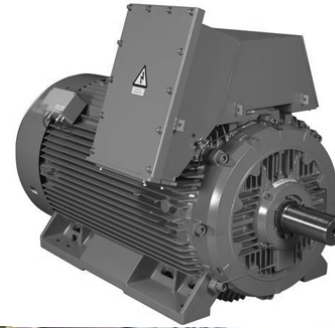


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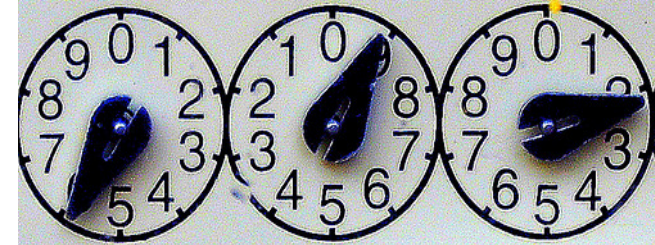
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Let Us Help You Uncover Your  
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**Our Custom Designed Solutions Can Save  
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***Energy costs are high  
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**Fine Tune your electrical  
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Each installation is custom designed to maximize your savings. Don't let the "One Size Fits All" companies waste your money!

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**The Power Quality Problem:**

Our Engineering Is Meeting The Demand Of  
 Power Quality

The increase in power quality problems is caused mainly by the popular use of non-linear loads such as variable speed drives, power control electronics, and computers. The proper operation of these devices is often directly affected by the system anomalies they actually cause. In times gone by, the main concern for electrical consumers was having a sufficient supply of power available. Now however, consumers are increasingly forced to consider not only the "quantity" of available power, but also the "quality" of the power in order to maintain correct function and reliability of all the installed equipment. Electricity that is supplied by the primary generating plants can normally be considered to be clean (i.e. balance, sinusoidal, phase angle). Disruptions to this supply are usually caused by transmission system equipment failure or adverse weather conditions. With this knowledge, one can see that many power quality anomalies experienced on the supply network can be attributed to consumers. These anomalies may take the form of voltage surges or sags, spikes, notches and harmonics. As many of these Power Quality problems are created by the consumer's load, these problems can also easily travel within the common electrical supply network in the physical plant, causing disruptions to the consumer's equipment. Power Factor also causes many system problems. In response to these disruptions, many Power Companies have adopted guidelines such as IEEE-519 in order to establish limits to the levels of disturbances created by each individual consumer.

Call us today for an evaluation of your electrical service  
 System testing is comprehensive

The test data will show you how much power your system  
 is wasting, and in many cases, the actual savings can be  
 demonstrated while you watch

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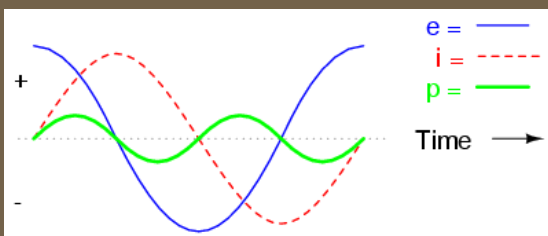
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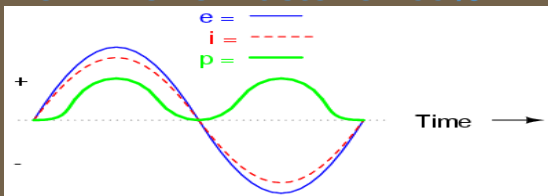
Power Factor Correction Systems Need To Be Custom Sized & Designed For Each Installation

Let our friendly and knowledgeable staff teach you what you need to know About Power Factor Correction

## Understanding The Problem: Voltage & Amperage Are Out Of Alignment



## Properly Aligned Voltage & Current For A Power Factor of .99%



Power Factor Correction Is For Business & Residential Use.

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Call Gary Minker to get you started

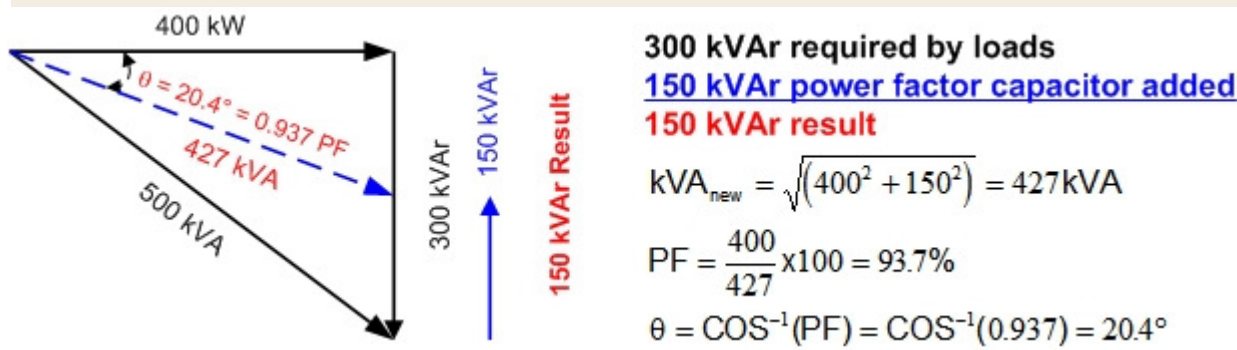
# Save 5% to 20% On Your Monthly Electrical Costs ! 12 to 24 Month Return On Investment For A Fast Pay Back

We are with you every step of the way >>>

## Power Factor Explained:

Power factor is a measurement of how efficiently a device uses electrical energy. A high power factor (close to .99), means that the system electrical capacity is being utilized effectively, while a low power factor indicates poor utilization of electric power.

Power factor involves the relationship between two types of power. Active (Real) Power is measured in kilowatts (kW) and Reactive (Applied) Power is measured in kilovolt-amperes-reactive (kVAr). Active power and reactive power together make up Apparent Power, which is measured in kilovolt-amperes (kVA). This corrective relationship is often illustrated using the “kVAr corrected” power triangle that is shown in the following figure.



## Power Factor Compensation

Power factor is the ratio between Active power and Apparent power. Active power does work and reactive power produces an electromagnetic field for inductive loads. Lightly-loaded or varying-load inductive equipment such as HVAC systems, arc furnaces, molding equipment, presses, etc., are all examples of equipment that can have a poor power factor. One of the worst offenders is a lightly loaded induction motor (e.g., saws, conveyors, compressors, grinders, etc.). End users should be concerned about low power factor because it means that they are using a facility's electrical system capacity inefficiently. It can cause equipment overloads, low voltage conditions, greater line losses, and increased heating of equipment that can shorten service life. Most importantly, low power factor can increase an electric bill with higher total demand charges and cost per kWh.

