

## **INTRODUCING THE *NEXTEK* POWER SYSTEM**

Nextek has advanced the state-of-the-art of electrical power service by creating a multi-function building-side interface that enhances the value and quality of electric end-use service. This advanced system improves power quality while functioning as an economical interface device for a variety of potential power sources - in time for our changing electric power infrastructure.

Nextek offers a significant advance over the limitations in conventional, single standard AC building electrical systems. Such systems were derived to satisfy the need for transmission from a central generating facility and are not flexible in handling more than one power source outside their transmission and distribution network. Nextek has overcome these limitations and expanded the value of the electric service by creating a building-side power interface that specifically addresses the limitations of the conventional AC-powered system.

The Nextek system has many new and important implications. With its flexibility and efficiency, a variety of attractive power options become viable that would have proved un-economical in the past. These include the economic use of electrical storage to compensate for outages and power peaks, the ability to connect conveniently to alternative energy sources (ie. solar PV) without the burden of complicated rewiring and costly interfacing, and the use of building-resident decentralized generating systems without the high connection costs.

## **COMMERCIAL AND INDUSTRIAL LIGHTING**

Nextek's entry into the power market is directed to in commercial and industrial lighting. To satisfy this large domain, Nextek offers its power modules with a complement of advanced electronic ballasts. This includes support for T5, T8, and T12 fluorescent lamps as well as high intensity discharge (HID) up to 400 watts.

Nextek's dimmable HID lighting has the advantage of being immune to chronic transient shutdowns. This common fault results in long re-start times and has restricted their use to non-sensitive applications. Nextek's system overcomes this long-standing challenge and opens HID lighting to a much wider range of applications. In addition, Nextek's ballasts are a fraction of the size and weight of conventional HID units affording dramatic reductions in the cost of fixtures and greater esthetic appeal.

## THE *NEXTEK* CONNECTION

The key component of Nextek's power system is its power module. It unobtrusively connects between the power panel circuit breakers and the electrical loads, providing the functions for multiple power source connectivity with the ability to isolate power quality corruptions in the power line while cleaning-up "dirty" building power service. It also provides ultra-high voltage regulation on the service side; eliminating brownout problems, power robbing, and over-voltage situations found in some building environments. While the individual units are small, they are not constrained to any upper service size limitations. Power modules may be distributed within the building environment to accommodate any electrical demand. This includes commercial, industrial, and residential size applications.

Nextek's power modules are designed to automatically utilize any conventional AC or DC building input voltages from 208 V to 277V. This provides a flexible platform for a myriad of power standards. In addition, the power modules have an additional power input terminal for alternative power sources in the range of the DC load voltages. This allows the primary and secondary power source to work proportionally together. In this way, the primary power complements the secondary source to support the service loads.

## CONSIDER THE ALTERNATIVES

This system works well with variable intensity power sources such as solar and wind, where cloud-cover and wind variability may render them insufficient to support the entire load alone. In the Nextek system, alternative sources are directly connected to the load electronically with exceptionally high efficiency (>98%) and in preference to the primary line power source. This insures maximum utilization of the alternative source for the best return on investment, achieving maximum payback-value from the alternative source.

## FACING UP TO OUR DC WORLD

The discovery of semiconductors and the invention of the transistor, along with the growth of electronic appliances have triggered a quiet but profound revolution in how we use electricity. Changes over the last half-century have brought the world into the electronic era with more and more appliances operating internally on DC power. This has required conversion inside or outside the appliance to allow them to function. One of the profoundest impacts is electronic ballasted lighting, which is intrinsically operational on DC power and may account soon for as much a 30% of the power generated in the US. Nextek acknowledges this revolution with its ***future-proof*** universal interface that promises far greater economy and energy serving security.