

Earthing & Protection

Electrical Engineering

What each protective device is for, and the separate job earthing does.

Protecting the cable and protecting the person are two different problems.

Protective devices

Fuse: cheap, one-shot overcurrent

MCB: resettable overcurrent and short circuit

RCD: detects current leaking to earth

Overload relay: protects a motor thermally

Surge arrester: clamps transient overvoltage

What earthing does

Holds exposed metalwork near earth potential

Gives fault current a low-impedance path

Lets protection operate quickly enough

Bonding removes voltage between metal parts

Earth resistance is measured, never assumed

Educational reference. Overcurrent protection guards the cable; residual-current protection guards people. The two are not