

# Only protected 13A sockets outdoors - don't use anything else !

**Waterproof 13A sockets should be the norm in gardens and other outdoor applications, says MK Electric's Jonathan Sparkes, He points out that it is safer and more convenient to connect mains powered electrical equipment used outdoors via 13A RCD protected waterproof socket outlets that are located outside:**

In recent years there has been a dramatic increase in the use of mains-powered electrical equipment in domestic gardens. More and more people have electric lawn mowers and electric hedge trimmers. With warmer summers, barbecues are increasingly popular, among them electric versions. Many householders like to celebrate regular and special events with decorative outdoor lighting and, occasionally, for parties, will set up sound systems in their gardens. On warm summer days, home-workers might operate their PCs, linked by a landline telephone to the Internet, from the garden.

## **Need to be RCD protected:**

It is usual for householders to connect electrical equipment used in their gardens to conventional 13A socket outlets located inside their houses. This generally requires the cable, running from a power point in the kitchen, to be passed out through an open window, which is, more often than not, located over the kitchen sink! It is easy to realise that it would be safer and certainly more convenient for the 13A socket outlets to be located outside the house. However, to ensure maximum safety these cannot be the same socket outlets as those installed indoors. They have to be waterproof and more robust than the standard socket outlet. Like indoor socket outlets used to supply outdoor equipment, they also need to be RCD-protected.

Such waterproof RCD protected 13A socket outlets also ought to be used in any part of a house or annexe such as a conservatory or standalone building, such as a garage where water is sprayed or is used for washing down cars, for instance. These waterproof 13A socket outlets were introduced into the UK market in 1993 (under the brand name *Masterseal*).



### ***Masterseal in a garden Environment.***

Before then, the only socket outlets available in the UK for outdoor use were 16A and 25A industrial sockets. These were quite unsuitable for general domestic applications principally because the UK Plug and Socket (Safety) Regulations (1994) require all domestic electrical equipment to be fitted with BS 1363 13A plugs. Waterproof 13A socket outlets are virtually always suitable in outdoor or damp/wet domestic applications. It is only where special equipment or 3-phase loads are to be connected that industrial socket outlets complying with BS EN60309-2 are required. A riverside or canal side house garden with a supply for recharging moored boats could be such an application.

### **The dangers:**

Whether they are located indoors or outdoors, socket outlets that supply outdoor equipment need to be protected by RCDs with a rated current of 30mA or less. This is because any electric shock outdoors will almost certainly be fatal due to contact with true earth, and a direct risk contact where cables are damaged. Where indoor socket outlets are RCD protected, unsafe conditions can be created through the trapping of, and damage to, flexible cables; the inadvertent use of an unprotected socket outlet; and excessively long unsecured trailing leads which increase the risk of falls.

There has been no legislation that insisted on particular products to be used outside. However, following the introduction of the mandatory Part P of the Building Regulations last January, there has been a change in terms of installation such that now, installers and contractors have to be 'Competent Person's, even for work in the garden (see this *VoltiBULLETIN's* short Part P article).

### **The differences:**

The main differences between accessories intended for indoor use compared with outdoor are the additional protection against the ingress of water, additional mechanical strength, and personal protection against direct contact with live parts, provided by a suitably rated RCD.

To achieve an IP rating of 56, the surround to the socket is filled with a specially formulated substance that is impervious to water and also dust. When a standard 13A plug is inserted into the socket and the cover closed, the plug is entirely sealed off against strong jets of water from any direction and also against dust and small particles. This makes the socket outlet suitable for use in dusty as well as wet environments.

This particular design for an IP56 rated socket outlet received critical acclaim when launched, winning its makers, MK Electric, numerous awards, and it has been a huge success ever since. It is very different from continental practice where plugs and sockets are designed with the sealing built into the plug and/or socket outlet. Strangely there are products of both UK and continental design where the IP rating only applies with the cover closed but without the plug inserted! Such designs allow the plug to hold the cover open and are therefore manifestly unsafe for unprotected domestic outdoor use.

As well as being waterproof, socket outlets for outdoor use need also to have high mechanical strength to withstand all the knocks they are more likely to get outdoors than indoors. The contractor looking for 13A socket outlets for outdoor use is advised to choose those made of polycarbonate. This is one of the toughest thermoplastics available today. It is so tough and durable that it is used in motorcycle crash helmets and car bumpers. Other benefits of polycarbonates are that they do not discolour, crack or fade in UV light, have a better resistance to chemicals than many other plastics and will maintain high resistance to impact in extremes of heat and cold.

And, of course, where the socket outlets incorporate RCDs and perhaps other switches these need to be similarly protected against the ingress of water.

### **Now more product introductions:**

The success of the first IP56 rated 13A socket outlet with patented seal, since its launch over ten years ago, has led to the introduction of other IP56 rated products. For instance there are now IP56 rated single and double pole 10A and 20A switches, ideal for the conservatory or greenhouse. For the householder who, during warm summer days, wants to work at their PC in the garden while remaining connected to the Internet on a landline, IP56 rated data/telecom enclosures are available. For the security minded householder with floodlights it makes sense to have an IP56 rated photoelectric switch (dusk/dawn switch).

The waterproof 13A socket outlet is now also used in many non-domestic applications such as the connecting of outdoor vending machines or to supply the lighting and heating equipment in nursery greenhouses. The IP56 rated data/telecom enclosures are also suitable for use in applications such as for connections to computerized tills in garden centers and to control units in humid and dusty factories.

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