

Distance Based Learning; It is here to stay

David Stumpo, Executive Director
SCRTTC

Mike Brock, President
Immersed Technologies, Inc.

**BUS TECHNICAL MAINTENANCE &
CLEAN TECHNOLOGY LEARNING ZONE**



Distance Based Learning

- Who we are as the SCRTTC
- FTA Grant for Workforce Development
- Why eCourses for Technicians?
- Develop 3 courses
- Deliver 9 times
- How are we doing?
- What is next for Distance Learning?

**BUS TECHNICAL MAINTENANCE &
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Distance Based Learning

My Home > Select a course... Mike Brock

Tools Library BEACHBOARD HELP 9/25/2014

BB BEACHBOARD California State University, Long Beach

CSULB Links Log Out

News

Surveys: Class Evaluation
Posted to [Master Course for Electrical1](#)
Conditionally Released

We would like your feedback about the course, please take some time to fill out our Class Evaluation Survey.

[Class Evaluation](#)

Surveys: Class Evaluation
Posted to [CITT 175 eElectrical I 3108](#)
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Surveys: Class Evaluation
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[Class Evaluation](#)

My Courses

Role:

College of Continuing and Professional Education

[CCPE Master Courses](#)

[CITT 103 Module I - Global Logistics Overview](#)

BUS TECHNICAL MAINTENANCE &
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eDVOM

Digital Volt-Ohm Meter and ITS Meter Functions | Knowledge Activity



As Technicians, you need to be accurate when making DVOM measurements. Incorrect voltage, current or resistance measurements that involve misplacing the decimal point, can lead to circuit damage or personal injury.

Wrong circuit measurements can lead to replacing the wrong component or a component with the wrong specifications.

Always convert the reading to match the value in the service information.

Interaction Instructions:

Enter in equivalent values for all empty cells in each row of values. Do not enter a zero to the left of the decimal point.



■	Green = Correct
■	Red = Incorrect
■	Yellow = Retry

Mega	Kilo	Base	milli	micro
			A	7500 uA
MΩ	2.2 KΩ	2200 Ω		
	5 KV		V	
			A	1992 uA
MΩ	KΩ	1650 Ω		
	KV		V	500 mV
MΩ	222 KΩ		Ω	
			A	568 mA
	KV		V	670 mV

SECTION PROG. 90%

COURSE PROG. 45%

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eDVOM

Digital Volt-Ohm Meter and ITS Circuit Diagnosis | Knowledge Activity



Select components on the circuit to the right. The DVOM will display a measurement. You may have to select on either side of a component to get additional readings and NOT all components will display a measurement. After verifying source voltage, the circuit can be energized by the menu selection. If source voltage is 12 volts, assume 12 volts is available to the fuse.

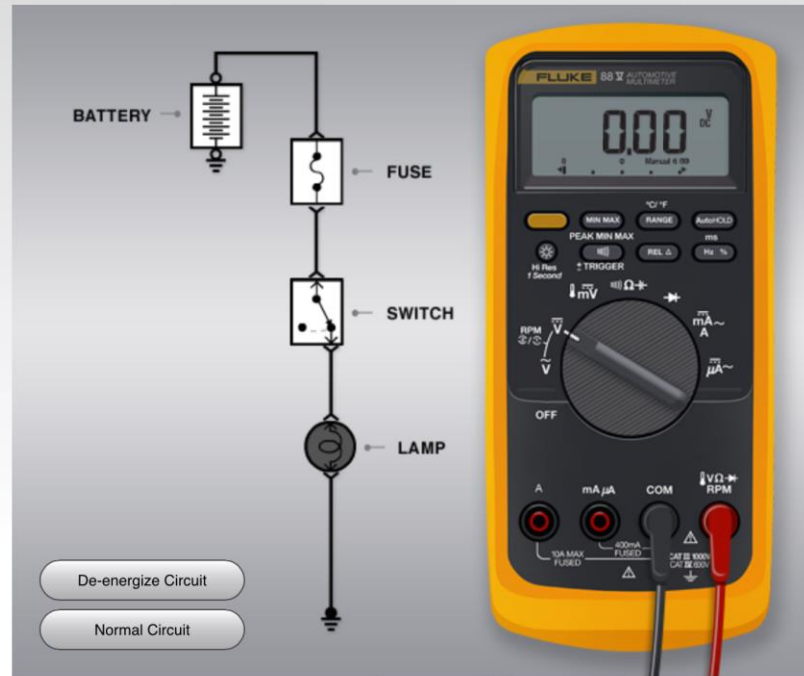
After interpreting all measurements, determine the general type of circuit fault by making a selection below.

- High Resistance
- Open Circuit
- Short Circuit

Please select the best answer.

Check Answer

- Lamp on
- Lamp off
- Lamp dim



- De-energize Circuit
- Normal Circuit

Navigation and progress indicators including a menu icon, a toolbox icon, a progress bar for SECTION PROG. (100%) and COURSE PROG. (85%), and navigation buttons for back, pause, home, and forward.

BUS TECHNICAL MAINTENANCE & CLEAN TECHNOLOGY LEARNING ZONE



eINSITE

INSITE Electronic Service Tool

Fault Codes | Fault Code Window



- **Fault Code:** The first column shows the Cummins fault code that identifies the fault and a graphic that shows the lamp status. Each ECM is identified by its source address, and faults for each ECM are listed individually.
- **Status:** The second column displays whether the fault is currently active or inactive. An active fault indicates that the fault condition was not within range when the engine was operated previously. An inactive fault indicates a condition that has occurred since fault data was last cleared.
- **Count:** This column displays the number of times that the fault has occurred since the last time the fault code was cleared. When the fault is expanded, sensor and switch parameter values from the first occurrence of the fault are displayed.
- **Lamp:** The Lamp column shows the color or type of dash warning lamp when active: Amber (warning), Red (stop or shutdown), Blue (maintenance), Gray (inactive), or none (no lamp information available). When the fault is expanded, sensor and switch parameter values from the last occurrence of the fault are displayed.

Fault Code	Status	Count	Lamp	Description
	Fault Parameters	First	Last	Units
ECM	ECM Time (Key On Time)	110:25:36		HH MM SS
	Engine Hours	110:24:45		HH MM SS
	Keyoffs	43		
0145	Active	1	Amber	Engine Coolant Temperature 1 Sensor Circuit - Voltage Below Normal or Short Low Source

SECTION PROG. 13%
COURSE PROG. 15%

Navigation icons: Home, Previous, Play/Pause, Stop, Next

BUS TECHNICAL MAINTENANCE & CLEAN TECHNOLOGY LEARNING ZONE



eINSITE

INSITE Electronic Service Tool
Fault Codes | Clearing Fault Codes Demonstration



Quick Reference

Software Demo

Note: Be sure to familiarize yourself with the content contained within the Quick Reference Card and Software Simulation demonstration video. Final Post Assessment questions come from this material.

Navigation and progress controls including a menu icon, a briefcase icon, progress bars for SECTION PROG. (33%) and COURSE PROG. (19%), and navigation buttons (back, pause, refresh, forward).

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eINSITE

INSITE Electronic Service Tool
Fault Codes | Clearing Fault Codes Demonstration



X CLOSE

STEP 01

Fault Code	Status	Count	Lamp	Description	PID	SID	J1587 FMI	J1939 FMI	SPN
	Fault Parameters	First	Last	Units					
ECM	ECM Time (Key On Time)	110:25:36		HH:MM:SS					
	Engine Hours	110:24:45		HH:MM:SS					
	Keyoffs	43							
0145	Active	1	Amber	Engine Coolant Temperature 1 Sensor Circuit - Voltage Below Normal or Shorted to Low Source	110		4	4	110
0441	Inactive	3	Amber	Battery 1 Voltage - Data Valid But Below Normal Operating Range - Moderately Severe Level	168		1	18	168
0122	Inactive	300	Amber	Intake Manifold 1 Pressure Sensor Circuit - Voltage Above Normal or Shorted to High Source	102		3	3	102

Engine must be OFF and key ON before you enter Fault Codes.



SECTION PROG.  33%
COURSE PROG.  19%



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eINSITE

INSITE Electronic Service Tool
Fault Codes | Clearing Fault Codes Demonstration



STEP 01

Note: To clear fault codes, the engine must be OFF and key ON before you enter Fault Codes or you will not be able to clear fault codes.

To clear a fault code, highlight the code and right-click to open the right-click menu.

(RIGHT-CLICK)

Fault Code	Status	Count	Severity	Description	1587 FMI	J1939 FMI	SPN	
0441	Inactive	3	Amber	Battery 1 Voltage - Data Valid But Below Normal Operating Range - Moderately Severe Level	168	1	18	168
0122	Inactive	300	Amber	Intake Manifold 1 Pressure Sensor Circuit - Voltage Above Normal or Shorted to High Source	102	3	3	102



SECTION PROG.  33%
COURSE PROG.  19%



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eINSITE

STEP 01

Fault Code	Status	Count	Lamp	Description	PID	SID	J1587 FMI	J1939 FMI	SPN
	Fault Parameters	First	Last	Units					
ECM	ECM Time (Key On Time)	110:25:36		HH:MM:SS					
	Engine Hours	110:24:45		HH:MM:SS					
	Keyoffs	43							
0177	Active	1	Amber	Engine Coolant Temperature 1 Sensor Circuit - Voltage Below Normal or Shorted to Low Source	110	4	4		110
0441	Inactive	3	Amber	Battery 1 Voltage - Data Valid But Below Normal Operating Range - Moderately Severe Level	168	1	18		168
0122	Inactive	300	Amber	Intake Manifold 1 Pressure Sensor Circuit - Voltage Above Normal or Shorted to High Source	102	3	3		102

(RIGHT-CLICK)

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E1 - eCourse

Electrical 1

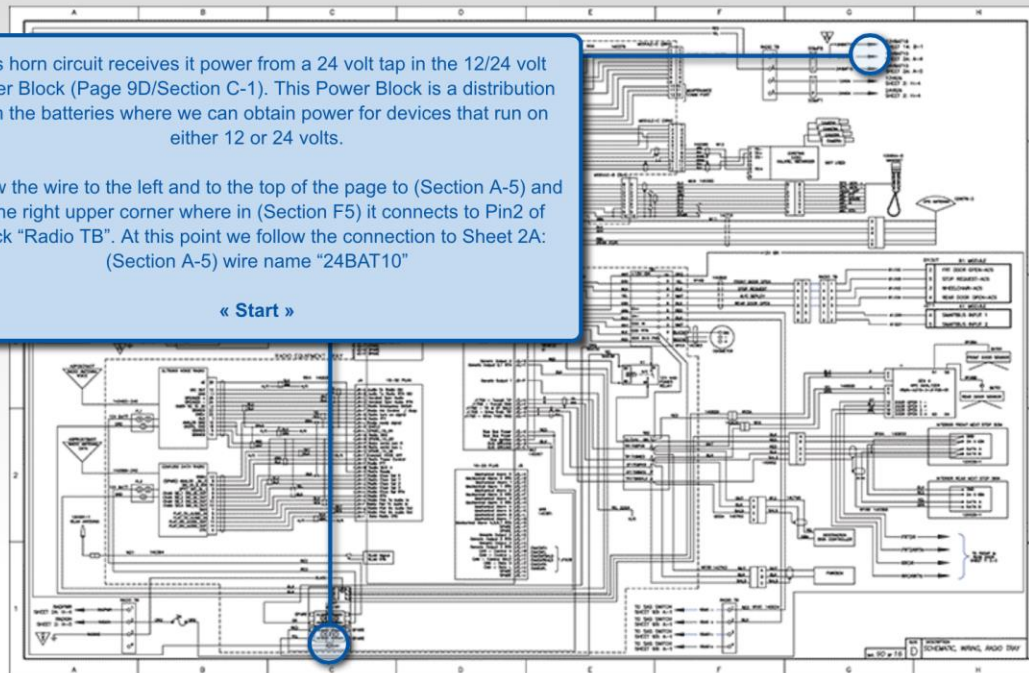
Schematics | Horn Circuit



This horn circuit receives its power from a 24 volt tap in the 12/24 volt Power Block (Page 9D/Section C-1). This Power Block is a distribution from the batteries where we can obtain power for devices that run on either 12 or 24 volts.

Follow the wire to the left and to the top of the page to (Section A-5) and to the right upper corner where in (Section F5) it connects to Pin2 of block "Radio TB". At this point we follow the connection to Sheet 2A: (Section A-5) wire name "24BAT10"

« Start »



SECTION PROG.  50%
COURSE PROG.  13%



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E1 - eCourse

Electrical 1

Circuit Types | Knowledge Activity



What is total circuit resistance?

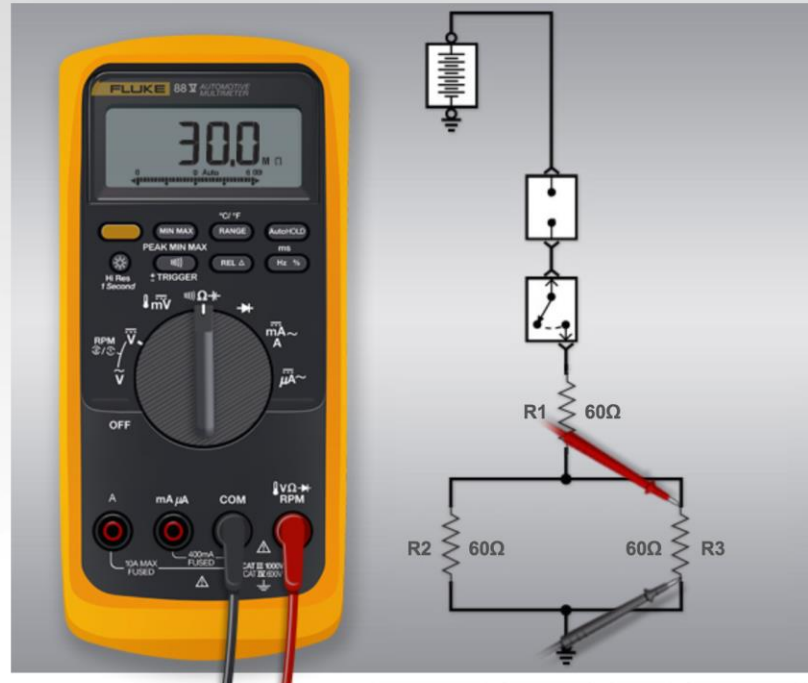
- 30
- 60
- 90
- 120

Please select the best answer.

Check Answer

Select the components to view resistance measurements in a series-parallel circuit.

Remember that Ohm's Law explains the relationship between Voltage, Current and Resistance. For additional information on ohm's law, refer to the 'Basic Electrical Quick Reference Guide'.

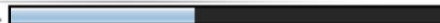


SECTION PROG.



100%

COURSE PROG.



42%



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E1 - eCourse

Electrical 1 Relays | Knowledge Activity



Select and drag the correct answers on the left to the targets on the right.

87

85 87a

86

input voltage, usually low amperage

normally closed, coil not energized

normally open, coil not energized

30 input voltage, usually high amperage

grounding signal

Check Answer

Drag answers to the correct location.



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E1 – ILT - iPads

✕

1 **How is a DVOM connected in a circuit to measure amperage?**

2

3

4

5

6

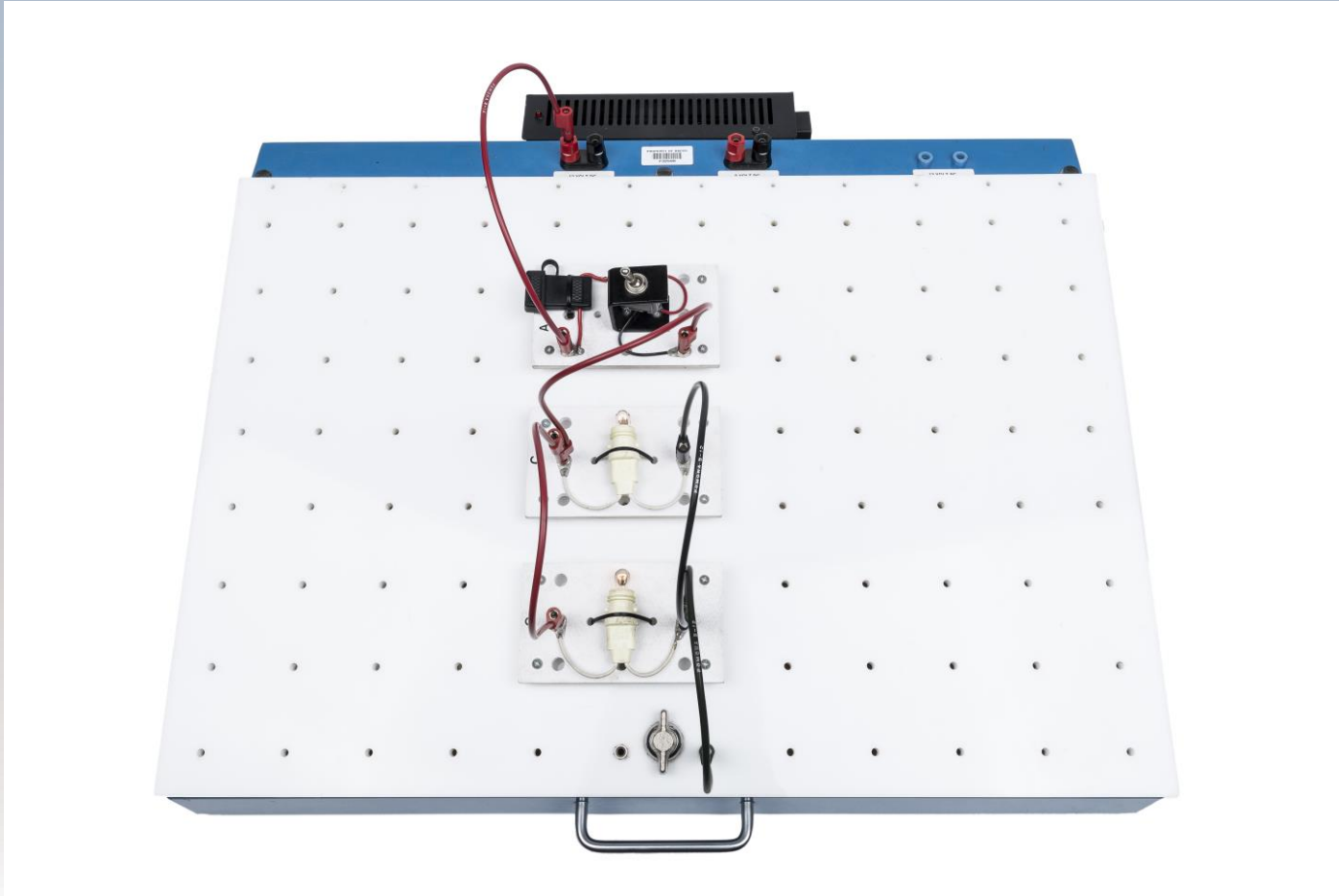
7

8

- In series with the load being measured
- In parallel with the load being measured
- Across the source of power
- Across the component with the power off

← Clear answers and start over Submit →

E1 – ILT - iPads



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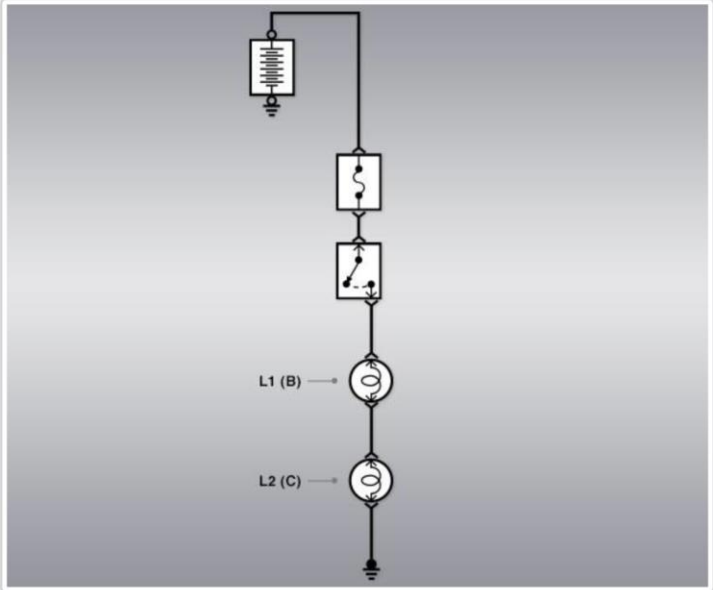
**APTA
EXPO**
PUBLIC TRANSPORTATION'S
PREMIER SHOWCASE

E1 – ILT - iPads

NO

X

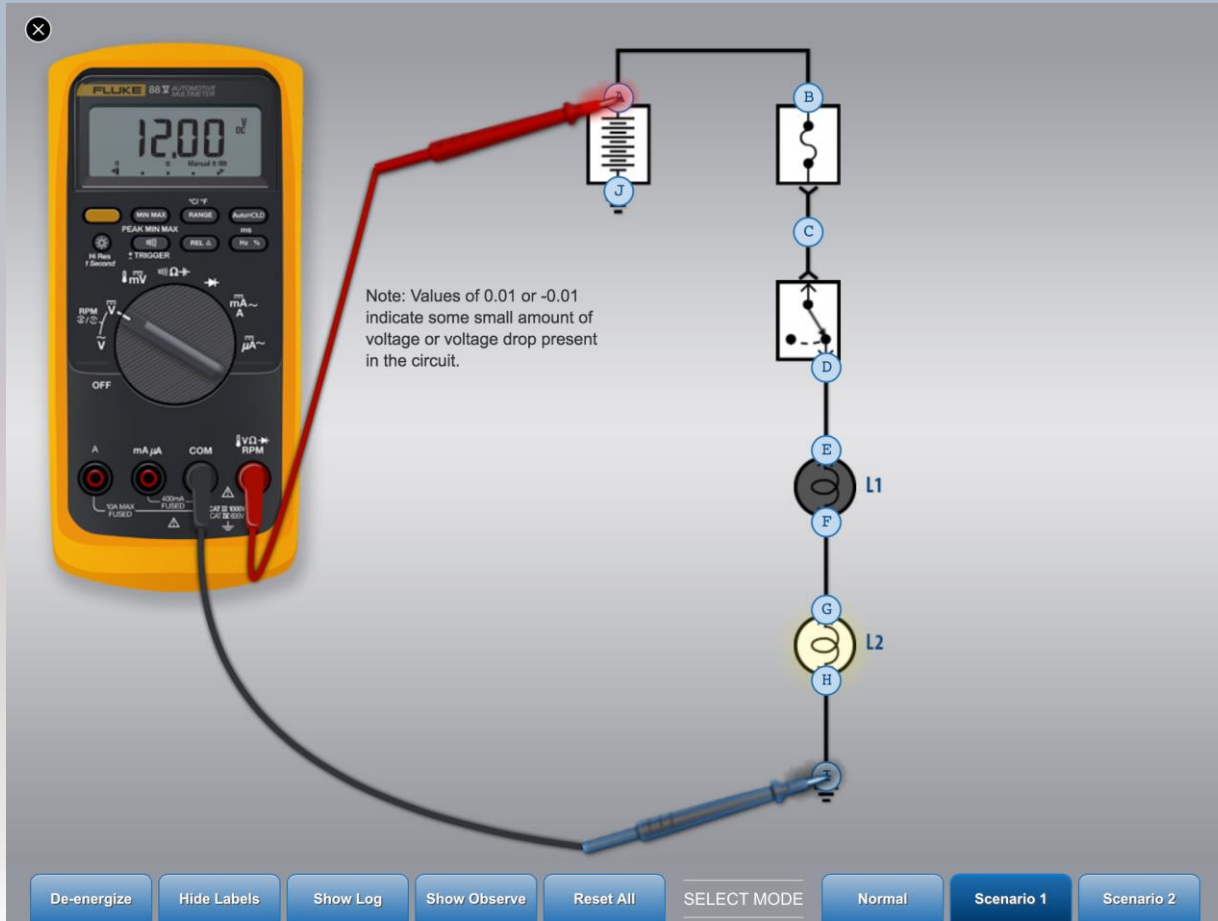
Setup the circuit as shown.



8. Measure source voltage. What is your measurement?

- 5 volts
- 6 volts
- 12 volts

E1 – ILT - iPads



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E1 – ILT - iPads

The screenshot displays a diagnostic software interface. At the top left, a digital multimeter (DMM) shows a reading of 12.00 V. To its right is a schematic diagram of a bus system with components labeled A through I. A red and black probe is shown measuring component L2. In the center, an 'Observations' window is open, showing a question: 'Measure from ground side of bulb L2 to common ground. What is your measurement?'. Below the question are four radio button options: 0.00V, 0.01V, 6V, and 12V. At the bottom of the window is a 'Check Answer' button. The bottom of the software interface features a control bar with buttons for 'De-energize', 'Hide Labels', 'Show Log', 'Hide Observe', 'Reset All', 'SELECT MODE', 'Normal', 'Scenario 1', and 'Scenario 2'.

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