The Better Power Unit

PRODUCT OVERVIEW

Designed to work effectively in your home, office or the largest manufacturing facility the BPU will provide you with “Better Power”. This energy management system utilizes a state of the art control module that instantaneously monitors, stores and distributes the correct amount of power to each operating load within the managed operating system. The BPU employs a multiple approach that corrects the power deficiencies provided by your power provider. This controller uses the highest quality active harmonic filtration and controlled capacitors that significantly improve power factor correction. The BPU also utilizes a variable controller system that allows it to respond to the changing loads. Installed in parallel with your existing electrical system, this energy management system corrects the deficiencies in power quality that ultimately lowers your energy (kWh) consumption.

The key concept to appreciate is that while correcting all of the major problems associated with power quality the BPU is also capturing and redistributing, what is normally wasted or lost power. In any given system the problems that are present represent an increase in power consumption, when managed by our BPU controller it represents a savings that puts the money back in your pocket.

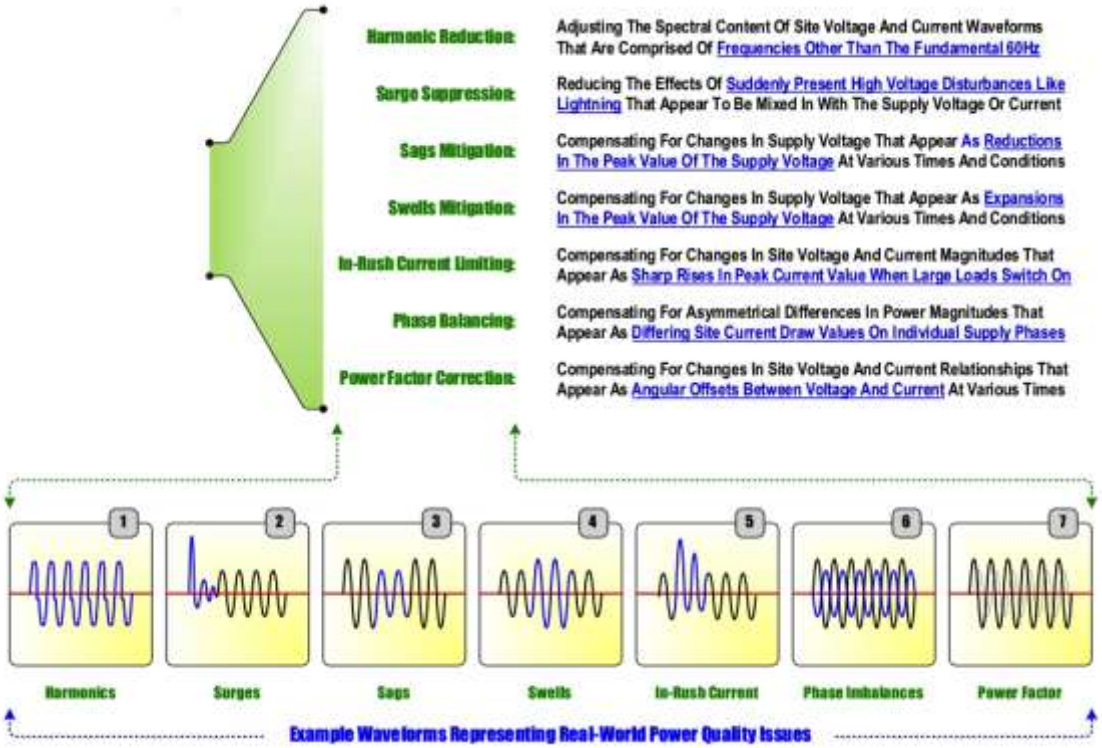
Introduction to the BPU

The BPU is a Better Power Unit as it addresses the previous generations’ concerns over lightning protection and power factor correction, and elevates the focus and performance on reducing demand (kWh).

The BPU is an electronic device with no moving parts or microprocessor control. The key to the BPU lies within the patented Iterative Control Transformer and the ability of the unit to instantaneously respond to changing conditions.

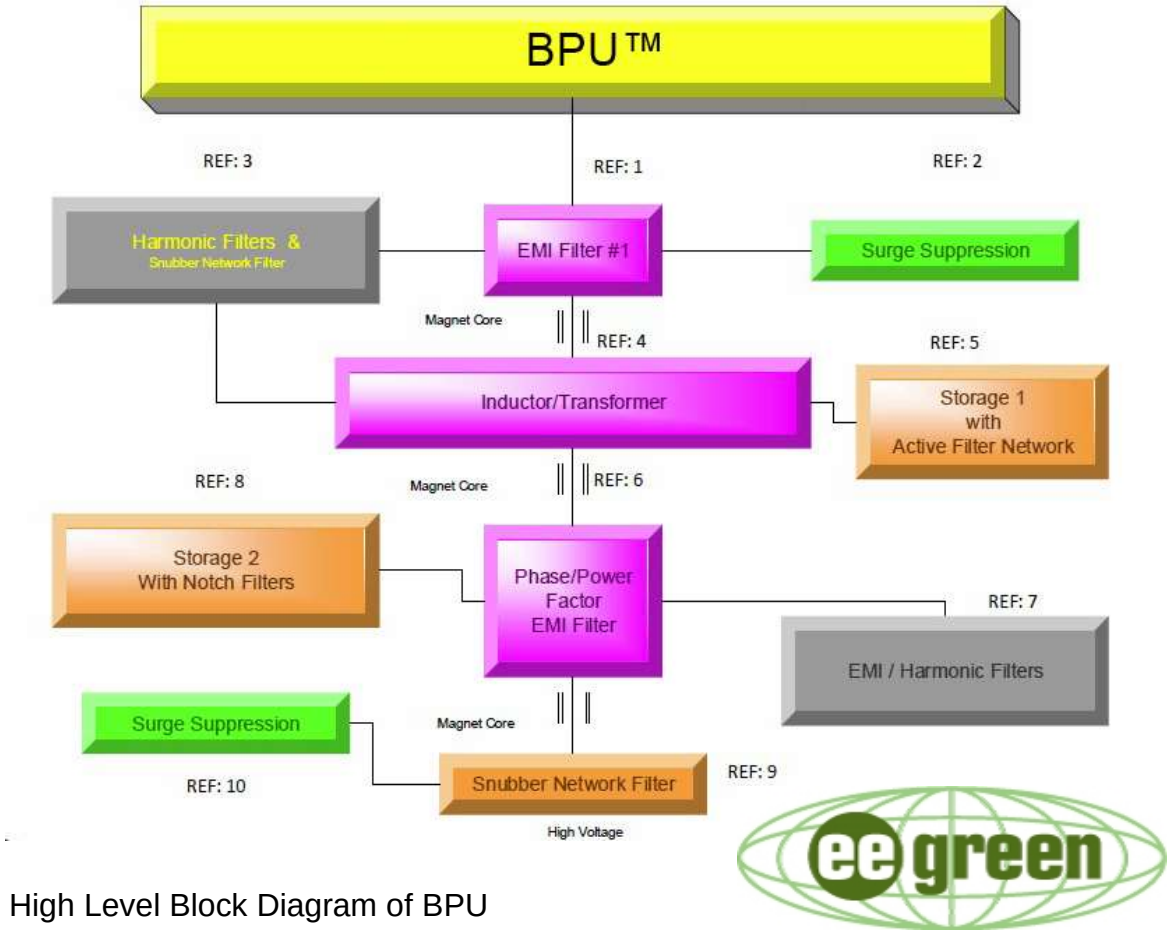
Features of the BPU

The BPU provides key features, all of which interact to provide kilo-watt (kWh) reduction:



The BPU has no known equal because of the ability to take the reactive/wasted power and store and distribute that energy to each operating load. While competitors' devices may reduce amperage or act as a surge protection, they cannot use the reactive or wasted energy and achieve the additional benefits outlined above. The BPU provides the only known comprehensive solution addressing the problematic areas in Power Quality. To achieve similar the performance as that provided by the BPU would require many different devices integrated properly making the BPU cost and space competitive.

As it relates to how the BPU achieves these results, the following is a flow chart of the internal network.



High Level Block Diagram of BPU

The Iterative control transformer modules (Ref 4) represent the inductor. This inductor is connected to Storage 1, which is an Active Filter Network (S1). This provides for surge suppression as well as harmonic filtration. The Iterative transformer is also able to capture lost energy and store it for future use. The Iterative control transformer and Storage 1 provide for a voltage drop to Storage 2, which is with Notch Filters. Although Storage 2 acts as an EMI filter, it is primarily a notch filter stage setup for blocking out spikes with the harmonic section. The last stage (Stage 3) is designed for power factor correction, working in conjunction with the other stages. The voltage drop from the Iterative Control Transformer, in parallel with Storage 1, reduces the size and number of capacitors required for power factor correction for the whole facility. It also eliminates harmonics and transients that could adversely affect the larger capacitor bank (Storage 2).

The Iterative Control Transformer also acts as a clamp during inrush conditions. For example, if the main breaker is turned off and suddenly is turned on, all the loads in the facility would be activated. The BPU will clip the peak current inrush demanded by the loads by releasing the power saved by the charged capacitors in the Stage 3 locations.

Harmonic Currents

With the growing use of semi-conductors in the industry, it greatly improved the efficiency and the precision of electrical equipment. Therefore, semi-conductors are changing the nature of the sinusoidal and generate harmonic currents.

Harmonic currents create disruption on the distribution network and can cause breakage of certain types of electrical equipment such as capacitors, motors and transformers.

1. Those harmonic currents which are the dominate harmonic orders created by three phases nonlinear loads – 5^{th}, 7^{th}, 11^{th}, 13^{th} and higher odd harmonics which are not multiples of 3.
2. . Those harmonics create primarily by single phase nonlinear loads – 3^{rd} order harmonics and higher multiples of 3. These are sometimes referred to a “triplen” or “zero-sequence” harmonics and are usually accompanied by a 5^{th}, 7^{th}, and other higher order harmonics.

“THERE’S POWER, THEN THERE’S BETTER POWER”