Power Electronics Laboratory

User Manual

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Department of Electrical and Computer Engineering

Purdue University

Safety Precautions

General Precautions

- Keep the table clean.
- Do not put any object on table or nearby circuits.
- Always use safety glasses when testing the circuits.
- No loose wires or metal pieces should be lying on table or near the circuit as they cause short circuits and sparking.
- Avoid using long wires, that may get in your way while making adjustments or changing leads.
- Keep the conducting parts and connections out of the way from accidental touching and from any contacts to test equipment or any parts, connected to other voltage levels.
- When working with inductive circuits, reduce voltages or currents to near zero before switching open the circuits.
- Be careful about dangling objects like bracelets, rings, and metal watch bands. They conduct electricity and can cause burns. Do not wear them during laboratory sessions.
- When working with energized circuits, use only one hand while keeping the rest of your body away from conducting surfaces.

Before Powering the Circuit

- Before powering the circuits, check for all the connections of the circuit and scope connection. This avoids shorting or any ground looping that may lead to electrical shocks or damage of equipment.
- Check any connections for shorting two different voltage levels.
- Check if you have connected load at the output.
- Double check your wiring and circuit connections (use a point-to-point wiring diagram to review when making these checks).
- Check the circuit with the TA.

While Powering Up the Circuit

- First apply low voltages to check proper functionality of circuits.
- Once functionality is ok, increase voltages to the required levels.

While Powering Down the Circuit

- Reduce the voltage or power slowly till it comes to zero.
- Switch of all the power supplies.
- Let the load be connected at the output for some time, so that it helps to discharge capacitor or inductor if any, completely.

While Modifying the Circuit

- Switch off the circuit.
- Modify the connections based on the requirement.
- Recheck the circuit with the TA and power up.