters
18. Network Theorems
19. Potentiometers and Rheostats
20. Internal Resistance
21. Load Match and Maximum Power
22. Magnetism
23. AC Voltage and Ohm's Law
24. Alternating Voltage and Current
25. Inductive Reactance
26. Capacitive Reactance
27. Frequency Measurements—Using an Oscilloscope
28. Phase Measurements: Using an Oscilloscope
29. RC Time Constant
30. Alternating-Current Circuits: RLC Series
31. Superposing Alternating Current and Direct Current
32. Series Resonance
33. Parallel Resonance
34. Filters
35. PN Junction
36. Diode Characteristics—Rectification
37. Zener Diodes for Regulation and Protection
38. Light-Sensitive Diodes
39. Rectification and Filters
40. Capacitive Coupling
41. FET Amplifier
42. Transistor Amplifier
43. Transistor as a Switch
44. Two-Stage Transistor Amplifier
45. Logic Circuits
46. Other Logic Circuits
47. Multivibrator Circuits
48. Operational Amplifiers
49. Integrated Logic Circuits
50. Troubleshooting Power Supplies

Optional

51. Vacuum Tube Amplifier

Courseware

1. Text: ***Basic Electronics,*** Bernard Grob
2. Manual: ***Experiments in Basic Electronics,*** Frank Pugh & Wes Ponick
3. Manual: ***Experiments in Basic Electronics, Instructor's Guide,*** Frank Pugh & Wes Ponick
4. Software: Instructor's Productivity Center, (Optional—Specify Model H-CAI-SL-BE)

Instructor's Productivity Center from Glencoe McGraw-Hill

Revolutionize Your Classroom with Instructor's Productivity Center Software

Consists of a complete set of powerful teaching and testing software tools. All programs are designed specifically to match and enhance this curriculum. Highly recommended as a comprehensive, multi-level, instructional tool. Helps students to work independently and at their own speed, while also freeing the instructor to provide specific guidance wherever needed.

All tutorial and lab units are coordinated directly to actual student texts & workbooks and provides students with directly related on-screen questions and diagrams to solve. **Order Model H-CAI-SL-BE**

▼ Includes the Following Tools

Glencoe Student Assessment System: Test generator software, computerized testing & classroom administration package

Instrumentation: Realistic software simulations of Hewlett Packard instruments & electronics Workbench® files for projects

Math Tutorials Program: Strengthens students' knowledge of electronics related math.

Circuit Database: Contains all essential circuits from this curricula for use or editing in the Electronics Workbench® program

PowerPoint Plus: Animated PowerPoint slides covering all related text

Circuit Viewer: Selected circuits from curriculum prepared for use directly to computer screen and/or projection device.

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