An introduction to

VOLTAGE STABILISATION

Voltage stabilisation is the process of maintaining a constant voltage output from an electrical source normally the grid, even when the incoming voltage fluctuates, effectively protecting sensitive electronic equipment from damage caused by voltage surges, sags, or spikes.

WHY DOES VOLTAGE VARY?

Voltage on the grid can vary due to fluctuations in electricity demand across the network, with power stations adjusting output to match usage, causing voltage changes as electricity travels through the grid, and because of the use of transformers that “step-up” voltage for transmission and “step-down” voltage for distribution to homes, all while staying within a permitted tolerance range to ensure stable supply.

WHAT IS AN ACCEPTABLE VOLTAGE RANGE?

While voltage can vary from the standard 230 volts from phase to neutral, it is designed to stay within a specified range around the nominal 230 volts, typically allowing for a -6% to +10% fluctuation.

HOW CAN I IMPROVE VOLTAGE CONSISTENCY?

To improve voltage consistency involves installing voltage stabilisation equipment to effectively manage the voltage.

The solutions we provide are tailored based on the results of our initial analysis and are then tailored to each individual customer’s site needs.

OUR SOLUTIONS

Servo- Electronic Stabilisers:

Servo-electronic stabilisers utilise a servo motor to adjust the position of a variable transformer (also called a “dimming” transformer) based on fluctuations in the input voltage, effectively increasing or decreasing the number of turns on the transformer to maintain a consistent output voltage at the desired level.

Static Stabilisers:

A static voltage stabilizer works by continuously monitoring the incoming power supply voltage and using solid-state electronic components like IGBTs (Insulated Gate Bipolar Transistors) to adjust the output voltage to maintain a constant level, regardless of fluctuations in the input voltage.

BENEFITS OF STABILISATION

- Protecting electrical appliances from damage caused by voltage fluctuations
- Enhancing equipment performance and lifespan
- Reducing equipment energy consumption
- Minimising maintenance costs
- Ensuring consistent power supply to sensitive electronics by maintaining a stable voltage level regardless of variations in the power source

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