

OPTIMISING POWER TO
SAVE MONEY AND REDUCE
YOUR CARBON FOOTPRINT.
GUARANTEED.

®
powerstar

A UNIQUE VOLTAGE OPTIMISATION SYSTEM

Aurora
ELECTRICAL LTD.

INNOVATOR 10



Care4Air
Awards
Winner

 MADE IN
SHEFFIELD





A UNIQUE VOLTAGE OPTIMISATION SYSTEM

STOP WASTING MONEY AND GAIN CARBON CREDITS. **GUARANTEED.**

ABOUT POWERSTAR

Powerstar is a unique voltage optimisation system that actively reduces a considerable portion of your electrical energy consumption and has been proven to save up to 26.1% of consumed electricity. Powerstar reduces your carbon footprint and its users can qualify for carbon credits.

Powerstar comes in two versions:

1. **Powerstar (fixed voltage reduction):** Each Powerstar is manufactured to match site specific requirements thus ensuring precise voltage optimisation. In this version, our system matches the existing voltage pattern – albeit dropped by a set amount.
2. **Powerstar Max (dynamic reduction):** This version of Powerstar provides a set ($\pm 1V$) voltage output to site. This is achieved by keeping the voltage specifically at the optimum level without fluctuation.

THE BENEFITS OF POWERSTAR

The Powerstar unit has been proven in independent tests to be the most effective voltage optimisation system in the market.

- **Savings of up to 26.1% on energy consumption and associated CO₂ emissions**
- Reduces maximum load demand (kVA) and in turn reduces electricity bills
- Reduces carbon emissions
- **Significantly reduces harmonics**
- Improves power factor by up to 20%
- Increases the life expectancy of equipment and helps protect against damaging transients (power spikes) of up to 25,000V
- **Comes with up to 15 years warranty and 50 year life span**
- Lowers the operating temperatures of motors and maintenance cost of equipment
- Provides voltage phase balancing
- **No moving parts therefore zero maintenance**
- ECA can be claimed for Powerstar M&T
- Qualifies for carbon credits



Powerstar units are manufactured bespoke to site



Powerstar uses a unique triple wound design

WHY USE MORE THAN YOU NEED TO?

Most electrical equipment manufactured for Europe is rated at 220V and may indeed operate at an even lower voltage. One of the reasons Powerstar is so effective is that the average voltage supplied from the National Grid is 236V (although it can be as high as 253V), whereas the nominal voltage is 230V. So, in most cases, you are being supplied more voltage than you need – and you're paying for it, whether you want it or not.

Powerstar optimises the voltage by bringing it in line with the actual needs of the equipment on site – that's why we always carry out a full site survey first to determine the exact electrical loading characteristics.

In our experience, for a 5% voltage reduction we expect at least 10% in energy savings.

There is nothing to be gained by operating equipment at a voltage higher than it was designed for; quite the contrary as over-voltage will significantly reduce the life expectancy of most equipment. Powerstar will therefore also reduce maintenance costs.



JOIN THOUSANDS OF POWERSTAR INSTALLATIONS IN THE UK AND SAVE MONEY. **GUARANTEED.**

POWERSTAR COMPANY PROFILE

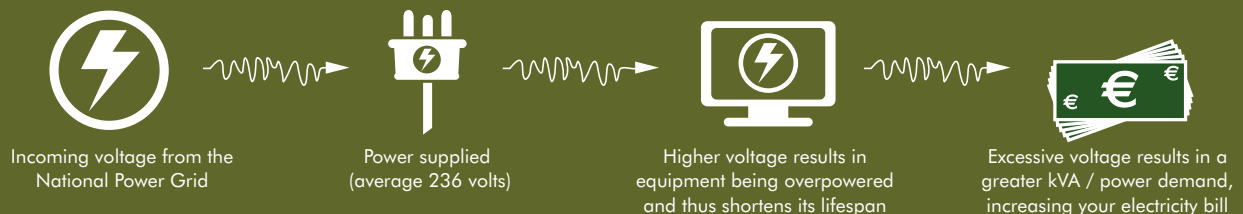
- At the forefront of technological advances in energy management.
- Engineering company formed in 2001.
- More than 150 years combined experience in design and manufacturing.
- We export Powerstar overseas through our distribution partners in Australia, Greece, Northern Ireland, Republic of Ireland, Lebanon, South Africa and United Arab Emirates. This is supported by our offices in the UK, Ireland and Cyprus.
- We employ professional engineers.
- We source Powerstar components locally.
- Powerstar systems are designed, engineered and built in the UK under BS171 IEC60076.
- Powerstar is manufactured in line with ISO9001 therefore all components are traceable.
- Powerstar sizes range from 5kVA to 3,000kVA.

HOW POWERSTAR WORKS

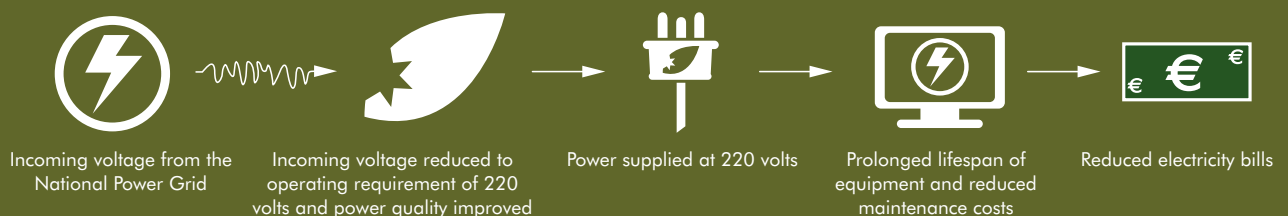
- The fixed Powerstar system optimises the outgoing voltage to maximise energy savings without compromising supply.
- The Powerstar uses a uniquely designed triple-wound transformer to deal effectively with power quality issues and deliver voltage optimisation that suits site requirements and **maximises energy savings.**
- The Powerstar has an **efficiency of 99.91%** which ensures that it maximises energy savings for a specific voltage reduction.
- The biggest voltage optimisation study was carried out by Intel Corporation in 1997. They found that an **8.9% reduction in voltage** on their microprocessors, achieved a reduction of **20% in power consumption.**

The Powerstar voltage optimisers deliver similar results.

NORMAL ELECTRICITY CONSUMPTION



POWERSTAR CONTROLLED ELECTRICITY CONSUMPTION





Dr Alex Mardapittas
BEng, PhD, CEng, MIET, MEI
Managing Director and
Powerstar designer.

Alex studied at Kings College London and then at Brunel University. On completing his

research fellowship for Manufacturing Metrology in 1993, he went on to work in professional computer software training and development. As an experienced Chartered Engineer, with a research doctorate, he possesses an extensive knowledge of software programming and innovative engineering design, which has allowed him to provide award-winning solutions to the marketplace.

HERE'S WHAT OUR CLIENTS SAY:



Mark Orpin, Head of Energy Management, ASDA Supermarkets

"Powerstar voltage optimisation has been a major part of our comprehensive energy efficiency programme. It is perhaps the simplest and most effective way to instantly save energy and therefore we would highly recommend Powerstar systems."



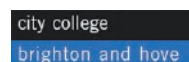
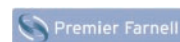
Mark O'Grady, Managing Director, MITIE Engineering Maintenance

"We would highly recommend Powerstar voltage optimisation systems. The Powerstar installation at Mersey Care NHS Trust has achieved an 18% saving on total electricity consumption."



Andy Barrett, National Facilities Manager, Punch Taverns

"We are very pleased to announce a 24% saving at our Pride of Lincoln public house site after the installation of the Powerstar voltage optimisation system, which greatly surpassed the initial guaranteed savings of 14%. Powerstar has been the single most effective project in saving energy that Punch Taverns have invested in and we will be installing Powerstar in at least 80 of our properties this year alone."



YES, WE 100% **GUARANTEE** HOW MUCH YOU WILL SAVE.

HERE'S WHAT OUR CLIENTS SAY (CONTINUED)



**David Hannah, Head of Property,
Guoman Hotels Group Ltd**

"In commercial terms Powerstar came up with pretty well the ideal solution. They struck just the right balance between finding a means of installing a system that would significantly reduce our energy bills while achieving the hurdle rates for capital investment.

From the outset, the Powerstar team was pro-active, commercially aware and able to demonstrate a high level of competence in both analysing our technical & subsequent installation requirements within a live hotel requirement. They promised technical support, professionalism and minimum fuss and that was precisely what they delivered!"

"So far the Powerstar installations in our hotels have achieved as much as an amazing 26.1% saving in total energy consumption at our Thistle Hyde Park hotel, and elsewhere, never less than an 11.5% saving. That's what I call a result!"



**Dr Alan Arthur, Centre and Events
Manager, British Metal Forming Centre**

"The purpose of this project was to reduce our energy consumption at the National Metal Forming Centre. This has been achieved with the installation of the Powerstar, which has cut our energy costs by an impressive 21%. We were promised 14% savings and we verified 21% over 18 months. The professionalism of the Powerstar team and the speed of supply and installation were also impressive and we would highly recommend this technology."



**Adam Mansell, Energy and
Environmental Manager, British
Apparel & Textile Confederation**

"We have seen a saving of 16.3% in our total electricity consumption since the installation of the Powerstar system after being promised savings of 11%. The management system on the Powerstar allows us to actively reduce our consumption even further, and through this system an additional 10% savings have been achieved. Therefore, a total of 26% savings (16.3% direct from Powerstar and 10% through the active management system on the Powerstar)."



**Quentin Mackenzie, Managing Director,
Purification Products Ltd**

"We have always strived to minimise the use of electricity and gas at our company; however most of our efforts related to non-productive items such as lighting and heating. The installation of the Powerstar system has reduced our total electricity consumption by almost a quarter (23%) and we are absolutely delighted."



Chris Rea, Manager Director, AESSEAL

"Powerstar in particular and voltage optimisation equipment in general deserves to be higher up the business and political agenda, and possibly needs to be, if the UK is to achieve our targeted CO₂ emission reductions. Not only were Powerstar local, but they were also the best value for money supplier and their customer service, project management and installation support service were exemplary."

YES, WE 100% GUARANTEE HOW MUCH YOU WILL SAVE.

Powerstar comes with up to 15 years warranty on fixed systems and up to 10 years with every Max system.

We guarantee the savings as a percentage of kWh, as per our proposal. If the minimum savings are not achieved, your company has the option to ask us to remove our Powerstar system. We will do so, fully refund all costs and put the supply to its original condition.

Our warranty includes parts and labour.

In the case that we promise for example 10% but you achieve 9% and you wish to keep the Powerstar system, we will provide a one-off payment to compensate for the loss.

In addition, we understand that sites change over time, therefore we have a 5 year buy back guarantee. Basically, if you replace your existing Powerstar system with a larger Powerstar system within 5 years of buying it, we will credit you the cost of the smaller Powerstar unit.

If you do not have voltage optimisation installed you could be wasting money. With Powerstar, you stop losing that money and start pocketing the difference.

It is easy to start saving with Powerstar through our simple step evaluation and installation process:

- 1) Contact us with basic information on your site
- 2) We survey your site and provide a free non-committal proposal
- 3) Delivery and installation



The Powerstar Human - Machine Interface (HMI) shows every detail of the site electricity supply in real time.





powerstar[®]

SALIX

CARBON
TRUST

ESTA
energy services and technology association

Aurora
ELECTRICAL LTD.

Ascot House, Kinsealy Lane
Malahide, Co. Dublin
Tel: 01 816 9696
Fax: 01 816 9697
<http://www.auroraelectrical.ie>