

## POS “Green” White Paper

### Executive Summary

All vertical markets deploying POS solutions are looking for ways to develop, enhance and support new environmental policies. Hospitality, retail, healthcare, convenience store, cinema and kiosk markets are increasingly aware of their responsibility toward Green business practices and are searching for “green” point of service (POS) vendors to partner with.

What makes a POS vendor “green” and what attributes of their products contribute to this designation?

This paper addresses the basics of Green POS including product design, the manufacturing process, recycling, services that promote product maintenance, and future directives that will drastically change the POS marketplace. Of special note is the move towards fan-free POS terminal and newer CPU chipsets and how they affect energy savings as part of a green solution.

### Fan-free POS terminals consume less energy and pay for themselves

In 2006, the POS industry hit a key benchmark by releasing the first 1.0 GHz-based CPU terminal with a ‘fan-free’ design (Posiflex KS6115). Using ‘fan-free’ systems in conjunction with an embedded CPU meant lower wattage power adaptors were used, reducing energy consumption. As fan-free designs evolved and more efficient CPUs were developed, the reduction in energy usage continued. These improvements, coupled with today’s efficient RAM, HDD, SSD and component-level designs, equate to a system that draws less power, up to 50% less than traditional fan-based systems. This not only helps conserve energy, but increases reliability and over the life of the terminal this design produces an energy dollar savings of many hundreds of dollars.

*“...energy savings alone can virtually pay for the replacement cost of a new terminal!”*

*Ryan Boyd, Manager,  
Product Development Team, Posiflex Business Machines*

The table below compares the average energy savings between a typical fan cooled system and an award winning fan-free system (Posiflex KS-6215, Best Channel Product).

Compared to a typical fan-cooled POS terminal the KS-6215 would save \$164 in energy expense in one year. Over just a three year warranty time period, the savings would be almost \$500 per terminal. Over a seven year terminal life the savings would be over \$1000 per terminal. Imagine that energy savings alone can virtually pay for the replacement cost of a new POS terminal!

Energy Expense per Terminal (Note)			
	Typical fan-cooled POS terminal	2009 Best Channel Product All-in-One category, fan-free KS-6215	Savings
Annual Expense	\$375	\$211	\$164
3 Years Expense	\$1125	\$633	\$492
7 Years Expense	\$2625	\$1477	\$1148

*Note: Energy expense data from testing under conditions of no load idle and 100% load. Energy expense figures are an average of the two energy states.*

Note that the above figures are for one POS terminal. But the typical location has two, three or more terminals per location and when multiplied by multiple stores in a chain or franchise this savings also magnifies.

Not all POS hardware is so efficient. Many manufacturers do not have the design capabilities or nimbleness to produce cutting edge products.

### **Design and Manufacture as a Green Strategy**

Some hardware vendors in the POS market only integrate existing components off the shelf into their designs, and cannot guarantee the longevity of any component production batch or design. They are at the mercy of 3<sup>rd</sup> party manufacturers and the whim of the fast paced electronic marketplace. To achieve a consistent standard of quality and to ensure the production of a Green product, a manufacturer must design its own circuitry, components and enclosures. With a commitment to POS technology leadership, products can provide enhanced performance, cost savings, reliability, green design and exceptional quality. These attributes never go out of style and customers are increasingly considering the Total Cost of Ownership, including energy savings, in their POS system purchases. The result of a good design and manufacture strategy has brought to the global POS market award winning, cost-effective POS terminals that are also energy efficient and thus very green.

*“Green” POS products can only be achieved through excellence in engineering. Merchants will benefit from increased energy savings and the reduced energy consumption also benefits the environment.”*

Steven Young, CEO,  
Posiflex Business Machines

### **Compliance with European Restriction of Hazardous Substances (RoHS)**

In 2006, the Restriction of Hazardous Substances (RoHS) Directive was established in Europe to restrict the use of six hazardous substances in the production of electronics equipment and improve the disposal of electronic products. The Directive’s fundamental goal was to minimize environmental aggravation and the dangers associated with occupational exposure to hazardous substances. Pioneers in the POS manufacturing industry achieved RoHS certification in the early stages of the directive. In addition to the components themselves, the final products should

have no lead in the material finishes or the wave solder process. This created specific challenges for design engineers, such as having to work with higher bonding temperatures in wave solder. The best solutions involve high temperature bonding that does not compromise the longevity of the electronic components. Also restricting lead content in solder increased the likelihood of cracks, which is not typical for solders containing lead. Cracks could occur due to thermal or mechanical forces acting on components or the circuit board, the former being more common during manufacturing and the latter in the field. To counter this effect required expensive retooling of assembly lines and different platings for the leads of the electronic parts.

### **Recycled and Recyclable Materials**

To be considered “Green”, manufacturers must recycle electronic components used in the manufacturing and distribution processes and use recycled and recyclable materials in the finished goods. In some POS terminals, dark plastics such as the base and bezel are composed of recycled material and the aluminum in the chassis and base is recyclable.

Some POS hardware has been specifically designed for greater ease of disassembly and recycling for the consumer. Local recycling facilities are able to ensure that all monitors, plastics, and electronics are properly disposed of according to environmental regulations and provide the appropriate documentation.

### **Reliability and Longevity through Serviceability and Services**

If the POS products introduced to the market are more reliable, this will translate into the disposal of fewer obsolete products. Customers are demanding hardware built to help them expand and upgrade their POS solutions to ensure a longer life cycle. There is more demand for products that last beyond 5 years, and the new expectation is 7-10 years of usefulness. To create reliable products, manufacturers must design products that do not generate as much internal heat or produce undue friction. They must use components and materials that do not degrade sooner than expected. The assembly process cannot be sloppy and strict QA directives must be maintained. They must make a product that lasts. Reliability is achieved as a result of accelerated life cycle testing and stress testing in independent test labs, as components and designs are continually modified until a product passes a reliability benchmark and is deemed fit for release.

“DBS has experienced 0.07% failure rate during the warranty period with over 2200 Posiflex POS terminals installed”.

-Bill Fultz, Operations Manager

(Cover story, Business Solutions magazine, July 2009)

To extend the useful life of POS hardware, the channel requires services that enable resellers to provide responsive customer support for systems maintenance. Many vendors offer 3 year warranties as standard and some offer more advanced options, such as equipment swap programs, on-site service, coast to coast depot repair and automated IT systems software. With additional support, resellers are able to efficiently maintain the high uptime goals that customers demand. Besides the benefit of maintaining systems, service programs have allowed resellers to expand their territories without expanding IT staff. Todd Brokenshire of POS Leaders and his customers take advantage of

an Advanced Exchange contract with every terminal. “It allows me to have peace of mind and my customers have peace of mind.” (Posiflex video testimonials from VARs, corporate website)

## **Developing Standards**

New directives are being formed in the European Union having to do with a new product designation- Energy Using Products.

“It is generally acknowledged that the production, distribution, use and end of life management of energy-using products (hereafter EuP) is associated with a considerable number of important impacts on the environment such as climate change linked to energy consumption, consumption of other materials and natural resources such as water, waste generation and release of hazardous substances to the environment. It is estimated that over 80% of all product-related environmental impacts are determined during the product design phase 1. Integrating environmental considerations as early as possible into the product development process is therefore the most effective way of introducing changes and improvements to products.”

*Proposal for a DIRECTIVE OF THE EUROPEAN  
PARLIAMENT AND OF THE COUNCIL*

*On establishing a framework for the setting of Eco-design requirements for Energy-Using Products and amending Council Directive 92/42/EEC*

To prepare for these new directives, leading edge manufacturers are moving to LED backlight panels for touchscreens, thus eliminating mercury contained in cold cathode fluorescent lamps (CCFLs), and are also moving towards halogen-free manufacturing by working on non-halogen printed circuit board coatings. Also in suspend mode, power consumption will need to be below 1 watt as of July 2010 and below 0.5 watt as of Jan. 2012. Clear and well considered direction to all industry players on target environmental criteria will facilitate collaboration and minimize disruption of innovation. Done properly, such industry standards or protocols can simplify and stimulate innovation and result in synergy such as seen with the development of the Internet. Done poorly or overtly politically such directives can impede innovation.

## **Green Leadership in POS Supply Chain**

The Best-of-Breed companies have continued to invest in product design and manufacturing processes and give customers the tools they need to help implement their own environmental policies. Many channel partners are offering Green workshops and producing lists of Green POS vendors that recognize environment, safety, and health as prerequisites to a successful business.

Manufacturers are optimizing the sustainability of packaging materials and initiatives that require 3<sup>rd</sup> party suppliers to coordinate their operations within a greening management system, thus ensuring the implementation of environmental-friendly policies in their factories.

How is Posiflex participating in Green leadership?

### **Posiflex Green POS Green Earth**

The company has adopted the ISO Quality Management System and has achieved ISO 9001/9002/14001/IECQ QC 080000 certification at its laboratory and two factories in Taiwan. Posiflex design and manufacturing innovation has earned many national and international awards and is supported by 30 patents worldwide covering secure, integrative, flexible and easy-to-use features.

“Posiflex launched its own greening management program – Green POS Green Earth – that recognizes environment, safety, and health as prerequisites to a successful business.”

Owen Chen,  
Founder and CEO, Posiflex Technology, Incorporated

As an early adopter of the European Union’s RoHS Directive, Posiflex became one of the first POS manufacturers to achieve certification. In addition, 100% of POS products shipped by Posiflex since 2006 have contained no lead in material finishes. Also lead has been removed from the wave solder process.

In 2007 Posiflex launched its own greening management program – Green POS Green Earth. This program provides a framework for vendors in the Posiflex supply chain to coordinate their efforts in adopting green processes and policies consistent with Posiflex processes and policies. Posiflex is characterized by POS Technology Leadership and designs products for Reliability and Longevity which is the essence of being Green where it counts, with the environment and customer’s bottom line. Posiflex recognizes that environment, safety, and health are prerequisites to a successful business.

As a leader in POS terminal design, Posiflex is in an excellent position to further enhance energy efficiency by leveraging the same CPU energy monitoring chipset features as other top tier manufacturers (IBM ,NCR). Posiflex has already achieved 50% energy savings through hardware design and expects use of software design to push the savings to well over 50% compared with fan-cooled POS terminals.

For two consecutive years in the VAR readership surveys conducted by Business Solutions Magazine in 2009 and 2010, Posiflex won Best Channel Vendor recognition in the POS Hardware category. Over 1600 VARs voted in 2009 and over 2100 voted in 2010. A significant differentiator for Posiflex is that of the POS terminal vendors that were rated ahead of the pack in the survey (Posiflex, HP, Elo, CRS, POS-X, Touch Dynamic ) only 3 received VAR votes about reliability and product features. These were Posiflex, HP, and Elo. The others were mostly recognized for having a good channel program and for being channel friendly. The KS-6215 won Best Channel Product 2009 in the All-in-One POS Hardware category and will be submitting a new model for the 2010 vote in April.



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VAR testimonials Posiflex Business Machines website: <http://www.posiflexusa.com/bsm09bestvndr.php>

*Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL On establishing a framework for the setting of Eco-design requirements for Energy-Using Products and amending Council Directive 92/42/EEC*

<http://www.aeanet.org/Forums/EuPENForum+.pdf>