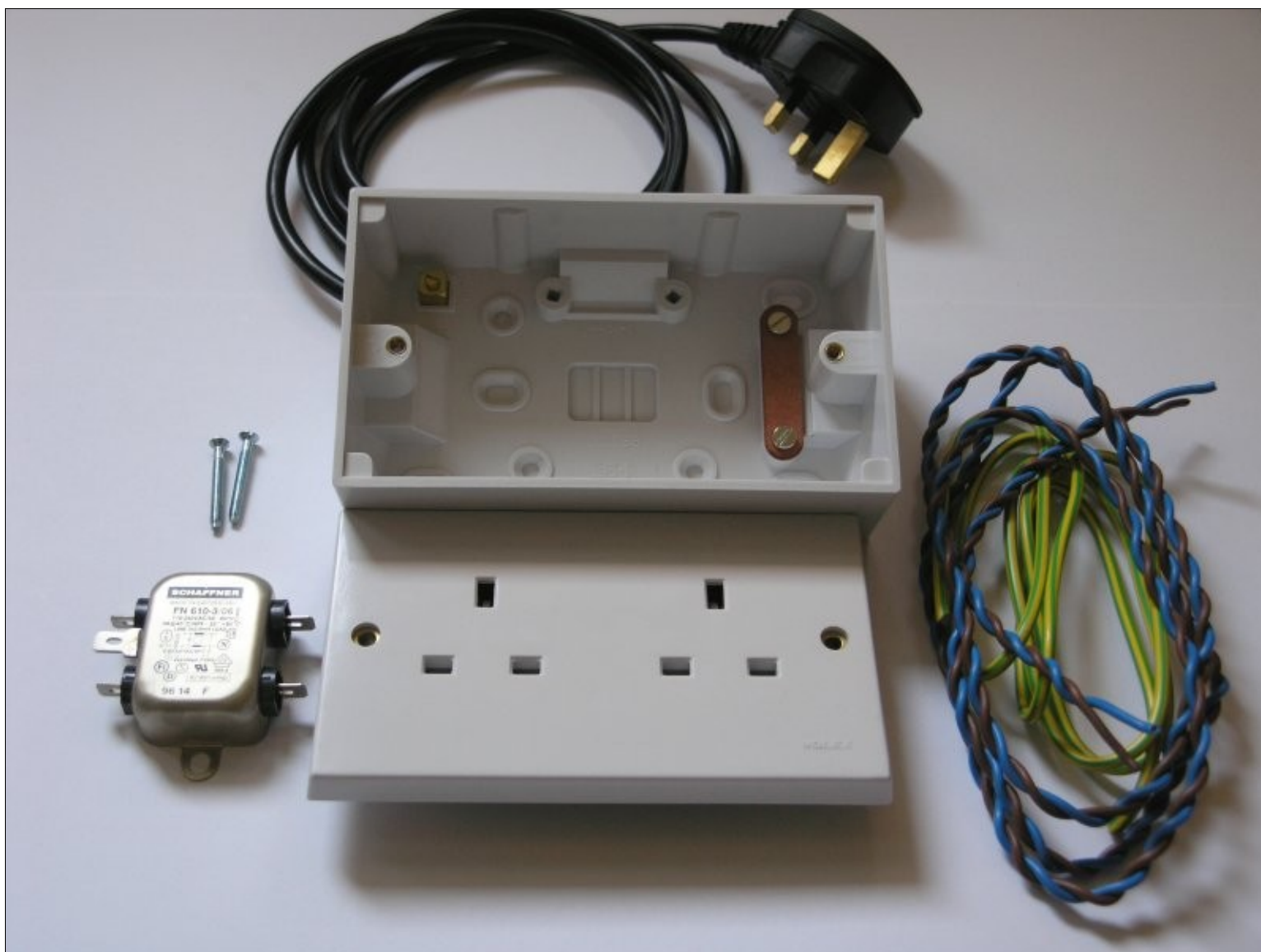


The Whitebox Mains Filter

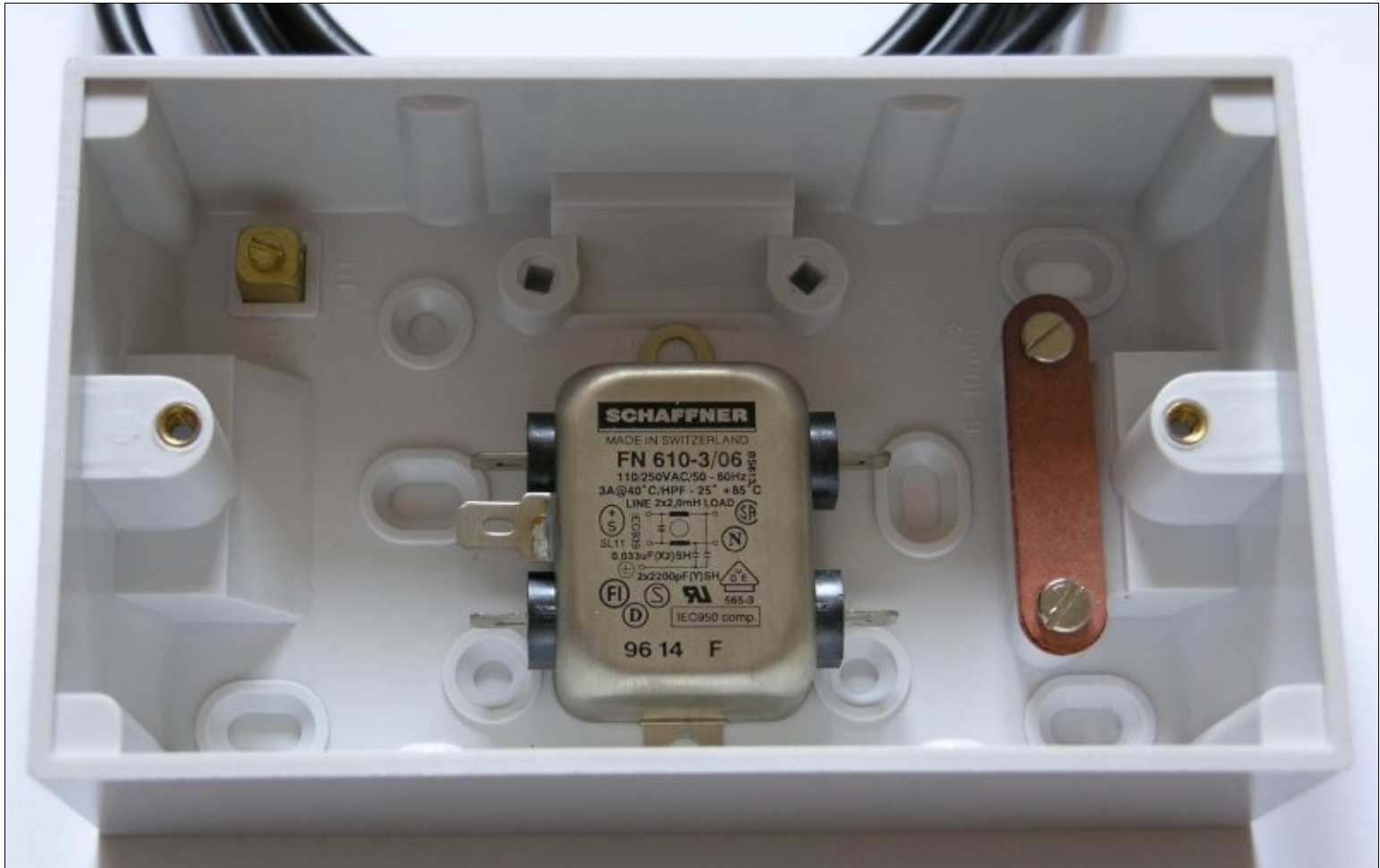
Introduction

Yes I know... yet another DIY Hi-Fi mains filter idea and project. This unit is super easy to make and should cost no more than about 30 to 40 GB Pounds in parts. It is slightly easier to make than the Easy Build DIY Filter with no difficult square holes to cut in a case to mount a socket. The idea again is to use a chassis based filter but this time mount it inside a double socket, deep surface mount pattress box. These boxes are commonly available from DIY centres, Wilkinson type stores and electrical suppliers for about 2 GB Pounds.

The Build



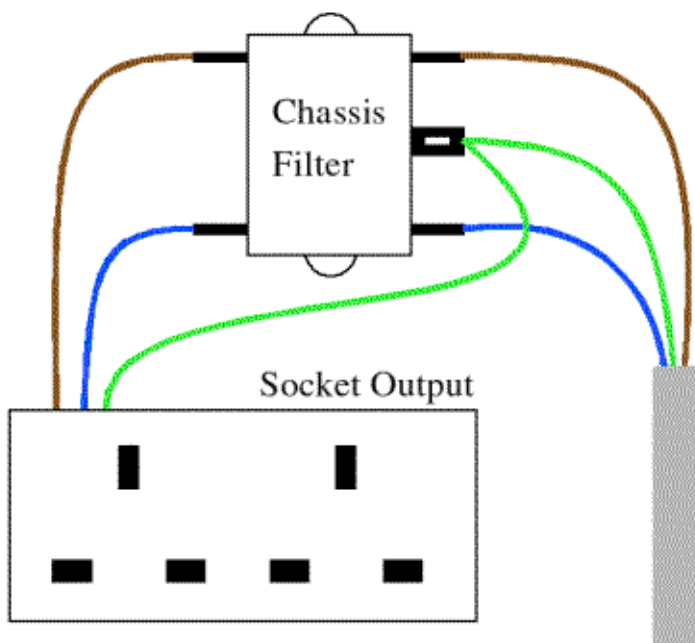
These are the basic parts you will need. A standard double socket, deep back box, mains flex with mains plug, mains cable for internal wiring and a small low profile chassis filter available from RS electronics, CPC or Farnell.



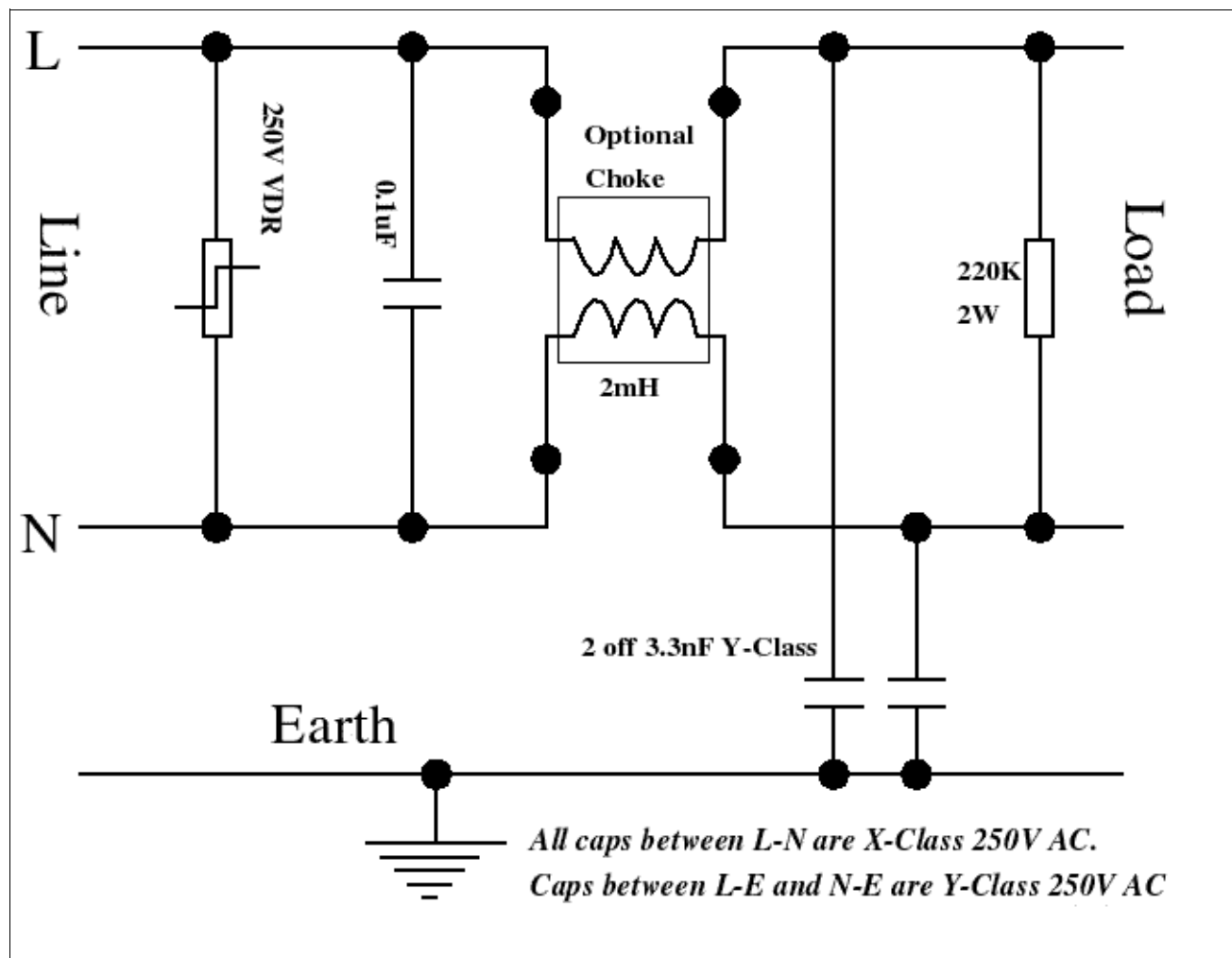
The chassis filter I used for this project is made by Schaffner and is small and low profile. As you can see, it easily fits inside the chassis box.

The advantage of these filters is that they are in metal cases and so are fully screened once the earth tag is connected. The filters are available in various current ratings, so you can choose the filter to suit your own system and needs. You may need to drill 3 holes in the chassis box, 1 for the mains flex entry and 2 small holes to fix the chassis filter in place with some small nuts and bolts. An alternative is to use a hot glue gun and glue the chassis filter in place which is what I did. The glue on these hot glue guns is very strong and will hold the filter quite safely.

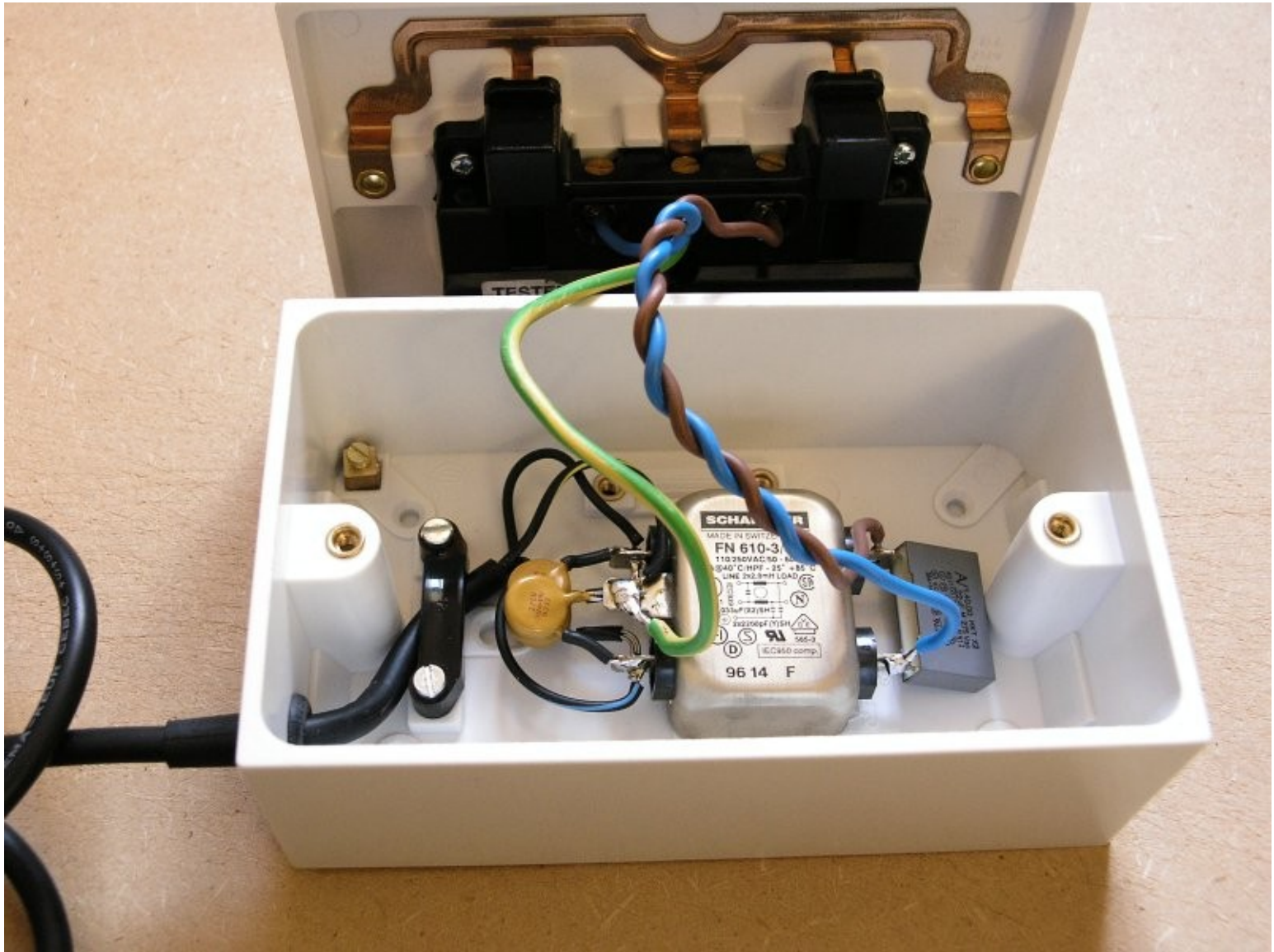
The mains flex should be clamped under the cable grip (shown on the right in the photo above). This cable clamp can be moved to the back of the box in some of these boxes so the mains flex can enter at the rear if you wish. Here is a very simple circuit just to clarify.



The chassis filter has a line and load side as usual. The line side connects to the mains flex input, live neutral and earth. The load side connects to the terminals on the back of the double socket. The line and load side share a common earth tag on the filter. You should also connect a varistor or more to the line terminals (across L-N) on the chassis filter to provide some spike protection.



It is also possible to build the circuit yourself rather than use a metal chassis filter. All the parts will easy fit. This is a very similar circuit to the type used in the Schaffner. However make sure that all component legs are fully insulated and mounted in such a way they cannot short. In the version I made below, I have used 2 varistors between L-N. Later on I added some extra, 1 for L-E and 1 for N-E for extra spike protection but these are optional. I also added a 0.1µF X-Class across L-N at the output but it is not really needed since the chassis filter has a 0.1µF cap inside at the input. Just overkill really but I had the parts spare.



This is a completed unit. It looks neat and tidy as an all in one box and costs next to nothing to make. It can be used on any device needing a clean and protected mains supply and not just a HiFi system. Since the filter is a choke based unit they work particularly well on source components such as the CD Player, DAC, tuner turntable etc.

RS Part Numbers

Optional 238-621 Varistor 275V AC 61J (5 in pack) **** or buy from me cheaper ****
219-2785 Low Profile Chassis Mount Filter 6A (Available from 1A upwards)

Other Parts

White Surface Mount Pattress Box (Double Socket Type and Deep)
Double Socket (Un-switched)
Mains Flex and Mains Plug
Mains Rated Wire (Internal Wiring)
2 x Nut and Blots to Mount Chassis Filter or use a Glue gun
4 x Self Adhesive Rubber Feet for the Base (Optional)

David