

LAB SETUP & DATA-EXPORT GUIDE

Quick-Reference.

1. **Function Generator**
 - Power **ON**.
 - Press **Channel 1** (or 2, as assigned).
 - Press **Load** → choose **High Z (High Impedance)**.
 - Set **Waveform, Frequency, Amplitude (Vpp), Offset = 0 V**.
 - Press **Output ON**.
2. **Oscilloscope**
 - Hold **Autoset** for 2 s to restore factory defaults.
 - Menu ► **Probe** ► select **10×**.
 - Menu ► **Coupling** ► **DC**.
 - Connect **Channel 1 probe** to the Function Generator output (BNC → probe lead).
 - Verify displayed **peak-to-peak voltage** and **frequency** $\approx$ generator settings. If the difference exceeds **10 %**, adjust the FGen or probe settings.
3. **Data Capture — Oscilloscope → CSV (RS Commander)**
 - Open **RS Commander** on the lab PC.
 - Click **Trace** ► **Save** (disk icon).
 - Choose **CSV** format and name the file `Lastname_Lab#_Ch1.csv`.
 - Copy the CSV to your USB drive or cloud storage (lab PCs are wiped nightly).
4. **Data Capture — LTspice → CSV**
 - Run the simulation.
 - Right-click inside the plot window ► **File** ► **Export Plot Data**.
 - Save as **Text (.txt)**.
 - In Excel: **Data** ► **Get Data** ► **From Text/CSV** ► import the file.
 - Save the workbook as `Lastname_Lab#_Sim.xlsx`.
5. **Pre-Flight Checks (before recording measurements)**
 - Confirm the Function Generator is still on **High Z** (it resets after power-cycle).
 - Confirm oscilloscope probes are **10×** on every channel in use.
 - Re-measure the output to double-check amplitude and frequency.
 - Record environmental conditions if requested (e.g., room temperature).

Why These Settings Matter

- **High Z load** prevents the Function Generator's $50\ \Omega$ source from halving the amplitude when driving the oscilloscope's high-impedance input.
- **Probe 10×** raises input impedance to **10 M Ω** , minimizing circuit loading and extending the voltage range to $\pm 20\text{ V}$.
- **Autoset reset** clears hidden math or filters left by previous users.
- **DC coupling** shows true voltage levels (AC coupling hides the DC component we need).