AIR-WB900-5K

COMMANDO AirX 900Mbps, 5.8GHz, 14dBi, 802.11ac, P2P/P2MP, 5KM Enterprise Wireless Bridge

Contents

Product Overview

COMMANDO AirX AIR-WB900-5K is a high-performance enterprise-grade outdoor wireless bridge that operates in the 5.8GHz frequency band with IEEE802.11ac technology and supports wireless bridge distance up to 5km with speed up to 900Mbps. It features a unique digital tube pairing technology, eliminating the need for computer configuration, and enabling easy pairing of devices in point-to-point and point-to-multipoint (up to 8 points) scenarios. With a two Ethernet interface, with WAN/LAN 1*10/100/1000Mbps adaptive Ethernet and LAN 1* 10/100Mbps adaptive Ethernet ports. It can achieve a wireless speed of up to 900Mbps using 5.8GHz 802.11ac technology. It offers Dual power supply options, supporting 24V PoE Ethernet power supply and 12V, 1Amp DC local power supply. The Ethernet power supply distance can reach up to 50-70meters (depending on the cable material). It is designed with an outdoor IP65 rated shell, providing protection against wind, rain, dust, and sun exposure, making it suitable for various harsh outdoor environments. The Built-in dual-polarization 14dBi directional panel antenna (horizontal beamwidth 60°, vertical beamwidth 60) ensures simple and quick installation. With its high performance, high gain, high receive sensitivity, and high bandwidth, it greatly enhances wireless transmission performance and stability and is widely used in long-distance network transmission and security monitoring scenarios.

It enables communication between wireless and wired computers/laptops and mobile devices in the network with build in Built-in dual-polarization 14dBi directional panel(horizontal beamwidth 60°, vertical beamwidth 60°). It supports HI-MAX TDMA Technology which use polling technique to solve the hidden node and resource waste problem between the CPE and base station. It provides low latency, high throughput in PTP/PTMP/MTMP application likes IP camera, long range Wi-Fi Transmission with Beamforming Technology.

It has two Ethernet ports out of which one port is adaptive WAN/LAN and can have speed 1*10/100/1000Mbps which enables the connection of two or more different local area network (LAN) segments by outdoor bridging having speed 900Mbps wireless connection between them. It works much like a wired network bridge and is used to connect LANs that are logically separated and/or located in different physical locations. It is primarily used in corporate LANs, which often span across geographical locations. At the back-end the wireless bridges are connected to the LAN switch or

router. For the two network segments to communicate, each data packet travels from the local Ethernet/router to the wireless bridge, which wireless broadcasts it to the wireless bridge of the other LAN segment. Besides point-to-point bridging, a wireless bridge can also be connected to more than one (Up to 8) wireless bridge simultaneously forming a mesh network.

It is designed for the Outdoors with weather-resistant IP65 case specifically for outdoor installations. It is industrial grade Bridge with great communication efficiency, which enhances the sharing of files, photo, audio, video and gaming experience over wireless network.

It can also be used as DHCP server and works as layer 3 device. It can identify and determine the correct transmission speed and half/full duplex mode of the attached devices. It also supports standard Auto-MDI/MDI-X that can detect the type of connection to any Ethernet device without requiring special straight or crossover cables, Store-and-Forward forwarding scheme to ensure low latency and high data integrity.

Product Highlights

- Standalone/Autonomous/FAT mode of operation supporting multiple operational modes like Gateway, Master and Slave mode.
- Supports wireless bridge distance up to 5km with wireless speed of up to 900Mbps depending on surrounding conditions.
- It has two Ethernet ports one is adaptive WAN/LAN port with speed 1* 10/100/1000Mbps and other LAN*1 10/100Mbps.
- Dual Ethernet ports (1000Mbps & 100Mbps) for wired access, with a total throughput of 400+Mbps.
- Default bridged SSID hiding, WPA2 data encryption, effectively ensuring user data security.
- Designed with an outdoor IP65-rated shell, providing protection against wind, rain, dust, and sun exposure.
- Flexible power supply options, supporting 24V PoE remote power supply and 12V DC, 1Amp local power supply, with a PoE Ethernet remote power supply distance of up to 70 meters.
- Provides 802.11a/n/ac Wi-Fi 900Mbps wireless transmission
- High-gain antennas paired with Built-in dual-polarization 14dBi directional panel (horizontal beamwidth 60°, vertical beamwidth 60°).
- Rich status indicator lights like PWR, port status, Signal strength, numeric display for easy understanding of device operation status.
- Management with the help of WEB GUI. Simple and clear web management interface for easy bridge configuration.
- No need for professional knowledge or computer operation, easily pair the bridge through dial switches and buttons, supporting interconnection of up to eight points.

- Easily adapting to various harsh outdoor environments with Operating -30℃～55℃ and Storage Temperature -40℃～70℃.
- Support wireless RF power adjustable as per user movements from bridge.
- Supports intelligent load balance based on users.
- Support seamless roaming and low-rate terminal access.
- Support inbuilt Wi-Fi channel analyzer.
- Compact IP65 casing waterproof, dust proof and sunscreen shell which avoid the damage from dust & rainy weather. Meantime, it is adaptive to various environment.
- Compact in size, supports wall mounting or pole installation, making installation simple.
- Silent design perfect for noise sensitive environments.
- With Zero Touch Provisioning: Plug and play and no setup. Affordable, Easy-to-Use AP for small and medium business networks, with Zero Configuration Required.
- Built-in High-Performance Processor with long life, Suitable for Deployment of Large scale Commercial Scenarios.
- Industrial-grade components with anti-high and low-temperature design, built-in multiple protections such as electrostatic discharge, surge, and rapid pulse, easily adapt to various demanding environments, ensuring long-term stability and reliability.
- Comes with one-year default warranty – optionally extendable up to 3 years.

Features and Benefits

Standalone/Autonomous/FAT mode

It supports Standalone/Autonomous FAT operation mode. Bridge can use WEBGUI and configure Gateway, Master and Slave modes.

Fast Ethernet LAN speed

It has two LAN Port with one of them having adaptive WAN/LAN 1*10/100/1000Mbps adaptive Ethernet ports and other LAN 1*10/100Mbps Ethernet ports. Auto-negotiation senses the link speed of a network device in wired 10/100/1000Mbps.

Easy to Use

WEB GUI based easy to use and requires minimal configuration, so setup is simple and hassle-free. For wireless clients/users, it can intelligently adjust for compatibility and optimal performance by DFS. Its compact size makes it ideal for Outdoor wall/ceiling with limited space. Dynamic LED lights provide real-time work status display and basic fault diagnosis. Easy Installation, Plug-and-play installation with no configuration required.

Wireless speed 900Mbps

By setting channel bandwidth up to 20/40/80MHz can increase the speed of bridge connection up to 900Mbps with 5km distance between bridges and also can check free channels available with inbuilt Wi-Fi analysis.

Weatherproof Enclosure with IP65

It has IP65 resilient weatherproof enclosure protects the access points against harsh outdoor condition. It comes with ABS waterproof, dust proof and sunscreen shell which avoid the damage from dust & rainy weather. Meantime, it is adaptive to various environment with ±6KV Lightning Protection with no Ingress of dust as well as

waterproof enclosure. These energy efficient Bridges are well built and rigorously tested and can sustain in very rough environment to provide the reliable performance.

Wireless That Goes the Distance Up to 5km

Supports bridge distance of up to 5km with (Point to Point) PTP/ (Point to Multi Point) PTMP /(Multi Point to Multi Point) MTMP. Designed for Point-to-Point and Point-to-Multi point applications with Built-in dual-polarization 14dBi directional panel(horizontal beamwidth 60°, vertical beamwidth 60°) which can greatly increase the Wi-Fi range to 5km distance and supply stable Wi-Fi signal for users.

Network Security

Support Flexible user Access Control Policies. MAC Filtering function to block the access of illegal hosts. Access Rules can be applied to permit or deny Wi-Fi users.

Support uninterrupted critical network infrastructure

It has Dual power options with DC 12V, 1Amp input power or 24V, 0.5A PoE power input which protect from power failures and increases life of device. It comes with Lighting surge protection Common mode ±6KV and Differential mode ±2KV. With this feature protect on cost and the impact to your business by losing these network devices and thus the users/servers connected to them.

Auto MDIX Capabilities

Auto sensing 10/100/1000Mbps ports with auto MDIX capabilities which also removes speed and duplex mismatches automatically.

Compact and Silent Performance

It operates quietly, making it ideal for use in virtually any room or office. Perfect for noise sensitive environments.

Cost Efficient

State of art quality product that can serve on real time high-speed Performance with Dual input power, highly reliable, conformance to international open standards, durable, serviceable, aesthetics, perceived quality, enhanced performance leads to value to money.

Green Technology

It features the energy-efficient Ethernet that can save power. It automatically adjusts power consumption according to the link status to limit the carbon footprint of your network. It also complies with RoHS, prohibiting the use of certain hazardous materials. Besides that, most of the packaging material can be recycled and reused.

Software

COMMANDO AIR-WB900-5K Bridge, which works as standalone Bridge having software highlights are as follows.

Table 1 Software Highlights

Software Functions	
Operation Mode	Master, Slave
Network Topology	Point-to-Point, Point-to-Multipoint (up to eight points)
Management Method	Web GUI Management
Status	System Status, Bridge Status, Interface Status
Wireless	**Wireless Mode:** Master/Slave **Master:** Link Name, Password, Wireless Protocol, Frequency Band, Wireless Channel, RF Power, Terminal Restriction **Slave:** Link Name[Scanning], Encryption Mode, Password, Master MAC, RF Power Wi-Fi Settings: Wi-Fi switch, Hide Wi-Fi, Wi-Fi Name, Encryption Mode, Wi-Fi Password **Advanced Setting:** RTS/CTS Threshold, Beacon Cycle, Fragmentation Threshold
Network	**Operating Mode:** Bridge/Gateway Mode **Management IP Settings:** Automatic Acquisition/Static IP
System	System Settings Change Password Backup/Upgrade Restart
Wizard	Wireless Settings Network Settings Summary

Hardware

Solid performance with non-blocking architecture

- 8MB Flash, 64MB RAM
- Two LAN port capable of interchangeable WAN/LAN
  1*10/100/1000Mbps adaptive Ethernet port and other LAN
  1*10/100Mbps Ethernet ports. Full speed of data transferring with (Auto-Negotiation/Auto MDI/MDIX).
- Solid performance with non-blocking architecture.

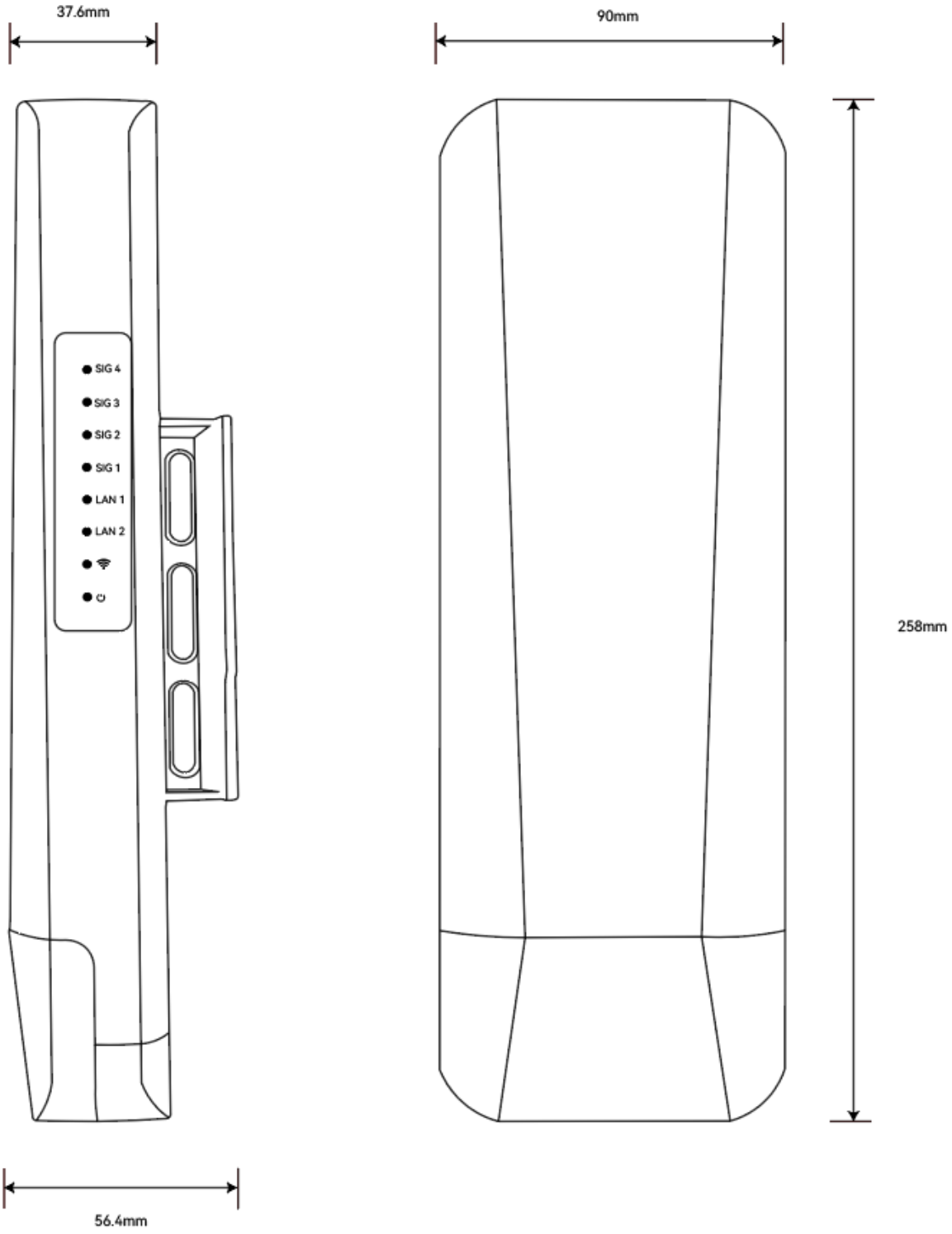
Physical Ports and Networking Interfaces

- 1 x 10/100/1000 Mbps Rj45 Ethernet WAN/LAN Port with combined 24V PoE IN with LAN
- 1 x 10/100Mbps Rj45 Ethernet LAN Port
- LED Indicators: PWR, Port status, Signal strength, Numeric display.
- Hardware Reset Button.
- Digital Compound Button to adjust the numeric values.
- Dual input Power with either 24V/0.5A PoE or DC supply 12V, 1Amp.

Extra Long operational life

- Support Operating temperature range -30℃～55℃ and Storage Temperature range-40℃～70.
- Lighting surge protection Common mode ±6KV and Differential mode ±2KV.
- Exceptional Performance in Harsh Outdoor Climates with IP65 weatherproof and dust proof enclosure ensuring it can withstand harsh outdoor and indoor environments.

Fig 1: Product dimension diagram(mm)



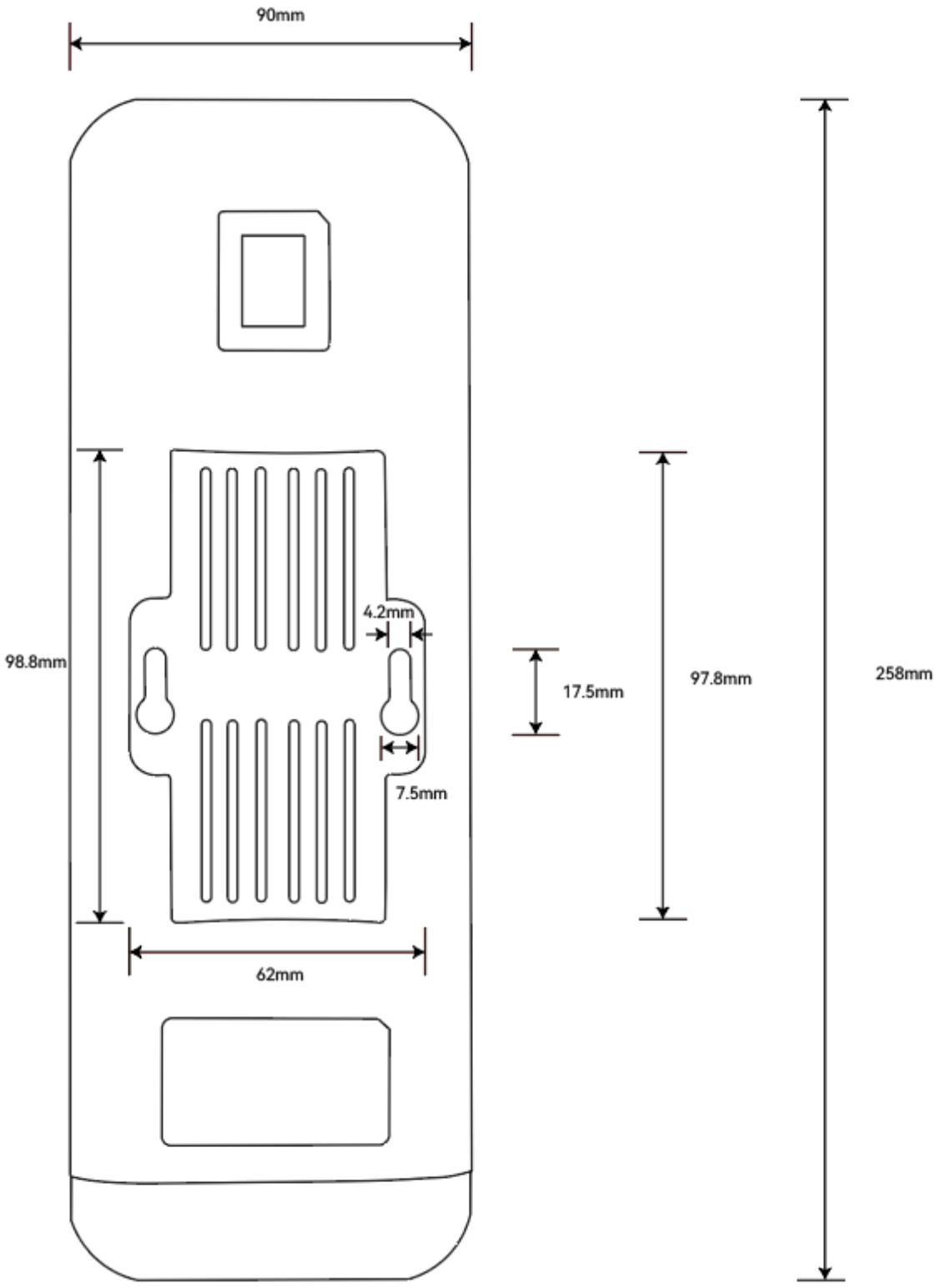


Table 2 Hardware Highlights

Hardware Highlights	
Main Chip	MT7620DA+7612E
Frequency	580MHz
Memory	64MB
Flash	8MB
Wireless Technology	802.11a/n/ac 900Mbps 2T2R technology
Device Interfaces	WAN/LAN 1*10/100/1000Mbps adaptive Ethernet ports LAN 1*10/100Mbps adaptive Ethernet ports **Note:** DC power interface, compatible with power plugs with an outer diameter of 5.5mm, inner diameter of 2.1mm, and length of 9.5mm or above.
Buttons	Hardware Reset (Factory Default) Digital Compound Button **Note:** Short press to adjust the numeric display value, long press for 5 seconds to restore factory settings.
Indicators	PWR power indicator Port status indicator SIG1/SIG2/SIG3/SIG4 signal strength indicators Numeric display
Antenna	Built-in dual-polarization 14dBi directional panel(horizontal beamwidth 60°, vertical beamwidth 60°)
Power	24V/0.5A PoE or 12V, 1Amp
Operating Temperature	-30℃～55℃
Storage Temperature	-40℃～70℃
Operating/Storage Humidity	10%～90%(operating) 5%～95%(storage)
Dimensions	258*90*56.4mm
Weight	0.40Kg

Specifications

Technical Specifications

Supports 802.11a/n/ac, with Standalone/Autonomous/FAT mode based with either open or WPA2 encryption with Dual option for input Power supply with either 24V, 0.5Amp, POE IN or DC input power 12V, 1Amp and also have Built-in dual-polarization 14dBi directional panel(horizontal beamwidth 60°, vertical beamwidth 60°)

Table 3. Specifications

Technical Parameters	Specification
Management	Web based management Software Backup & Restore to default Settings
Frequency Range	5G: UNII-1: 5.15~5.35GHz UNII-2: 5.47~5.725GHz UNII-3: 5.725~5.825GHz
Channel	36, 40, 44, 48, 52, 60, 64, 149, 153, 157, 161, 165
Modulation	802.11a: OFDM (BPSK, QPSK,16-QAM) 802.11n: OFDM (BPSK, QPSK,16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK,64-QAM, 256-QAM)
Receiver Sensitivity	11a up 54Mbps, 11n up 300Mbps, 11ac up 900Mbps
Transmit Power	11a: ≤-86±1.5dBm @6Mbps, ≤-69±1.5dBm @54Mbps 11n 20MHz: ≤-85±1.5dBm@MCS0, ≤-67±1.5dBm @MCS7

	11n 40MHz ≤-82±1.5dBm @MCS0, ≤-64±1.5dBm @MCS7 11ac 20MHz: ≤-84±1.5dBm @MCS0, ≤-59±1.5dBm @MCS8 11ac 40MHz: ≤-82±1.5dBm @MCS0, ≤-56±1.5dBm @MCS9 11ac 80MHz: ≤-78±1.5dBm @MCS0, ≤-52±1.5dBm @MCS9
IEEE Standard	IEEE 802.11a, IEEE 802.11n, IEEE 802.11ac
Data Transfer Rates	IEEE 802.11a up to 54Mbps IEEE 802.11n up to 300Mbps IEEE 802.11ac up to 900Mbps
Frequency	Radio 5.8GHz
Wireless Throughput	Up to 900Mbps
LAN Throughput	400+ Mbps
Network Functions	DHCP Server
Wi-Fi Operational Modes	Gateway, Master & Slave
Wireless Security	Open or WPA2 option

Table 4 . LED Indication

LED Indicator	LED Status
PWR	power indicator **Green OFF:** No power. **Green ON:** 24V PoE/ DC power given.
Port status	**Green OFF:** LAN Port not connected. **Green ON:** LAN port connected. **Green blinking:** Shows activity on LAN port.
Signal strength	**Green ON:** SIG1/SIG2/SIG3/SIG4 indicated as per Signal strength SIG1 is Low and SIG4 Highest.
Numeric display	Numeric display value

Included in the bundle/box

All COMMANDO AirX AIR-WB900-5K Bridge made available for use globally along with accessory used to facilitate or enhance operations comes with following Accessories.

- 1x AIR-WB900-5K Bridge.
- 1x 24V PoE Power Adapter
- 2x Plastic Clamps
- 1x Ethernet Cable
- 1x User Manual

Support and Warranty

- Same-day assistance.
- Comprehensive 24-hour support using common communication/chat platforms, Email and Telephone.
- Provide FAQs and troubleshooting help online (self-service) through cloud-based solutions.
- Highly technical and trained representatives to resolve issues.
- One-year default warranty with option of warranty extension up to 3 years

Table 5. Support and Warranty

Warranty and Support	
Products covered	COMMANDO AirX 900Mbps, 5.8GHz, 14dBi, 802.11ac, P2P/P2MP, 5KM Enterprise Wireless Bridge
Warranty duration	One Year RTB (Return To Base) replacement warranty – optionally extendable up to 3 years.
Hardware replacement	COMMANDO, its resellers or its service center will use commercially reasonable efforts to replace the product subject to stock availability. Otherwise, a replacement will be arranged within 15 working days after receipt of the Return Materials Authorization (RMA) request.
End-of-life policy	In case of discontinuation of the product, support is limited to 3 years from announcement date.
Effective date	Hardware warranty commences from the date of shipment to customer (and in case of resale by a COMMANDO reseller, not more than 90 days after original shipment by COMMANDO).
Support duration	Lifetime support.
COMMANDO Care	COMMANDO will provide 24x7 support for basic configuration, diagnosis, and troubleshooting of device-level problems for up to one year from the date of shipment of the originally purchased product. This support does not include solution or network-level support beyond the specific device under consideration.
Online Portal Access	Warranty allows guest access to commandonetworks.com for all available technical queries.

Ordering Information

Ordering information for the COMMANDO AirX AIR-WB900-5K Bridge, To place an order, please contact your local reseller/distributor or COMMANDO Sales Representative at www.commandonetworks.com/rfq

Table 6. Ordering Information

Product Code	Information
AIR-WB450-1K	COMMANDO AirX 450Mbps, 5.8GHz, 8dBi, 802.11ac, P2P/P2MP, 1KM Wireless Bridge
AIR-WB450-3K	COMMANDO AirX 450Mbps, 5.8GHz, 12dBi, 802.11ac, P2P/P2MP, 3KM Wireless Bridge
AIR-WB900-5K	COMMANDO AirX 900Mbps, 5.8GHz, 14dBi, 802.11ac, P2P/P2MP, 5KM Wireless Bridge
AIR-WB900-10K	COMMANDO AirX 900Mbps, 5.8GHz, 17dBi, MU-MIMO 802.11ac Wave 2, P2P/P2MP, 10KM Wireless Bridge

Document History

Release	New or Revision	Described in	Date
Release 1	First Release	First Release	September 15, 2024