

Wi-Fi 7

Indoor 4x4, Tri Radio

Wireless Access Point

ion12bi



Extremely high-capacity Tri-Band Access Point

The ion12bi is a centrally managed Wi-Fi 7 Access Point, purpose built for the most demanding indoor scenarios. With 3 radios operating in the 2.4GHz, 5GHz and 6GHz bands respectively, each capable for 4-stream MIMO operation, this device delivers extremely high throughput and supports a very high number of concurrent connections.

Overview

- Wi-Fi 7 (802.11be) compliant with backward compatibility
- 4x4 MIMO on 2.4GHz/5GHz/6GHz Radios
- Built-in Tri-band Scan Radio
- 18.7 Gbps Peak Data Rate
- Up to 25dBm Tx power
- Built-in BLE Radio
- Integrated omnidirectional antenna

Applications

- Enterprises
- Healthcare
- Educational Campuses
- Banking
- Retail

ion12bi

TECHNICAL SPECIFICATIONS



Tri-band Radio Offering Peak Data Rates up to 18.7 Gbps

The concurrent tri-band radio in ion12bi offers an aggregate peak rate of 18.7 Gbps. With 1x10GbE ports, the AP can deliver unmatched performance, making it ideal for high-density deployments and scenarios where high per-user throughput is required, for example, to run XR applications.



Preamble Puncturing and Multi-RU*

Wi-Fi 7 includes enhancements for more efficient radio resource utilization. The AP can use preamble puncturing to selectively mute any 20MHz sub-channels (or multiples thereof) of a wideband channel where interference is high. For resource allocation as per application requirements, the AP uses a multi-RU feature to adapt the RU assignment per user dynamically.



Fast Roaming

802.11k/v/r protocols facilitate fast roaming and BSS Transition Management. Initial handshake with the new AP takes place before the client roams to the target AP. This eliminates the 4-way handshake during roaming, thus reducing the hand off time while ensuring security and QoS.



Advanced QoS Control

The AP supports application prioritization based on Access Categories as per the Wi-Fi Multimedia (WMM) framework. Additional control is supported via per-user and per-SSID rate limiting. The AP uses Airtime Fairness algorithm to ensure adequate airtime allocation across SSIDs.



Mesh Networking

Eliminating the need for expensive cabling, Access Points automatically form a wireless mesh, and provides connectivity in every possible corner. With self-healing and self-optimization functionality, in case of a mesh node failure, the surrounding nodes automatically re-connect and resume service without downtime. Support for Mesh means that the Access Point is interoperable with third party Access Points and/or Routers and can quickly be deployed as standalone or converged with the existing network. This eliminates the need for locking-in with a single vendor, driving down the total cost of ownership of the network.



Power Save

Unscheduled automatic power save delivery (U-APSD) and Target Wake Time (TWT) enable devices such as smartphones and laptops to determine when and how frequently they will communicate with the Access Point. The benefits of these features are multifold: an increased sleep time for the device, less consumption of battery and bandwidth, optimized spectral efficiency for IoT devices by a reduction in overlaps and conflicts.



Centralized Control

Centralized management of the entire network on our highly intuitive, flexible, and scalable cloud network manager. It provides the flexibility to distribute the network, allocate varying bandwidths, manage, track, troubleshoot, configure, communicate, and enforce policies on all Access Points in the network. The controller has in-built analytics and reporting capabilities to gain insight into usage patterns.

*Roadmap Feature



TECHNICAL SPECIFICATIONS

Wireless

Wi-Fi Standards	802.11 be/ax/ac/n/abg
Radio Mode	4x4 MU-MIMO with 4 spatial streams per radio on 2.4GHz, 5GHz and 6GHz bands
Radio Frequency Band	Supported frequency bands (country-specific restrictions apply): • 2.4GHz to 2.4835 GHz • 5.150 GHz to 5.250 GHz • 5.250 GHz to 5.350 GHz • 5.470 GHz to 5.725 GHz • 5.725 GHz to 5.875 GHz • 5.925 GHz to 7.125 GHz (Only Low Power mode is supported)
Peak Data Rate	2.4 GHz@40 MHz: 1.37 Gbps 5 GHz@160 MHz: 5.76 Gbps 6 GHz@320 MHz: 11.52 Gbps
Max Transmit Power	2.4 GHz: 25 dBm 5 GHz: 24 dBm 6 GHz: 24 dBm
Channel Bandwidths	20/40/80/160/320 MHz
Modulation Schemes	Supports up to 4096 QAM
Power	IEEE 802.3bt (PoE++) +12V DC Adaptor
Max Power Consumption	37 W
Interface	1x10GbE (RJ45) 1xReset Button 1xKensington Lock
Antenna	Integrated omnidirectional antenna with 4.0dBi gain for 2.4GHz, 5.5dBi gain for 5GHz, 5.5dBi gain for 6GHz
Operating Temperature	0° C to 40° C

High Level Features

- Support for Multi-Link Operation (MLO)
- Preamble Puncturing & Multiple Resource Unit*
- WAN Protocols: Static IPv4/v6, DHCP client v4/v6
- Band Steering, Load Balancing, EasyMesh Support
- Auto Channel Selection
- Intelligent RF control plane for self-healing & selfoptimization
- Ability to simultaneously serve clients and monitor RF environment
- Radio Resource Management for power and channel
- Management: Cloud-based and on-prem controller
- Dynamic PSK/MyPSK
- Traffic Shaping (per SSID/App)
- DHCP (Option 82, Option 43)
- QOS 802.11e WMM
- 802.11r- fast roaming and fast handover
- Maximal ratio combining (MRC) and beamforming support
- 802.11w- Protected Management Frames (PMF) support
- Layer 4 to Layer 7 application identification and policy enforcement (DPI)
- Support for ATPC, coverage hole detection & correction
- Advance Power Save (U-APSD), VOIP Support

*Roadmap Feature

Certifications

Certifications

- RoHS 3.0
- FCC Class B, CE, IC
- Wi-Fi Certified Passpoint 3.0
- Wi-Fi Certified 7
- Wi-Fi Certified EasyMesh
- Wi-Fi Certified WPA3
- Wi-Fi Certified Agile Multiband
- UL 2043 Plenum

Safety & Other Compliances

- Safety standard as per IEC/EN 62368/IEC60950 & IEC 60215
- Electrostatic Discharge Immunity as per IEC 61000-4-2, Contact L2 and Air Discharge, L3 Level
- DC Surge Immunity as per IEC 61000-4-5, Level 2 (power port + signal port)
- Electrical Fast Transient/Burst Immunity as per IEC 61000-4-4, Level 2
- Radiated susceptibility as per IEC 61000-4-3 Level 2
- Conducted Susceptibility as per IEC 61000-4-6, Level 2
- Bump and vibration as per QM333
- Radiated Emission as per CISPR 32 Class B
- Conducted Emission as per CISPR 22 Class B (power port + signal port)
- Voltage Variation: AC - as per IEC 61000-4-11 and DC - as per IEC 61000-4-29

Security

- WPA3 Enterprise, WPA3 Enterprise Transition Mode, WPA3 Enterprise Suite-B (192-bit), WPA3 Personal, WPA3 Personal Transition Mode, Enhanced Open (OWE)
- WPA2 Enterprise, WPA2 Personal (PSK), WPA2 Personal Mixed Mode, WPA Personal (PSK), WEP
- 802.1X Authentication (EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, EAP-SIM, Dynamic VLAN)

-
- Layer 2 Tunneling (EoGRE)

-
- IP/URL Filtering

-
- Client isolation support

-
- Rogue access point detection and prevention (WIDS & WIPS)

-
- Hidden SSID in beacons

-
- MAC address authentication

*All features and specifications described herein are subject to change.

Disclaimer: HFCL, IO by HFCL, and their respective logos are trademarks and/or registered trademarks of HFCL Limited. HFCL Limited assumes no responsibility for any inaccuracies in this document and reserves the right to revise or transfer this document without notice. All other trademarks, service marks, registered marks, or registered service marks mentioned herein are the property of their respective owners.

Last Updated June 09, 2025



Email: iosupport@hfcl.com

Website: hfcl.com | io.hfcl.com

Office: 8, Commercial Complex, Masjid Moth, Greater Kailash II, New Delhi 110048