



# HIRSCHMANN

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## Product Bulletin

**PB00062AG**

### **HiLCOS 9.12 WLAN Software from Hirschmann**

WLAN software designed to enable maximum stability for reliable and secure wireless connections in industrial applications.

**The WLAN software for Hirschmann's OpenBAT and BAT450-F industrial wireless devices includes new features to protect networks from malicious attacks, ensures reduced roaming handover time and provides wireless coach coupling.**

**A new product to  
serve your needs.  
Be certain.**



- **Enhanced security** – Systems and features to protect WLAN networks from new threats, identify the intruder and provide configuration scalability
- **Roaming enhancements** – New features to reduce roaming handover time
- **Wireless coach coupling** – Coach-to-coach coupling solution without serial bridging cable between the devices

With the recent enhancements to Hirschmann's HiLCOS 9.12 software, Belden continues to help industrial networks achieve wireless connections that match the reliability of wired solutions.

Through Hirschman's OpenBAT and BAT450-F families – which are supported by HiLCOS 9.12 – network managers can confidently use wireless technology in their mission-critical applications, when distance or environmental conditions make wired options too expensive or challenging.

In addition to reliability, securing wireless networks is vital to plant safety, data integrity and around-the-clock operation. The updated HiLCOS 9.12 software enables network managers to monitor and control human and machine network flows, while also protecting that traffic from unwanted threats or attacks.

### **Applications**

The HiLCOS 9.12 software is ideal for use in industrial environments where engineers, integrators, machine builders and plant operators need the network to communicate across long distances or in challenging environments.

Verticals markets – including transportation (railways), power transmission and distribution, oil and gas, renewable energy, machine building and hazardous environments – can benefit from the software's reliability and security features.

### **Customer benefits**

Through WIDS (Wireless Intrusion Detection System) additions, HiLCOS 9.12 hardens the network against malicious attacks and provides the flexibility of configuring and monitoring the WIDS functionality from the Wireless LAN Controller.

A rich set of new features provides improved wireless transmission quality for roaming applications.

The new option of monitoring wireless links helps reduce troubleshooting time and optimizes network performance and quality.

Additionally the wireless coach-to-coach coupling feature provides an automatic way to connect two access points via point-to-point link.



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## HiLCOS The Hirschmann™ BAT Operating System 9.12



HiLCOS 9.12 Software ensures maximum network availability and data security across wireless connections especially in mobile applications.

### HiLCOS 9.12 WLAN Software for Hirschmann OpenBAT and BAT450-F Devices

HiLCOS 9.12 is the new software version for Hirschmann's OpenBAT and BAT450-F industrial WLAN devices. It can be used to set up Wide Area Network (WAN) connections and hardware-encrypted Virtual Private Network (VPN) tunnels.

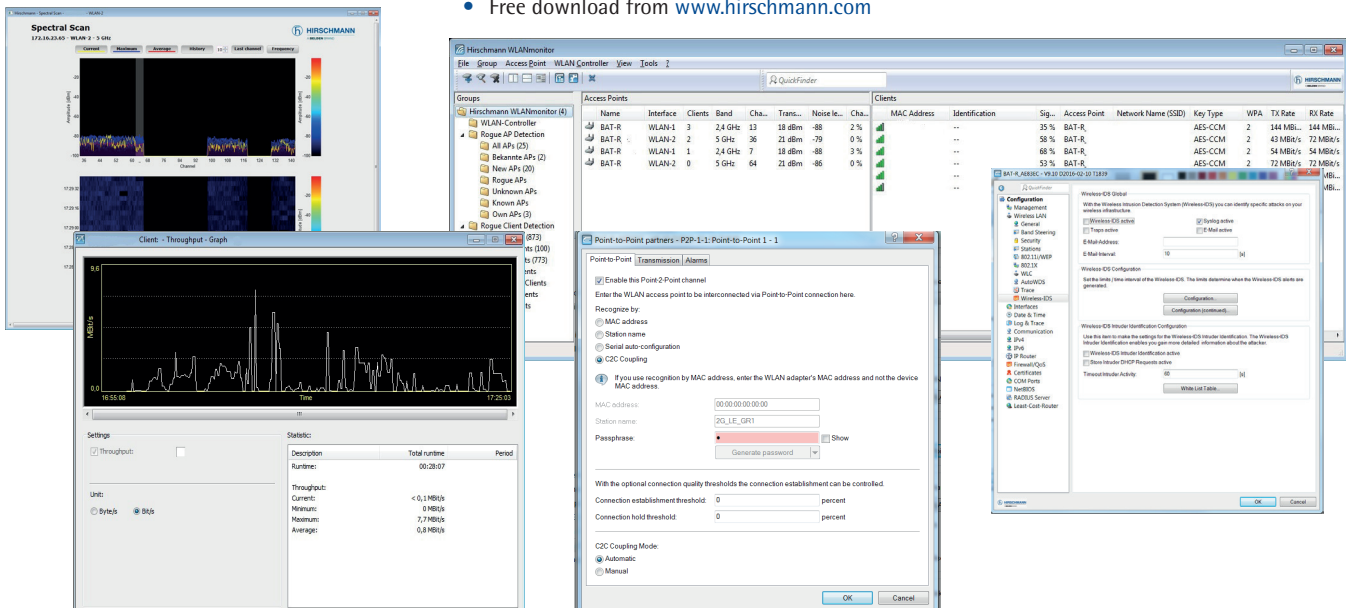
The software offers features well beyond basic WLAN functions, and the latest updates are based on more than 20 years of continuous development and improvement by Belden and Hirschmann experts.

The improved WIDS (Wireless Intrusion Detection System) features increase network security by:

- detecting new threats
- identifying the source and locating the attack
- providing scalability and ease of configuration by using the WLC (Wireless LAN Controller)

#### Benefits at a glance

- Enhanced security via additions on the WIDS to detect new threats, identify and locate intruder and configuration flexibility by using the WLC
- Roaming enhancements – prioritized channel scan, improvements for client bridge roaming support and advanced roaming configuration options
- Automatic way to connect two rail coaches via point-to-point link between two access points (wireless coach-to-coach coupling)
- Reduce troubleshooting time and optimize network performance with Wireless Link Status
- NAT 1:1 on WLAN interface
- Compliance to the new FCC regulations
- New country approvals for Thailand, Mexico, Australia, Indonesia, Malaysia, Algeria
- Extensive management functions via LANconfig, LANmonitor, WLANmonitor and Industrial HiVision
- Frequency analysis identifies potential disruptions in the 2.4 GHz and 5 GHz band
- Ideal for all access points and WLAN clients of the OpenBAT platform, BAT450-F devices and the BAT WLC controllers
- Free download from [www.hirschmann.com](http://www.hirschmann.com)





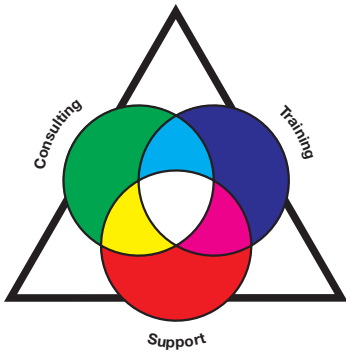
## Technical Information

Product Description	
Type	HiLCOS 9.12
Description	High performance operating system for the Hirschmann BAT products. Supports all WLAN functions, routing, firewall, VLAN, remote access, and redundancy. Introducing IPv6 routing. All OpenBAT devices operate as either standalone access points or as managed access points in combination with a BAT WLC Controller. The HiLCOS package includes cost free management tool LANconfig and monitoring tools LANmonitor and WLANmonitor.
WLAN	
Supported Radio Standards	IEEE802.11a/b/g/n
Regulatory support	Support of DFS according to EN301893 and TPC. Selectable country profile enables channel and output power settings according to regulatory demands. Semi automatic adjustment of output power according to antenna gain and max. EIRP limits.
Security	IEEE 802.11i / WPA2 with passphrase or 802.1x and hardware-accelerated AES, closed network, WEP64, WEP128, WEP152, user authentication, 802.1x / EAP, LEPS, WPA/TKIP. WLAN protocol filter. IEEE 802.11w Protected Management Frames. Wireless Intrusion Detection System, Notification via e-mail, syslog or SNMP trap. WIDS intruder identification. WIDS configuration.
Data rate	Support of 3x3 MIMO for OpenBAT devices allowing up to 450Mbit/s. Support of 2x2 MIMO for BAT300 devices allowing up to 300Mbit/s. BAT54 devices allow up to 108Mbit/s with turbo mode and 54Mbit/s in single operation. All in gross data rate with automatic fallback to lower data rates.
Roaming	Seamless handover between radio cells, IAPP support with optional restriction to an ARF context, IEEE 802.11d support. Dual radio roaming. Pre-authentication and PMK caching. Background scanning. Opportunistic Key Caching (OKC) for access point and client mode. Prioritized channel scan. Client bridge roaming support. Advanced roaming configuration options.
WLAN operating modes	
WLAN access point	Infrastructure mode (autonomous operation or managed by BAT WLAN Controller)
WLAN bridge	Point-to-multipoint connection of up to 16 wireless bridges (mixed operation optional), broken link detection, blind mode, supports VLAN. When configuring Pt-to-Pt links, pre-configured names can be used as an alternative to MAC Addresses for creating a link. Rapid spanning-tree protocol to support redundant routes in Ethernet networks. WLAN Coach-2-Coach (C2C) Coupling.
WLAN router	Use of the LAN connector for simultaneous DSL over LAN, IP router, NAT/Reverse NAT (IP masquerading) DHCP server, DHCP client, DHCP relay server, DNS server, PPPoE client (incl. Multi-PPPoE), PPTP client and server, NetBIOS proxy, DynDNS client, NTP server and client, port mapping, policy-based routing based on routing tags, tagging based on firewall rules, dynamic routing with RIPv2, VRRP.
WLAN client	Transparent WLAN client mode for wireless Ethernet extensions, e.g. connecting PCs or printers by Ethernet up to 64 MAC addresses. Automatic selection of a WLAN profile (max. 8) with individual access parameters depending on signal strength or priority.
WLAN Managed	Supported by all BAT WLAN Controller (separate optional hardware equipment for installation, optimization, operating and monitoring of WLAN networks).
WLAN Mesh	Automatic topology management for mesh-like networks with AutoWDS (requires WLAN Controller).
Security	
RADIUS server	Integrated RADIUS server for MAC address list management.
802.1x server	Authentication of an access point in WLAN client mode at another access point via 802.1x (EAP-TLS, EAP-TTLS and PEAP) EAP-server incl. CA available in BAT-Controller.
802.1x supplicant	Authentication of an access point in WLAN client mode at another access point via 802.1x (EAP-TLS, EAP-TTLS and PEAP).
Firewall	
Bridge	Stateful Inspection Firewall between bridged interfaces (z.B. WLAN clients), Notification via syslog or SNMP trap.
Router	Stateful inspection firewall, Packet filter with tagging, actions etc. Notification via e-mail, syslog or SNMP trap. Intrusion Prevention, IP spoofing, Access control lists, Denial of Service protection, URL blocker and password protection.
Quality of Service	
WLAN	Prioritization according to IEEE 802.11e
Redundancy	
Protocols	Parallel Redundancy Protocol (PRP) with advanced queue management, VRRP, Firmsafe, Analog/GSM modem backup, RSTP.
Routing	
Routing functions	OpenBAT: IPv6 router including support of VPN tunnels IPv4 router and dual IP stack for migration from IPv4 to IPv6. BAT54/300: IPv4 router
Supported protocols	DNS client, DNS server, DNS relay, DNS proxy DHCP client, DHCP relay and DHCP server with autodetection, DHCP option 82. Cluster of several BAT DHCP servers per context (ARF network) enables caching of all DNS assignments at each router NetBIOS/IP proxy policy based routing dynamic routing NAT N:N IP address mapping PPPoE server in LAN.
COM port server	
COM port forwarding	COM-port server for the serial RS232 interface. For a serial device connected to it, the server manages its own virtual COM port via Telnet (RFC 2217) for remote maintenance (works with popular virtual COM-port drivers compliant with RFC 2217). Switchable newline conversion and alternative binary mode. TCP keep alive according to RFC 1122 with configurable keep alive interval, retransmission timeout and retries.
WAN protocols	
Ethernet	PPPoE, PPTP (PAC or PNS) and plain Ethernet (with or without DHCP), RIP-1, RIP-2, VLAN, IP, dynamic DNS client, MPPE (with VPN option), VPN, MPPPoE
Management	
LANconfig	Configuration program for Microsoft Windows, incl. convenient Setup Wizards. Optional group configuration, simultaneous remote configuration and management of multiple devices over IP connection (HTTPS, HTTP, TFTP). Configuration program properties per project or user. Automatic storage of the current configuration before firmware updates. Detection and display of the HIRSCHMANN BAT devices.
LANmonitor	Monitoring application for Microsoft Windows for (remote) surveillance and logging of the status of BAT devices and connections, incl. PING diagnosis and TRACE with filters and save to file. Search function within TRACE tasks. Wizards for standard diagnostics. Export of diagnostic files for support purposes (including bootlog, sysinfo and device configuration without passwords). Graphic display of key values (marked with an icon in LANmonitor view) over time as well as table for minimum, maximum and average in a separate window, e. g. for Rx, Tx, CPU load, free memory. Monitoring of the BAT devices.
WLANmonitor	Monitoring application for Microsoft Windows for the visualization and monitoring of BAT WLAN installations, incl. Rogue AP and Rogue Client visualization.
WEBconfig	Integrated web server for the configuration of BAT devices via Internet browsers with HTTPS or HTTP. Similar to LANconfig with a system overview, syslog and events display, symbols in the menu tree, quick access with side tabs. WEBconfig also features Wizards for basic configuration, security, Internet access, LAN-LAN coupling.
Software	
Software	VPN supporting 5, 50 or 100 IPsec based VPN tunnels, PublicSpot, PRP



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## The Belden® Competence Center

As the complexity of communication and connectivity solutions has increased, so have the requirements for design, implementation and maintenance of these solutions. For users, acquiring and verifying the latest expert knowledge plays a decisive role in this. As a reliable partner for end-to-end solutions, Belden offers expert consulting, design, technical support, as well as technology and product training courses, from a single source: Belden Competence Center. In addition, we offer you the right qualification for every area of expertise through the world's first certification program for industrial networks. Up-to-date manufacturer's expertise, an international service network and access to external specialists guarantee you the best possible support for products from Belden, GarrettCom, Hirschmann, Lumberg Automation and Tofino Security. Irrespective of the technology you use, you can rely on our full support – from implementation to optimization of every aspect of daily operations.

### Always Stay Ahead with Belden

In a highly competitive environment, it is crucial to have reliable partners who are able to add value to your business. When it comes to signal transmissions, Belden is the No. 1 solutions provider. We understand your business and want to know your specific challenges and targets to see how effective signal transmission solutions can push you ahead of the competition. By combining the strengths of our five leading brands, Belden, GarrettCom, Hirschmann, Lumberg Automation and Tofino Security, we are able to offer the solution you need. Today, it may be a single cable, a switch or a connector, thus solving a specific issue; tomorrow, it can be a complex range of integrated applications, systems and solutions.

### About Belden

Belden Inc., a global leader in high quality, end-to-end signal transmission solutions, delivers a comprehensive product portfolio designed to meet the mission-critical network infrastructure needs of industrial, enterprise and broadcast markets. With innovative solutions targeted at reliable and secure transmission of rapidly growing amounts of data, audio and video needed for today's applications, Belden is at the center of the global transformation to a connected world. Founded in 1902, the company is headquartered in St. Louis, USA, and has manufacturing capabilities in North and South America, Europe and Asia.

For more information, visit us at [www.beldensolutions.com](http://www.beldensolutions.com) and follow us on Twitter [@BeldenIND](https://twitter.com/BeldenIND).

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