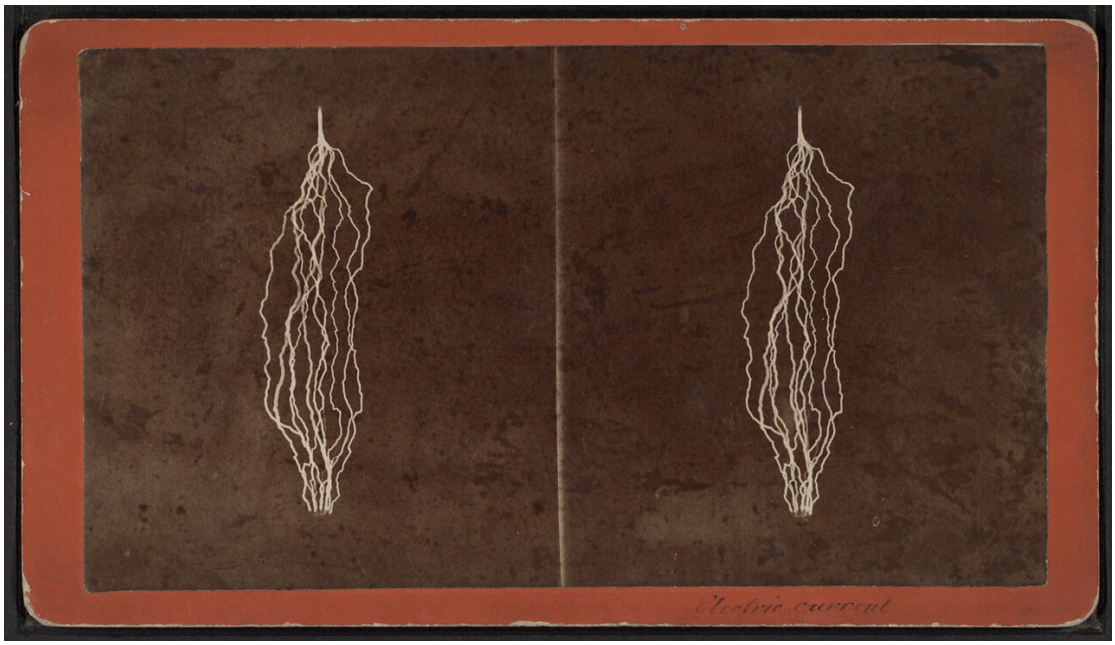
Current Sensor Modules (ACS712)

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



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The ACS712 current sensor measures DC and AC current through a Hall-effect chip without breaking the circuit, outputting a voltage proportional to the current. Projects use it to monitor motors, batteries, chargers and power consumption.

Key Features

- ACS712-5A, -20A, -30A variants
- Hall-effect isolation
- Analog output voltage
- 5 V operation
- No circuit break needed

Typical Uses in the Workshop

- Monitor motor and battery current
- Measure charging and load currents
- Power consumption logging
- Overcurrent detection in robots

Safe Operation

1. Wire the load in series through the terminals
2. Calibrate the no-current offset
3. Read the analog voltage and scale
4. Calculate current from the scale factor
5. Test with a known load

SAFETY NOTES

- Do not exceed the module's current rating
- Keep the sensor wiring short and sound
- Check the load voltage rating
- Do not touch wires while powered
- Use a fuse in the load line

Maintenance & Consumables

- Check the terminal connections
- Calibrate the offset regularly
- Clean the board of flux and dust
- Verify with a multimeter
- Keep spares in stock

Specification & Buying Notes

Match the current range to the load: 5A for sensors and small motors, 20A for robots, 30A for power tools. Quality modules measure accurately; check the supply regulation.