

Voltage optimisation

Voltage optimisation (VO) is a method of **reducing electricity bills in commercial premises**. It is not a new concept but recent improvements to the technology have seen better systems in the market place.

What is Voltage optimisation?

The way VO works is simple. In 1995 the UK's electricity supply was set at a nominal 230V (plus 10% or minus 6%). Therefore the National grid supply can vary from 216V to 253V but averages at around 240V. On the other hand electrical equipment is designed to work most efficiently at about 220V. Supplying more than 220V to most electrical equipment wastes energy and can shorten its operation life.

VO equipment is installed between the main electricity feed and the building's power supply and acts as an interface to reduce the voltage of electricity fed to machinery and equipment, for example from 242 V to around 220 V. Essentially VO systems match the power supply to power demand resulting in reduced electricity bills and carbon emission savings.

Theoretically energy bills can be reduced by as much as 25% but evidence suggests that most systems achieve savings between 12 and 18 %.

Which system?

The VO market has grown in recent years offering different systems that work in slightly different ways. Basic VO systems step down supply by a pre-fixed amount and deliver savings of around 8%. These work well until mains voltage drops. The VO will continue to lower voltage, though potentially to unusable levels or a worst case scenario of cutting the power supply.

More up to date systems use logic controlled intelligence which monitors the incoming power supply and removes the risk of power shut down. These systems can deliver up to 15% or more of savings. Some VO systems also incorporate an automatic bypass allowing it to switch to bypass mode should it detect a mains supply issue. These units can also be serviced without cutting the power supply to the building. Most VO installations will require an annual service.

Fixed output voltage stabilisation is a further enhancement that allows output to be fixed, typically at 220V, giving greater savings. One other thing to bear in mind is that the mains supply to the building may reduce over time if new facilities are added to the existing supply, so incoming voltage could drop naturally and having a fixed ratio system in place could cause problems.

Should you invest in VO?

Reasonable savings can be achieved and VO is a good method of reducing electricity bills and extending the life of equipment and machinery. The cost of the system will depend on the electricity load of the building. When considering investing it is important to understand how each of the systems work and to research what's on offer, asking pertinent questions and requesting proof of fuel bill savings. The aim is to find a system that provides a good level of saving but also improves the quality and reliability of the supply.