

BELDEN

SENDING ALL THE RIGHT SIGNALS



Belden[®] Wireless Solution

Introducing the Belden® Wireless Solution

Wireless LAN (WLAN) enables mobile users to connect their laptops, PDAs, and wireless phones to the enterprise network instantly and effortlessly anywhere in the enterprise. However, using WLAN in a large enterprise has been hindered by the challenges of current WLAN technology, such as poor coverage, low capacity, high latency mobility, and expensive site-survey and maintenance costs.

The Belden WLAN introduces a completely new, patented, Interference-free architecture that eliminates the coverage and capacity limitations and tradeoffs of traditional WLAN architecture. The need for cell planning and site surveys, a highly expensive aspect of owning a WLAN, is also eliminated. In addition, Belden's novel approach does away with most of the WLAN maintenance. The Belden WLAN is specifically designed to provide increased network capacity, seamless mobility, high level of security, and easy installation and configuration.

Overview of the Belden WLAN System

The Belden WLAN consists of a wireless switch (BWS-8008/BWS8024) and APs (BWAP-200). The Belden WLAN system architecture replaces the concept of a cell planning based AP deployment topology with blankets of continuous coverage for the entire enterprise.

Blanket coverage provides full coverage of a WLAN deployment area with multiple *Channel Blankets*. In this *Channel Blankets* based system, every AP throughout the deployment area uses the same channels. This kind of solution is enabled by Belden's advanced technology.

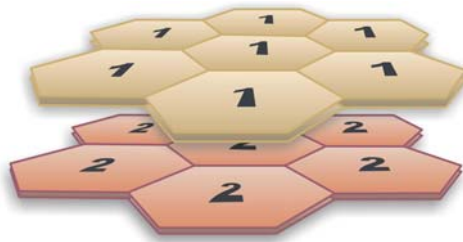


Figure 1. Two Channel Blanket Coverage

The Belden® WLAN system is centrally controlled by the switch, where the system intelligence is located. Controlling the system is straightforward and easy to install and configure. The minimal configuration required is performed via a dedicated, secured Web interface.

Features and Benefits

The Belden® WLAN system solution offers the following features:

- **Ease of deployment - No cell planning, no RF site surveys**
Belden's patented Interference-free architecture requires no cell planning, and allows ubiquitous placement of APs wherever convenient. There is no need for RF site surveys or maintenance, eliminating a significant cost of deploying and owning a WLAN.
- **Uplink Access Point diversity**
Belden's patent-pending uplink AP diversity selects the best AP to process a wireless device's packets on a per packet basis. APs may be added at will, providing complete coverage, while avoiding co-channel interference.
- **Multiple channels**
Belden's Interference-free architecture provides multiple channels everywhere in the enterprise. The result is multiplied, aggregate capacity in separate channels that can also support separating voice from data traffic. Furthermore, Belden's solution supports multiple channels in the same frequency band at each AP (for example, channel 1, 6 in 2.4 GHz frequency band).
- **Zero-latency roaming**
In a Belden WLAN, wireless device remains on the same channel everywhere in the enterprise. Inter-AP handoffs occur without any delays or packet loss, permitting a highly secure WLAN (using advanced encryption and authentication methods), without affecting user mobility.
- **WiFi collaboration**
Belden's patented WiFi Collaboration technology overcomes the difficulties of using RF for data networks. By placing multiple APs on the same channel and making intelligent decisions at the Wireless Switch, a Belden WLAN avoids interferences, is very tolerant to RF instabilities, and transparently provides network redundancy.
- **Dense AP deployment**
In a Belden WLAN, APs can be deployed densely without increasing the interference. This allows users to always be close to an AP. The result is high data rates and reduced power consumption for hand held-devices. Furthermore, Belden's system allows you to define a transmitted data rate that is guaranteed to be the minimal data rate transmitted by the APs throughout the coverage area of the enterprise. Belden's ability to provide a dense AP deployment allows these minimal data rates to be defined with high values while still providing excellent coverage.
- **Wire-line quality VoWLAN**
Belden Interference-Free architecture is perfectly suited for VoWLAN providing zero-latency mobility, voice and data separation, reduced power consumption, and high RF resiliency, all together resulting in superior voice performance.
- **IEEE 802.11i support**
Belden products support WEP-64, WEP-128, WPA-TKIP, WPA2-AES (CCMP) encryption. The authentication modes supported are: RADIUS (802.1x) and WPA Pre-Shared Key (PSK).

Features and Benefits (Cont'd)

The Belden® WLAN system solution offers the following features:

- **Power save**
Full power conservation management is enabled for associated mobile devices over unicast, multicast, and broadcast frames. For multicast and broadcast frames, the DTIM (Delivery Traffic Indicator Message) period is configurable.
- **2-Channel support within a single band**
2 channels within a single band are supported for all bands, as defined in 802.11a, b, and g. This enables the Belden system to transmit on 2 different channels within the same band.
- **Centralized configuration**
New switches are added to the network via a single Web interface either manually by the user, or automatically using a Belden protocol.
- **System redundancy**
Belden enables full redundancy by connecting two switches in parallel to different APs over the same area. The switchover parameters are user-configurable, and the Active to Standby switchover is seamless to the user.
- **Enhanced SNMP traps**
The Belden system supports SNMP traps, enabling the user to determine the status of the system, including the status of APs and Redundancy statuses.

Summary

The Belden WLAN is perfectly suited for any enterprise WLAN deployment. It eliminates the cost and complexity of cell planning and site surveys. The enterprise is completely covered with a high-capacity, wireless network that seamlessly scales up as new areas of coverage are needed. Additionally, the Belden WLAN system provides seamless mobility, a high level of security, and easy installation and configuration.

Overview of the Belden® Switches

The Belden BWS-8008 and the BWS-8024 switches provide central control and configuration of the WLAN. The switches implement the Interference-free architecture in the Belden WLAN. With the BWS-8008 switch you can connect up to 8 APs, providing two blankets of continuous coverage for the entire enterprise and with the BWS-8024 switch you can connect up to 24 APs, providing two blankets of continuous coverage for the entire enterprise.



Figure 2. Belden BWS-8024 Switch



Figure 3. Belden BWS-8008 Switch

The switch avoids co-channel interference, overcoming the limitations of traditional WLAN systems. WiFi Collaboration technology enables the switch to dynamically adapt to the changing RF environment and control the APs on a packet-by-packet basis. The need for WiFi cell planning is eliminated.

Configuring the entire enterprise deployment can be as simple as configuring a single AP, greatly reducing the effort required to deploy and maintain the WLAN.

The minimal configuration required for the switch is performed via a dedicated secured Web interface.

Overview of the Belden® XtraThin™ Access Points

Belden APs (BWAP-200) enable Belden's Interference-free architecture. This architecture provides complete enterprise WLAN coverage, while eliminating co-channel interference. APs can be placed as close together as necessary to provide high-quality, high-speed connectivity from all locations within the enterprise.



Figure 4. Belden AP

Each AP contains two standard 802.11a/b/g radios supporting two simultaneous channels. Specifically, Belden APs can also support two different channels (frequencies) in the same band (for example, channel 1, 6 in the 2.4 GHz band), or alternatively, two frequencies from different frequency bands). These plug and play APs contain no software, and therefore require no specific user configuration or maintenance. If stolen, they do not pose a security risk. Since the APs are powered by the standard 802.3af Power over Ethernet (PoE), only a single CAT-5 cable connection is required to support two simultaneous radios.



Belden APs only function when they are directly connected to Belden switches.