

TECHNICAL BULLETIN # 3

Ongoing research to improve Perfect Laser product quality and performance has resulted in a number of recommendations.

One of the most important things you can do with any item that is plugged into your home (or office) electrical circuit is to connect it to earth. Especially laser machines.

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. This earth wire can be considered an emergency path for current to return safely to the ground without danger to anyone or anything in the event of a short circuit or other wiring problem.

If a short circuit did occur, the current would flow through the earth wire, causing a blown fuse or tripped circuit breaker – an outcome much more preferable than the possibly fatal shock that could result if the current was not earthed.

Earthing also protects your appliances, your home and everyone in it from surges in electricity. If lightning was to strike or the power was to surge for whatever reason, it could result in dangerously high voltages. If your electrical system is earthed, all of that excess electricity will go into the earth – rather than frying everything connected to the mains.

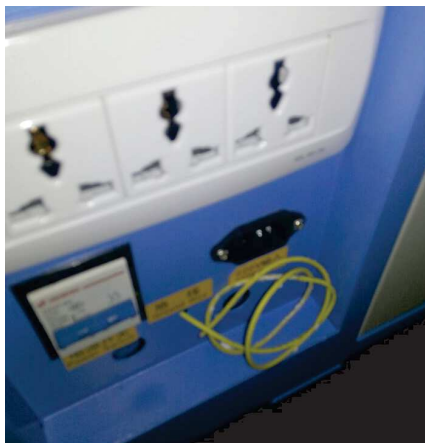
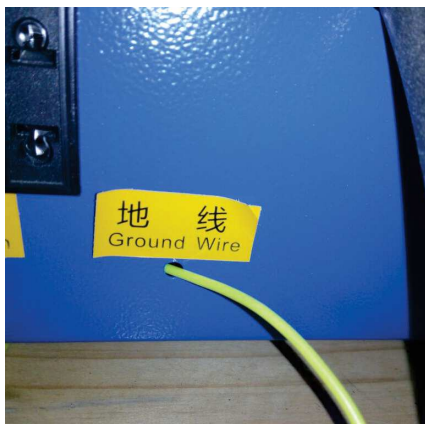
In most homes, the wiring system is permanently earthed to a metal rod driven into the ground. A conductor connects the rod to terminals at the distribution board. For wiring systems that use electrical cable covered in metal, the metal usually serves as the earth conductor between wall outlets and the distribution board. For wiring systems that use plastic-sheathed cable, an extra wire is used for earth.

Since electricity is always looking for the shortest path back to the earth, if there is a problem where the neutral wire is broken or interrupted, the earth wire provides a direct path to the ground. Through this direct physical connection, the earth acts as a path of least resistance, preventing a person from becoming the shortest path, and suffering a serious electric shock - or worse.

In laser machines, earthing is even more important, as it can prevent interference with your high-voltage power supply that drives the laser tube, causing all sorts of intermittent problems.

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 are using an extension cord, make sure that the earth connection is correctly and securely wired.

If you are still unsure about the importance of earthing, or are just not 100% certain whether or not your electrical system is properly earthed, ask your local electrician to do a check of your home or office wiring.



Earthing your laser

