Wi-Fi 6
Indoor 4x4/8x8
Wireless Access Point
ion12xi_h / ion12xi_h2

Highest Capacity Dual-Band Access Point

ion12xi_h / ion12xi_h2 is a cloud-managed Wi-Fi 6 certified Access Point that caters to the highest demands for super-fast speed and enhanced Wi-Fi capabilities thereby raising the bar for wireless efficiency to a whole new level. Eight spatial streams in the 5 GHz band, in conjunction with four spatial streams in the 2.4 GHz, results in up to 12 streams of Wi-Fi 6 connectivity, significantly boosting overall spectrum use. The Access Point maximizes coverage and optimizes per user throughput to the maximum extent using integrated high gain omni-directional antennas.

Overview

- Wi-Fi 6 (802.11ax) compliant with backward compatibility
- 5.95 Gbps Aggregate data rate (4.8 Gbps in 5GHz; 1.15 Gbps in 2.4GHz)
- Up to 8x8 [5 GHz] + 4x4 [2.4 GHz] multiple input, multiple output [MIMO]
- In-built BLE/ZigBee radio for advanced location services; USB 3.0 port (Type A)
- 25dBm on 2.4 GHz; 28dBm on 5 GHz + Physical Antenna gain
- 32 SSIDs combined 1024 concurrent client support
- Supports -95 dBm or better receiver sensitivity

Unmatched Performance

Dual-Band Radio Offering Peak Data Rate up to 5.95 Gbps

The concurrent dual-band radio inside ion12xi_h / ion12xi_h2 offers a combined peak data rate of 5.95 Gbps with up to 4800 Mbps in the 5 GHz band and 1150 Mbps in the 2.4 GHz band. It becomes the most preferred option when it comes to serving very high-density data demands and for 4K /8K Video transmission.

Configurable 5 GHz radio

The 5 GHz radio can be configured in the below 2 modes:

- 8x8 MU-MIMO with up to 80 MHz channel bandwidth support (combined data rate of up to 5.95 Gbps)
- 4x4 MU-MIMO with up to 160 MHz channel bandwidth support (combined data rate of up to 5.95 Gbps)

Bi-Directional, Multi User-Multiple Input Multiple Output (MU-MIMO)

The Access Point offers MU-MIMO and OFDMA for transmission that is more efficient to multiple clients. This is especially suited for environments with numerous varied devices, with each supporting latest or legacy Wi-Fi standards. MU-MIMO enables multiple clients to transmit and receive high bandwidth data simultaneously.

EasyMesh 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 EasyMesh means that ion12xi_h / ion12xi_h2 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.

Fast Roaming; Fast Handover

802.11r facilitates fast roaming where the initial handshake with the new AP takes place even before the client roams to the target AP called fast Transition. Thereby eliminating the handshake overhead while roaming thus reducing the hand off time between APs, while providing security and QoS.

QoS 802.11e WMM (Wi-Fi Multi-Media)

QoS 802.11e WMM helps define the quality of service required for voice and multimedia applications and enhances network performance. It helps prioritize traffic – (Voice, Video, best effort, and background) to ensure mission-critical applications have a higher priority of network access. Policies can be implemented per network, per SSID, per user group, or per individual user for maximum flexibility and control.

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.

Improved Battery Life

Unscheduled automatic power save delivery (U-APSD) 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.

Technical Specifications

Wireless

AP type	Indoor, dual radio, 5-GHz 802.11ax and 2.4-GHz 802.11ax
Standards	IEEE 802.11 a/b/g/n/ac/ax
MU-MIMO	Up to 8x8 [5 GHz] + 4x4 [2.4 GHz] multiple input, multiple output [MU-MIMO]
Radio Frequency Band	Supported frequency bands (country-specific restrictions apply): • 2.4000 GHz 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
Modulation Scheme	Supports up to 1024 QAM
Data Rates (max)	• 5.95 Gbps combined (8x8 MU-MIMO; 80 MHz) • 5.95 Gbps combined (4x4 MU-MIMO; 160 MHz)
Roaming	Indoor AP supports 802.11r - Fast Roaming
Compatibility	Backward compatible with legacy 802.11 clients
	Dynamic frequency selection (DFS) optimizes the use of RF spectrum

Processor

- Qualcomm IPQ8074A SOC

Interface

- 1x10 Gigabit Ethernet (10GbE) RJ45 Port
- 1x10 Gigabit Ethernet (10GbE) Optical SFP+ Port
- DC jack
- USB 3.0 port (Type A)
- USB 2.0 port (Type C) [Console Port]

Indoor Characteristics

- **Enclosure:** Two piece enclosure with PC top and metal bottom body
- **Dimensions:** 260 x 260 x 72 mm
- **Weight:** 1.8 kg
- **Mounting:** Table top, wall and ceiling mounting
- **Operating Temperature:** 0°C to 45°C
- Visual indicator (3 blue color status LEDs for power, 2.4 GHz radio and 5 GHz radio)

Radio Frequency

- Integrated high gain omni-directional antennas (6 dBi)
- 25dBm on 2.4 GHz; 28dBm on 5 GHz + Physical Antenna gain
- Spatial multiplexing & MRC
- Intelligent RF control plane for self-healing and self-optimization
- Supports RF management with 20/40/80/160 MHz channels with 802.11ax
- Supports -95dBm or better Receiver Sensitivity
- Ability to simultaneously serve clients and monitor the RF environment

Security

- 802.11i, 802.1x, WIPS, WPA-PSK, WPA-Enterprise, WPA2-PSK, WPA2-EAP, WPA2-PSK-Mixed, WPA2-Enterprise, WPA3-Personal and WPA3-Enterprise, WPA3-SAE, Enhanced Open, MAC, Radius based, EAP Type (EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAPMSCHAPv2, EAP-SIM), Protected Management Frames
- VPN pass-through
- IP Security (IPSec), PPTP, IP-Filtering
- Flexible guest access with device isolation
- Captive portal and guest accounts
- Rogue access point detection and prevention
- Hidden SSID in beacons
- MAC address authentication
- X.509 digital certificates
- Support for locally-significant certificates using Public Key Infrastructure (PKI)

Certifications

- FCC Class B, CE, RoHS 3.0, UL2043 Plenum
- Wi-Fi certified - Wi-Fi 6, WPA3, EasyMesh, Agile Multiband & Passpoint 3.0

Safety

- Safety Protection as per IEC 60950 and 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

Other Compliances

- Radiated Emission as per CISPR 22 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

High level features

- Band Steering
- Channel Bonding
- EasyMesh support
- Deployment: Standalone (via GUI) or through on-premise based solution or cloud-based
- 32 SSIDs combined (16 per radio)
- QoS 802.11e WMM
- Fast Roaming Fast Handover
- Auto Channel Selection
- Bandwidth Shaping per SSID
- Advanced Power Save (U-APSD)
- Load-balancing
- Radio Resource Management for power and channel
- VoIP Support
- Support for console login for troubleshooting APs
- In-built BLE/ZigBee radio for advanced location services

Power

- DC powering (via 12V 4A power adaptor) or PoE powering (via 48V active PoE++ adaptor)
- Max Power Consumption -< 35 W

Note-PoE powering is via a separate SKU. Please see ordering details at the end of datasheet for more details.

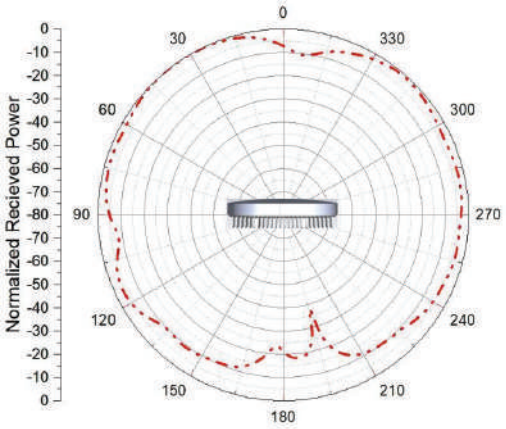
Power consumption table (as per different power source and features combination)

Power Source	2.4 GHz radio configuration			5 GHz radio configuration			BLE support	USB support	Applicable License Type
	MIMO mode	Channel Bandwidth	Transmit Power	MIMO mode	Channel Bandwidth	Transmit Power			
802.3af (< 15W)	2x2	20 MHz	3 dBm	2x2	20 MHz	3 dBm	No	No	Base
802.3at (< 25W)	2x2	40 MHz	24 dBm	4x4	80 MHz	28 dBm	Yes	No	Base
802.3at (< 25W)	4x4	40 MHz	24 dBm	4x4	80 MHz	28 dBm	Yes	No	Base + 12xi_h_2.4_4to8
802.3at (< 25W)	4x4	40 MHz	24 dBm	8x8	80 MHz	28 dBm	No	No	Base + 12xi_h_2.4_4to8 +12xi_h_5.0_8to16
802.3bt (< 35W)	4x4	40 MHz	24 dBm	8x8 or 4x4	80 MHz or 160 MHz	28 dBm	Yes	Yes	Base + 12xi_h_2.4_4to8 +12xi_h_5.0_8to16
DC power (< 35W)	4x4	40 MHz	24 dBm	8x8 or 4x4	80 MHz or 160 MHz	28 dBm	Yes	Yes	Base + 12xi_h_2.4_4to8 +12xi_h_5.0_8to16

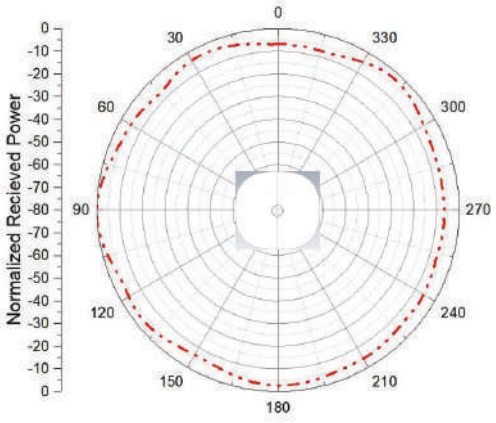
Antenna Radiation Pattern

2.4 GHz Antenna Radiation Pattern

Radiation Pattern (Vertical)



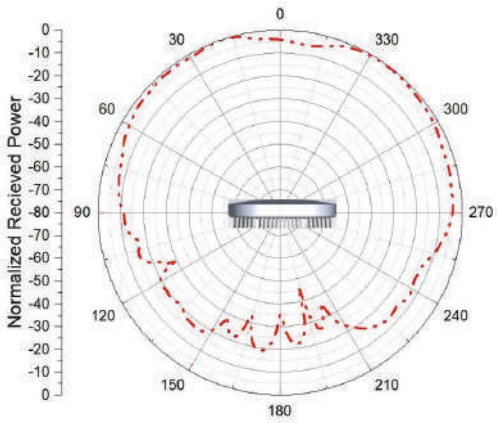
Radiation Pattern (Horizontal)

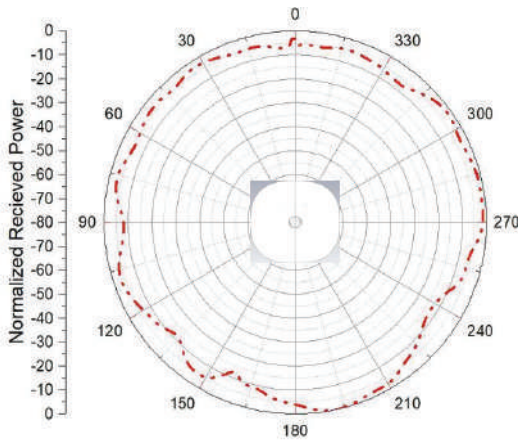


Radiation Pattern (Vertical)

Radiation Pattern (Horizontal)

5 GHz Antenna Radiation Pattern





Order Information

Hardware

Model Number	Product Description
ion12xi_h	IO Wi-Fi 6 Dual Band 8x8:8 Indoor Access Point with Integrated Antenna (6 dBi) [DC powering]
ion12xi_h2	IO Wi-Fi 6 Dual Band 8x8:8 Indoor Access Point with Integrated Antenna (6 dBi) [DC & PoE powering]

Software Licenses

License Type	License Description
Base License	Activate 2x2, 40 MHz in 2.4 GHz and 4x4, 80 MHz in 5 GHz *(default loaded in above Hardware)*
12xi_h_2.4_4to8	License to Upgrade 2.4 GHz from 2x2, 40 MHz to 4x4, 40 MHz
12xi_h_5.0_8to16	License to Upgrade 5 GHz from 4x4, 80 MHz to 8x8, 80 MHz / 4x4, 160 MHz

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