

PLC120 LAB 1.2: BASIC CONNECTIONS WITH THE AC/DC TRAINING UNIT

Student Name: _____

Student ID: _____

LAB OUTCOMES:

Upon completion of this lab procedure, the student should be able to:

1. Connect a pilot light directly to the DC source to show current flow.
2. Connect a DC motor directly to a DC source to show operation.
3. Measure the voltage across a powered load using a DMM.
4. Connect a circuit with a buzzer and knife switch.
5. Measure the voltage across a buzzer coil using a DMM.

LAB PROCESS:

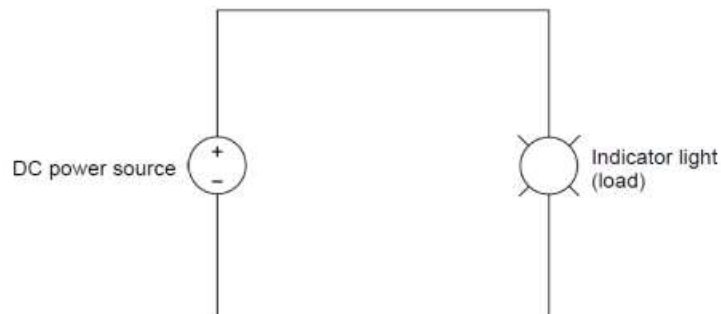
Open the AC/DC Training Unit. Setup the unit on its base, or lay flat on the work table.

Make sure all fault switches are in the 0 position.

Connect the power cord and turn off the power input switch to make sure the unit is not powered.

Circuit 1

Wire the following circuit on the AC/DC training system:





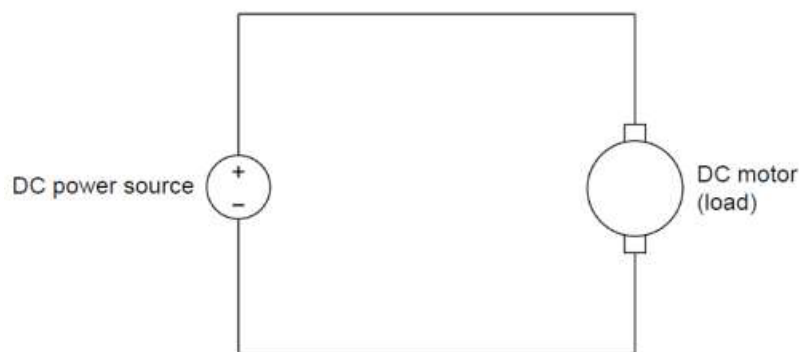
1. Power on the "Power Input" switch (lower right) to power the training unit. Does the green pilot light come on?
2. Use the DMM as a DC voltmeter. Put the DMM across the pilot light.

What is the value measured? _____

3. Pull one lead off the pilot light. Does the pilot light shut off?

Circuit 2

Wire the following circuit on the AC/DC training system:

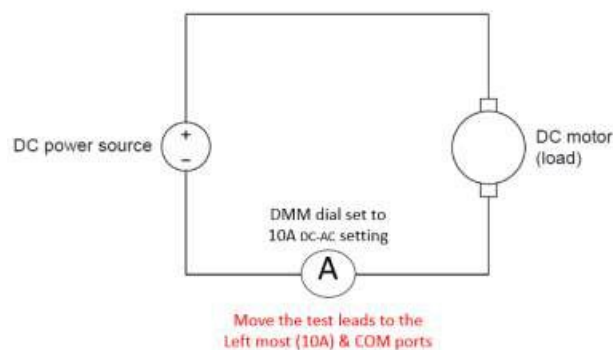




1. Power on the "Power Input" switch (lower right) to power the training unit. Does the DC motor come on?
2. Use the DMM as a DC voltmeter. Put the DMM across the DC motor.

What is the measured value? _____

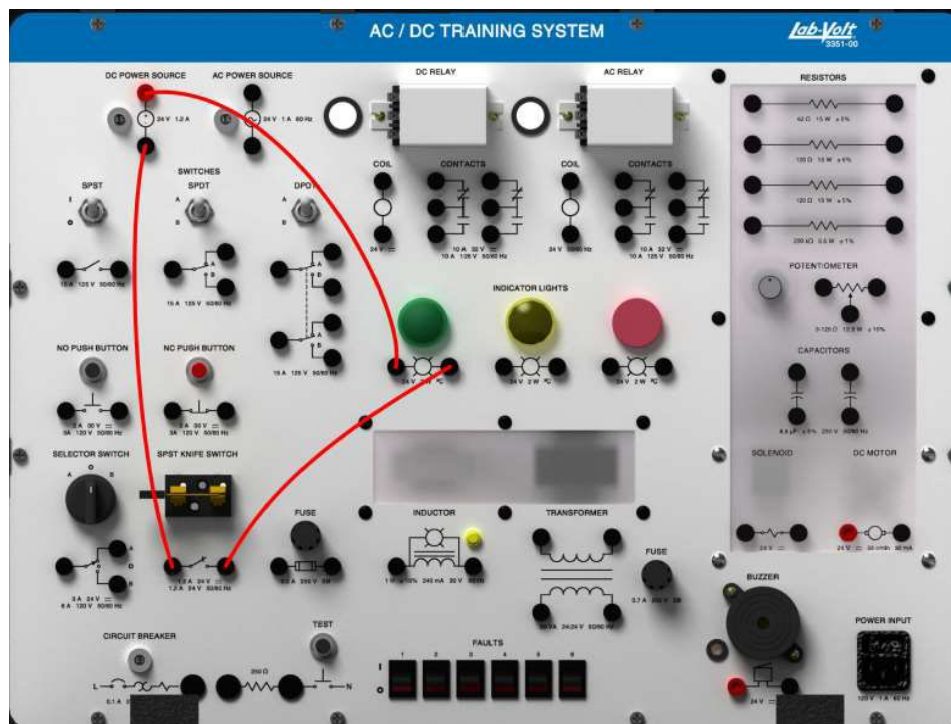
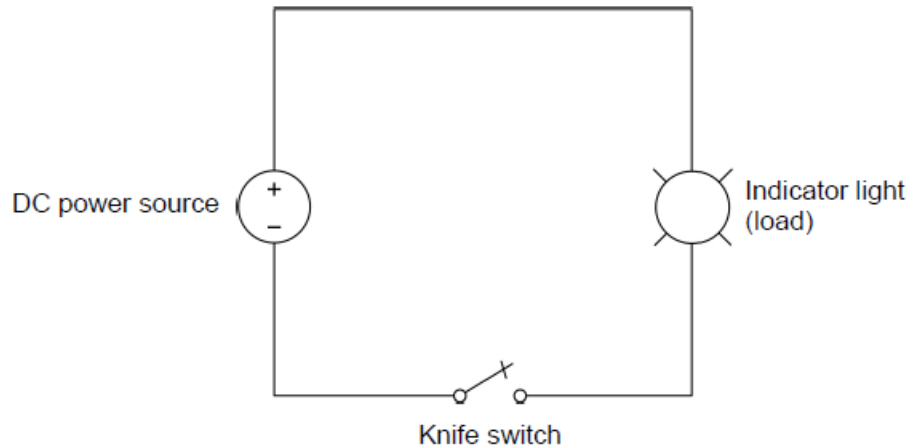
3. Power off the "Power Input" switch to power off the training unit.
4. Pull one lead off the DC motor and insert the DMM as a DC Amp meter (put the dial on the 10A DC-AC scale. Connect the circuit as follows:



5. Power up the training unit. Does the DC motor start running?
6. What current does the DMM for DC milli-Amps read? _____

Circuit 3

Wire the following circuit on the AC/DC training system:



1. Open the knife switch.
2. Power on the "Power Input" switch (lower right) to power the training unit.
3. Use the DMM as a DC voltmeter. Put the DMM across the open knife switch.

What is the measured value? _____

4. Close the knife switch. Does the pilot light turn on?

What is the measured voltage across the knife switch? _____

What is the measured voltage across the pilot light? _____

5. Power off the "Power Input" switch to power off the training unit.

Questions

1. What is the voltage of the DC power source?
2. A voltmeter is connected in _____ with what it is measuring.
 - a. Series
 - b. Parallel
3. A milli-amp meter is connected in _____ to measure current through the load.
 - a. Series
 - b. Parallel
4. In the circuit in Part 3 of this lab, when does the knife switch have continuity?
 - a. When it is open
 - b. When it is closed
5. In the circuit in Part 3 of this lab, if the knife switch is open, what voltage will be across the pilot light?
 - a. 0 volts DC
 - b. 24 volts DC
6. In the circuit in Part 3 of this lab, if the knife switch is closed, what voltage will be across the pilot light?
 - a. 0 volts DC
 - b. 24 volts DC

The outcomes of this exercise (listed on page 1) specifies the skills that the Student must demonstrate to the Instructor. Once the Instructor is satisfied with the demonstration of Knowledge & Skills by the individual student, they will sign this document (for the student), then enter a 100% into the Hands-On Lab grade in Sakai.

I verify that this student has completed all of the requirements of this Hands-On Assessment:

Student Name: _____

Faculty Signature: _____ Date: _____

DOL DISCLAIMER:

This product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).