

## Guidance for the use of Electrical Adaptors and Extensions

Occupational Health and  
Safety Service  
HSD174P (rev 3)

### Introduction:

Many different types of electrical adaptors and extension leads are commonly used across the University. Wherever reasonably practicable their use should be avoided through the provision of appropriate permanent plugs and/or sockets. If short term requirements preclude this provision, adaptors and extension leads, when used responsibly, should not represent a danger to person or property. However they are by their very nature open to abuse. In addition there have been a number of incidents with two to three pin adaptors, extension reels and multiple socket extension leads that could have easily resulted in death, injury or fire. Therefore the guidance below has been written to aid the correct selection and use of these devices.

#### 1. Two to three pin adaptors:

Adaptors are available for the conversion of a number of 2 pin and/or non-UK plug types to the standard UK three pin plug. It is fair to say that there have been issues with the use of many or most of these devices and wherever reasonably practicable their use in the University should be avoided.

**The simplest way to do this is through the replacement of these plugs by fitting either UK three pin plug leads or new UK plugs (fitted by a competent person).**

In most cases 3 pin plugs can be easily fitted to electrical leads supplied or brought into the University. In the case of 'visitors' UK 3 pin leads could be loaned to individuals for equipment brought for use in the University.

Exceptions to this principle include chargers, or similar devices, where the pins are integral to the equipment, IF a replacement 3 pin unit cannot be obtained in the UK. In such cases 2 pin adaptors remain the only safe option.

i.e. some transformers with 2 integral pins may still require an adaptor:



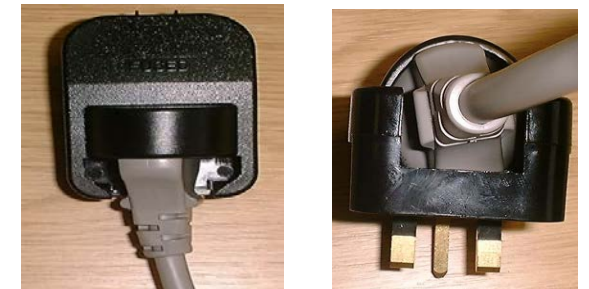
**Two pin plugs MUST NEVER be fitted directly into 3 pin socket outlets.**

#### Examples of problematic adaptors:

Short circuits and earth problems have been associated with the use of 2 pin adaptors.



Burnt out pins following short circuit in adaptor.



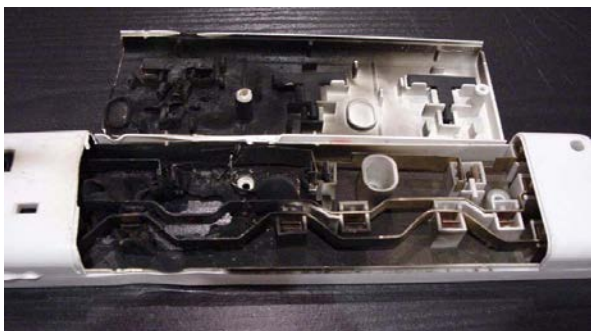
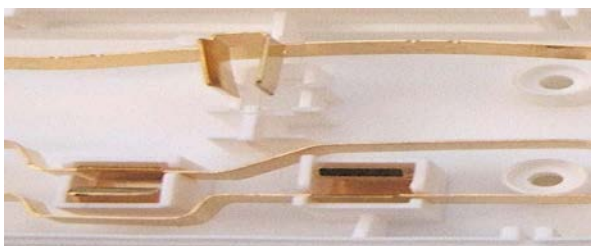
May have earth continuity problems with this style

## 2. Multi-way Adaptor Extension Leads

University guidance is that multi-way adaptor extension leads should **NOT** be linked in series aka 'daisy chained'. Furthermore as a rule no extension lead should exceed 5 metres in length.

Daisy chaining multi-way adaptor extension leads **can and has caused overloading and fire**. It can NOT be assumed that a fuse will cut off the supply instantly at the specified ampere. In addition daisy chaining leads can cause earth continuity failure by virtue of the multiple connections and their length. Furthermore single long extension leads can also give rise to earth continuity failure by virtue of increased resistance in the earth wire.

Where multi-way adaptor extension leads are used consideration should be given to the use for which they are intended. Many such leads are manufactured for lightweight domestic use and are not suitable for repeated plugging and unplugging which stress the thin internal copper connections and can cause fire:



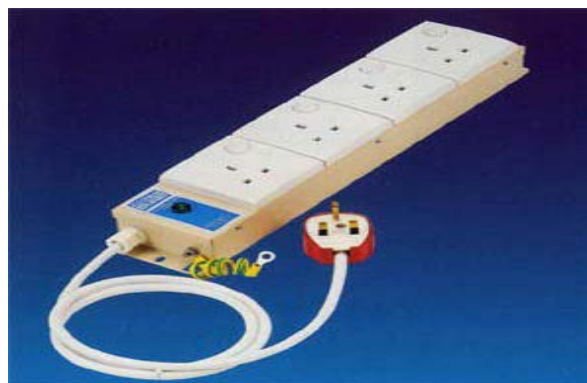
2.1 Lightweight domestic leads, as below, are **NOT recommended** and should only be considered for low ampere, low risk office based applications, such as lighting.



2.2 Heavier duty leads of the type below, with an isolating switch are recommended for most office applications in preference to the lightweight domestic type above. They may have some limited application beyond the office subject to loading considerations, ie training or seminar rooms etc.



2.3 Higher ampere, workshop or research applications, including laboratories, should use more robust fully switchable industrial grade adaptors, an example of which is shown below. Water resistant enclosures may be available where necessary.



## 3. Extension Reels

Extension reels are **NOT recommended** for use in the University as they are frequently used with the cable only partially unwound. The effect of which is to generate heat in the remaining wound portion which **can and has** resulted in overheating and fire. Therefore where necessary use extension leads rather than extension reels.



## 4. Multi-way adaptor blocks:

The use of multi-way adaptor blocks, as shown below, is **NOT PERMITTED** in the University (see electrical safety policy)



5. Where any extension lead is used it should be sited so as **NOT** to pose a trip hazard and be shielded, physically (with a cable tidy / enclosure) or by distance, from sources of abrasion, chemical damage, water or heat.

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