BATman reincarnated:

The new BAT54-Rail WLAN router.

- Maximum security and redundancy
- Perfected technology for industrial applications
- Extended temperature range: – 20° C up to + 50° C
- Two built-in wireless ports, compatible with all WLAN standards
- Sophisticated operating system
- Rail mounted

HIRSCHMANN

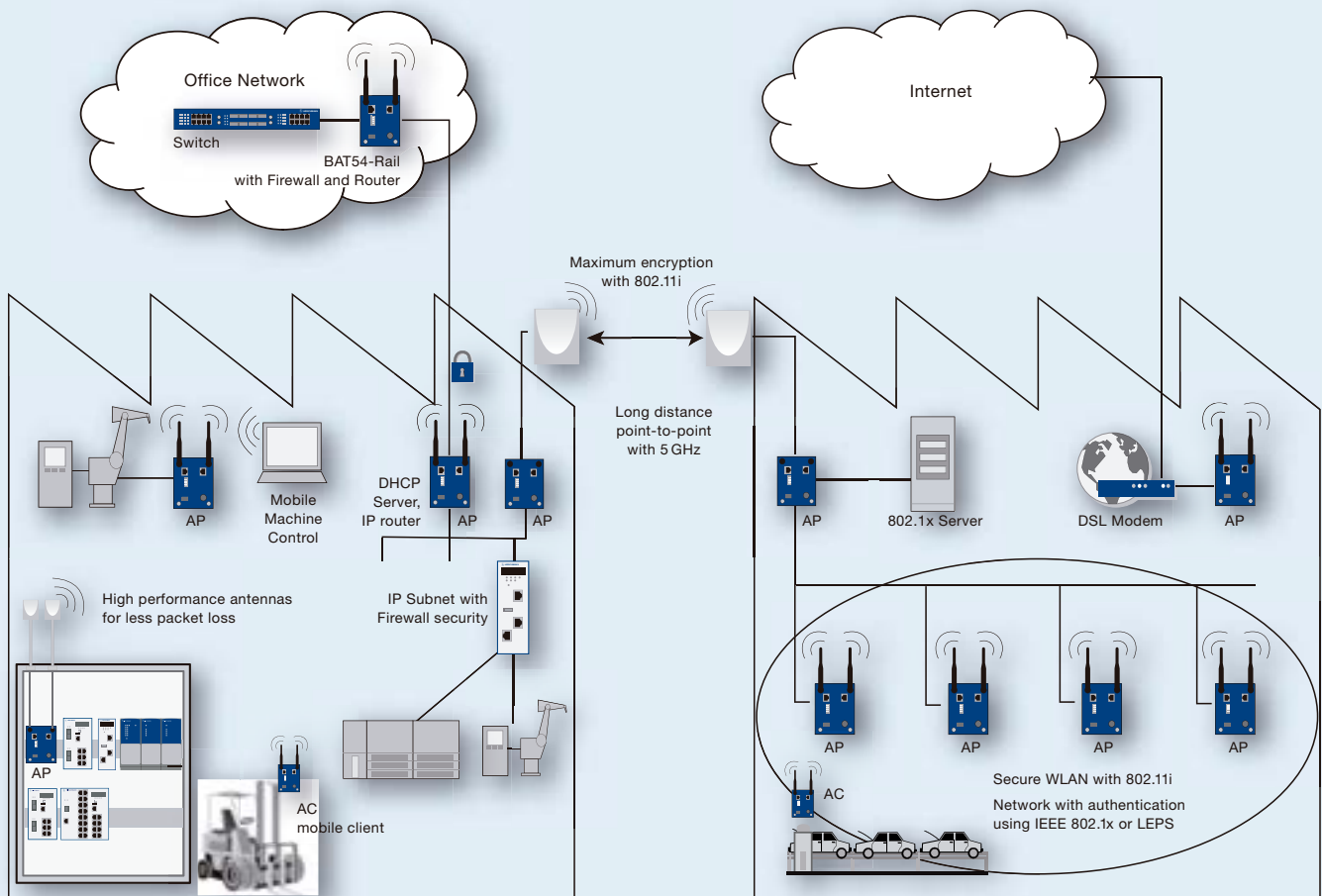**A Belden Company**

BAT54-Rail:
A truly versatile WLAN network.

The new BAT54-Rail devices can be used on new installations, expand existing LAN networks. Because wireless solutions offer such great flexibility, they can be used in mixed mobile and fixed networks.

The BAT54-Rail is the ideal solution wherever users need high bandwidth, stable operation and good network security.

Office Network

Switch

BAT54-Rail
with Firewall and Router

Internet

Maximum encryption
with 802.11i

Long distance
point-to-point
with 5 GHz

Mobile
Machine
Control

DHCP
Server,
IP router

AP

AP

AP

AP

802.1x Server

DSL Modem

AP

High performance antennas
for less packet loss

IP Subnet with
Firewall security

AP

AP

AP

AP

AP

AC
mobile client

AC

Secure WLAN with 802.11i

Network with authentication
using IEEE 802.1x or LEPS

DIN Rail mount in cabinet

BAT54-Rail –
Great functionality on the rail.

Very stable data transmission

Two built-in radio modules which use the 2.4 GHz and 5 GHz bands

Maximum security

The BAT54-Rail offers the full range of IEEE802.11i security mechanisms, authentication and data encryption

Extensive BAT-ANT antenna portfolio

The right antenna for every application – excellent performance and low packet loss

More than an access point

The BAT54-Rail also has additional features such as IP routing, fast-roaming and a firewall

Maximum operational reliability

Quintuple power supply redundancy and vibration-resistant housing

All applications in a single device

The BAT54-Rail offers great configuration flexibility; client and infrastructure mode and bridging can be set separately for each radio module

Management and monitoring

Comprehensive monitoring functions ensure problem-free WLAN network operations

Small footprint

The slim-line housing saves space on a DIN rail

Industrial-grade hardware

The best solution for installation on a DIN rail, at production machines or on board vehicles

Overview:
The Hirschmann BAT54 product portfolio.

BAT54-Rail

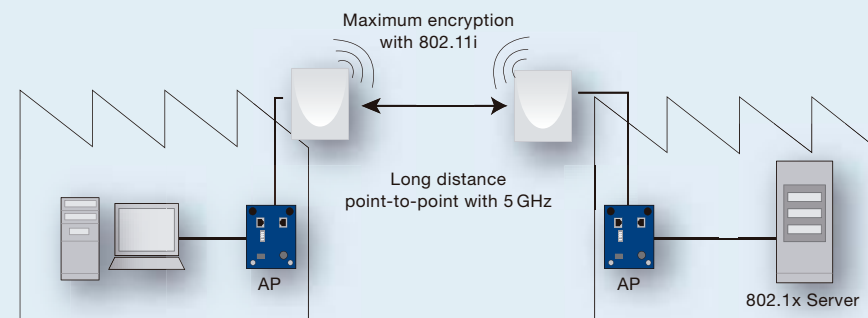| Product description	
Description	Dualband Industrial Wireless LAN Access Point/Client with two independent radio modules with IEEE 802.11a/b/g/h/i
Port type and quantity	two WLAN interfaces, up to 8 SSIDs per WLAN interface, two LAN ports 10/100 BASE-TX, autosensing, power over ETHERNET according to IEEE 802.3af, IP 40 housing
Type	BAT54-Rail
Order No.	943 926-001
Radio technology	
Antenna connector	four RP-SMA antenna connectors
Range	up to 20 km with external antenna (depending on type of antenna, frequency range and data rate)
Data rate	54 Mbit/s according to IEEE 802.11g (fallback to 48, 36, 24, 18, 12, 9, 6 Mbit/s, automatic rate selection), compatible to IEEE 802.11b (11, 5,5, 2, 1 Mbit/s, automatic rate selection), 802.11b/g compatability mode or pure g or pure b selectable; 54 Mbit/s according to IEEE 802.11a/h (fallback to 48, 36, 24, 18, 12, 9, 6 Mbit/s, automatic rate selection), super A/G with turbo mode (108 Mbit/s), bursting, compression, fully compliant to ETSI requirements with TPC and DFS
Encryption	IEEE 802.11i/WPA2 with passphrase or 802.1x and hardware-accelerated AES, user authentication by 802.1x/EAP or LEPS, IEEE 802.1x supplicant in client mode, WPA/TKIP, WEP, access control lists, WLAN port and protocol filter, RADIUS client and server, built-in firewall with QoS, port filter, protocol filter, IDS and DoS protection, PMK-caching and preauthentication for fast-roaming with IEEE 802.1x
Frequency band	two independent radio modules, each 2.4 Ghz and 5 GHz: 2400 – 2483.5 MHz (ISM) and 5150 – 5750 MHz
Modulation	22M0F7D (DSSS/OFDM) at 2.4 GHz 20M0G7D (OFDM) at 5 GHz
Receiver sensitivity	2.4 GHz 802.11b: – 87 dBm @ 11 Mbit/s, – 94 dBm @ 1 Mbit/s 2.4 GHz 802.11g: – 87 dBm @ 6 Mbit/s, – 70 dBm @ 54 Mbit/s 5 GHz 802.11a/h: – 87 dBm @ 6 Mbit/s, – 67 dBm @ 54 Mbit/s
Radio topology	WLAN Access Point, bridge, router, client mode
Roaming	seamless handover between radio cells, IAPP support, IEEE 802.11d support, background scanning for rogue AP detection and fast-roaming, support of IEEE 802.11e (WME)
Radio power	2.4 GHz 802.11b: + 19 dBm @ 1 and 2 Mbit/s, + 19 dBm @ 5.5 and 11 Mbit/s, 2.4 GHz 802.11g: + 19 dBm @ 6 Mbit/s, + 14 dBm @ 54 Mbit/s, 5 GHz 802.11a/h: + 18 dBm @ 6 Mbit/s, + 12 dBm @ 54 Mbit/s with TPC and DFS, power reduction in 1 dB steps down to 0.5 dBm minimum
Power requirements	
Operating voltage	2 x 24 V DC; 12 V DC external power supply (230 V) 2 x power-over-ETHERNET according to IEEE 802.3af; all power supplies redundant to each other
Current consumption at 24 V DC	417 mA
Current consumption	12 V DC: 625 mA; PoE (48 V DC): 167 mA
Service	
Diagnostics	extensive LOG and TRACE options, PING and TRACEROUTE for checking connections, LANmonitor status display, internal logging buffer for SYSLOG and firewall events, monitor mode for ETHERNET ports, WLANmonitor for WLAN network overview and rogue AP detection
Management	SNMP management via SNMP V2, private MIB exportable by WEBconfig, MIB II. remote configuration with TelNet/SSL, SSH, browser (HTTP/HTTPS), TFTP or SNMP, firmware upload via HTTP/HTTPS or TFTP, support of up to 4094 VLAN IDs for WLAN connections, 256 simultaneously usable VLAN tags for 802.11 clients
Other services	warning via e-mail, SNMP traps and SYSLOG; remote management and configuration by modem support via LAN (DSL) or serial port
Ambient conditions	
Operation temperature	-20° up to +50° (temporarily up to +70°C according to EN50155)
Storage/transport temperature	– 20° C up to + 70° C
Relative humidity (non-condensing)	max. 95 %
Mechanical construction	
Dimensions (W x H x D)	80 mm x 100 mm x 135 mm
Mounting	for wall and DIN rail mounting
Approvals	
Safety of information technology equipment	EN 60950
Radio	EN 300328, EN 301893, notified in all countries of EU. For other notifications or certifications please refer to sales@hirschmann.de
Environmental	EN 61131 for operation in automation environment EN 50155 for operation in vehicles EMC approval for E1 certification (cars and vehicles) available
Scope of delivery and accessories	
Scope of delivery	device, CD, serial cable, ETHERNET cable 3 m, two 3 dBi dipole – Dualband antennas, two 50 Ohm terminators, rail mount material
Accessories to order separately	external antennas for 802.11b/g and 802.11a/h, operation adapter cable and surge arrestor

Control cabinet installation
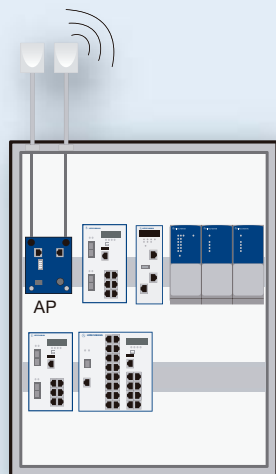
The BAT54-Rail is typically installed in a control cabinet, where there is a direct link to other network hardware such as switches and firewalls. Antennas which can be mounted on or outside of the control cabinet are available to ensure optimal connection to the wireless network.

Antenna kits containing cables, adapters and mounting hardware, which are configured specially for use with the BAT54-Rail, facilitate fast, simple deployment of any solution.

Links between buildings

Directional antennas can transmit signals over large distances, eliminating the need for expensive leased lines or construction work. The BAT-ANT-N-23/9A and BAT-ANT-N-12A 5 GHz antennas are ideally suited for these applications. The BAT-ANT-N-14G is available for the 2.4 GHz band. The BAT54-Rail is also a good choice for these applications because it fully supports 5 GHz technology.

Maximum encryption with 802.11i

Long distance point-to-point with 5 GHz

Antenna

Product description

Description	Directional antenna linear for 5 GHz	Directional antenna linear for 5 GHz	Directional antenna for 2.4 GHz	Circular polarized antenna for 2.4 GHz	Directional antenna linear for 2.4 GHz	Directional polarization diversity antenna linear for 5 GHz	Directional polarization diversity antenna linear for 2.4 GHz	Omni-directional antenna for 5 GHz	Omni-directional antenna for 2.4 GHz	Vehicle omni antenna for 2.4 GHz and 5 GHz
Type	BAT-ANT-N-12A	BAT-ANT-N-23/9A	BAT-ANT-N-14G	BAT-ANT-TNC-B-D-085-01	BAT-ANT-TNC-B-D-085-02	BAT-ANT-TNC-10A DS	BAT-ANT-TNC-8b/g DS	BAT-ANT-8A	BAT-ANT-8G	BAT-ANT-N-6ABG
Order No.	943 903-320	943 903-340	943 903 380	943 056-111	943 903-411	943 903-330	943 903-310	943 903-301	943 903-401	943 903-421
Indoor Application										
Hall (no barriers, free line of sight)				•					•	•
Production environment (fixed machines, free line of sight)				•						•
Warehouse (moving clients, reduced area of sight)				•		•	•			•
Plant (no line of sight, moving clients)						•	•			•
Outdoor Application										
Long distance, free line of sight		•	•							
Medium distance, free line of sight	•	•	•		•			•	•	•
Short distance or reduced line of sight	•			•		•	•			
Position of Antenna										
Wall, mast, at the edge of the area	•	•	•		•	•	•			
Mast, mobile device, centre of a hall								•	•	•
Top of a cabinet				•	•	•	•			•
Ceiling										•
Scope of delivery and accessories										
Scope of delivery	Antenna, cable 1 m, pigtail RP-SMA to N, installation material, sealing tape	Antenna, 1 m cable, pigtail RP-SMA to N, installation material, sealing tape	Antenna, pigtail RP-SMA to N, installation material, sealing tape, cable 1 m	Antenna, 2 m cable, mounting material	Antenna, 2 m cable, mounting material	Antenna, 2 x 2 m cable, installation material	Antenna, 2 x 2 m cable, installation material	Antenna, pigtail RP-SMA to N, installation material, sealing tape, cable 1 m	Antenna, pigtail RP-SMA to N, installation material, sealing tape, cable 1 m	Antenna, 2 m cable
Remark	for outdoor application with BAT-surge-arrestor additional cable BAT-CLB-7-N is needed	for outdoor application with BAT-surge-arrestor additional cable BAT-CLB-7-N is needed	for outdoor application with BAT-surge-arrestor additional cable BAT-CLB-7-N is needed	for outdoor application with BAT-surge-arrestor, additional cable BAT-CLB-7-TNC and BAT-Pigtail is needed	for outdoor application with BAT-surge-arrestor, additional cable BAT-CLB-7-TNC and BAT-Pigtail is needed	for outdoor application with BAT-surge-arrestor, additional cable BAT-CLB-7-TNC and BAT-Pigtail is needed	for outdoor application with BAT-surge-arrestor, additional cable BAT-CLB-7-TNC and BAT-Pigtail is needed	for outdoor application with BAT-surge-arrestor additional cable BAT-CLB-7-N is needed	for outdoor application with BAT-surge-arrestor additional cable BAT-CLB-7-N is needed	not suited for applications with surge arrestor

Adapters and cables

Product description

Description	Surge arrestor N jack to N jack	Antenna cable 7 m, ULA 400, attenuation 2 dB at 2.4 GHz, 3 dB at 5 GHz	Antenna cable 7 m, ULA 400, attenuation 2 dB at 2.4 GHz, 3 dB at 5 GHz	Adapter cable (N female/RP-SMA-Plug), attenuation 0.5 dB at 2.4 GHz, 1 dB at 5 GHz
Type	BAT Surge Arrestor	BAT-CLB-7-N	BAT-CLB-7-TNC	BAT-Pigtail
Order No.	943 903-370	943 903-350	943 903-501	943 903-360

State-of-the-art car production at AUDI AG

The systematic approach to transmission security: Wireless BAT54-Rail.

Product features

The new BAT54-Rail is a dualband access point/ access client with WLAN ports that support IEEE 802.11b/g and IEEE 802.11a/h communications. It was designed primarily for DIN rail mounting. Hirschmann's extensive experience in industrial applications is reflected in the sophisticated hardware and software design. Windows or web-based configuration wizards speed up and simplify installation and setup. With its new BAT antenna portfolio, Hirschmann has the right answer for any application including out-of-the-box solutions.

- Rugged IP 40 metal case
- Secure rail and wall mounting
- Redundant power supply: 2 x 24 V and 2 x PoE
- Temperature range: – 20° C up to + 50° C
- Two high-speed dual wireless IEEE 802.11b/g and IEEE 802.11a/h LAN ports
- Redundant WLAN links for reliable data transfer
- Up to 108 MBit/s per radio module
- IEEE 802.11i high-security point-to-point transmission
- RS-232 serial port for configuration and remote access

- Each radio module can be operated separately as an access point or client
- Great mobility combined with maximum security
- Faster roaming and prioritizing, 802.1 x authentication
- Sophisticated operating system offering a wealth of functions: MultiSSID, VLAN, rapid spanning tree, RADIUS server, IP router, Firewall, DHCP server, etc.
- Management software for Windows, web configuration, TelNet interface and SNMP-based management

New antenna technology ensures best signal quality:
- Indoor and outdoor operation
- Flexible control panel mounting options using cables provided
- Stable pole or wall mounting
- Optimized illumination and performance in any application
- Long distance transmission
- Fewer lost packets
- Designed for the 2.4 GHz and 5 GHz frequency bands

Protect your investment:
Cross-platform WLAN management.

Hirschmann BAT54-Rail (root)
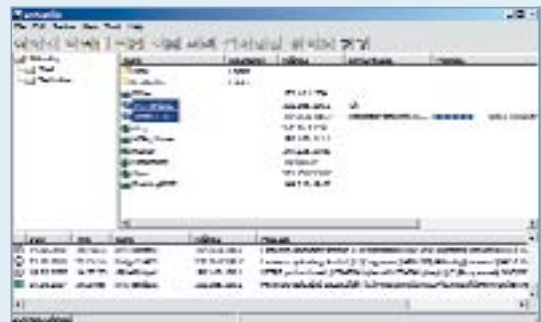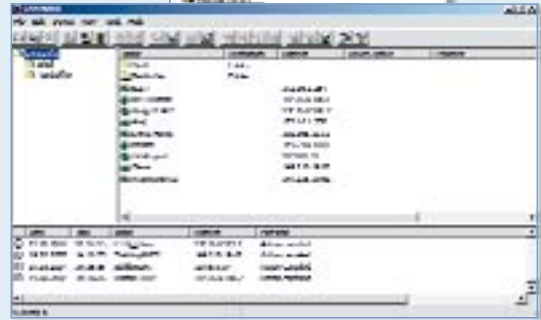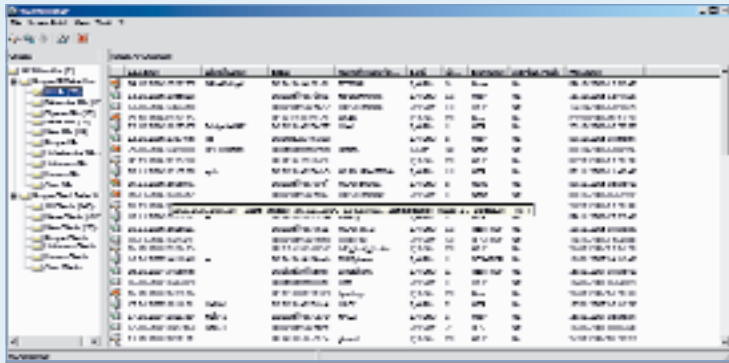
- Transparent, efficient network monitoring using a cross-platform, standardized management system
- Windows management suite: LANconfig, LANmonitor, WLANmonitor
- Management from a web browser (HTTP, HTTPS)
- Command line interface: TelNet
- Serial port connectivity

- Remote configuration via serial modem or DSL modem
- Partial configuration of several devices using scripting
- User-friendly WLAN monitoring with the WLAN monitor including rogue AP detection
- Monitor BAT54-Rail as client and access point from a single application

Uncompromising security and dependability: Wireless BAT54-Rail.

Requirements and solutions

The industrial networking market continues to evolve. Wireless systems offer mobility, flexibility and cost reduction. Wireless networks are also being used to an increasing extent as a redundant enhancement to wired networks to increase reliability and fault tolerance. Because there is no need for expensive cabling and cable maintenance, wireless networks also drive down installation and operating costs.

The new Hirschmann BAT54-Rail access point puts proven, reliable industrial-grade WLAN networking on the rails. A sophisticated operating system, hardware which is built to withstand the rigors of industrial applications, redundancy, reliable data transmission, excellent WLAN quality and network security based on authentication, encryption and a firewall are all good reasons why the BAT54-Rail is an outstanding solution.

What you get is a dependable, secure wireless package which protects your investment.

The direct line to your WLAN application: Hirschmann Competence Center

The experts at the Hirschmann Competence Center can contribute objective expertise during the planning and installation of WLAN networks. The list of services includes site radio transmission analysis and distance measurements during site surveys, throughput analysis, generation of a requirements profile and documentation, training, antenna installation support, a service hotline and a two-year guarantee on all Hirschmann WLAN equipment. National and local requirements and conditions such as frequency bands and RFI/EMI requirements are all included in the assessment. Hirschmann is one of the pioneers in the industrial WLAN market, and its all-inclusive package makes the decision to deploy wireless technology even easier. Contact us to discuss your individual needs.

www.hicomcenter.com

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- ● Sales subsidiaries
- ● Selected distribution partners

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