Hirschmann BAT450-F
Industrial Wireless LAN Access Points

The BAT450-F family of industrial WLAN access points offers a complete, cost-effective solution for deploying reliable, customizable wireless infrastructure.

+ Reliably deploy in harsh environments and mounting areas due to ruggedized, compact design

+ Ensure maximum network availability and data security across wireless connections with secure HiLCOS operating software

+ Increase efficiency and resiliency in rail applications with option of direct 110 V DC power supply

Key Features

- Configurable design for maximum flexibility and modular network interfaces
- WLAN radio versions comply with the IEEE 802.11 a/b/g/n WLAN standard
- Enables data rates up to 450 Mbit/s in both the 2.4 GHz and 5 GHz bands via 3 x 3 MIMO antenna technology
- WWAN/Cellular radio version supporting LTE (up to 100Mbit/s), 3G, 2G and GPS/GLONASS
- Gigabit Ethernet ports, including X-coded M12 connector technology
- Automatic mesh connections through Automatic Wireless Distribution System (AutoWDS) functions
- Operates at an extended temperature range (-40 °C to +70 °C)
- Adheres to IP65/IP67 protection ratings
- Power input via 24 V DC, 110 V DC and Power over Ethernet (PoE); connectivity options for WLAN and/or LTE with two SIM cards

The BAT450-F family of WLAN access points features a ruggedized, compact design for industrial needs and can be customized to support a variety of wireless and wired connections.

**Be certain.
Belden.**

Flexible Deployment and Modular Interfaces

The Hirschmann BAT450-F family of industrial access points provides a complete wireless solution offering WLAN, Ethernet and Wireless Wide Area Network (WWAN) interfaces. These wireless devices can operate as an Access Client (STA), Access Point or managed Access Point – with the option to combine with the BAT-Controllers.

The Hirschmann BAT450-F access points are designed to support Industrial IoT (IIoT) and wide area network (WAN) functionality through its modular/extension interface. The family includes an option specifically optimized for onboard and trackside rail applications: the BAT450-F 110 V DC. These specific access points are equipped with a 110 V DC power supply that allows engineers to connect directly to a train's power network without needing a 24 V converter. This means cost effective, resilient and easily retrofitted passenger WiFi.

The Hirschmann BAT450-F core access point configurations include:
- 1 x WLAN / 1 x ETH / 1 x serial interface (V.24)
- 1 x WLAN / 2 x ETH / 1 x serial interface (V.24)
- 2 x WLAN / 1 x ETH / 1 x serial interface (V.24)
- 2 x WLAN / 2 x ETH / 1 x serial interface (V.24)
- 1 x WLAN / 1 x ETH / 1 x LTE / 1 x serial interface (V.24)

Applications

The Hirschmann BAT450-F family of access points are ideal for use by industrial engineers across a variety of sectors where space and operating conditions are primary concerns.

The main application of the option equipped with the 110 V DC power supply is onboard rail cars and offers the following configurations and benefits:
- 110 V DC + WLAN + LTE: retrofit passenger WiFi onto trains in a single box
- 110 V DC + WLAN + WLAN: connect train redundantly to trackside with Parallel Redundancy Protocol (PRP) or Virtual Router Redundancy Protocol (VRRP) and provide passenger WiFi
- Coach-to-coach coupling: connect coaches automatically or control via serial connection

Markets

Ideal for use in transportation network environments, as well as in process automation areas. Additional applications can include: power transmission and distribution, machine building, water and wastewater, food and beverage, mining, solar and wind power, and oil and gas.
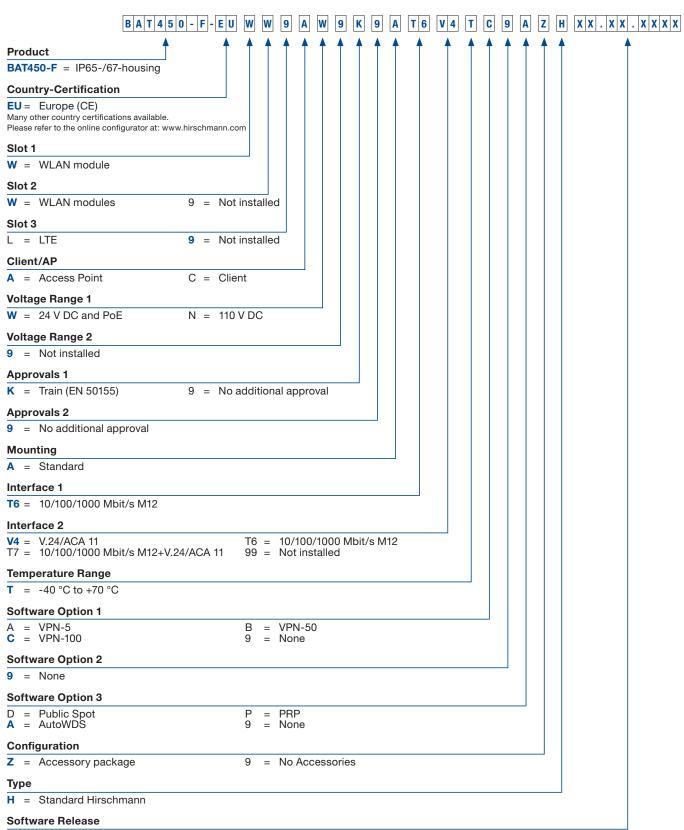
SIM card slots on LTE variant

The BAT450-F family of industrial WLAN access points deliver a new level of flexibility and performance that increases system reliability and efficiency, while reducing operational costs.

Technical Information

Product Description	
Type	BAT450-F
Description	Dual Band Ruggedized Industrial Wireless LAN Access Point/Client with IEEE 802.11n for installation in harsh environment.
Port Type and Quantity	Up to 2 x Radio interfaces, up to 2 x LAN ports 10/100/1000BASE-TX, Power over Ethernet according to IEEE 802.3af, 1 x V.24/ACA11

Radio Technology (WLAN)	
Radio Standard	IEEE 802.11a/b/g/h/n WLAN interface as per IEEE 802.11n, 3 x 3 MIMO up to 450 Mbit/s gross bandwidth.
Antenna Connector	For each WLAN module: 3 x N socket
Range	Depending on type of antenna, frequency range and data rate
Frequency Band	Supporting 2.4 GHz and 5 GHz: 2400 to 2483.5 MHz (ISM) and 5170 to 5850 MHz
Modulation	20M0F7D (DSSS/OFDM) @ 2.4 GHz, 20M0G7D (OFDM) @ 5 GHz, MCS 0 - MCS23
Radio Topology	WLAN access point, bridge, router, point-to-point, client, client-bridge mode, AutoWDS, fixed mesh with RSTP
Encryption	IEEE 802.11i/WPA2 with passphrase or 802.1x and hardware-accelerated AES, closed network, WEP64, WEP128, WEP152, user authentication, 802.1x/EAP, LEPS, WPA1/TKIP, fast roaming with Opportunistic Key Caching. Please refer to the HiLCOS data sheet for further information.

Option: Radio Technology (Cellular)	
Antenna Connector	3 x N socket
Antenna Configuration	Main + Aux (Div. for 2G/3G and MIMO 2x2 for LTE) + GNSS
Frequency Band	Quad Band EDGE /GSM/GPRS (2G): 1900 /1800/900/850 MHz Quad Band UMTS/HSPA (3G): 2100/1900/850/900 MHz FDD-Band (1, 2, 5, 8) Penta Band LTE (4G): 2100/1800/2600/900/800 MHz FDD-Band (1, 3, 7, 8, 20)
Transfer Rate (max) / Data Speed	LTE Cat.3: 100 Mbit/s Download, 50 Mbit/s Upload
SIM-cards/Slots	Two SIM card holders/slots, Dual-SIM fail over functionality • Switch SIM on disconnect • Switch SIM on remaining data volume
GNSS/Location Solution	Satellite Systems : GPS, GLONASS

Interfaces	
Ethernet	M12, X-coded, 10/100/1000 Mbit/s
V.24/ACA11	M12, A-coded, configuration interface or for automatic P2P connections verified over V.24 (train carriage coupling)

Power Requirements	
Operating Voltage	Option: 24 V DC and Power over Ethernet (PoE) Option: 110 V DC
Power Consumption	Up to 12.95 W, depending on number of radio modules

Ambient Conditions	
Operation Temperature	-40 °C to +70 °C
Storage/Transport Temperature	-40 °C to +85 °C
Relative Humidity (non-condensing)	10 % to 95 %

Mechanical Construction	
Dimensions (W x H x D)	261 x 189 x 55 mm
Mounting	Wall and mast
Protection Class	IP65/IP67

Approvals	
Safety of Industrial Control Equipment	EN 60950
Radio	EN 300328, EN 301893, UL60950
Environmental	EN 61000-6-2, EN 61131, E1 and EN 50155

NOTE: These are the prominent technical specifications. For complete technical specifications visit: www.hirschmann.com

Configurations

BAT450-F-EU W W 9 A W 9 K 9 A T6 V4 T C 9 A Z H XX.XX.XXXX

Product

BAT450-F = IP65-/67-housing

Country-Certification

EU = Europe (CE)
Many other country certifications available.
Please refer to the online configurator at: www.hirschmann.com

Slot 1

W = WLAN module

Slot 2

W = WLAN modules   **9** = Not installed

Slot 3

L = LTE   **9** = Not installed

Client/AP

A = Access Point   **C** = Client

Voltage Range 1

W = 24 V DC and PoE   **N** = 110 V DC

Voltage Range 2

9 = Not installed

Approvals 1

K = Train (EN 50155)   **9** = No additional approval

Approvals 2

9 = No additional approval

Mounting

A = Standard

Interface 1

T6 = 10/100/1000 Mbit/s M12

Interface 2

V4 = V.24/ACA 11   **T6** = 10/100/1000 Mbit/s M12
T7 = 10/100/1000 Mbit/s M12+V.24/ACA 11   **99** = Not installed

Temperature Range

T = -40 °C to +70 °C

Software Option 1

A = VPN-5   B = VPN-50
C = VPN-100   9 = None

Software Option 2

9 = None

Software Option 3

D = Public Spot   P = PRP
A = AutoWDS   9 = None

Configuration

Z = Accessory package   9 = No Accessories

Type

H = Standard Hirschmann

Software Release

XX.XX.XXXX = Current Software Release

NOTE: The part number categories (**Configuration** and **Software Release**) are optional.