

White paper

Guide to Industrial Wireless Printing

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.

EasyLAN Wireless: True Industrial Wireless Printing

Intermec's EasyLAN™ Wireless interface reduces the time and cost required to install a networked bar code label printer. It is ideal for production facilities and flexible automation work cells that require a label printer to be relocated as needed, not just where there's a wired network.

The printer's radio is completely enclosed within its rugged steel case, protecting it from harsh industrial environments. Only the antenna using an industrial reverse TNC connector is exposed, maximizing the wireless transmission while minimizing the potential for damage to the internal radio board. The antenna can be easily replaced by simply screwing a new antenna into the back port of the printer, reducing maintenance time and cost.

EasyLAN Wireless supports three different wireless LAN antenna configurations, allowing customers to choose the optimal design for clear transmission in difficult areas such as long corridors, outdoors or in factories and warehouses with heavy concentrations of metal equipment or shelving.

Quick Return on Investment

Intermec's EasyLAN Wireless interface can be either factory configured at time of purchase or it can be field installed later by a certified Intermec Partner or Service Technician. In an environment with an existing wireless infrastructure, it is much more cost effective to install a wireless printer than to rewire new network drops to move or accommodate additional wired printers. Intermec's EasyLAN Wireless option is available with the EasyCoder 3400e, 4420, 4440, PM4i, and PF-series printers.

EasyLAN Wireless printing products remove the limitations of wired printers:

- EasyLAN Wireless is a true, rugged, industrial printing solution
- Utilizes an industry-standard internal 802.11b radio
- Has a variety of easily-changed antennas for optimum coverage
- Has 64 or 128-bit WEP encryption plus 802.1x TTLS for network security
- Is easy to install and configure
- Quickly pays for itself
- Is built on proven Intermec wireless and printing technologies.

Intermec Wireless Products

EasyLAN Wireless is an integral part of Intermec's wireless family of products – the broadest portfolio of Wi-Fi certified wireless products in the industry. Each member of the wireless family is backed by a tradition of innovation and service in wireless technology.

- MobileLAN access points deliver reliable wireless performance to virtually any operational environment.
- MobileLAN card11 is an 802.11b high-rate PCMCIA card with encryption security up to 128-bits.
- MobileLAN manager is a platform-independent wireless network management application that facilitates enterprise, LAN, and element management for MobileLAN access points.
- MobileLAN power enables you to install a wireless LAN without running AC power to the access points, saving up-to-half the cost of installation.
- MobileLAN secure is a complete software/hardware security solution for wireless LANs that is scalable from small systems through cross-enterprise deployment.
- MobileLAN voice lets mobile workers communicate by voice as well as share data over wireless LANs.
- Intermec has more than 25 years of experience developing and installing wireless systems. With over 250,000 wireless installations—including NASA (the world's largest wireless LAN), Hertz, and BMW—Intermec is the leader in wireless technology.

For more information on Intermec's EasyLAN® Wireless printing and other wireless products, visit www.intermec.com or call 800-347-2636.

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