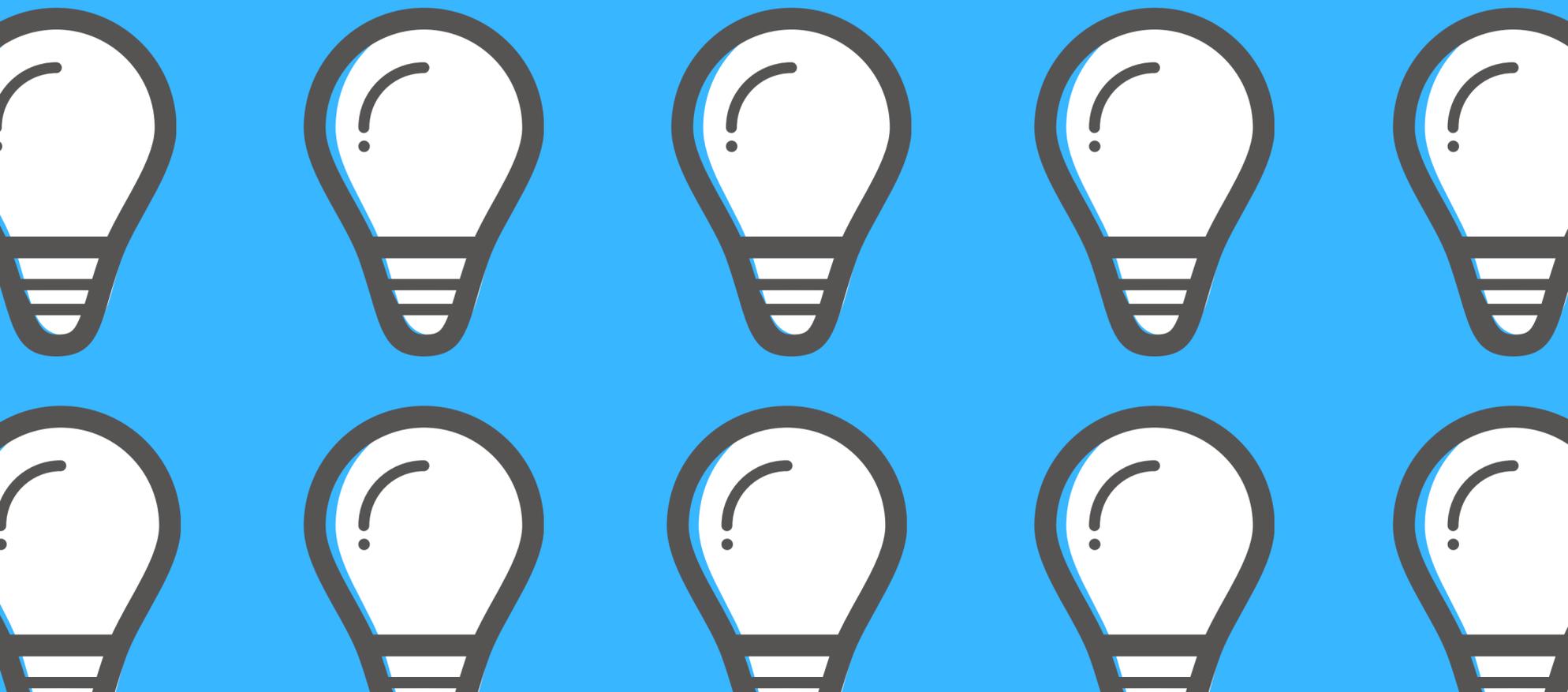


Imperial Electric

**Electrical Safety
Tips to Keep Your
Family Safe at
Home**



Foreword

It's so easy to overlook the things around your home you can't readily see. Out of sight, out of mind right?

But what happens when the stuff behind the scenes goes wrong? Lets look at some statistics...

In England in 2016 there were:

- 15,432 electrically ignited fires in homes, that's 54.4% of all fires recorded that year
- The misuse of electrical items were the number one cause of all these fires, with 80.5% being started by an appliance and 18.9% by a socket, switch or similar
- From those fires there were 1,380 fatalities and injuries, which is about 4 every day!
- The Department of Trade and Industry estimates that as many as 20% of these fires could have been avoided with the presence of a properly functioning Residual Current Device

How dangerous is it really?

It really cannot be stressed enough just how dangerous electricity is.

These are the levels of current that are defined by medical professionals in terms of electric shocks:

- 0 - 0.5mA: Generally below the levels of human perception, you wouldn't even feel this.
- 0.5 - 5.0mA: Although not a dangerous level of current, it's enough to give you a fright that may make you fall off a ladder when touched.
- 5.0 - 10.0mA: Enough juice to override your brain's electrical signals and make your muscles contract, so you can't let go until the power is turned off!
- 10.0 - 40.0mA: Severe pain and shock as we get higher up the scale. 20mA is enough to make your chest muscles contract so you can't breathe, remember that you can't let go over 10mA either. This level can also mess with your heart rhythm, but the effects of this can be reversed.
- 40.0mA+: Now you're really in trouble. All of the above, but the heart goes into what's called Ventricular Fibrillation (Google that, I'm no medic!) and follows by full on Cardiac Arrest.

What Can I Do to Prevent Adding to These Numbers?

The good news is that with proper advice from a professional, you can take some very basic actions to keep your family and property safe.

Over the next few pages, we'll look into the basics of electrical safety.

We'll cover what things do and how they protect you, tips on avoiding accidents, how to recognise a properly qualified professional electrician, some jargon busting, and what to do in an electrical emergency

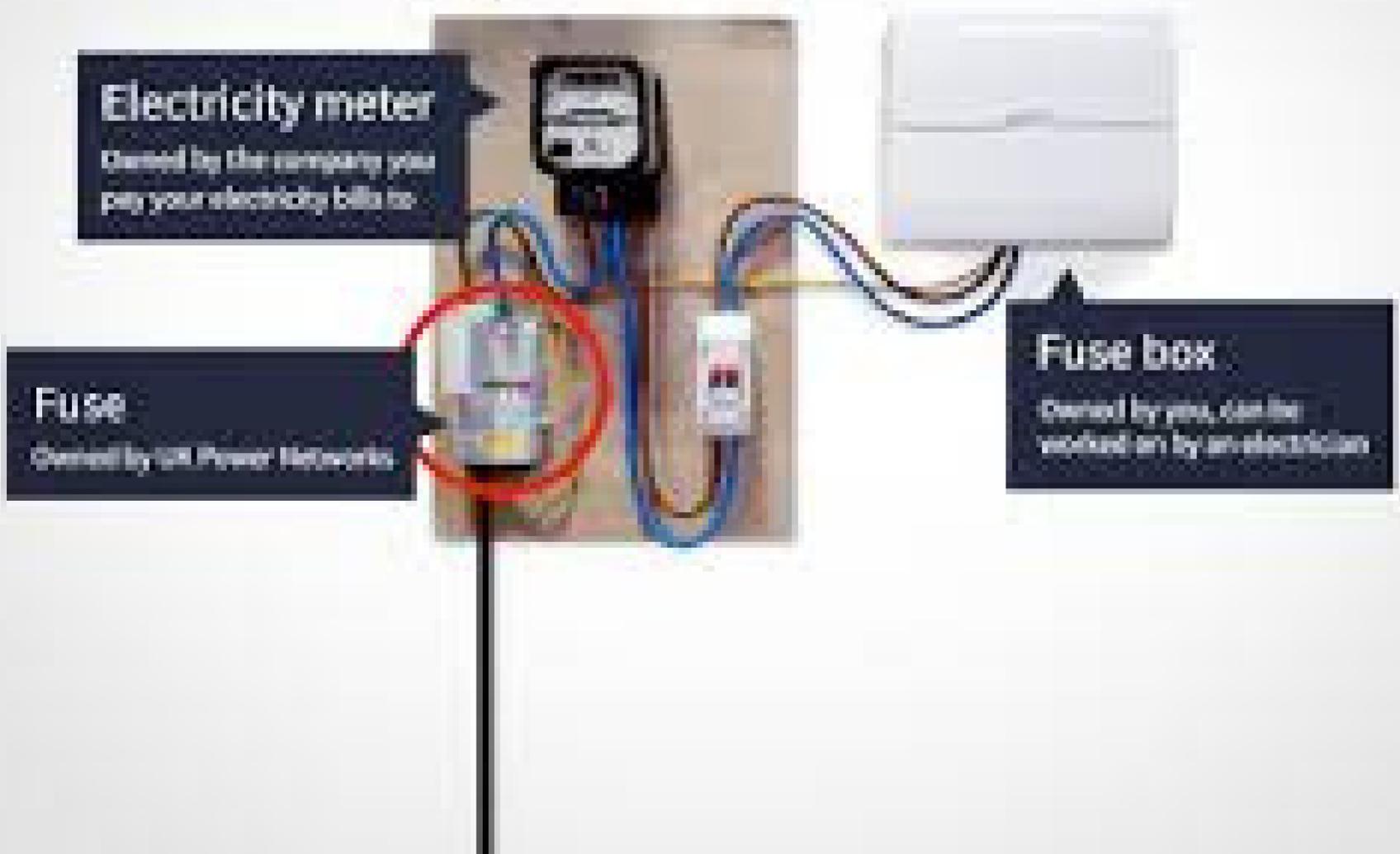
The Point of Origin: Your Main Incomer

Lets start at the beginning. The source of all electricity in your home is the main incoming cable, a large sheathed cable that enters your property from outside and terminates into the main fuse head before going up to the meter and on to your consumer unit.

Confusingly, each of these items "belongs" to different companies even though they're in your home.

This image explains who is responsible for what:

Different companies own the electrical equipment in your home



Understanding Your Consumer Unit

Your Consumer Unit (or Fuseboard) is the point of distribution for all the different circuits that power your home. There are many different brands and models available, but these are only really relevant to the electrician installing it and their brand preference.

You may have a newer, switchable board like this:



Or you may have an older, rewirable unit like this:



With the older units, there is a fuse wire inside the removable cartridge that is designed to safely melt away in the event of a fault. This wire filament needs to be replaced by a professional in this event, as the wires come in different sizes offering different levels of protection and it is important not to use too big a size or it won't melt in a fault!



Newer units have either BSEN60898 Miniature Circuit Breakers or MCB for short (left image), or BSEN 61009 Residual current operated Circuit Breaker with Overcurrent protection or RCBO (right image). Each have a switch that can be reset once a fault has been rectified.



RCBO's offer a higher degree of protection than the MCB's as they have all the functionality of an RCD built in, which we'll come to next.

Modernised Consumer Units can be either plastic or metal, but the plastic ones are no longer installed as new as there is a risk of combustion if there is an overheating fault inside.

If you have a board upgrade you will also be asked if you want to have a Surge Protective Device installed. This is recommended to protect your electronic equipment in the event of a fault. It's like having those surge protected extensions, but for the whole house. An absolute must for people with home businesses!



To Test, or Not to Test?

You may have noticed that some of the switches in your modern board have a little button with a "T" embossed on it.

These are your Residual Current Devices (remember these from the statistics page? you want them!)

What the button does is test (hence the T) that the mechanism of the device works without sticking, so you can be more sure that it will operate properly to keep you safe.



The way these devices work is that they constantly measure the current in the Live and Neutral wires of the circuits they cover, which should always be equal, and activate if there is a sudden change caused by a fault. This fault could be a mouse chewing the cable, a water leak behind a socket or in a light fitting, a nail through a cable or something plugged in has developed a fault.

There should also be what's called a Retest Notice on or very near the board telling you that these T buttons need to be pressed at least every 3 months to check they still work!

IMPORTANT

This installation, or part of it, is protected by a device which automatically switches off the power supply if an earth fault develops. Test quarterly by pressing the button marked ' T' or 'TEST'. The device should switch off the supply and should be then switched on to restore the supply. If the device does not switch off the supply when the button is pressed seek expert advice.

Safety Do's and Don'ts

DO

- Replace anything with damaged cords. This includes kitchen appliances, extension leads, lawnmowers, etc.
- Keep water and other liquids away from electrical outlets.
- Regularly test your RCD and RCBO devices, always call a professional if they fail to trip off.
- Plug plastic caps into sockets that infants and toddlers can reach.
- Occasionally check how well attached to the wall your outlets are.
- Check your lights for any flickering, a sure sign that something is loose and likely overheating due to the poor connection. This can happen over time.
- Always hire a professional to make any repairs to electrical outlets around the home.
- Keep the cupboard or area your Consumer Unit is located free of anything that could be considered combustible.

Don't

- Overload you socket outlets with multiple extension leads. Keep it to one per outlet if needed. If this is a problem consider having new outlets installed.
- Use extention leads on kitchen counters, there's too much risk of water being spilled in these locations.
- Unplug items by pulling on the cord, you could loosen the cable connections inside the plug head.
- Change the size of fuse in plug heads if they need replacing, always use the same size as the one being removed.
- Use electric heaters to dry clothes. Always keep them uncovered and at least half a meter from the wall.
- Let someone work on your electrics if they are not registered with a Competent Person's Scheme, more on those next...

Know Who's in Your Home!

Unfortunately there are untold numbers of handymen and DIY Dave's out there who claim to know what they're doing. The problem is there's so much more to electrics than what colour wire goes where, and these people are often ignorant to the finer details and advanced knowledge it takes to do the job safely.

For this reason there exists the Competent Person's Scheme. You may know it as the Part P Register or may have heard something like Part P mentioned before. The two are NOT the same, and it is important to know the difference.

So What Exactly is Part P?

The UK Building Regulations are divided into 14 "Parts" known as Approved Documents. Each one refers to a specific scope within the process of constructing buildings in England and Wales.

Approved Document P applies to Electrical Safety in Dwellings.

It is not a qualification or register of people who know what they are doing, but a set of criteria that must be met by works being carried out on homes within the regulation's jurisdiction.

In order to be sure these criteria are being met by your electrician, they should be registered with a Competent Person's Scheme. There are many of these schemes, I'll list them later, and your electrician should be able to provide you their registration number that you can search on the CPS website to confirm it's live and valid BEFORE you agree to any work with them.

Competent Person's Schemes

There are currently four main CPS operators in England and Wales, you may have heard of them.

NICEIC & ELECSA

Both part of the Certsure LLP scheme



www.niceic.com www.elecsa.co.uk

NAPIT



www.napit.org.uk

STROMA



www.stroma.com

The Competent Person's Register

You can also search the Competent Person's Register for an electrician near you. Simply enter your postcode and you'll get a list of all the registered electricians near you, along with which operator they are registered with.



www.electricalcompetentperson.co.uk

Emergency Actions for Electrocution

If you believe that a person is receiving an electric shock, the first thing you must remember is **DO NOT TOUCH THE PERSON**. The current could run through them to you and now you're both in trouble.

The first thing to do is to remove them from the source of electricity. Turn off the item at the plug if possible and safe to do so. If not, switch off the mains electricity (that's the big red switch) in your consumer unit.

You must immediately call 999 for an ambulance. Only attempt first aid if you are competent and confident to do so.

Even if the person seems well and has not lost consciousness, electric shocks can cause a condition known as electroporation. This is when the heat from the electric current ruptures cells and causes deep tissue damage below the skin. It can also cause subdermal burns, muscle damage and even broken bones!

Getting in Touch With The Author

This guide has been produced by Jamie Kerr at
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