

## The Home Voltage Stabilizer

AC Voltage Stabilisers / Regulators  
& Power Conditioners for the Home

### Delivering Power Quality in the Home

Traditionally the need for the regulation and control of the incoming mains supply has been considered the province of business and government organisations.

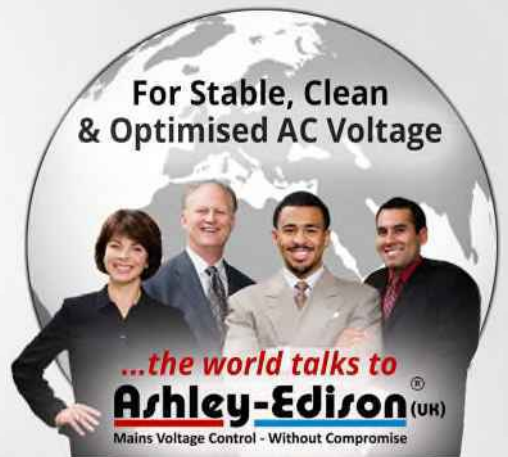
However, in recent years, with a lack of general investment in new generation capacity and the failure to replace decommissioned fossil fuel and nuclear power stations, existing supply networks are all too often struggling to keep up with the demand of the new power hungry digital age and many households are now witnessing a marked general deterioration in the quality of power they receive.

To compound the problem, many of the appliances we now use in our household have changed in nature, becoming far more digitally based and as a result more voltage sensitive. It is now not uncommon for the modern home to be running state of the art heating, cooling and refrigeration systems, high-tech computer networks, and the latest in home entertainment systems. If you allow the mains supply to 'fry' any of the circuits in these systems you can, more or less, be guaranteed an extremely expensive repair bill.

Of course in less developed countries, where historically the national supply infrastructures have always tended to struggle to satisfy demand, the need for voltage protection is even more acute and for many households, considered far more of a priority than those in more advanced economies.

Taking all this into account, it is not really surprising that more and more homes, in all parts of the world, are in need of protection against the vagaries of the mains supplies that feed them.

At Ashley-Edison (UK) our popular SVS & SVR ranges of single and three phase automatic voltage stabilisers are ideally suited for improving the power quality in your home.



### Home Voltage Optimisation Delivering Energy Efficiency



Fitting a Voltage Stabiliser should improve the overall energy efficiency of your home.

Through the precise regulation of the incoming supply voltage to ensure the voltage in your home is at the level intended by the designers of your household appliances, not only do you prolong life expectancy and reliability of your equipment, but you are also able to reduce your energy usage and, as a result, your energy costs.

Typically, a Voltage Stabiliser can deliver savings of up to 5% on your electricity bills and in some cases, where the level of the utility supply is extremely high, considerable more. With energy costs soaring world-wide, these savings can be significant!

And, of course, it should always be remembered through using less energy, and thereby reducing the need for energy generation, a Voltage Stabiliser is able to assist in reducing your home's carbon footprint.

Stabilisers used for this type of applications are commonly referred to as Dynamic Automatic Voltage Optimisers (AVOs).

At Ashley-Edison (UK) our extensive ranges of AVOs are specifically configured for ensuring energy efficiency in your home.



**How to select the most appropriate Voltage Stabiliser for your needs**

Here at Ashley-Edison (UK) we are regularly requested to supply Voltage Stabilisers for use in the home.

In order for us to be able to offer the most cost efficient voltage stabiliser solution there are always **6 Key Questions** which we must ask a client before we can make a suitable recommendation.

THE 6 KEY QUESTIONS	Notes:
<p><b>1. What is the scope of protection required?</b></p>	<p>In order to select the most appropriate solution it is first necessary to determine whether protection is required for the entire house, just certain key essential electrical circuits or simply designated individual pieces of equipment.</p> <p>As you would expect, protection for the entire house or certain key circuits is the more costly options, but in some less developed countries, where the incoming mains supply is persistently unreliable, they are the only real options available.</p>
<p><b>2. Is the incoming supply single or three phase in nature?</b></p>	<p>In most instances this will be Single Phase, but for larger residential or semi-commercial properties this may not always be the case.</p>
<p><b>3. What is the nominal voltage and nature of the supply feeding the home?</b></p>	<p>In Europe and most countries outside the US this will be in the range of 380V to 415V for three phase supplies and 220 to 240V for single phase supplies. In the US, and countries whose supply infrastructures are based on the American model, the ranges will be 190 to 240V for three phase supplies and 100 to 127V for single phase.</p> <p>Three phase supplies will normally be 4 Wire (3 Phase + Neutral) in nature, but a 3 Wire (Three Phase with NO Neutral) configuration might be found.</p> <p>Most single phase supplies will be 2 Wire in nature, but in the USA a split single phase configuration (3 Wire) is quite commonly found in residential property. In such situations a dual (220V to 240V and 110 to 120V) stabiliser output will be required.</p>
<p><b>4. What is the size of the electrical load, in terms of Amps or kVA, the stabiliser will be expected to support?</b></p>	<p>The quickest way of determining this is to actually find out the power ratings of the equipment to be protected. Usually the appliances will have this information recorded on their rating plates.</p> <p>Where protection is required for an entire home, the simplest way of determining the required stabiliser's maximum rating is to check the circuit breaker or fuse rating on the incoming mains supply.</p> <p>If you only wish to protect certain electrical circuits in the house, the easiest way to get the loading figure is to check the ratings of the input circuit breaks or fuses on the relevant circuit in the house's electrical distribution box.</p> <p>When protecting only certain circuits, you are recommended, for ease of Voltage Stabiliser installation, to split these circuits off into a dedicated sub-distribution board, with its supply fed through the voltage stabiliser from a dedicated feed from the main distribution panel.</p>
<p><b>5. What is the extent of the voltage drop or rise on the input utility mains the stabiliser will be expect to operate in, whilst always ensuring a constant voltage level on the output?</b></p>	<p>If you have a really poor mains supply, you probably already have a good idea as to the extent of the problems you are experiencing.</p> <p>In situations where this is not the case, you can, these days, source inexpensive (less than US \$50) power monitors from the likes of Amazon that simply plug into a power outlet socket, allowing you, over time, to monitor the voltage levels in your home.</p> <p>As a rule of thumb, in situations where there is a reasonably good mains supply, a stabiliser offering an input voltage window of <math>\pm 15\%</math> from the nominal voltage will usually be more than adequate.</p> <p>However, in more remote locations, or in countries where the national supply infra structure is less developed, variations of <math>\pm 20\%</math>, or greater, may be required to be covered by the stabiliser.</p>
<p><b>6. What output voltage accuracy is required from the stabiliser?</b></p>	<p>For the stabiliser to offer the highest level of protection, and deliver optimum energy efficiency in the home, we normally recommend a client looks for accuracy on their selected / required output voltage of <math>\pm 1\%</math>.</p> <p>However, given that the cost of the stabiliser is linked to the size of the input voltage range it has to handle, if the client requires, or is willing to accept, a lower output voltage accuracy, the input window of the stabiliser can be widened proportionally and prove to be a more cost efficient solution than buying a more expensive wider input voltage window model offering an output accuracy of <math>\pm 1\%</math>.</p>

**Voltage Drop Compensation  
Delivering huge saving in cabling costs for house builds in remote locations**



When looking to build a house in a remote location the cost of obtaining a mains supply connection can often be prohibitive.

The problem is that a long cable run will probably be required from the nearest distribution substation to the house. Such long cable runs have an inherent problem of developing large volt drops across their length. Conventional wisdom says that to overcome this it is necessary to select and use larger sized cables.

Unfortunately, with ever rising copper prices, these oversized cables do not come cheap!

By using a voltage stabiliser at the home to compensate for the inherent voltage drop in the mains supply feed cable, the need for oversized cables can be eliminated and huge cost savings made on cable costs.

At Ashley-Edison (UK), stabilisers used for this type of application are referred to as Voltage Drop Compensators / Constant Voltage Compensators, being stabilisers specifically configured to eliminate the inherent voltage drop in long cable runs.

**Audiophile Protection  
Delivering Audio Sound Quality Perfection**



In the pursuit of true perfection in sound reproduction the quality of the mains supply can be an important factor. While the fitting of a basic inexpensive surge suppressor may be adequate for most audio enthusiasts, for those audiophiles seeking near flawless audio reproduction, an AC Power Conditioner will often prove to be, whilst somewhat pricey, the only really acceptable solution.

With its inbuilt shielded isolation transformer, an AC Power Conditioner will not only stabilise the voltage it will also eliminate common and normal electrical noise interference and, through shorting the neutral to earth, any floating voltages on the Neutral to Earth line will be eradicated – a feature option particularly relevant for US applications where the neutral often floats.

At Ashley-Edison (UK) our extensive ranges of AC Voltage Stabilisers and Power Conditioners are ideal for this style application and we regularly supply power protection solutions to staunch audiophiles and semi / professional sound engineers for use in their home based recording studios.