

Solid State Relays (SSRs)

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

A solid state relay switches AC or DC loads with no moving parts, using an LED input to trigger a semiconductor output. They give silent, fast, long-life switching for heaters, lamps and automation - with the advantage of no contact wear.

Key Features

- 25-40 A switching typical
- 3-32 V DC control inputs
- Zero-crossing AC switching
- Opto-isolated control
- LED status indicators

Typical Uses in the Workshop

- Switch heaters, lamps and motors
- Automation and temperature control
- Silent power switching in projects
- Isolated AC control from logic

Safe Operation

1. Match the SSR rating to the load
2. Wire the control input to the driver
3. Connect the load through the output terminals
4. Mount on a heatsink for big loads
5. Check the input state triggers the output

SAFETY NOTES

- SSRs switch mains - treat as live electrical work
- Use the correct fuse and rating
- Mount with a heatsink for current
- Never touch the load terminals live
- De-energise before wiring

Maintenance & Consumables

- Check the heatsink fixing
- Verify the control trigger
- Clean the terminals and dust
- Check the fuse
- Replace failed SSRs

Specification & Buying Notes

Mains switching needs certified components and staff supervision. Choose SSRs with the load rating doubled. Quality SSRs switch cleanly at zero cross; cheap ones buzz and radiate.