

Temperature-Controlled Soldering Stations

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Electronics & Prototyping



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A temperature-controlled soldering station is a bench unit with a variable-temperature iron, a stand and a control box that keeps the tip at a set temperature. It makes reliable, repeatable solder joints and protects sensitive components from overheating, essential for electronics lessons.

Key Features

- Tip temperature ranges about 150-480 degrees C
- Digital or analogue temperature display
- Sleep and auto-standby functions for safety
- Interchangeable tips of different shapes
- ESD-safe design for sensitive components

Typical Uses in the Workshop

- Solder through-hole components onto circuit boards
- Assemble connectors, wires and repair damaged joints
- Desolder components with solder wick or a pump
- Surface-mount rework with small tip profiles

Safe Operation

1. Select the tip shape and set the right temperature for the job
2. Clean the tip on a damp sponge or brass wool
3. Tin the tip before soldering and apply fresh solder to the joint
4. Hold the joint still until the solder freezes
5. Switch the iron to standby when not soldering

SAFETY NOTES

- The tip is dangerously hot - never touch it
- Rest the iron in its stand when not in use
- Work in a ventilated area or under fume extraction
- Wash hands after soldering and avoid lead solder if possible
- Unplug the station at the end of the day

Maintenance & Consumables

- Clean or replace tips when they oxidise
- Check the mains lead and plug for damage
- Calibrate the temperature display yearly
- Empty solder waste into a labelled bin
- Store tips in a foam block when not used

Specification & Buying Notes

Look for a station with a digital display, ESD-safe tip and compatible tip range. Spare tips and a tip cleaner should be available locally. 60-80 W stations heat up faster than cheap 30 W irons.