

# **WIRELESS PRINTERS GIVE MANUFACTURING, WAREHOUSE, AND DISTRIBUTION CENTERS INFINITE FLEXIBILITY**

The wireless revolution has changed the way companies do business, but perhaps no place more so than in the industrial/manufacturing segment. These businesses are saving significantly more time and money than other business sectors by utilizing wireless technology.

Wireless is opening up new possibilities, some of the most dramatic with bar code printers. In a large facility, it can cost up to ten-times the purchase price of the printer to run network cable to a remote location in the plant. Because of this, printers are sometimes placed across the room from the workstation that needs the labels—there is no cost-effective or even physically possible way to run network cable to the desired location. In other cases, the overall design of manufacturing lines is constrained by the limitations of the wired infrastructure reducing the effectiveness of the line.

Wireless technology removes the limitations allowing printers to be placed anywhere in the plant and immediately connected to the network. There are no additional costs for rewiring and technicians to relocate or install a new printer. When wiring from behind-the-wall to the network, it can be very time consuming just to locate the appropriate route and connections. The possibility of failure due to frayed or damaged wires must also be considered. Reducing the probable causes of communication problems increases production for the customer and reduces maintenance time and expense.

But it takes more than a wireless radio attached to a printer to make a printer fit in harsh environments. There are five key areas to consider for successful implementation of a wireless printing system in an industrial setting:

- Printer design and antenna integration
- Coverage
- Site Surveys
- Network Security
- Ease of initial setup & configuration

## **INDUSTRIAL FROM THE GROUND UP**

It starts with the printer, which needs to be built with a rugged metal case to withstand the harsh conditions found in manufacturing, industrial, and warehouse environments. The radio needs to

be protected inside the case to avoid damage and the antenna needs to be durable, but easily replaced if damaged. It should also be an industry-standard 802.11 radio that will work seamlessly with existing wireless infrastructures.

Most of the wireless printing solutions available today are either light-duty printers with plastic cases or industrial printers with radios strapped to the outside. While they provide wireless printing, there's a high possibility of damage that will bring the printer—and the manufacturing line—down.

So a wireless printing system needs to be designed specifically for the harsh environment it will encounter. However, that rugged design can create problems with coverage.

### **Coverage**

A metal case will block the radio signals from at least one direction if the antenna is part of the internal card or tucked behind the printer. The antenna needs to sit above the printer to maintain 360-degree coverage.

Every industrial environment is different with a variety of physical and material factors that will affect radio signals, so having a variety of antennas available is critical in getting the best possible coverage. Perhaps a directional antenna is the most effective—or maybe an omni antenna is best. Having an array of antenna options that are easily changed is critical to ensure good coverage in a variety of environments.

### **Professional Site Surveys**

As companies consider implementing WLANs and wireless printing, they need to assess if they have the expertise in house to successfully conduct a site survey as well as install the access points and configure the devices. In most cases, the best course of action is to bring in experienced professionals, like Intermec's Professional Services team or Certified Partners, to conduct the site survey and install the equipment.

Even experienced IT managers cannot predict the wide array of problems that can be encountered installing a wireless system. A wireless professional can design the precise layout of access points and antennas to ensure a strong signal and fast throughput no matter where devices are in the space.

There are many potential pitfalls to look for. For example, in a warehouse what is stored and how it's being stored creates challenges. A warehouse with boxes of jeans stored one on top of the other to the ceiling creates an RF absorbent "wall" which will soak up the signals like a sponge, requiring the placement of directional antennas down most aisles.

Finding a source that can put together your entire wireless network and devices can save time and money.

### **Secure Printing and Network Infrastructure**

Standardization is the key to any wireless printing solution. Radios should be industry-standard

802.11b, providing 64 or 128-bit WEP encryption of the information relayed through the network to the printer.

Since wireless printers are usually installed on an existing wireless network with security in place—which will keep the new device off the network—you need to be able to easily configure the printer at its location. An external 9-pin RS232 printer port ensures that the radio can be configured on the network—even when security is on—using a laptop computer with a serial cable. This is the most reliable, secure way of configuring a wireless printer.

Easy installation and configuration by default, EasyLAN™ Wireless uses Dynamic Host Configuration Protocol (DHCP) functionality. This allows the printer to be assigned a reusable IP address automatically from the host system. By simply pressing a test button a label will print displaying the configured radio and network parameters including the printer's IP address and wireless network settings. With its 9-pin RS232 printer port, you can use a laptop with a serial cable to quickly set up the printer without turning the wireless network security off.