

iVolt®

Intelligent Power Optimisation

The image shows three digital display panels mounted on a grey metal cabinet. Each panel is labeled 'PHASE 1', 'PHASE 2', and 'PHASE 3' at the top. Below each label are three small rectangular displays, each showing a numerical value. The panels are arranged horizontally. The 'iVolt' logo is visible in the bottom left corner of the Phase 1 panel.

iVolt

iVolt®

Intelligent Power Optimisation

iVolt® can save you **up to 30% more**
than any fixed reduction
voltage product.

Guaranteed.



More savings. Guaranteed.

Research shows that optimising the voltage supplied to electrical equipment reduces power consumption, increases equipment lifespan, and saves energy.

The iVolt® is a state of the art electronic voltage stabiliser. Taking measurements over 3,000 times per second, the iVolt® maximises energy savings by using unique microprocessor, thyristor and transformer technology to ensure that the output power to your facilities is stable and optimised for maximum energy saving.



iVolt® features and benefits

Features	Benefits
Active voltage stabilisation	Over 90% of UK sites would save more energy with an iVolt® compared to leading fixed reduction systems
Solid state thyristor technology	No moving parts in the power circuits, no annual maintenance required
Stabilisation over wide voltage range	Maximises energy and cost savings
Unique IRT Energy Monitor® technology (patent pending)	Measures and reports energy savings accurately
Independent 3 phase control	Active phase balancing, improved power quality to enhance equipment life
Maintains stable voltage even if site voltage drops to 220V	Minimises risk of "brown outs" and equipment failure
Removal of voltage spikes and surges, and elimination of harmonic distortion	Added protection for site equipment and improved power quality
In-built electronic failsafe mode design	Maintains continuity of supply to site
Manufactured with low loss component technology	The iVolt® is over 99.4% efficient at full load and maximises energy savings
Reliable and proven technology, and ISO9001 accredited facilities	All iVolt® transformer windings have a 15 year guarantee
Internal power parameter measurement and data logging	Tracking of product and site performance
RS485 and USB data communications	Fully integrable into building management software systems

The iVolt® - designed to be 99.4% efficient.....

and up to **30% more effective** than

fixed reduction units.

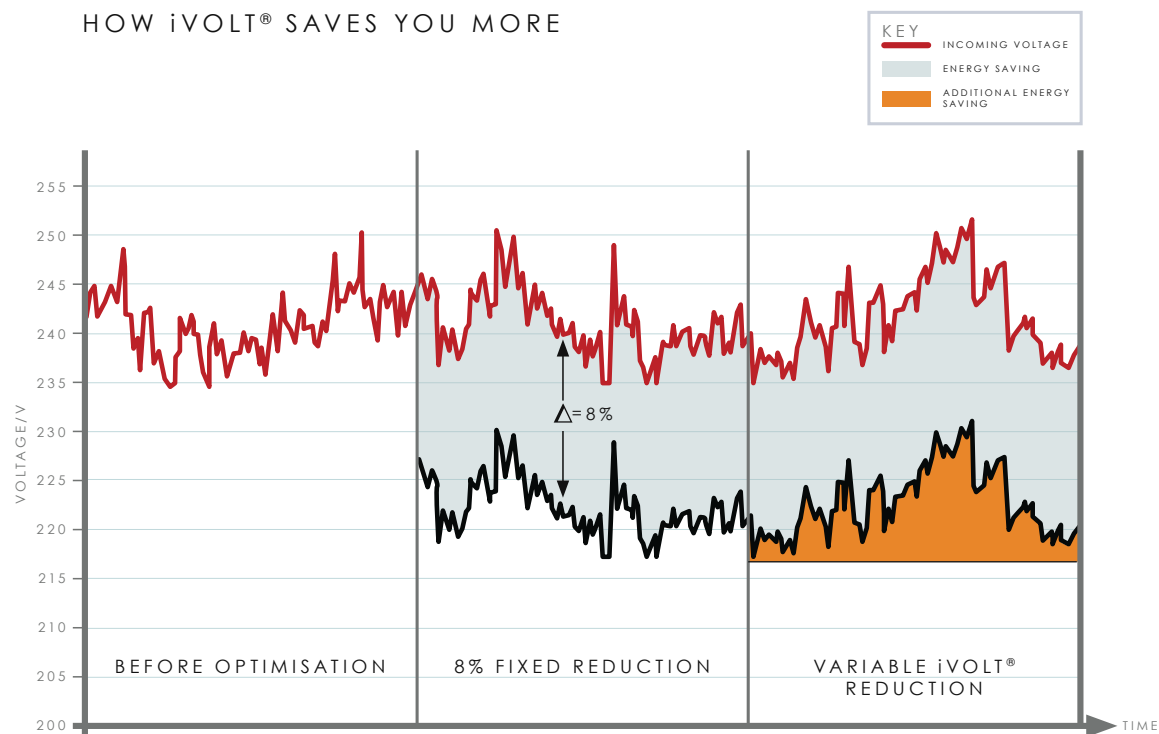
Saving more with iVolt®

Voltage levels provided by generating companies are not typically matched to the optimum level for most electrical equipment. Voltage Optimisation can be used to save energy 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 savings. Voltage Optimisation also increases the service life of electrical equipment.

In the UK, generating companies are required to provide customers with a voltage between 216V and 253V. The average voltage across the UK is 242V, 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 efficiently at 220V. Providing equipment with higher voltages actually reduces efficiency and leads to wasted energy.

Voltage Optimisation can be achieved with fixed step-down transformers or variable voltage reduction solutions. Depending on site characteristics, step-down transformers are typically installed to reduce the voltage by a fixed percentage ranging from 4% to 8%. The iVolt® is an innovative variable voltage reduction solution that automatically adjusts the incoming voltage to ensure that the output voltage is always fixed on $220V \pm 1.5\%$. The iVolt® will deliver a reduction of up to 12% whenever possible.



Voltage optimisation comparisons:

	Fixed step-down transformers	Mechanical servo systems	iVolt®	iVolt® benefits
Maximises energy saving	No*	Yes	Yes	More savings and faster project ROI
Microprocessor controlled	No	Sometimes	Yes	Improves stability of voltage
Maintenance-free	Yes	No	Yes	No ongoing maintenance costs
Reduces risk of undervoltage	No	Yes	Yes	Protects equipment against damaging voltage dips
Compensates for fluctuations	No	Yes	Yes	Creates a more stable voltage and maximises savings
Improves power quality	Yes	Yes	Yes	Reduced maintenance costs on electrical equipment
Integrated IRT Energy Monitor®	No	No	Yes	Real-time measurement of energy saving
Output voltage accuracy (+/-)	8%	0.5 to 2%	1.5%	Increased voltage stability
Adjustable output voltage	No	Yes	Yes	Flexibility to reflect changing site conditions

*Site surveys across the UK show that over 90% of sites would save more with iVolt® technology compared to fixed reduction solutions

iVolt® Technical Overview

Voltage Stabilisation: At the heart of the iVolt® are independently controlled auto-transformers for each phase. There are 9 tap-settings for maximum accuracy, with thyristor-based switching between each tap. The iVolt® uses the latest in thyristor switching technology to ensure stability and reliability.

A programmable micro-controller system controls the tap switching. Measuring the incoming voltage over 3,000 times per second, it selects the appropriate tap by activating the thyristor switch. The micro-controller also measures the

frequency of the mains supply and compensates accordingly. This means that the iVolt® will work automatically over a frequency range of 45 - 75Hz and down to as low as 30Hz for short periods to help cope with diesel generator loading problems.

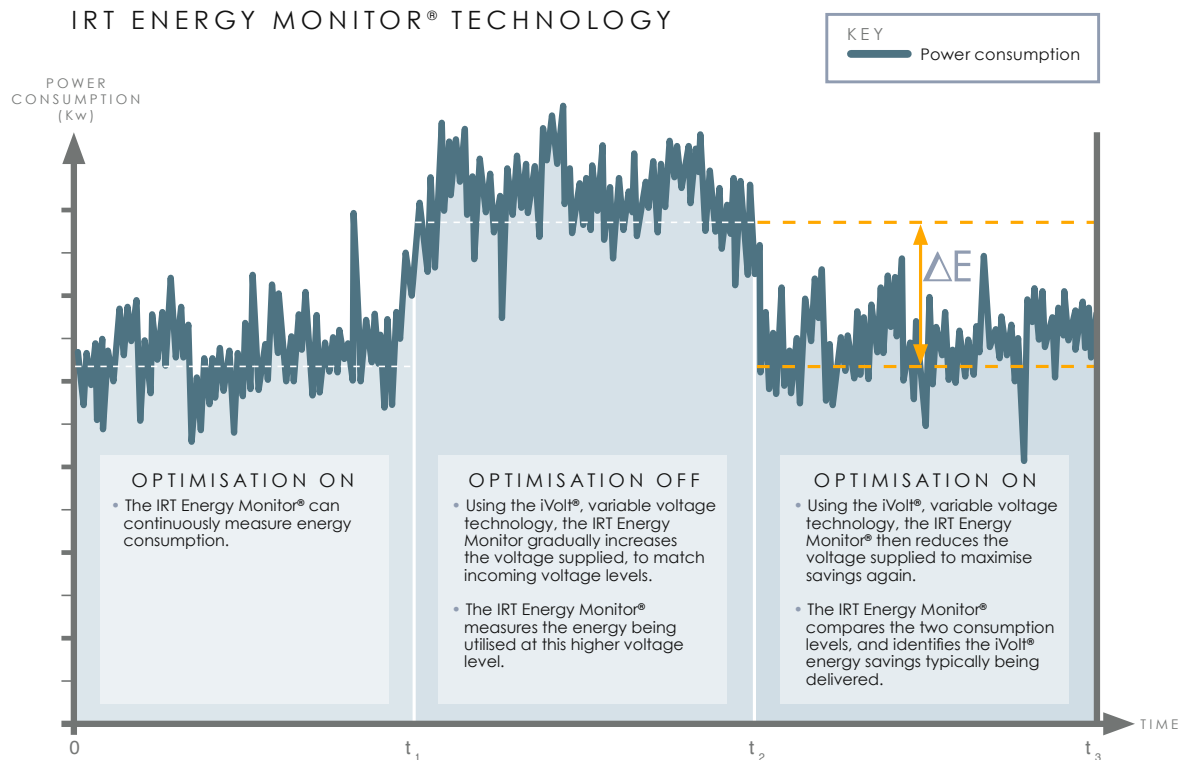
This combination of controllable auto-transformers and a micro-controller system results in a voltage stabiliser which has no moving parts and responds quickly to voltage variations, providing a stable output voltage at 220V.

Integrated IRT Energy Monitor® technology **accurately**
measures your energy savings

Energy Measurement: Integrated into every iVolt® is the unique **IRT Energy Monitor®** technology (patent pending), that enables accurate tracking of energy saving.

Fixed step-down transformer systems have to rely on 'modelling' assumptions, such as production output, weather and other factors to verify savings, with data collected over several months to create a representative sample. However, the IRT Energy Monitor® uses real-time data to determine the energy savings being achieved and results are significantly more accurate than modelling.

Using in-built electronic circuits, the iVolt® is able to measure energy consumption levels as accurately as data generated by meter readings. Using sophisticated software algorithms and the iVolt® variable voltage technology, the IRT Energy Monitor® adjusts the voltage output to compare energy consumption, with and without optimisation over a defined period. The energy-saving data from the IRT Energy Monitor® can be transmitted via the optional iVolt® communications module for use in remote building energy management systems.



Spike Protection: The iVolt® helps protect electrical equipment from damaging voltage spikes and surges, achieving this in two ways. Firstly, it is fitted with combined class I & II heavy duty surge arrestors at the input. In addition, it is designed with metal oxide varistors fitted directly to the transformer taps. These two design features have the joint function of protecting

both the iVolt® and also all site equipment. Secondly, further Metal Oxide Varistors are fitted on each power input to the circuit board, to protect the iVolt®'s low-voltage circuitry. The combined effect is a significant reduction in the risk of damage to site equipment, a highly reliable unit and a further improvement in power quality.

iVolt® Specifications

Specification	
Technology	Microprocessor controlled transformer tap selection using thyristors
Capacity	32A to 3200A
Efficiency	99.4% at full load
Response time	15ms
Input voltage range	253/438 volts down to 220/380 volts
Output voltage range	220/380 volts, adjustable
Output accuracy	± 1.5%
Phase control	Three phases balanced independently
Frequency	47Hz to 75Hz
Waveform distortion	<0.25%
Transformer materials	Low loss electrical steel core with high purity copper conductors
Conductor Insulation class	Class H
Temperature class	Class B
Operating temperature	0 - 55° C
Operating humidity	95% non-condensing
Ingress protection	IP21
Overload capacity	150% for 4 minutes
Standards	BS EN 61558-1 2005, EN61000-6-4, IEC 61000-4-3, IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-11
Expected Service life	>25 years
Warranty	15 years (parts and labour) on all transformer windings, 5 years on electronic control boards
Options	
Circuit breaker(s)	Input and/or output circuit breakers
Manual bypass	Manual bypass including isolation
Auto bypass	Auto bypass including circuit breaker for isolation
High level surge protection	Class 1 and 2 spike and surge protection Protection L - N: 25kA @ 10/350µs Protection N - PE: 100kA @ 10/350µs Voltage protection level: 1.5kV
Remote monitoring system	Connection to energy management or building management systems
Harmonic reduction transformer	Reduced power harmonics from supply and load

iVolt® Dimensions - single phase systems

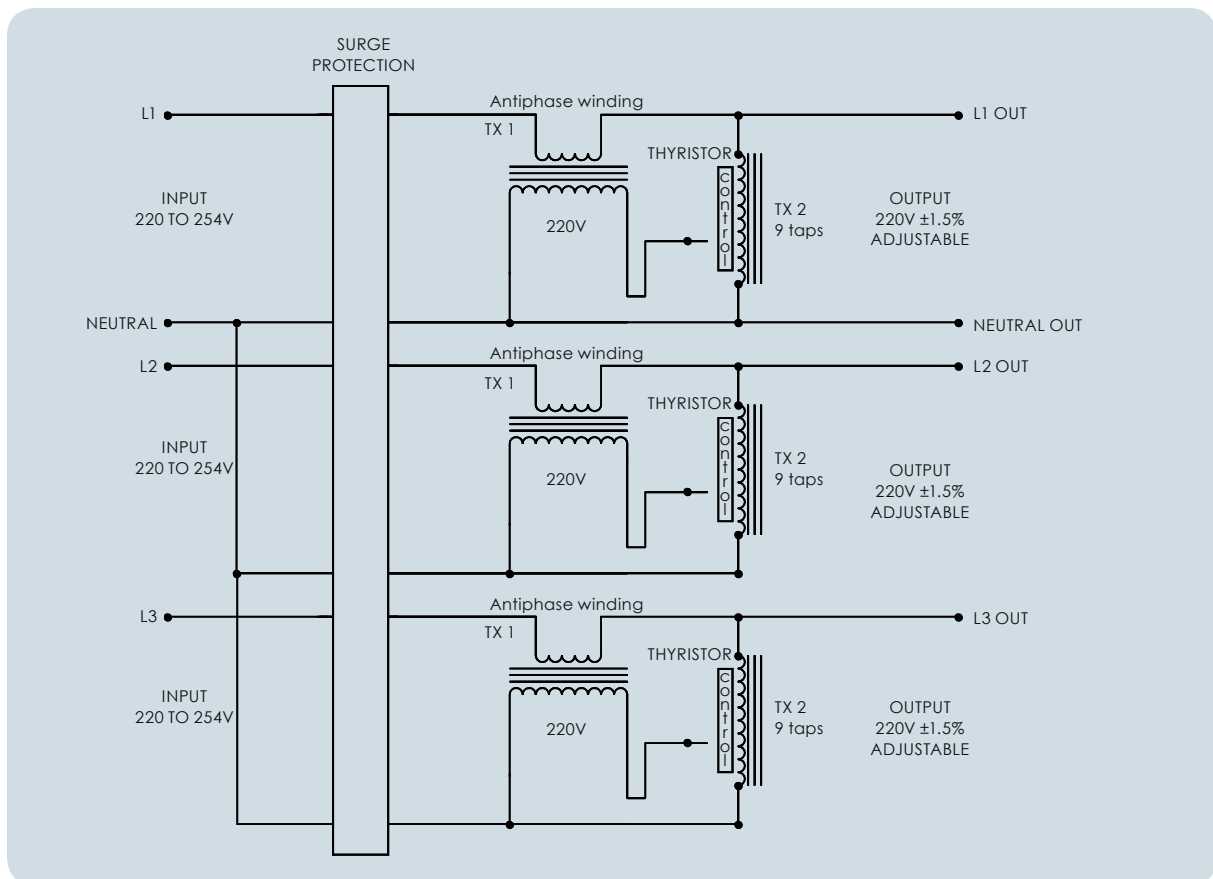
KVA	Amps	Width (mm)	Depth (mm)	Height (mm)	Weight(KG)
7	32	300	300	350	30
14	63	395	370	490	50
22	100	395	370	490	70
44	200	450	500	700	140

iVolt® Dimensions - three phase systems

KVA	Amps/Phase	Width (mm)	Depth (mm)	Height (mm)	Weight(KG)
50	75	1000	500	1630	130
75	115	1000	500	1630	190
100	150	1000	500	1630	260
150	230	1000	500	1630	380
200	300	1000	500	1630	490
250	380	1430	680	1630	600
300	450	1430	680	1630	700
400	600	1430	680	1630	880
500	760	1550	680	1830	1040
600	900	1550	680	1830	1170
700	1060	1550	680	1830	1280
800	1215	1800	680	2070	1440
1000	1515	1800	680	2070	1800
*1500	2275	1550	680	1830	3120
*2000	3030	1550	680	1830	3840

*Three separate cabinets

iVolt® Technical Schematic



The Sollatek Group

Sollatek is a leading designer and manufacturer of voltage stabilisation devices and power solutions for a large number of industries.

Founded in the UK in 1983, Sollatek has grown rapidly to become a truly global company. Now with offices in 14 countries and an active distribution network in 24 more, Sollatek has an impressive list of blue chip clients in the UK and internationally.

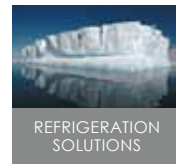
Sollatek continues to invest heavily in R&D with a UK-based design and development team. The company's global manufacturing facilities are certified to the latest ISO9001 quality standards.

Sollatek has successfully manufactured and installed thousands of voltage stabilisers in major infrastructure projects, both in the UK and globally. As Sollatek's products have been designed to operate in some of the most challenging industrial environments around the world, the technology has always been geared towards high reliability, with no moving parts and no maintenance required.

iVolt Ltd. is a wholly-owned division of the Sollatek Group, focusing on leveraging Sollatek's expertise in Voltage Stabilisation.



www.sollatek.com



Our international Clients



SIEMENS



PHILIPS



nationalgrid



Installation

All iVolt® units are installed by our technically qualified and approved installation teams. They are all NICEIC approved electrical contractors who have been trained by iVolt® engineers to the highest standards.

As part of the installation process, our engineers carry out a detailed site survey.

The iVolt® survey includes full 3- phase power logging to assess your power quality needs. Based on this, we can provide you with a full cost benefit analysis of your project and also identify the savings that you will achieve, backed by the iVolt® 100% savings guarantee.

The iVolt® Guarantee

We understand that your power supply is critical to your business and a project investment needs to deliver the benefits promised. That's why every iVolt® installation comes with our unique guarantee.

- We guarantee to save you up to **30% more** than any fixed voltage reduction product.
- Following a full site survey, we will commit to **deliver 100%** of the projected savings. We guarantee that you will **achieve the agreed ROI** (return on investment) for your project, or we will refund the difference.
- iVolt® installations are carried out by **approved iVolt® engineers**.
- The iVolt® is designed and built to relevant **CE standards**.
- We offer a **15 year guarantee** (parts and labour) on all transformer windings, and 5 years on electronic control boards.

Over **90% of UK sites** would save
more energy with an iVolt®



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