

Logic Analyzers

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



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A logic analyzer captures and displays digital signals over time across many channels at once, decoding protocols like I2C, SPI and serial. It is the tool for debugging microcontroller projects where an oscilloscope only sees one or two channels.

Key Features

- 8-16 channel captures typical
- Sampling rates up to 500 MHz
- Protocol decoders for I2C, SPI, UART
- USB connection to analysis software
- Triggering on edges, patterns and glitches

Typical Uses in the Workshop

- Debug I2C and SPI sensor communications
- Trace microcontroller pin activity across channels
- Capture and decode serial messages
- Find timing and glitch faults in projects

Safe Operation

1. Connect the channel clips to the signal pins and ground
2. Set the sample rate and trigger in the software
3. Start the capture while the system runs
4. Decode the protocol and inspect the timing
5. Export captures for reports

SAFETY NOTES

- Only probe low-voltage logic circuits
- Check the analyzer's input voltage rating before connecting
- Keep probe clips away from mains and power rails
- Disconnect the instrument from power when not used
- Handle probes carefully - they are delicate

Maintenance & Consumables

- Keep the probe cables and clips clean
- Check the USB connection and drivers
- Store in an antistatic bag
- Update software as needed
- Check the ground leads for breaks

Specification & Buying Notes

An entry 8-channel USB logic analyzer with protocol decoding covers school microcontroller debugging. Choose one supported by a mature software tool. Include a full set of probe cables.