

Temperature and Humidity Sensors (DHT11/DHT22)

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Sensors & Modules



Photo: Flanoz — CC0 — via Wikimedia Commons (Temperature_and_humidity_meter.jpg)

DHT11 and DHT22 are combined digital temperature and humidity sensors widely used in weather stations, greenhouses and environmental monitoring projects. DHT22 is more precise and has a wider range; DHT11 is cheaper and fine for basic teaching.

Key Features

- DHT11: 0-50 C, 20-90% RH, 1 C accuracy
- DHT22: -40 to 125 C, 0-100% RH, 0.5 C accuracy
- Single-wire digital data output
- 3.3-5 V operation
- Sample rates of 1-2 readings per second

Typical Uses in the Workshop

- Build classroom weather stations
- Monitor greenhouse and 3D printer enclosures
- Log temperature trends for science projects
- Control fans and heaters automatically

Safe Operation

1. Wire data, VCC and GND correctly
2. Add a pull-up resistor if the module lacks one
3. Use a library with timing handled for you
4. Read at intervals, not continuously
5. Check readings against a reference thermometer

SAFETY NOTES

- Keep sensors away from water and solvents
- Do not exceed the rated temperature range
- Protect from direct sun and heating vents
- Check polarity
- Store spare sensors dry

Maintenance & Consumables

- Keep the sensor grid clean of dust
- Check the wiring and connectors
- Recalibrate against a known hygrometer
- Store dry in antistatic bags
- Replace sensors that drift

Specification & Buying Notes

DHT22 modules are worth the small extra cost for accurate classroom data. Buy breakout boards with the pull-up resistor fitted - they are easier for students to wire correctly.