



CABLE SAFETY AT HOME

Cables, plugs & socket extensions can be dangerous, and a cause of fires and electrocutions.

This D-Line guide explains how cable safety at home can be easy to follow...



Know your limits

The safe electrical load of an extension socket is limited by the rating of the fuse in its plug; the thin wire in the fuse cartridge will melt away ("blow") when overloaded. Then the entire circuit, and all appliances on the extension socket will suddenly shut off.



Most UK extension sockets have a plug fitted with a 13Amp fuse, but the rating of the fuse should always be checked. 13Amp fuses carry up to 13Amps which (multiplied by 230 Volts) is equivalent to 3000 Watts; any higher loads will blow the circuit. 10Amp fuses can carry up to 2300W.



13A > 2550W recommended load
(max 3000w)

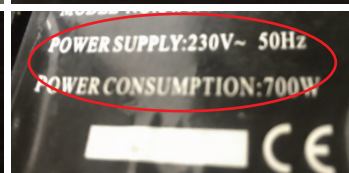
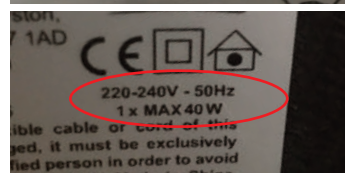
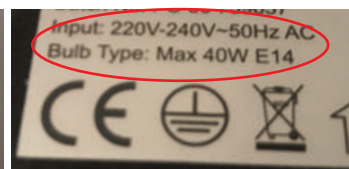
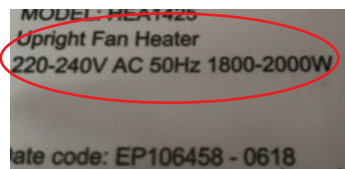


10A > 1955W recommended load
(max 2300w)

Good practice recommends keeping at least 15% margin of safety; 2,550W is considered a safe limit for 13amp fuse.

After confirming the fuse rating, always check the total wattage that will be consumed by all appliances to be plugged into the extension socket.

The power consumption of any appliance should always be checked individually, as they will vary between manufacturer's models and ranges, but we've listed a guide opposite;



Green denotes low power(<1000w); Amber medium (1000w > 2000w); Red indicates 'high' loads (2000w+).

Appliance	Amps	Wattage
42" HD Television	0.50	120
82" LED TV	1.28	295
Amazon Echo	0.01	3
Clothes Iron	4.35	1,000
Coffee Maker	5.65	1300
Computer Monitor	<0.5	100
Dehumidifier	0.17	40
Desktop computer	3.04	700
Dishwasher	6.52	1,500
Drill	3.70	850
DVD Player	0.12	28
Electric Blanket	0.87	200
Electric radiator	2.17	500
EV Home Charger	14.78	3400
Food Blender	1.74	400
Freezer	0.22	50
Fridge	0.96	220
Fridge Freezer	0.17	40
Fryer	4.35	1000
Games Console	0.87	200
Guitar Amplifier	0.13	30
Hair Curlers	1.30	300
Hair Dryer	9.57	2200
Hair Straightener	1.30	300
Home Internet Router	0.07	15
Kettle	13.04	3000
Lawnmower	6.09	1400
Laptop computer	2	45
LED lamp	0.04	10
Light bulb 40w	0.17	40
Microwave	4.35	1000
Mobile phone charger	0.05	12
Night Light	0.00	1
Oven	9.35	2150
Paper Shredder	0.96	220
Pedestal Fan	0.26	60
Playstation 4	0.39	90
Portable Fan Heater	9.13	2100
Pressure Cooker	3.04	700
Printer	0.22	50
Rice Cooker	3.48	800
Sandwich maker	4.35	1,000
Satellite TV Box	0.13	30
Sound surround	0.41	95
Steam Iron	10.87	2,500
Steriliser	2.83	650
Strimmer	2.17	500
Tablet Computer	0.04	10
Toaster	8.70	2000
Treadmill	3.91	900
Tumble Dryer	13.04	3,000
Vacuum Cleaner	5.43	1,250
Washing Machine	2.17	500

Higher wattage items should not be used continuously on socket extensions.

Know your limits

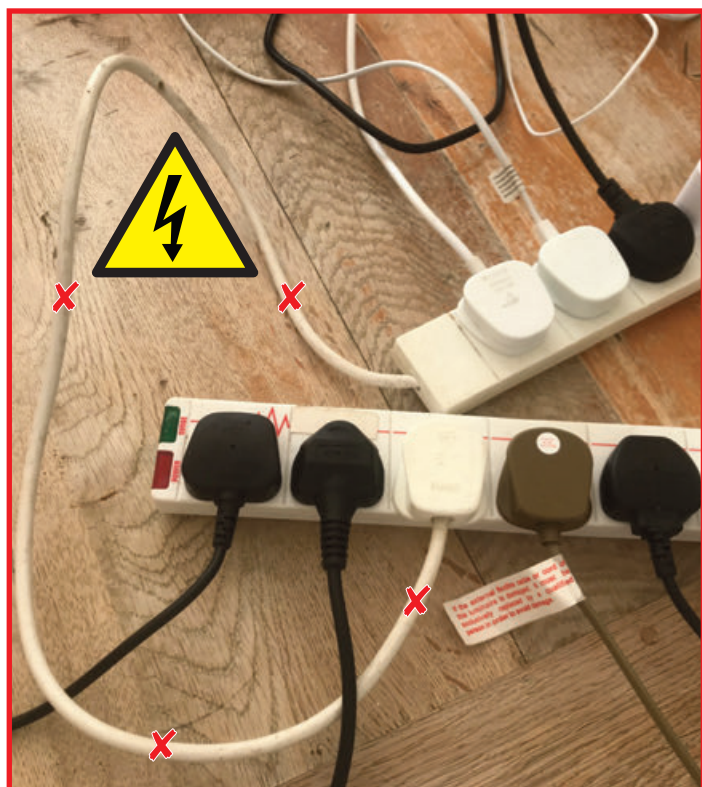
Some appliances show their rating in Amps but others in Watts. To convert to same measure... use formula $\text{Amps} \times \text{Volts} = \text{Watts}$. In UK our mains power is 230volts; $\text{Watts} \div 230\text{v} = \text{Amps}$.

A coffee maker (if 1,300W), and toaster (if 2,000W) on the same extension socket could not be used at same time. The combined 3,300w would exceed the 3000w load capacity for a 13amp fuse.

However, a hairdryer (if 2,200w) and hair straightener (if 300W) would be a safe combination for a 13amp fuse, being less than 2550w load capacity.

Most kitchen and heating appliances should only be plugged into wall sockets, that are protected by higher rated circuit breakers. Examples include electric kettles (often 3,000W) & many heaters (up to 3,000W).

Never daisy chain or link together different extension sockets.



Never try to rewire an extension block with a longer cable; the wire gauge and length of the factory fitted cable will have been selected for a maximum current load... a longer cable of same wire thickness will have a lower load capacity, so greater risk of that cable overheating.

Where the load capacity of an extension socket is insufficient, or where an extension socket is required permanently, new wall sockets should be installed by a qualified electrician.



Surge Protection

Integral surge protectors act like a 'bypass' to direct any excess voltage pressure to earth... safeguarding the tiny components of a computer, or audio visual device.

Note - Voltage spikes do occur for example from lightning strikes in the locality.

Whereas a fuse completely shuts off the current flow if overloaded, a surge protector is an additional feature that ensures devices stay functional by smoothing out smaller fluctuations in voltage, to protect the most sensitive circuitry.



Protect cables

Frayed or broken conductor strands reduce a cable's current-load capacity, creating a build-up of heat.

This can melt a cable's plastic insulation, causing a short-circuit whereby energy that escapes can cause serious personal injury and create a fire hazard.



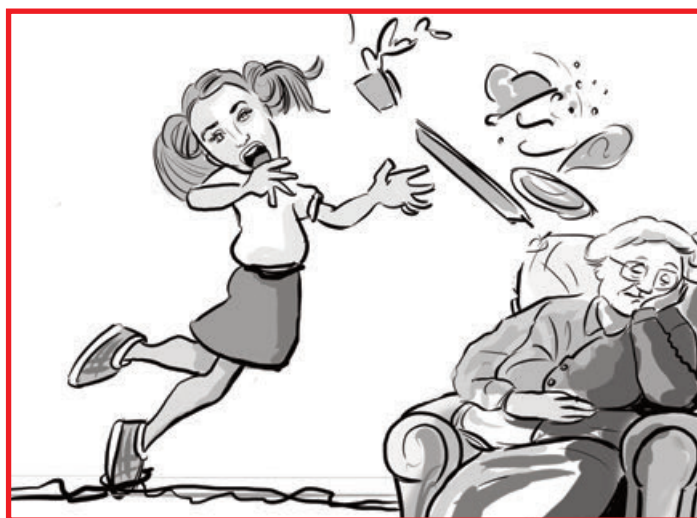
Beware exposed 'live' conductors that can cause electrocutions, burns and even fatalities if electric current should flow through any part of a body.

Ensure that chairs and table legs cannot 'pinch' or 'nick' a cable.



Reduce risk of a split occurring in the cable insulation, by keeping cables away from foot traffic and not hidden under carpets or rugs where any damage to the cable might not be visible.

Tangled or knotted cables are more prone to overheat, with higher risk of broken conductors also.



Always check that cables are not trip hazards... aside risk of personal injury, sudden strains and tugs on a cable can weaken connections and cause conductors to break at plug end (as pic page 7).

Hidden Dangers

Many cables under floors, in loft spaces, or in walls, have insulation. Enclosing these cables inside a cover or trunkings will reduce risks posed by gnawing rodents for example.



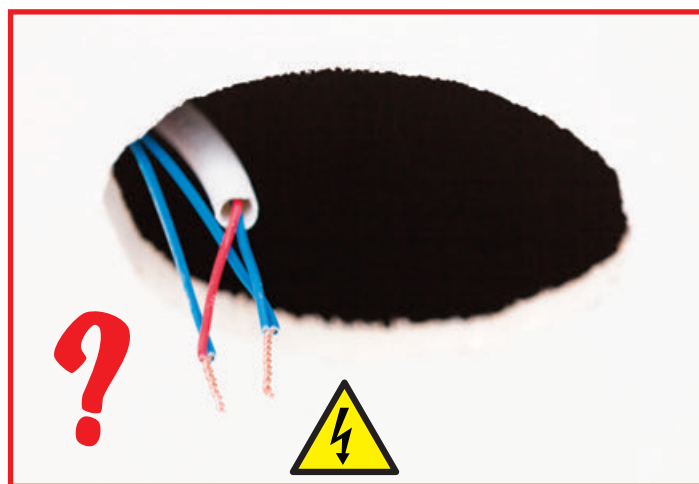
If fitting shelves, wall-mounted TV's, picture frames or other, always use a voltage detector to check there are no cables directly behind the surface.



As a general rule, avoid disturbing surfaces that are vertical or horizontal to switches & sockets because these areas are most likely to be concealing 'live' cables.



Always beware of any redundant wiring perhaps left by a previous occupier, which might still be live.



Avoid water

Because water is highly conductive, a person's wet skin must never make contact with electricity. Otherwise there is risk of serious injury; 240 Volt can kill.

Extension sockets, electrical appliances and plugs must only be used in dry areas.



Never use electrical appliances in a bathroom or near pools, and keep socket extensions away from kitchen sink areas and wet floors.

Never touch electrical items immediately after washing. Ensure your hands are dry.



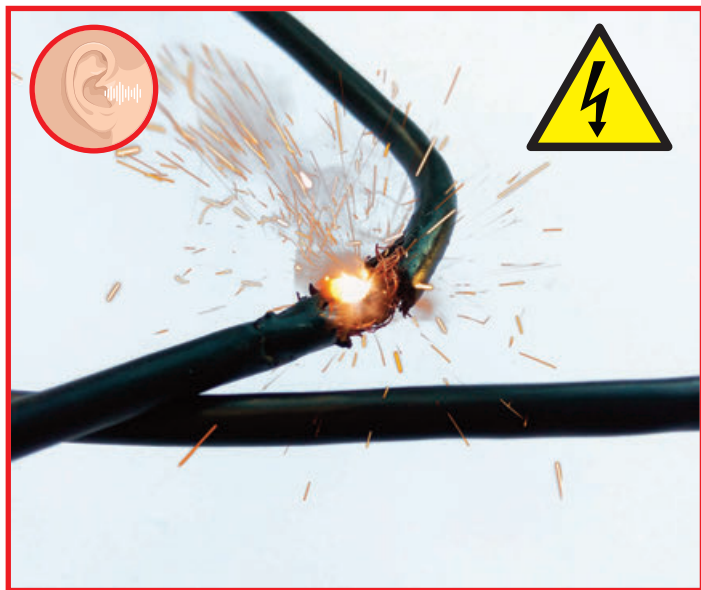
Any electrical equipment used outside should have an ingress protection rating of at least IP54 which indicates a weatherproof rating.



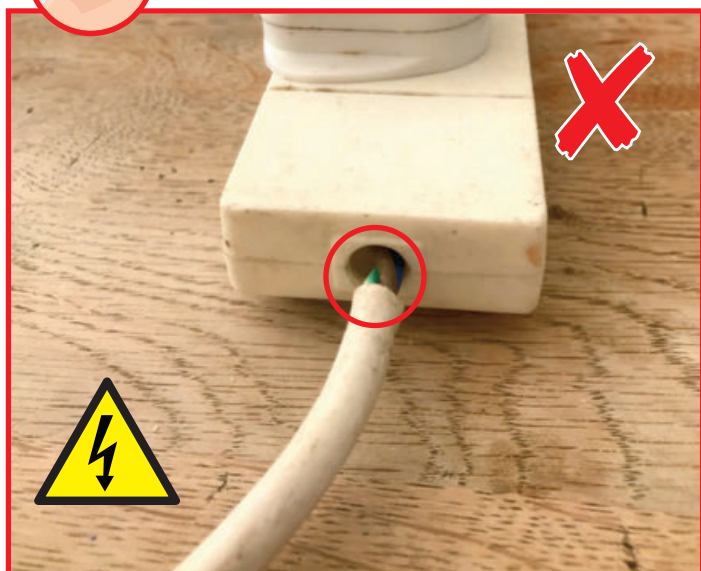
Weatherproof switches and sockets are available, or if you must use extension sockets & plugs outdoors then ensure they are contained in weatherproof enclosures.

Beware warning signs

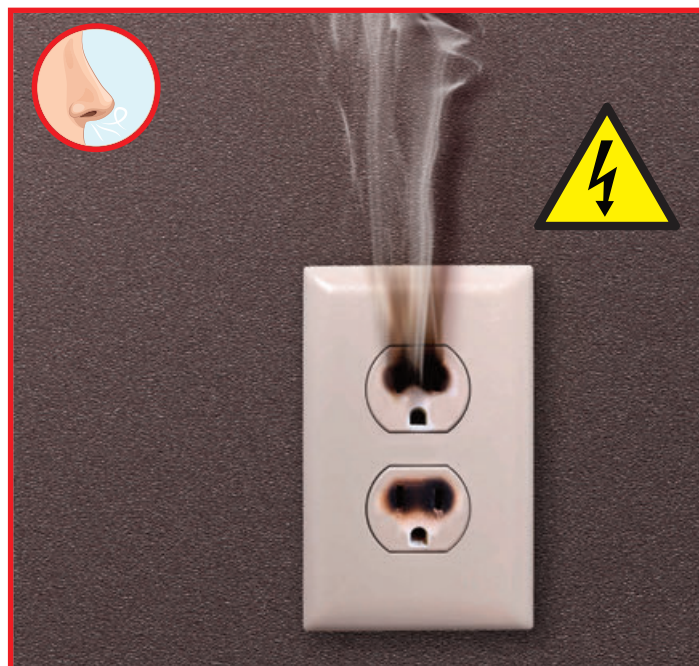
Hear; Electricity should flow smoothly and quietly between connections. Any buzzing, crackling or sparking might indicate broken conductors or loose connections.



See; Visibly frayed or damaged wiring, and stripped back cable insulation between a cable : plug connection, can all be dangerous.



Burn and scorch marks around sockets and equipment indicate possible overload or loose wire connections. Flickering lights might be caused by a loose light bulb connection, but best to check the cable is not defective and that it is securely connected between terminals.



Smell; Burning smells can indicate overheating.

Touch; Beware any electrical equipment that seems unusually hot to touch – for example, charger plugs that contain sub-standard components can be susceptible to heat build up.



On detecting any concern, switch off the power and unplug the device(s), socket extension or circuit breaker to isolate the circuit. Consult a qualified electrician immediately.



Good housekeeping

Keep cables (& socket extensions) organised so they are not lying around floors, tables or worktops...



Make areas more space efficient, and easier to clean around.



Remove temptation of curious pets from trying to bite, gnaw or nibble the wires.



Keeps loose cords away from children's reach; and remove extension blocks from spill hazards.

Keeping cables in reach saves hassle of searching for, or picking up fallen cords.





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