

16Amp socket outlet with a suitably rated circuit breaker dedicated to the sound system.

Inside the equipment rack the power is connected to a mains power conditioning and distribution unit; this will, subject to budget, be able to offer a minimum of a master switch or sequential switch on of



Remote on / off switch'

the equipment in addition to the essential protection and conditioning and, possibly, a remote control switch on facility.

Results

The results are remarkable, amazing even, with the system benefiting from a depth of background silence that cannot be achieved in any other way.

This means that when the desired sound appears from the loudspeakers whether that is speech or music there is a pin point focus and precision about it that elevates the listening experience on to an entirely different level.

The listeners' attention is held without the distraction of background noise however low and sub-conscious that distraction may be.



Power conditioner and sequenced

Cost Effective?

Surely this level of improvement has to be expensive?

The cost will be relative to the extent of power conditioning that the customer requires and the complexity of the cable installation. However, a typical installation could be completed from around £600 with a more advanced installation including sequential switching and superior protection available for more demanding applications.

As a proportion of a typical complete system package we would suggest that this represents good value particularly when the added benefits of operator safety and ease of use are taken into account.

The Art of Listening

Core Theme Electrical Engineering

We have found that as customers upgrade to our sound systems noise and other shortcomings are often revealed in their electrical installations.

Hence, we are now pleased to offer:

- 1 Electrical system design and installation that closely meets the client's requirement and budget.
- 2 Electrical periodic testing. – *Further explanation on next page*
- 3 Extensions to existing electrical systems.
- 4 Fault tracing and rectification.
- 5 Service, support and maintenance.

Our objectives are:

- 1 In all cases to comply with:
 - A. BS7671
 - B. Codes of practice approved under all sections of the current Health and Safety at Work Act.
 - C. The current edition of the Electricity at Work Regulations.
 - D. Safe working practices.

- 2 To include circuit and operational diagrams and system manual.
- 3 To provide client training.
- 4 To only supply superior, professional duty equipment; e.g. metal boxes and face plates.
- 5 To always employ the latest electrical technologies, techniques and innovative solutions in order to achieve maximum system performance and client satisfaction.
- 6 To address the issues of load balancing and power factor correction in order to ensure maximum system efficiency and minimum running costs.
- 7 To offer the same exceptional standard of workmanship to electrical customers as to our electro-acoustic customers.
- 8 To build systems and offer a service that exceeds the customer's expectations.
- 9 To offer an emergency call out service where required.

Necessity for Periodic Inspection and Testing

Periodic inspection and testing is necessary because all electrical installations deteriorate due to a number of factors such as damage, wear, corrosion, excessive electrical loading, ageing and environmental influences. Consequently:-

1. Regulation 4(2) of the Electricity at Work Regulations 1989 requires that electrical installations are maintained in a safe condition and therefore must be periodically inspected and tested.

2. Licensing authorities, public bodies, insurance companies, mortgage lenders and others may require periodic inspection and testing of electrical installations to assess compliance with BS7671

What does this mean to everyday users of electrical systems? Simply, that all systems shall be maintained so as to prevent danger and the hazard of electrical shock.



Case study

Dedicated mains power and clean earth systems – how beneficial are they?

Two years ago we ran a small article in our newsletter about protecting a sound system by installing a mains power distribution and conditioning unit into the equipment rack.

At the time our main focus was on controlling overvoltage conditions and undesirable switch on noises that could reach and subsequently damage loudspeakers and other equipment.

Since then, in order to ensure that our customers continue to receive systems offering safety, security and sound quality, we have installed a rack mounted mains power conditioner into every system.

However, we recently felt that it was time to investigate this technology and what was possible even further.

Clean Earth - A Cost Effective Solution

Most earthing arrangements in an installation are common to all equipment connected to the electrical supply, it is possible, therefore, for unwanted signals from equipment such as lighting and refrigerators to become present on the earthing system.

In the normal course of an installation one is relying upon the condition and cleanliness of the mains power as supplied to the nearest outlet to our designated rack location.

However, as is so often found; the mains power supply is far from clean and the



Equipment rack with mains power conditioning unit at the top

sound system proves to be a very capable device for demonstrating this with all manner of undesirable mains borne noises capable of being heard through the loudspeakers.

The most common form of noise is an annoying 50Hz buzz which is often attributable to lighting dimmer systems although we have also encountered a similar noise which was traced to a refrigerator situated in a church organ loft intended to provide mid service cold drinks for a very demanding organist!

If the sound system is to perform to a satisfactory standard it is essential to achieve an adequate signal to noise ratio and not to be plagued by those undesirable noises.

Unfortunately, the more superior the sound system the more revealing it is likely be of background noise but Isola-

tion of the sensitive systems by fabricating a clean earth using an earth or ground rod can solve these problems.

What is Clean Earth?

The definition of a clean earth is a low impedance earth point, typically an earth rod, with little or no chance of conducted noise either already present in the system or noise likely to be created when connected to a common circuit earth arrangement.

Method

If the earthing provided by the existing electrical installation is not clean it will be necessary to install an independent earth rod which involves digging a hole in soil (not stones or rocks) outside the building and inserting the earth rod.

The new earth rod is then connected via a cable installed inside suitable protective containment and routed to a location near to our equipment rack where it can then be terminated into a new, preferably,



RCBO protective 16 amp outlet