

OHM'S LAW & DC CIRCUITS TRAINER

INTRODUCTION

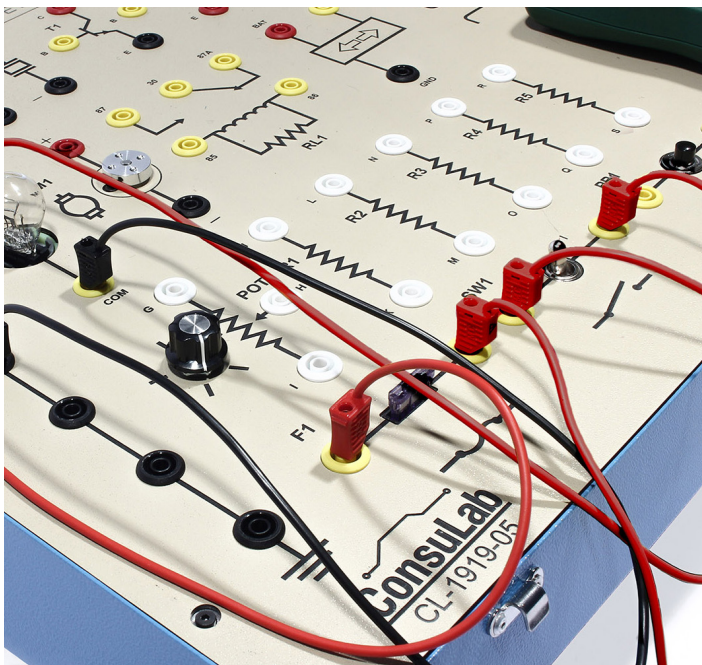
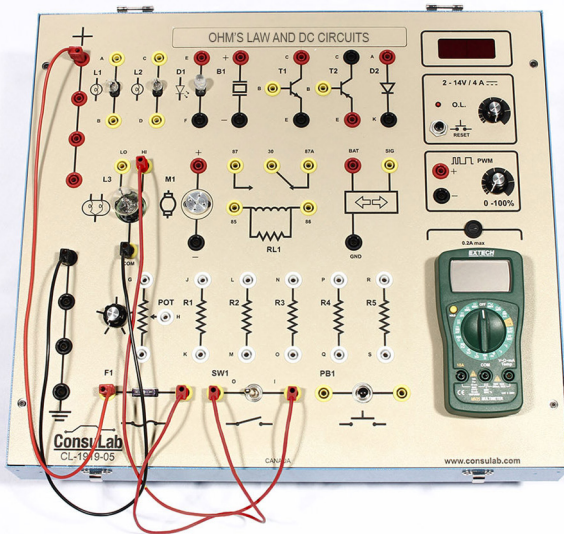
The CL-1919-05 Ohm's Law & DC Circuits trainer is a self-contained educational learning system designed to assist instructors in teaching students basic electrical and electronic theory. It is designed to help teach Ohm's Law basics as well as demonstrating common electrical system components and circuit operation.

A student project manual provides circuit construction and learning assignments designed to help students learn.

The trainer is protected with a removable metal cover. The case features a carrying handle and has internal storage for jumper test leads and power cord.

EDUCATIONAL ADVANTAGES

- Self-contained package with built-in internally protected power supply;
- Student project manual provides learning assignments for circuit construction and understanding;
- Built in DMM (Digital Multi-Meter) for electrical measurements and diagnosis;
- Can be used to assist the instruction of operational theory of electrical/electronic circuits and components;
- Meets many of the Electrical/Electronic tasks for NATEF, Alberta and Red Seal curriculums.



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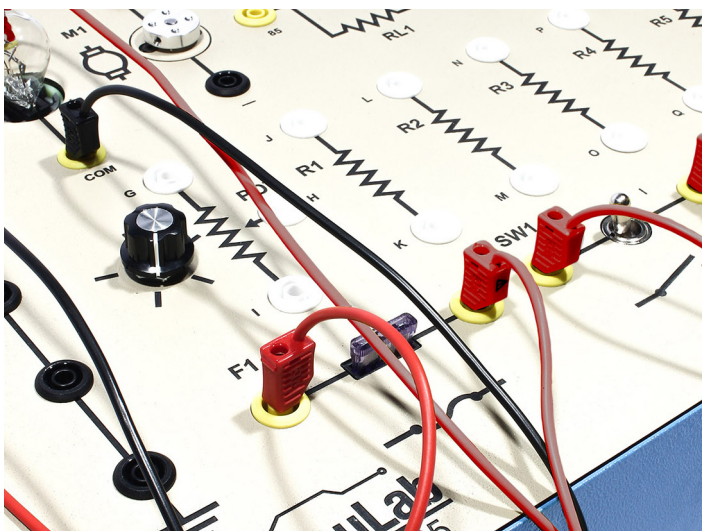
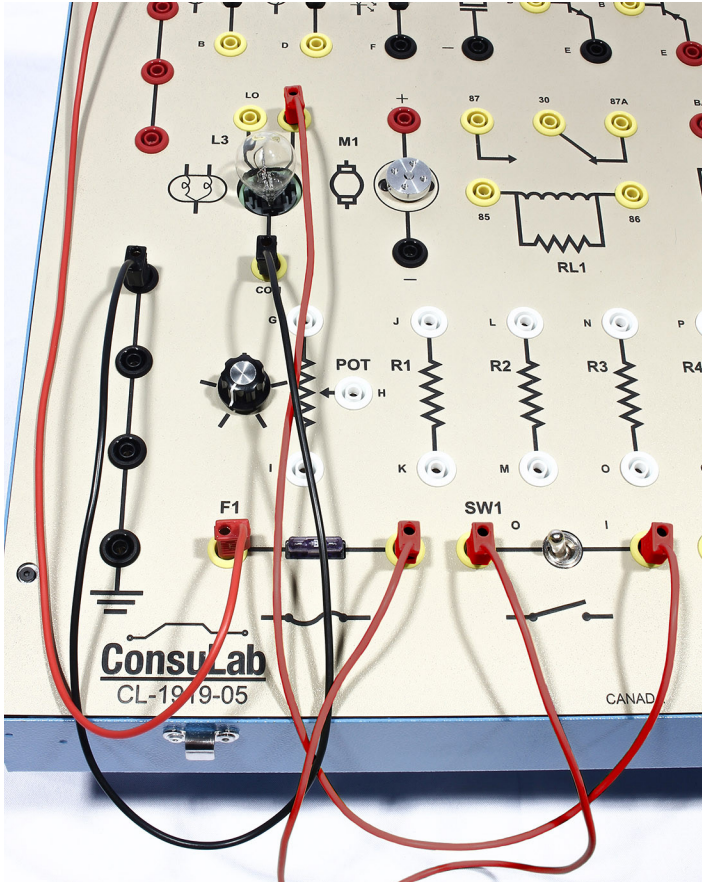
FEATURES

- Requires 120VAC to operate, outputs 2-14VDC (4A max)
- Panel mounted Digital Readout showing trainer DC voltage
- Hinged and removable top cover
- Built in DMM (Digital Multi-meter) display with accessible external meter fuse
- Meter is powered by the trainers power supply. (no batteries)
- Adjustable 2KHz pulse width modulation generator (0-100%)

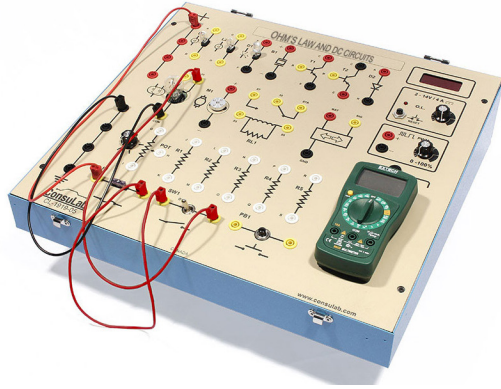
The following electrical components are included:

- 2- #194 Light bulbs (removable)
- 1- #3157 Light bulb (removable)
- 1- #2726 LED bulb (removable)
- 1- Buzzer
- 2- Transistors (NPN and PNP)
- 1- Diode
- 1- Motor
- 1- ISO 5-pin relay
- 1- Electronic flasher
- 1- 75Ω Potentiometer
- 5- Resistors (1-2Ω, 2-20Ω, 1-40Ω, 1-100Ω)
- 1- Fuse (removable)
- 1- SPST Toggle switch
- 1- N.O. Push button switch

- Each component has circuit connection receptacles for jumper wire hookup
- Included are test jumper wires, power cord and meter test leads
- Includes a comprehensive user's manual with student activity assignments which cover basic electricity, Ohm's Law principles, digital
- multi-meter set-up, use and interpretation, electrical component operation, and DC circuit construction and operation. Additional manuals available at no charge after trainer purchase at www.consulab.com
- Manual contains competence measuring tests to evaluate student comprehension.



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TECHNICAL INFORMATION

- 120VAC, 2-14VDC 4A regulated and protected power supply (adjustable)
- Built-in DMM (no batteries) with external meter fuse
- Adjustable 2KHz pulse width modulation generator (0-100%)
- All components internally protected from excessive current due to connection errors by students

DIMENSIONS

Height: 6" Width: 22" Depth: 22" (15 x 55 x 55 cm)
Weight: 22 lb (10 kg)



ALSO AVAILABLE AS A CLASSROOM PACKAGE OF OHM'S LAW AND DC CIRCUITS TRAINERS (053205)

The package includes the following components:

- 53044 Twelve (12) CL-1919-05 Ohm's Law and DC Circuits Trainers
- 53154 One (1) CL-1919-05-12 Storage Cabinet
- 04542N Ten (10) extra Red Jumper Leads (20 in / 50 cm)
- 04517N Ten (10) extra Black Jumper Leads (20 in / 50 cm)
- 02056 Twelve (12) extra Fuses (200 mA, 250 V)
- 02697 Twelve (12) extra #194 Light Bulbs (L1 & L2)
- 02711-1 Twelve (12) extra #3157 Light Bulbs (L3)
- 02726 Twelve (12) extra #2726 LED Bulbs (D1)



Ohm's Law & DC Circuit Trainer: Ohm's Law proof

Introduction

With Ohm's law you can calculate the variables of voltage, current, or resistance. If you know two of the variables, you can calculate the third.

There are parts in the storage bag.

To properly complete the assignment you need the items below.

Click on the items that are present.

If something is missing, consult the instructor.

- Ohm's law and DC circuit Trainer
- power supply cable
- jumper wires

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Ohm's Law & DC Circuit Trainer: Ohm's Law proof

Conclusion

You have completed this assignment.

How could you determine the resistance value of R1 of the circuit shown here?

By measuring

This cannot be determined.

By calculating

check

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Ohm's Law & DC Circuit Trainer: Ohm's Law proof

Calculating and Measuring: Part 1

Ohm's law is as follows: $V = I \times R$

Thereby it applies:

- V: voltage
- I: current
- R: resistance

You can place Ohm's law in a triangle so that you can easily find the right formula. You do this by keeping your finger on the unit that you want to calculate. If you want to calculate the current, put your finger on the I (current). You then see that you have to divide the V (voltage) by the R (resistance).

Calculate the current of the circuit shown here.

Use the table to fill in the value (A).

check

Calculated current (A): Measured current (A)

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ELECTUDE

THE CONSULAB CL-1919-05 OHM'S LAW AND DC CIRCUITS TRAINER IS NOW AVAILABLE WITH E-LECTUDE COURSEWARE (SOLD SEPARATELY).

This set of 35 learning modules consists of a practical set-up and the associated E-learning. The practical set-up contains a multimeter and all necessary components that can be connected to each other with the help of the accompanying wiring set.

The set-up is used to teach participants the most important basic concepts from electrical engineering, including: Ohm's law, using the multimeter, building circuits and measuring circuits/components.

Through the preparatory theory and practical assignments the student learns:

- To use the multimeter correctly (measuring voltage, current and resistance).
- To identify various components of the electrical circuit.
- To recognize various electrical symbols.
- To apply Ohm's Law.
- To build series and parallel circuits.
- To examine and explain the operation and rules of series and parallel circuits.
- To check and assess various components of an electrical circuit.
- To build electrical circuits and perform the correct measurements on them.
- To examine and explain the operation of various electrical circuits and controls.

Includes 35 learning modules for a total of 19.5 hours of instruction.