Electrolink N^{o} 7

January 2011

COMPUTERS AND MAINS ELECTRICITY SUPPLY

SUMMARY

When considering the installation of a computer, there are several points concerning the way in which it behaves during network disturbances that should be borne in mind. The computer supplier should be contacted and asked to confirm that the equipment being offered will perform satisfactorily in the presence of such disturbances. Mains electricity is a convenient and reliable source of power. The voltage and frequency of the network are controlled by Electricity North West in accordance with statute. However, certain disturbances, which do not affect most other forms of equipment, may be a hazard to computing equipment. Computers form a special class of electrical equipment for the following important reasons:

- **Computers may lose a portion of their stored data memory if the mains supply is interrupted for even a short period.**
- **The sensitive micro-electronics within the computer can be affected by high voltage pulses ("spikes").**
- **Disc drive storage units may fail if the network frequency rises or falls beyond certain narrow limits.**

All disturbances mentioned above may affect your mains connection from time to time.

EXAMPLES

If a fuse blows within the electrical installation as the result of a fault in the cabling, or on an item of equipment, a voltage depression will be produced which may be of sufficient magnitude and duration to corrupt part of the computer memory. An electrician may, in carrying out maintenance work, remove the fuse from the computer connection. Similarly, faults on your neighbour's installation or a fault on Electricity North West's electricity distribution network may produce similar effects. The high voltage pulses or "spikes" which can affect inadequately designed computers can be produced by such actions as the switching of fluorescent lighting, the operation of copying machines, the switching of central heating thermostats, controlling pumps or burners etc. within your own premises.

FREQUENCY CHANGES

Changes of electricity distribution network frequency of sufficient magnitude to affect the majority of disc drive units have in the past been extremely rare events. However, with the advent of more private generating systems, there must be an increased probability of the network frequency moving outside its normal tight limits following certain types of electricity distribution network incident.

LEVEL OF RISK

As can be seen, there are many "events" which could result in an interruption to the smooth working of a computer. They are, of course, a normal feature of a public electricity network and in many cases arise from the necessity to protect persons and property from danger. However, despite this, computers that have been designed to cope with such events very rarely suffer memory corruption when connected to the public network. The level of risk is small and provided that the computer is suitability specified and the recommended "archiving" and operating procedures are carried out the chances of being inconvenienced are low. If the uninterrupted operation of the computer is vital then it will be necessary to consider the installation of an uninterruptable power supply (U.P.S.). These equipments incorporate battery back up that may be specified to provide several hours of standby supply. There are specialist manufacturers in the UK and the computer supplier may recommend one of them. To improve the integrity of the connection within the installation there are several measures that can be taken. If you want advice on this then Electricity North West will be pleased to help.

ELECTRICITY NORTH WEST'S RESPONSIBILITY

The advice contained within this Electrolink is given in good faith based on information available. No guarantee can be given, however, that the information will not change in the future. Electricity North West cannot be held responsible for costs incurred due to inaccuracies or subsequent changes.

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