

One of the most important things you can do with any item that is plugged into your home (or office) electrical circuit is to ensure it is connected correctly. Especially laser machines. Most extension leads on the market are not correctly wired, as they swap Live and Neutral between the multiple plugs. Extension leads are intended as temporary wiring solutions. If you find you're using them on a permanent basis, consider updating your home's electrical system.

It is a common misconception that it doesn't matter whether the Live and Neutral are reversed in an AC circuit, but this is in fact wrong and it is important that they are the correct way around. If they are reversed, the switch and fuse are in the neutral leg, which means that the appliance is live even when switched off and if a fault occurs, the fuse will not blow in this situation which is likely to lead to a fire.

Sometimes the use of extensions can be unavoidable, but beware of the following dangers:

1. Damaged cable, due to leads being walked over.
  2. You can trip or fall over taut, over-stretched cable.
  3. Overuse of multi-way adapters, which increases the risk of fire.
  4. We recommend that no extension lead be more than 10 metres.
  5. Only use "Heavy Duty" extensions
  6. Position an extension lead carefully to prevent any risk of damage.
  7. Always check that leads, plugs and sockets are undamaged.
  8. Be aware that the Neutral might in fact be the Live.
  9. Purchase only leads that have been approved by SABS.
  10. Don't run extension leads under carpets or furniture.
- (If the extension lead is covered, heat is unable to escape and could result in a fire.)

Select leads that are rated to handle the wattage of the devices with which they'll be used. A lead's wire gauge indicates its size: The smaller the number, the larger the wire and the more electrical current the lead can safely handle.

When an extension lead is used, take extra precautions to prevent electric shock.

Although we take it for granted, electricity is one of the most deadly things in our daily lives. In an electrical circuit, there is what's known as a live (usually brown) wire, which supplies the power, and a neutral (usually blue) wire, which completes the circuit. An earth (usually green / yellow) wire is normally securely connected to the earthing bar at the distribution board.

Your laser has a yellow/green wire either in the chassis near the power inlet, or hanging out the back. Simply make sure that this wire is connected to earth - and if necessary get a qualified electrician to install an earth spike for you. If you must use an extension lead, also make sure that the earth connection is correctly and securely wired.



This is an Unsafe connection diagram for an extension lead, where the Live and Neutral wires are swapped at each socket.



You could purchase a "Wonder Plug" that will tell you if your Neutral and Live are correct.

This is a safe connection diagram for an extension lead, where the Live wire goes to the right-hand socket, the Neutral goes to the left-hand socket, and the Earth is connected.

