Università degli studi di Trento

Group **MAR01**

REPORT OF THE EXPERIMENTS PERFORMED IN THE COURSE OF PHYSICS LABORATORY III

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Experiment 1

Basic circuits with an operational amplifier

In this experiment we have built five different circuits. The first is an open loop circuit with the operational amplifier uA741, the goal was to find the maximum voltage outputed by the op-amp as justified from the equation $v_o = A_{ol}(v_+ - v_-)$ where A_{ol} tends to infinity in the ideal model. The last four circuits are in closed loop configuration with a negative feedback, they consist on a follower, a non inverting amplifier, an inverting amplifier and a weighted summing amplifier. We have measured the voltage input and the voltage output of every circut.

1.1 Materials

- Operational amplifier uA741
- Resistor, nominal value: 100 Ω, 220 Ω
- Power supply
- Other stuff

1.2 Experiment setup

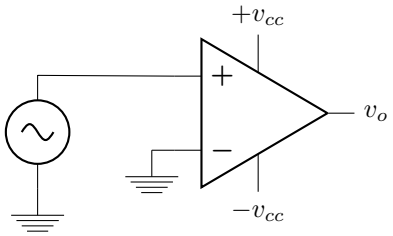

Figure 1.1: Open loop circuit

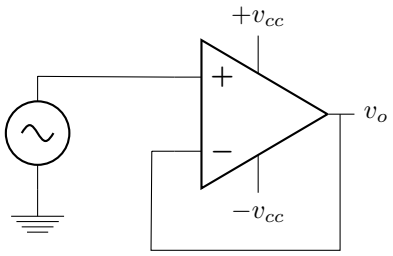

Figure 1.2: Follower

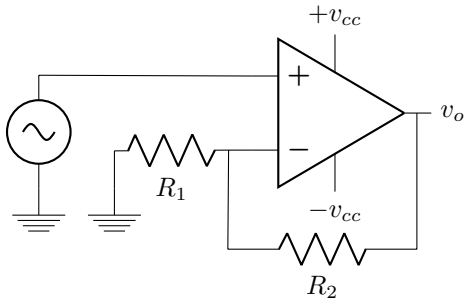

Figure 1.3: Non inverting amplifier

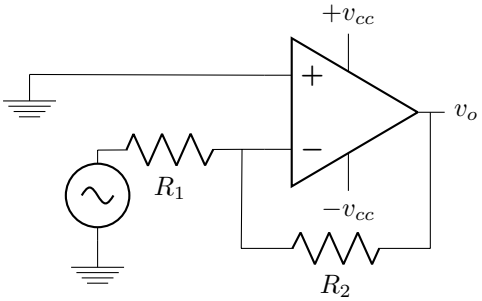

Figure 1.4: Inverting amplifier

1.3 Data analysis