



Cables, plugs & power strips 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 electrical load capacity of a power strip is usually limited by the rating of the particular breaker (in the main breaker panel) protecting the power outlet into which the power strip is plugged.

Most circuit breakers that protect loads on power outlet receptacles are rated at 15 Amps, but some are 20 Amp rated.



Circuit breakers generally trip when 80% of their rating is loaded on the power strip. When overload is detected, the electric current to all devices on the power strip will be cut off. Without circuit protection, the excess energy and heat generated by the overload would be a serious fire hazard.

Though a 15 Amp breaker on 125 Volt 60Hz circuit is designed for 1,875 Watts load (Amps x Volts = Wattage), you should keep at least 20% margin of safety - the combined load of equipment on the power strip should not exceed 12 Amps equivalent to 1,500 Watts continuous load.

Some power strips have in-built circuit breakers, usually 10 Amp rated. On a 125 Volt circuit a 10 Amp breaker will trip at 80% of capacity; equivalent to 1000 Watts.

After checking the rating of the breaker, we should then check the electrical load that will be consumed by those appliances to be plugged in.

The power consumption of any appliance should be checked individually, as they will vary between manufacturer's models; the list opposite is for general reference.



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
Lamp 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
Sterilizer	2.83	650
Strimmer (Garden)	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

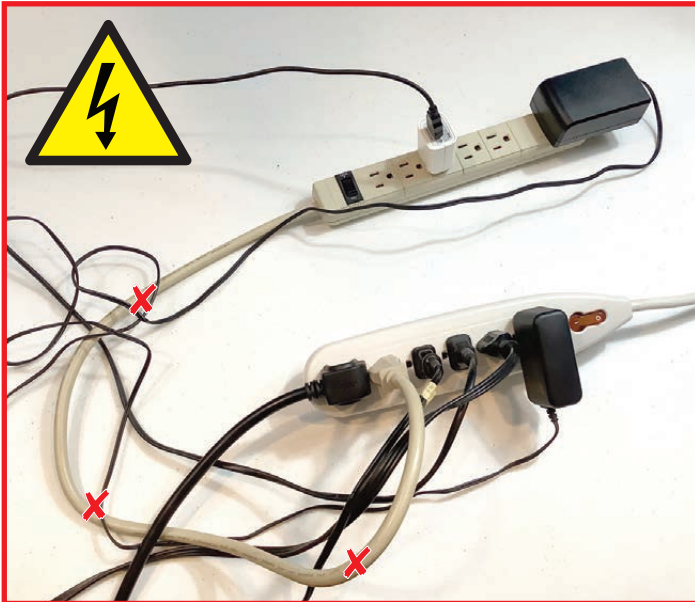
Know your limits

By knowing the load limit of the power strip, then adding the loads of the individual appliances, we can check that the total load will not cause the circuit breaker to trip.

As a general rule, combinations of household computing and audio-visual equipment, same as lighting, small clocks and connected home devices, will not overload a power strip.

Heaters, ovens, kettles and toasters, hairdryers and other items designed to get hot should never be plugged in a power strip. They should be plugged into permanent power outlets.

Avoid daisy chaining by linking together different power strips. The National Electrical Code, OSHA Occupational Health and Safety Association, UL White Book and for example NFPA National Fire Protection Association all strictly prohibit daisy chaining.



And never try to re-wire an power strip with a longer cable; the wire gauge and length of the factory fitted cable will have been selected for a maximum current load. Note a longer cable of same wire thickness gauge will have reduced load capacity.

Wiring connections should only be undertaken by a qualified electrician or other competent person.

Where the load capacity of a power strip is insufficient, or where an power outlet 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.



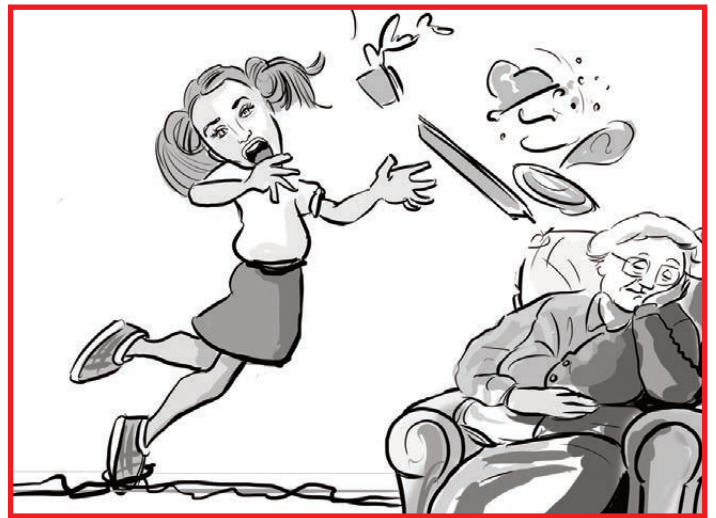
Beware exposed 'live' conductors that can cause electrocutions, burns and even fatalities if electric current should flow through any part of a body.

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 raceway will reduce risks posed by gnawing rodents for example.



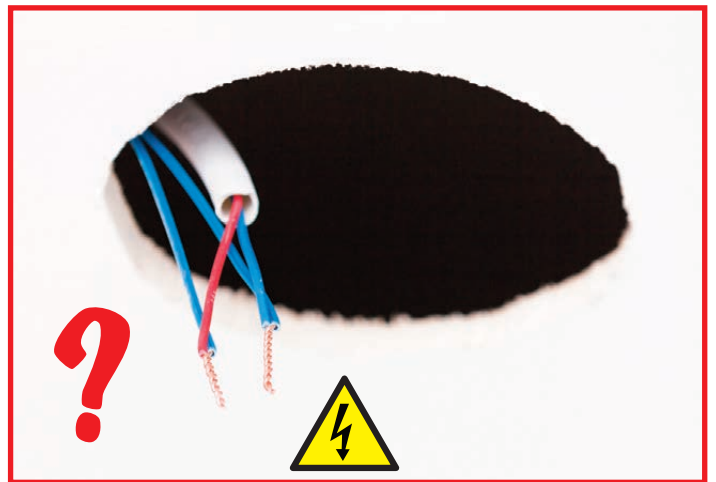
If fitting shelves, wall-mounted TV's, picture frames or other, always use a voltage detector to check there are no cables directly behind the surface.



As a general rule, avoid disturbing surfaces that are vertical or horizontal to power outlets 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 from electric shock.

Power strips, electrical appliances and plugs must only be used in dry areas.



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

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



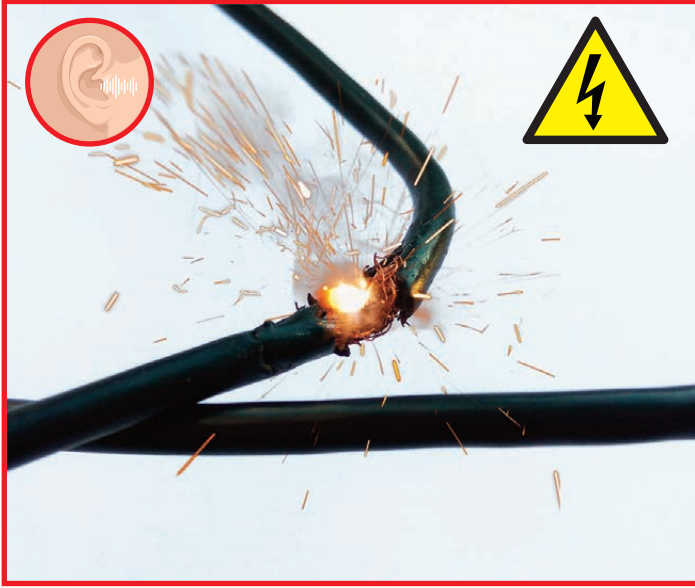
Any electrical equipment used outside should have an ingress protection rating of **at least IP54** which indicates a weatherproof rating.



Weatherproof power outlets are available, or if you must use power strips & 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 power outlets 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 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), power strip or circuit breaker to isolate the circuit. Consult a qualified electrician immediately.



Good housekeeping

Keep cables (& power strips) organized so they are not lying around floors, tables or worktops...



Pic shows D-Line Cable Organizer Box & D-Line Raceway above baseboard

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



Pic shows D-Line Raceway

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



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



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



D-Line

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