

TEKLAB Electronic workstation

FabLab Tampere Teklab electronics table operating instructions.

Before you start working:

- Ask for the staff for keys to the table and for the workstation toolbox
- Make sure the fume extraction system is working, if you are unsure ask the staff
- Open the fume extraction to the table you are working on

Universal guidelines

1. Both tables are identical and they have following equipment
 - Weller soldering station
 - 2pcs TEKLAB laboratory power supplies, max 35V 5A
 - Fluke multimeter
 - Tektronix 200MHz digital oscilloscope
 - Rohde & Schwarz 10MHz signal generator
2. Toolbox with the equipment, like soldering station handle and oscilloscope measuring head are storage, ask staff for them
3. Start the workstation from right corner using power switch, remember to use the “start” function to actually start the table. Make sure that emergency stop hasn’t been pressed down.
4. If you use consumables like components, mark them down.
5. When you finish working
 - Return toolbox and keys to the staff, place unused components in their right place.
 - If you used consumables, pay for them at the cashier desk
 - If there’s no one coming to the workstation after you, turn the power off to the table, close the lid to the table and close fume extraction.

- Clean the workstation

Device specific instructions

Weller soldering station



1. Insert wire from the soldering handle to the main unit, tighten by hand rotating clockwise. Do not use tools to tighten.
2. Place the handle in the holder, power on the soldering station from the switch. There should be reading on the display now. If not, check that you have powered the workstation and emergency stop hasn't been pressed.
3. Handle warms up fast, now it's good time to check if the sponge located on the handle holder is moist. If not, pick it up and put it under running water in the sink. Sponge needs to be moist, not dripping water.
4. When handling soldering iron, hold the handle from the plastic part. Remember that the metal parts are hot, tip is usually around 360C, be careful. Soldering iron is not suitable for melting rubber or plastics. This will break the tip as will having the soldering station set to too high temperature.



5. It is good idea to use Flux when resoldering, Flux pen should be in the workstation toolbox. Apply Flux to the are to be soldered when it's cold, do not apply Flux directly to the soldering iron! Apply some new solder to the tip of the soldering iron to increase heat transfer.
6. When making new solders you can use helping hand and benchwise to hold wires in place, these can be found in the storage.
 - a. When attaching two wires together to joint that doesn't need mechanical stress handling properties, you can solder the wires first and then join them together parallel with the soldering iron. Let the joint cool down 5-10 seconds before mowing it.
 - b. To make stronger joint, strip the end of the wire from longer distance and twist the wires together. Now you can solder the joint.
 - c. When soldering small components to pcb use tweezers to hold components in place.
 - d. This way you can use less solder and avoid unnecessary heating of components to prevent their breakdown.

TEKLAB- power supplies (2pcs)



1. Turn the power supply on from top left corner, wait for a while for it to turn on
2. Set the desired voltage (Uset) and current limit (Ilim) using the knobs on the power supply next to the display. Adjustment gain (1.0V / 0.1V, 0.1A / 0.01A) can be changed by pressing down on the knob.
3. Display-button shows settings, in normal use you don't need to change these.

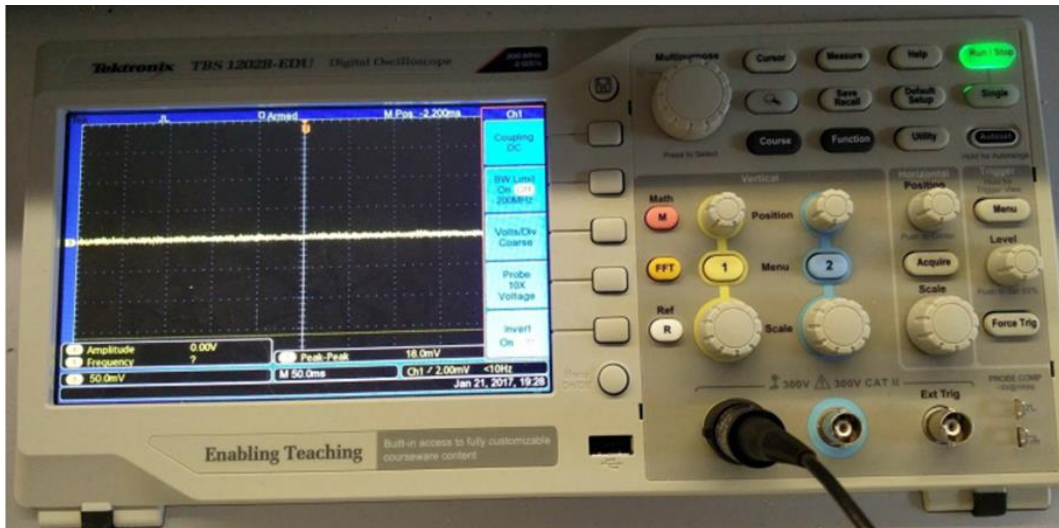
4. Make your connections before turning the output on. Use the supplied banana-style connectors, do not push stripped wires to terminals. You can turn on and off the output from the power supply using Output-button.

Fluke multimeter



1. Connect measuring wires to black and red terminals, when making current measurements make sure you use terminal with enough measuring capacity.
2. Select the desired measuring function to start the multimeter
3. Hold-button allows you to change the desired resolution and to hold the measurement in display after finishing measuring.

Tektronix Oscilloscope



1. Turn on the oscilloscope from upper right corner
2. Insert probes to the ports with color codes, yellow / blue (channels 1 & 2)
3. Select the desired channel from color coded buttons (1 / 2) under vertical adjustments.
4. Check probes attenuation factor from it's connector, make sure you have selected same setting in the Probe Voltage (1x / 10x) setting. Use the multipurpose selector to change selection in the menu.



5. X-axis settings are inside Horizontal area.

Rohde & Schwarz Signal generator



1. Insert wire to Trig. Outp. (Trigger output) or 50 Ohm output connection.
 - a. Trigger output has amplitude of 5V and offset 2.5V, so the signal varies between 0-5V
 - b. Use 50ohm output for other purposes
2. Select desired signal form using Function button. Frequency button changes the signal frequency and adjustment multipliers are changed below it. Offset and amplitude buttons are self explanatory.
3. To use sweep function, press Sweep button and give starting frequency, press the button again and give ending frequency. Press it once more and give the time desired for one sweep. Sweep light should be on all the time when sweep function is active.