ConsuLab
TRAINING AIDS
4210 Jean-Marchand St, Quebec City, PQ, Canada G2C 1Y6
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CL-1900

INTRODUCTION TO ELECTRICITY AND ELECTRONICS

DESCRIPTION

The CL-1900 Exploratory Electricity & Electronics trainer is intended to provide a course of basic experiments dealing with the production and the use of electrical energy. Students who are starting a course in electricity or in electronic subjects can readily visualize various electrical phenomena. The lab manual contains instructions for carrying out 55 experiments that show how electricity can be converted to sound, light, heat, mechanical energy or chemical reaction.

SPECIFICATIONS

DESCRIPTION	CL-1900-00	CL-1900-50
Supply voltage:	120V AC	220V AC
Frequency:	60 Hz	50 Hz
Total weight:	10 kg (22 lbs)	
Cabinet dimensions:	41 x 32 x 33 cm (16.4 x 12.8 x 13.2 inches)	
Product number:	50315	50620

CL-1900 BASIC EQUIPMENT

Each CL-1900 trainer includes the following basic components:

DESCRIPTION	QTY	CL-1900-00 (60 Hz)	CL-1900-50 (50 Hz)
Cabinet	1	Full size	
Coil	1	Simple	
Diode	1	IN4004	
Connector	2	Miniature bayonet-type	
Lamp	1	115V AC	
Voltmeter	1	0-3V DC	
Ammeter	1	Dual scale (0-50 mA et 0-500 mA)	
Motor	1	3V DC	
Buzzer	1	Electric type	
Rheostat	1	75 Ω	
Thermistor	1		

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DESCRIPTION	QTY	CL-1900-00 (60 Hz)	CL-1900-50 (50 Hz)
Push-button	1	N.C.	
Transformer	1	115/6V AC	
Cell	1	Solar type	
Switch	3	S.P.S.T.	
Relay	1	S.P.S.T., 3V DC	
Lamp with socket	1	No 64	
Resistance moduponent	1	CL-1900-01	
Electronic circuit moduponent	1	CL-1900-02	
Storage box for small accessories	1		
Magnetic compass	1		
Power cord	1	120V outlet	220V outlet
Electric cell	2	Type D	
Electrode	1	Aluminum	
Electrode	1	Copper	
Electrode	1	Zinc	
Lamp	2	No 47	
Lamp	2	No 49	
Lamp shade	1		
Permanent magnet	2		
Patch cord set	1	14 banana plug connectors	
Bar	1	Soft iron type	
Iron fillings	1	15 mL	
Copper sulfate	1	15 mL	
Beaker	1	150 mL capacity	
Student manual	1	CL-1900-95	
Teacher guide	1	CL-1900-96	
Voltmeter Moduponent®	1	CL-835-34 (0-600V)	
Megohmmeter Moduponent®	1	CL-835-35	
Ammmeter Moduponent®	3	CL-835-36 (0-1/5 A)	

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INTRODUCTION TO ELECTRICITY AND ELECTRONICS

The CL-1900 trainer kit is fully documented in English and contains the following experiments:

ELECTRICITY AND ELECTRONIC CIRCUITS
1. Simple electrical circuit
2. Electricity and electronic circuits

MAGNETISM AND ELECTRICITY
3. Magnets
4. Electricity and magnetism
5. Conversion from mechanical to electrical energy
6. Measuring equipment

CHEMISTRY AND ELECTRICITY
7. Conversion from chemical to electrical energy
8. Dry cell
9. Chemical reactions and electricity

CONVERSION OF ELECTRICAL ENERGY
10. Conversion of electricity into light
11. Conversion of light into electricity
12. Sound and electricity
13. Heat produced from electricity

SERIES CIRCUITS
14. Cells connected in series
15. Current in a series circuit
16. Ohm's law
17. Voltage in a series circuit
18. Equivalent resistance of a series circuit
19. Power in a series circuit

PARALEL CIRCUITS
20. Cells connected in parallel
21. Voltage and current in a parallel circuit
22. Equivalent resistance of a parallel circuit
23. Power in a parallel circuit

MIXED SERIES AND PARALLEL CIRCUITS
24. Voltage and current in a mixed circuit
25. Equivalent resistance of a mixed circuit
26. Power in a mixed circuit

EQUIPMENT USING MAGNETIC ENERGY
27. Electric motor
28. Transformer
29. Solenoid

CAPACITORS
30. Capacitors in AC circuits
31. Capacitors in DC circuits
32. Capacitors in series
33. Capacitors in parallel

SEMICONDUCTORS
34. Diode
35. Conversion from alternating current to direct current
36. Transistor
37. Current controlled by transistors

PASSIVE CONTROL ELEMENTS
38. Rheostat
39. Thermistor
40. Electrical temperature sensor
41. Alarm systems activated by temperature
42. Motors controlled by temperature

ACTIVE CONTROL ELEMENTS
43. Motors switched on by light controllers
44. Motor speed controlled by light sensors
45. Automatic lighting controlled at nightfall
46. Audio amplifier circuits
47. Electronic oscillator
48. Electronic alarm circuit
49. Detection circuits
50. Circuits for controlling lighting intensity

DIGITAL CIRCUITS
51. Logic AND
52. Logic OR
53. Applications of OR gates
54. Applications of AND gates
55. Electronic OR gates