

Electrical Safety

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Batteries and Mains Power

The QX box will work without a power supply. There is a signal from the parallel port to drive printers: small and *sufficient for normal QX therapy*. So if the lights don't work then treatments is still going on.

Batteries or external power to the QX box is for the lights. They will not work without this. The client is allowed to draw extra as he/she needs when they are present and it also facilitates a more penetrating treatment (double power facility)

Electrical Safety Elements

It is current (amps) that kills and not volts. House supply is 115 volts (USA) and 230 volts (Europe) AC (alternating current). 2 amps will kill. The QX works at milliamps and has safety devices in the QX box for over-current and volts.

It is fundamental and part of electrical safety legislation to protect the client from harm. This can come from two sources:

- (1) A short circuit, where electricity passes directly to earth/ground via the client. (e.g. a knife in the toaster)
- (2) A mains surge or lightning strike.

This can not occur when *both* the computer and interface box are on batteries. However batteries don't last for long in the computer (1-2 hours) or box (10 minutes to 2 weeks).

Thus it is practical to work on mains power. This dictates that safety equipment is used. This is what is referred to as a "Medical Transformer". They do I am told exist: I have yet to find one. Try RS (Radio Shack). Essentially the protection can be afforded using specific components:

Short Circuit: a RCD (Residual current Device/Detector) or ELB (earth/Ground Leakage Protector), normally available at 30 ma.

Lightning/Mains Surge: a surge protector board, available from computer shops with 2 plug outlets.

You will also need a 500ma Regulated Universal AC/DC adapter, to convert mains power (115/230 volts) to DC (nominally 7.5 volts). An electron deficient patient can drain batteries in minutes. Hence the benefit of mains supply. Connect as per the drawing on the bottom of the QX box.

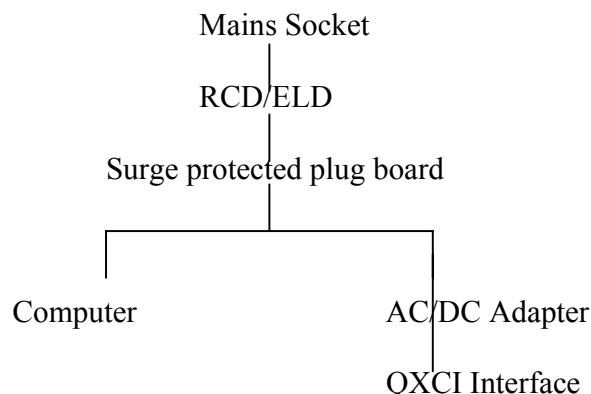
Printers

There is facility to connect a printer to the QX interface box and switch from function to print. However even when you are using the QX (switch to function) a modern connected printer can chatter and feedback. ***Thus it is strongly recommended that the printer is not connected to the QX box when using clasp for test and therapy.*** The best solution is to have a printer that can connect via the USB (small rectangular) port of the computer thus totally avoiding the need for QX box involvement. The alternative is to have an external switch box for the printer. To get one with the correct connections take the computer, cables, QX box into the computer shop. It is easy to get the male/female confused. The cable is a standard parallel port printer cable.

Connecting the System

Power supply

- 1 Plug the parallel cable from the computer to the QXCI Interface box. (or serial/USB for SCIO)
- 2 Install batteries or connect the mains power supply. When working from mains the batteries can be left in: however they will leak and potentially corrode internals if left for months.
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Checking that the QX Interface Works

(See specific SCIO instructions for Scio checks)

- Install batteries or connect via adapter/ safety equipment to the mains. (The lights won't work without power!)
- Lights should come on when entering calibration. They may not come on before.
- If lights stay on after shut down flick the from function to print (this also turns the power off)
- Run the Diagnostic program (Test>EEG ECG FREQ>Diagnostics)