



# Ashmere Solutions

## Domestic Voltage Optimisation



# Voltage Optimisation For the Home...

Helping homes and business save money,  
protect appliances and reduce their carbon footprint



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## About VO

### Voltage Optimisation

We deliver a powerful suite of globally patented, innovative energy reduction solutions that save their clients money by lowering energy bills whilst reducing their carbon emissions.

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## What is Voltage Optimisation?

Put simply, Voltage Optimisation is a form of Voltage Management specifically designed for reducing energy consumption.

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### Savings & Benefits of Voltage Optimisation

The National Grid delivers, on average, 242 volts to all UK users. With voltage optimised, electrical equipment works at optimum cost efficiency at 220 volts. All supply above 220v is waste.

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### Guaranteed Electrical Energy Reduction

Voltage Optimisation Warranty & Guarantee

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### Installation & Specifications

The Compact single-phase voltage optimisation system is designed for use in residential properties and small commercial buildings.



about.

# Voltage Optimisation

Ashmere Solutions are one of the UK's leading providers of energy solutions. Core technologies include Voltage Optimisation & Stabilisation, Cooling Optimisation, Gas Fuel Optimisation and Gas Boiler Optimisation. We guarantee to reduce the energy consumption and carbon footprint of businesses and consumers. Our primary supplier for Voltage Optimisation is UK based Emissis (Electrical Mechanical & Cooling Limited).

Ashmere Solutions are an engineering company who have been in business for over 20 years. They are an expert Mechanical & Engineering service provider and independent supplier of power solutions for critical, industrial and commercial operations.

Our independent status means that we are always working to find and install the best technology for your specific project and site needs. We pride ourselves on our craftsmanship, technical expertise, compliance knowledge and project delivery. We are always working to keep your site protected, optimised and energy efficient.

In a world, increasingly dominated by rising energy prices and climate change, Ashmere Solutions are proud to be working alongside some of the leading UK businesses supporting them on their journey towards net zero saving them millions in energy overspend and waste in the process.



## Net Zero is coming...

The UK and EU are legally bound to reach net zero by 2050 and several other major economies are doing the same. More businesses than ever before are now having to report on carbon emissions.

Start your net zero journey today and reap the benefits sooner. We deliver a powerful suite of solutions that reduce your carbon emissions, save you money with lower energy bills and generate revenue from being a more flexible energy user with the help of today's leading technology.

## We work with:



## How does VO work?

The National Grid delivers, on average, 242 volts to all UK users. With voltage optimised, electrical equipment works at optimum cost efficiency at 220 volts. All supply above 220v is waste.

Through Ohm's law, optimising voltage on any supply produces instant kWh savings of up to 19%, which will give an instant reduction in electricity bills and carbon footprint. In addition, and as confirmed by the UK's wiring regulations (BS7671), any electrical equipment required to work at 242v, will suffer a reduced working life by up to 46%.



## The Key Benefits:

- Guaranteed savings
- Lower energy consumption
- Lower carbon emissions
- Protection of appliances
- Lower maintenance costs
- Higher efficiency
- Improves Solar & Generation
- Removal of penalties



# What is Voltage Optimisation?



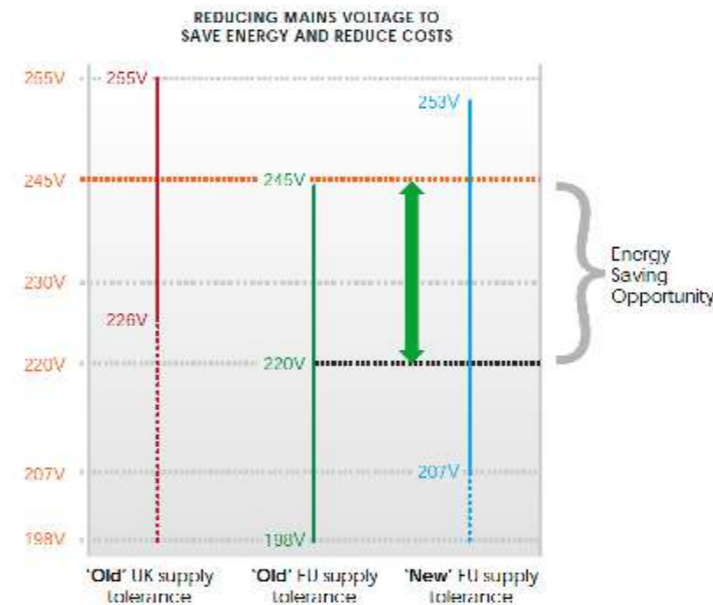
Put simply, Voltage Optimisation is a form of Voltage Management specifically designed for reducing energy consumption. Voltage Optimisation is a term used around voltage management when a desire to reduce energy consumption by up to 20% is managed by adjusting and controlling voltage levels on a user's site.

Voltage optimisation is a transformer based technology, the principal is based around supplying a voltage level more suitable to the actual electrical device in order for it to perform its task more efficiently and in line with limits of European harmonised voltage while basic design is a low loss series connected transformer designed to optimise a whole site or individual loads to target the most optimisable loads.

## Reducing Mains Voltage to Save Energy & Reduce Costs

Voltage levels provided by power companies in the UK and other countries are not typically matched to the optimum level for most electrical equipment. Voltage Optimisation is a method of reducing mains voltage to save energy, reduce costs and maximise equipment efficiency.

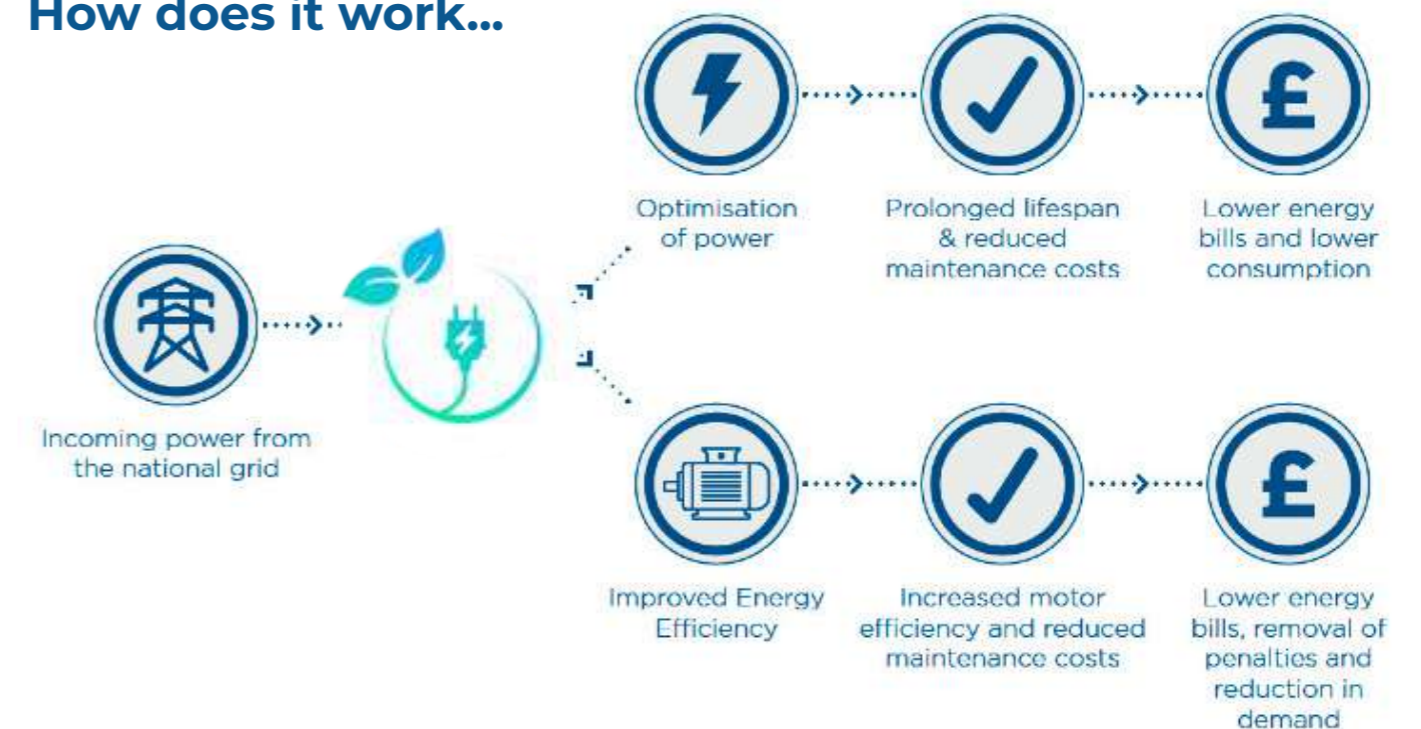
Using Voltage Optimisation with electrical equipment such as refrigeration or air cooling devices, 3-phase motors, high-intensity discharge or fluorescent lighting, will reduce energy consumption and create real financial savings. Voltage Optimisation also increases the service life of electrical equipment by running at the lower voltages that the equipment was designed to run at.



In Europe, generating companies are required to provide customers with a voltage between 207V and 253V. The average voltage across the UK is 245V, but levels can fluctuate significantly throughout the day on each site. Across Europe, the standard voltage has been historically 220V.

As a result, most electrical equipment is designed and specified to operate most effectively and efficiently at 220V. Providing equipment with higher voltages actually reduces efficiency and leads to wasted energy.

### How does it work...



# Savings & Benefits of Voltage Optimisation

There is a difference between the voltage supplied to a building in the United Kingdom and what is required to operate electrical equipment.

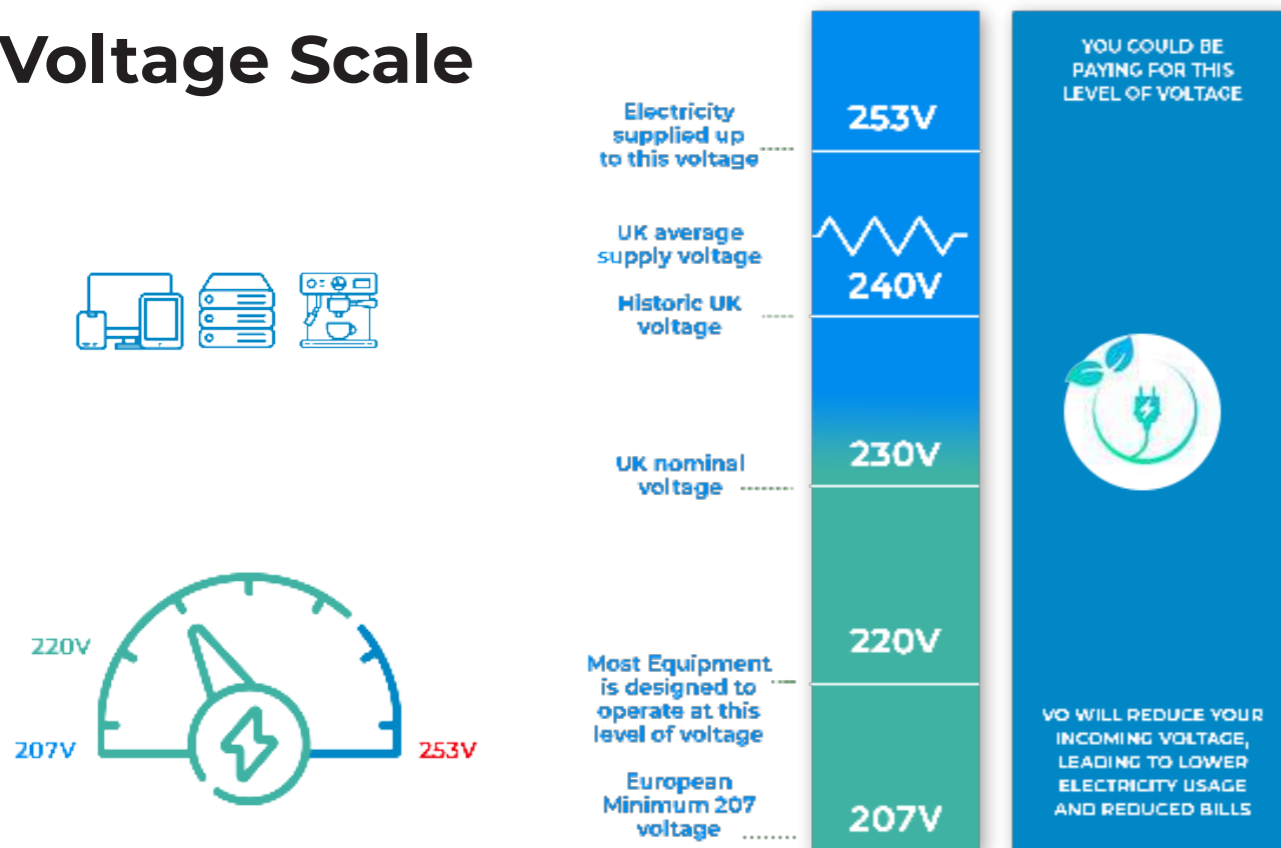
On average the voltage in the United Kingdom is 242V and due to electrical equipment being manufactured to work anywhere in the European Union, this means that the optimum operating voltage required by electrical equipment to work most efficiently is around 220V. This overvoltage is not only costing more than required, it can also shorten the life of electrical equipment.

The surplus voltage produces additional heat, noise and vibration in appliances, causing stress on components, especially to motors, electronic systems like computers and lighting which are more vulnerable to overvoltage and fail much sooner.

Our voltage optimisation system makes sure that a building only consumes and pays for the voltage level that it really needs rather than the overvoltage supplied from the grid. It does this by optimising the incoming voltage by up to -25V. This lowers electricity consumption, reduces electricity bills and reduces the wear and tear on appliances and electrical equipment.



## Voltage Scale



# Benefits of Compact Voltage Optimiser



Domestic Voltage Optimiser Save up to 20% on your electricity bills and protect all your electrical devices .

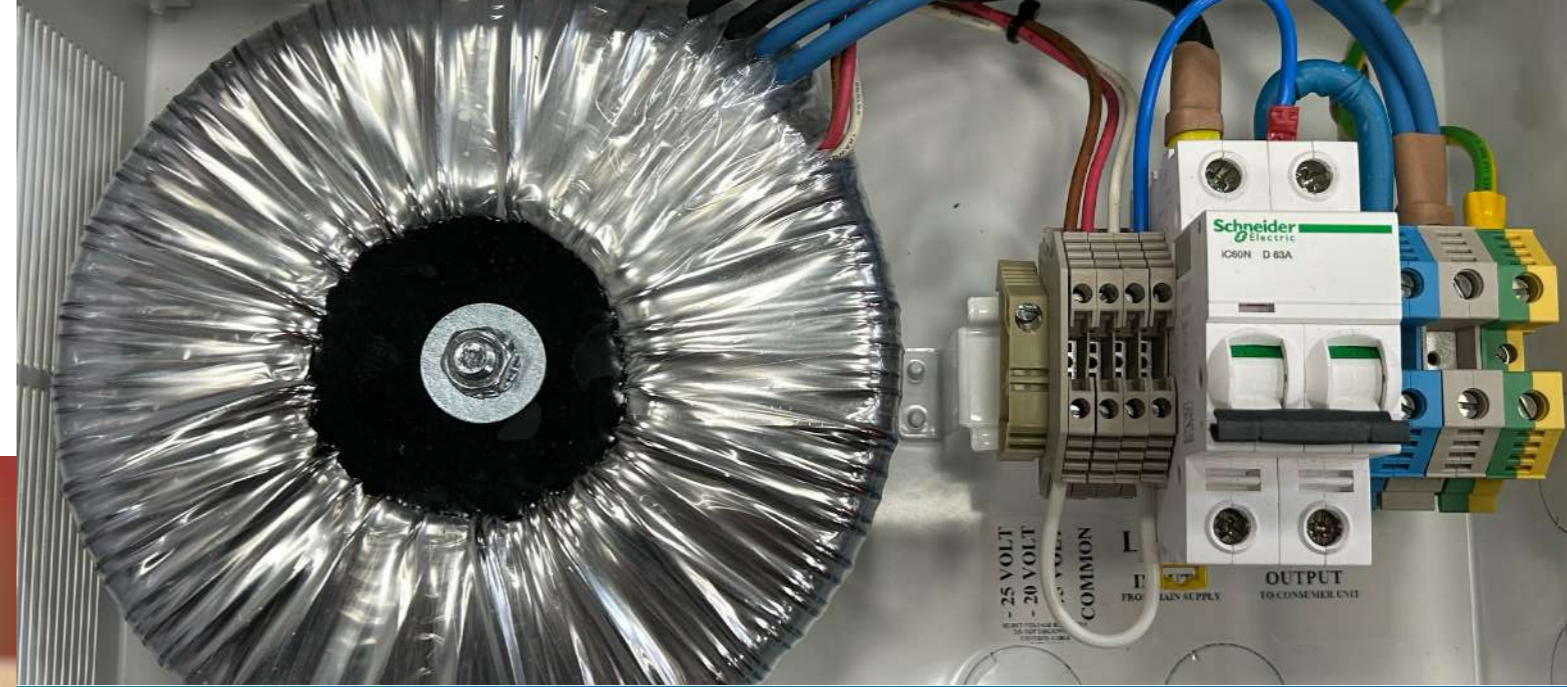
- Reduces Electricity bills by Up To 20%
- Works on all circuits within a building all day every day
- Simple installation – Usually around 1 hour with no need to change your electricity supplier
- Increases the life of all electrical equipment
- Can be installed alongside Solar PV and improves efficiency of heat pumps and Solar PV systems
- No maintenance required
- Guaranteed savings
- 15 years warranty



# Guaranteed Electrical Energy Reduction & Financial Savings

## Peace of mind...

- Award winning company since 2002
- Electrical Contractors Association member
- ISO 9001 UKAS AccreditedSafe
- Contractor - Approved
- Innovate (UK Government) funded



## Compact CVO63 & CVO100

### Installation

The Compact single-phase voltage optimisation system is designed for use in residential properties and small commercial buildings. The 63 Amp unit is easily fitted by a competent electrical installer and simply requires two wires in and two wires out to make it fully operational. A process that only takes around one hour.

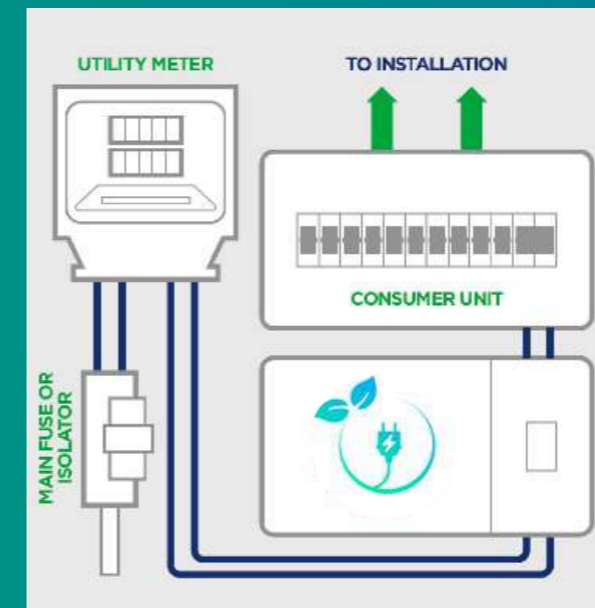
Another attractive feature of the Compact domestic voltage optimisation system is that, unlike smart meters, it does not require a complete change in behaviour and unlike solar and wind power it is not focused on renewable energy production, but rather on reducing energy consumption all day every day.

## Voltage Optimisation Warranty & Guarantee



All our voltage equipment is supplied with a 15 year manufacturers equipment warranty that confirms (warrants) that the equipment supplied will continue to deliver the voltage reduction guaranteed and will operate efficiently for a minimum of 15 years from date of installation. Our equipment is installed with an expected lifespan of 30 + years subject to a 5 year service plan.

We guarantee that your Voltage Optimiser will continue to deliver the voltage reduction specified in our Energy Savings report. After a full site power survey the finalised savings report will confirm the reduced voltage figure, your sites confirmed load profile together with the percentage of energy consumption that has been disregarded to allow for equipment that delivers little or no energy savings from voltage optimisation.





## EMC - 63

Part Number CVO 63-3P



## EMC - 100

Part Number CVO 100-3P

### TECHNICAL CHARACTERISTICS

Type	Compact Voltage Optimiser
Nominal input voltage	3PH+N 415/240VAC
Output Voltage taps	-10v, -15v, -20v, -25v
Frequency	50/60Hz ±5%
Rated current	63 A
Max input current (@ lowest input voltage)	63 A
Dimensions (mm)	H700 x W500 x D300
Main Termination	M6 Terminal
IP Rating	Min IP42 (others available on request)
Finish	RAL7035 Textured Light Grey
Load power factor	0 leading to 0 lagging
Admitted load variation	0 to 100%
Admitted overload	5 times for 2 mins, 100% continuous
Waveform distortion	<0.1% (virtually nil and none added on the mains)
Transformer efficiency	>99.8%
Transformer temp rise @ max load	55oC
Cooling	Forced Ventilation @ 95M3/h
Ambient temperature	-10°C to +60°C
Storage temperature	-20°C to +60°C
Relative humidity	95% (non-condensing)
Input Circuit Breaker	63Amp Door interlocked
Warranty	15 Years
Standards	BSEN60831 (IEC831 & IEC70/70), BSEN60439, BSEN60204
Quality Assurance	ISO 9001

### TECHNICAL CHARACTERISTICS

Type	Compact Voltage Optimiser
Nominal input voltage	3PH+N 415/240VAC
Output Voltage taps	-10v, -15v, -20v, -25v
Frequency	50/60Hz ±5%
Rated current	100 A
Max input current (@ lowest input voltage)	100 A
Dimensions (mm)	H700 x W500 x D300
Main Termination	M6 Terminal
IP Rating	Min IP42 (others available on request)
Finish	RAL7035 Textured Light Grey
Load power factor	0 leading to 0 lagging
Admitted load variation	0 to 100%
Admitted overload	5 times for 2 mins, 100% continuous
Waveform distortion	<0.1% (virtually nil and none added on the mains)
Transformer efficiency	>99.8%
Transformer temp rise @ max load	55oC
Cooling	Forced Ventilation @ 95M3/h
Ambient temperature	-10°C to +60°C
Storage temperature	-20°C to +60°C
Relative humidity	95% (non-condensing)
Input Circuit Breaker	Rated 100Amp
Warranty	15 Years
Standards	BSEN60831 (IEC831 & IEC70/70), BSEN60439, BSEN60204
Quality Assurance	ISO 9001



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Emissis is a trading name of Electrical Mechanical & Cooling Ltd ( Company No: 08405567)



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