

# PLC120 LAB 1.1: GETTING STARTED 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. Measure the voltage of the DC and AC power source using a DMM.
2. Measure the resistive value of a pilot light using a DMM.
3. Measure the resistance of a N.O. pushbutton using a DMM.
4. Measure the resistive values of a resistor using a DMM.
5. Measure the resistance of a buzzer coil using a DMM.

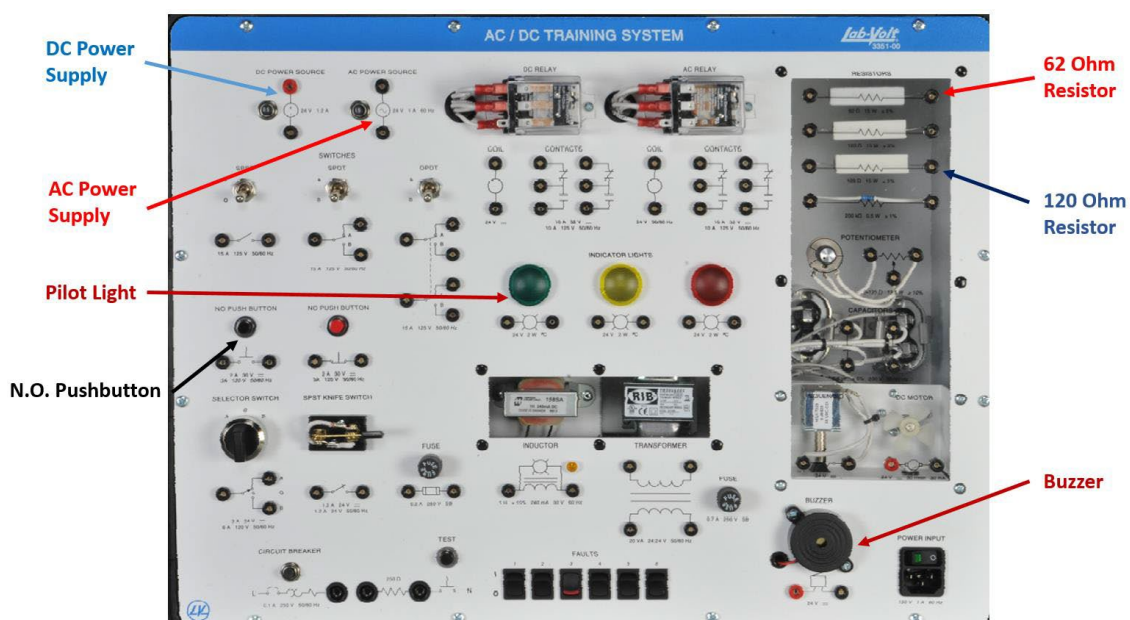
## LAB PROCESS:

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.

The following is a graphic of the AC/DC training system, with some components identified that the student will be testing later in this lab.



**Learn the training system components**

Locate the following components on the training unit:

1. The AC Power Source – upper left
2. The DC Power Source – upper left
3. The DC and AC Relay – upper middle, and the connections for the relays below them
4. The three Switches – upper left
5. The two Pushbuttons – middle left (black and red)
6. The selector switch – lower left
7. The knife switch – lower left
8. The buzzer – lower right
9. The Power Input switch – lower right
10. The DC motor – lower right
11. The solenoid – lower right
12. The potentiometer – middle right
13. The four resistors – upper right

**Measuring voltage on the AC/DC training system**

1. Connect the meter leads to the Digital Multi-Meter (DMM). Locate the DC power source on the unit. Put the meter dial on DC Volts. Measure the voltage at the terminals.

What is the value measured? \_\_\_\_\_

2. Locate the AC power source on the unit. Change the meter dial setting to AC Volts. Measure the voltage at the terminals.

What is the value measured? \_\_\_\_\_

3. Locate the Green Pilot Light on the unit. Change the meter dial setting to Resistance (Ohms). Measure the resistance of the pilot light.

What is the measured value? \_\_\_\_\_

4. Locate the N.O. Pushbutton on the unit. Keep the meter dial setting on Resistance (Ohms).

Measure the resistance of the pushbutton. What is the measured value? \_\_\_\_\_

Push the button. Measure the resistance again. What is the measured value? \_\_\_\_\_

5. Locate the 62 Ohm Resistor (upper right) on the unit. Keep the meter dial setting on resistance. Measure the resistance of the resistor.

What is the measured value? \_\_\_\_\_

6. Locate the 120 Ohm Resistor (upper right) on the unit. Keep the meter dial setting on resistance. Measure the resistance of the resistor.

What is the measured value? \_\_\_\_\_

7. Locate the Buzzer coil (lower right) on the unit. Keep the meter dial setting on resistance. Measure the resistance of the buzzer.

What is the measured value? \_\_\_\_\_

8. Power down the AC/DC training system.

### Questions

1. What resistance will a closed switch (or pushbutton) have?
2. Does a closed switch have continuity?
3. What resistance will an open switch (or pushbutton) have?
4. Draw the electrical symbol for a resistor.

5. Draw the electrical symbol for a NO pushbutton.

6. Draw the electrical symbol for a pilot light.

*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: \_\_\_\_\_

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