



Application Note

## Socket Testing Safety

What they do (and don't do)

All socket testers check that the earth, live and neutral are the right way round (called polarity testing). Some are fancier than others – they may have a buzzer to indicate a good socket or they may have lots of indicators to identify which particular fault type is present. All of them will show the presence of the same fault correctly.

There is one fault that a socket tester and indeed no other piece of equipment can never find – The swapping of the Earth and Neutral wires. A moments thought shows that the earth + neutral are common at the substation, (if not closer) so electrically they are indistinguishable. All socket testers will show the absence of an Earth: only the Martindale E-Ze Check Xtra EZ150 will show you how good your earth is.

Some products on the market will show as good earth with an impedance (basically the same as resistance) of 10M $\Omega$ . As 0.5 M $\Omega$  is normally considered a good insulation level, its is clear that the “protective” earth will not protect.

Giving the choice, electricity will flow through the average human (resistance approx 2000 ohm) a lot more easily – and possibly fatally - than through a wire with a resistance of 10,000,000 ohms.

So is that all you need to do to fully test a socket. Unfortunately no, to do a full test to Part P or BS7671 or the 17th Edition you also need to know that the RCD is working properly, if one is fitted. Please note that just pushing the self test button on a consumer unit is not enough – it may tell you the unit trips under one condition but it doesn't really test it properly and it certainly doesn't show that it trips within the required time.

For technical information on RCD testers please see the 17<sup>th</sup> Edition section on our website [www.martindale-electric.co.uk](http://www.martindale-electric.co.uk).

You may also, for certification purposes, need to write down the earth loop impedance reading to more accuracy than the less than 1.7 ohm band on the EZ150. However when doing a quick socket test for self protection, or when doing an installation before the designated test technician comes around it's a great (and low cost) help.

That covers the testing of live sockets, but to fully test to the standards you also need to do insulation and continuity tests on a de-energised circuit. This requires an insulation tester.

Call 01923 441717

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