



# THE ELECTRICAL HARMONIZER-AVR

- Patented energy conservation device
- Constructed around an ultra low loss three phase voltage optimization transformer
- Consists of two main components: the Harmonizer and the automatic voltage regulator (AVR)

## THE HARMONIZER COMPONENT

- Adjusts incoming voltage to the optimum operating voltage for that facility
- Optimizes incoming voltage by 0% (bypass), 2%, 4% or 6%
- Generates significant reductions in energy consumption, peak demand and maintenance costs

Voltage levels fluctuate on a regular basis so flexibility in the rate of voltage optimization is critical to maximizing conservation and eliminating risk.

## THE AVR COMPONENT

- Automatically adjusts the level of voltage optimization in harmony with load fluctuations
- Defaults to by-pass mode in the event voltage supply falls below the optimal minimum

The Electrical Harmonizer-AVR maximizes voltage optimization, improves power quality and operates at an efficiency of greater than 99.5%.

## BENEFITS TO FACILITIES

- **7-12%** reduction in electricity bills
- **8-12%** reduction in peak demand (kW)
- **7-10%** reduction in energy consumption (kWh)
- Reduction in greenhouse gases
- Reduction of maintenance costs
- Extended life-cycles of lighting, machinery and equipment
- Improved overall power quality issues
- Can be changed under load with no downtime to facility
- Conservation with no interruption to your business routine

## BENEFITS TO UTILITIES

- **10-14%** reduction in utilities peak demand (kVA)
- Increased capacity within existing generation and distribution infrastructure
- Reduced dependence on importing power during high cost, peak demand periods
- Efficiencies easily measured and verified
- Addresses the most inefficient part of the power grid
- Addresses the aggressive conservation targets set by Governments
- Conservation that is green and sustainable

## FOR MORE INFORMATION CONTACT

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## HOW IT WORKS

Energy savings from the Electrical Harmonizer-AVR are based on “Conservation Voltage Regulation” (CVR). The main concept behind CVR is that customers receiving voltage at higher levels are unwittingly paying high electricity bills, overdriving their equipment and wasting energy.

The Electrical Harmonizer-AVR uses a selectable tap to set the degree of voltage optimization for the incoming power supply in response to power grid fluctuations.

## INSTALLATION

- Installed at electrical service entry to condition the entire load
- Can also be installed to address a specific distribution load

Legend Power Systems Inc. (LPSI) designed a series of innovative installation approaches:

- **Floor Mount Installation** – Simple to place, and can be simple to run cabling in some electrical room layouts
- **Ceiling Mount Installation** – When space constraints do not allow installation in the electrical room this method allows the unit to still be close to where it is ‘cut in’ to the facility load
- **Seismic Top Mount Installation** – When space constraints do not allow installation in the electrical room and the wall and ceiling do not offer the necessary structural support

## MEASUREMENT & VERIFICATION

- LPSI measures the energy consumption of each facility for seven days
- LPSI installs the Electrical Harmonizer-AVR and continues measuring energy consumption for an additional seven days
- LPSI compares the before and after energy consumption data
- LPSI submits energy consumption comparison data report to facility
- Additional measurement and verification can be quickly, easily and more accurately measured using the bypass function

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