

TECH OFFER

Efficient Voltage Optimisation System for Electrical Energy Saving and Cost Reduction



KEY INFORMATION

TECHNOLOGY CATEGORY:

Energy - Sensor, Network, Power Conversion, Power Quality & Energy Management

Electronics - Power Management

Sustainability - Low Carbon Economy

TECHNOLOGY READINESS LEVEL (TRL): **TRL9**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO174853**

OVERVIEW

Rising energy consumption and electricity costs pose significant challenges for all businesses, from light commercial to heavy industrial sectors. Moreover, sustainability has become a crucial component of corporate strategies, particularly within the framework of environmental, social, and governance (ESG). Electrical energy optimisation is not just about cost savings, but also an approach towards resource conservation, power stability, equipment protection, as well as sustainable development.

The technology owner has developed a transformer-based voltage optimisation system to reduce energy consumption, optimise electrical power supply, extend equipment lifespan, and lower carbon emissions. This patented technology can control the voltage to an acceptable minimum level and keep the current within the optimum range for best efficiency, providing an immediate and practical way for energy savings.

The technology owner is keen to collaborate with industrial partners such as building management, property owners, industrial facility management in manufacturing sectors, etc.

The technology owner is also seeking OEM partners to integrate this technology into building management systems (BMS) or co-develop a complete energy saving solution.

TECHNOLOGY FEATURES & SPECIFICATIONS

The core of this technology has the electronic controller regulating the direction of the current in the coil, balancing the phase voltage, and filtering the harmonics from reactive loads, to sustain the highest performance while minimising power loss.

The features of this technology are:

- 8 – 12% reduction in power consumption and electricity bill
- Improve the quality of overall electrical power supply
- Over-voltage protection to prolong equipment lifespan
- Real-time remote monitoring and analysis by app
- Compact and modular design (easy installation and fast repair)
- Compatible for both indoor and outdoor installation
- Enable scalable and customisable adoption for property portfolios
- Completely self-sufficient solution with virtually unlimited lifespan

POTENTIAL APPLICATIONS

The voltage optimisation system is applicable for both commercial and industrial applications, especially industrial sectors with energy intensive equipment like motors and cooling devices. The potential applications include but are not limited to:

- Commercial buildings (shopping malls, office buildings, markets, restaurants, hotels, etc.)
- Industrial facilities (factories, warehouses, chemical plants, fabrication plants, etc.)
- Other infrastructures (airports, hospitals, train stations, sports complexes, institutes, etc.)

UNIQUE VALUE PROPOSITION

The patented technology offers the following unique features:

- 8-12% immediate energy savings
- High efficiency of 99.7% with low system losses
- Reduce maintenance cost by increasing equipment lifespan
- Remote monitoring for smart energy management
- Return on Investment (ROI) in 12-24 months