

~ FABRICATION ~



ELECTRONICS

OPERATING INSTRUCTIONS

INTRODUCING



ELECTRONICS

the



POWER SUPPLIES



Variable Voltage Power Supply

Access Level 1 – (see Tech Workshop Induction Guide on Access Levels)

Bench power supplies used to supply Direct Current (DC) electricity, up to 30 volts and 3 amps, to student projects. Generally used for testing power requirements

PPE Basic

- Generally, not required for this equipment

What to do before use

- Visual check of the machine for signs of damage to machine, the supply socket and the cable
- Report any faults to any member of workshop academic/technical staff

How to Use these Power Supplies

- **OPERATION MODE:** To ascertain the **CURRENT REQUIREMENTS** for powering a motor, light or circuit in a project
- **MAKE SURE** the channel switches are set to **OFF**
- **USE A RED CABLE** and crocodile clip to attach the **POSITIVE CONTACT** of the motor or light **TO THE POSITIVE OUTPUT** of one of the channels of the power supply
- **USE A BLACK CABLE** and crocodile clip to attach the **NEGATIVE CONTACT** of the motor or light to the **NEGATIVE OUTPUT** of one of the channels of the power supply
- **TURN** the volts/current controller switch to **VOLTS**

- Use the **COARSE AND FINE** potentiometer ratings to set the required **VOLTAGE** for the component being tested. This can be found by **CHECKING THE COMPONENT DATA** sheet or **ASK THE INSTRUCTOR**
- **TURN** the volts/current controller switch to **CURRENT**
- Turn **ON** the channel switch
- The needle should show the current being drawn to power the component
- If the needle **SUDDENLY JUMPS** to 3 amps then **EITHER A SHORT CIRCUIT** has been made - in which case the channel should be immediately turned **OFF** - **OR** the component requires more than 3 amps
- If the component requires **MORE** than 3 amps, **USE BOTH CHANNELS**
- Use the **POSITIVE** connection on one channel and **NEGATIVE** on the other channel
- Join the **UNUSED OUTPUTS** to each other and set **BOTH CHANNELS** to **HALF** the required voltage
- If the current draw is **GREATER THAN 6 AMPS**, then a rethink of component may be in order or an **INTERNAL SHORT CIRCUIT** of the component may be causing the high current draw
- **OPERATION MODE: POWERING** a project
- Set-up is identical to the previous **MODE** description, however **CARE** should be made to check for **SHORT CIRCUITS, SOLDER BETWEEN** copper rails on strip-board, component legs **TOUCHING**, etc. These checks should be made **BEFORE** turning on the channel
- **CARE** should also be taken to **ENSURE** that all components that require a ground connection are connected **CORRECTLY** - especially when using **BOTH CHANNELS** to power **DIFFERENT** components with **DIFFERING** voltage requirements that are being controlled by the same Arduino board or other controller
- When you have completed your work, **SWITCH OFF** the power supply system and disconnect any connectors, replacing them back in their storage area

Date

I verify that I have read and understood the information detailed within this document

Name

Signature