

Wi-Fi 6
Dual Band 4x4
Outdoor Access Point (External Antenna)
ion12xe_h2



ion12xe_h2 is a centrally-managed outdoor Wi-Fi 6 Access Point designed for high capacity and high concurrency. 4 spatial streams each in the 5 GHz and 2.4 GHz bands, results in up to 8 streams of Wi-Fi 6 connectivity, maximizing coverage and system throughput. With the option to choose a custom antenna, the coverage of this AP can be optimized as per the deployment scenario.

Key Specifications

- **Dual Radio Wi-Fi 6**
with 8 Spatial Streams
(4x4:4 at 2.4 GHz,
4x4:4 at 5 GHz)
- **Max. Data Rate**
3.5 Gbps
- **Uplink Ports**
10 GbE with PoE IN
10G SFP+
- **IoT Module**
BLE/ZigBee/Thread
- **Peak Transmit Power:**
24 dBm at 2.4 GHz
26 dBm at 5 GHz
- **Max. Clients**
512 per radio
- **Max. SSIDs**
16 per radio
- **Antenna**
External, N-type Connectors

Applications

- Warehouses
- Metro Stations
- Car Parking Zones
- Open Stadiums

Product Overview

Dual-band 4x4 Radios Offering Data Rate up to 3.5 Gbps

The concurrent dual radios in ion12xe_h2 support a combined peak data rate of 3.5 Gbps. It becomes the most preferred option when it comes to high-density, high throughput scenarios such as stadiums and mass transit facilities.

Wi-Fi 6 Features

The AP supports all advanced Wi-Fi 6 features, including DL/UL OFDMA, DL/UL MU-MIMO, BSS Coloring, and TWT.

Dual Uplink

The AP supports dual uplink options, in the form of 10G Ethernet and 10G SFP+ ports. These can be used standalone or in failover/aggregation modes.

Built-in IoT Module

The ion12xe_h2 comes with an integrated IoT module which supports Bluetooth® 5.2 Low Energy, Thread, Zigbee®, IEEE 802.15.4, enabling location-based services, asset tracking, and other IoT applications. This feature enhances user experiences in smart environments by enabling proximity-based interactions and automation.

OWF Compatible

The ion12xe_h2 supports the OpenWiFi software stack, enabling it to be managed via vendor-neutral OWF controller.

AI Analytics

The AP software includes an AI agent for 24x7 monitoring of client connections, network services, device health and stability. In conjunction with io Canvas, this enables a powerful AI Analytics feature for anomaly detection and root cause analysis.

Centralized Control

ion12xe_h2 is configured, managed and monitored with io Canvas, an AI-enabled centralized network management platform. io Canvas is available in the public cloud as a managed service. It can also be deployed on-premise.

TECHNICAL SPECIFICATIONS



Wireless Capabilities	
Wi-Fi Standards	IEEE 802.11ax (backward compatible with 802.11abgn/ac)
Supported Radio Bands*	2.40 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
Peak Data Rate	3.5 Gbps (2400 Mbps for 5 GHz and 1150 Mbps for 2.4 GHz)
MIMO Configuration	2.4 GHz: 4x4 MIMO 5 GHz: 4x4 MIMO
Channel Bandwidth	20/40 MHz (2.4 GHz) 20/40/80/160 MHz (5 GHz)
Max. Concurrent Clients	512 per radio (1024 combined)
Max. SSIDs	16 per radio (32 combined)
Receiver Sensitivity	-95 dBm
Modulation Schemes	Up to 1024 QAM on both 2.4 GHz and 5 GHz
Advanced PHY Techniques	Spatial Multiplexing and MRC (Maximal Ratio Combining)
Peak Transmit Power	24 dBm on 2.4 GHz at MCS 0 26 dBm on 5 GHz at MCS 0
Antenna Type	External (N-type connectors)
IoT Module	Bluetooth® 5.2 Low Energy, Thread, Zigbee®, IEEE 802.15.4

Radio Resource Management	
RF Optimizations	- Automatic Transmit Power Control (ATPC) - Auto Channel Selection (ACS) - Coverage Hole Detection and Correction
Radio Resource Control	- Airtime Fairness (ATF) - Max. client limit per radio and SSID - Unicast and Multicast Rate Control - Legacy Protocol Disabling
Connection Management	- Band Steering - Load Balancing - Association Control
QoS	802.11e WMM - Per-user and Per-SSID Rate Limit
Roaming	- Fast Roaming (802.11k/v/r) - Hotspot 2.0 - OpenRoaming

Note: *Subject to country-specific restrictions.

Wireless Security & Authentication

Wireless Encryption	• WPA3-Enterprise • WPA3-Enterprise Transition Mode • WPA3-Enterprise SuiteB (192-bit) • WPA3 Personal • WPA3-Personal Transition Mode • Enhanced Open (OWE)	• WPA2-Enterprise • WPA2-Personal (PSK) • WPA2-Personal Mixed Mode • WPA-Personal (PSK) • WEP
Wireless Authentication	• 802.1X Authentication • EAP • TLS (RFC 5216) • TTLS/MSCHAPv2 (RFC 5281) • Protected EAP (PEAP) • PEAPv1 • PEAPv0/MSCHAPv2 • SIM (RFC 4186) • AKA (RFC 4187) • PSK (RFC 4764) • IKEv2 (RFC 5106) • EKE (RFC 6124)	• MAC Address Authentication • Captive Portal and AAA Server Integration • Third Party NAC Integration
Policy Control	• Posture Assessment • Role-based Access Control • Dynamic VLAN	

Networking Capabilities

DHCP	• DHCP v4/v6 • Options 16 & 17	• Options 43 & 60 • Option 82
Tunneling	• Layer 2 Tunneling: EoGRE • Layer 3 Tunneling: IPSec	
L3 Network Services	• Link Aggregation (LACP) • SNMP v2c/v3 • Topology Discovery (LLDP)	
WAN Protocols	Static IPv4/v6, DHCP Client v4/v6	
Mesh	Wi-Fi Alliance EasyMesh™ Compliant	

Advanced Features

WIDS	• Authentication • Deauthentication • Disassociation • Probe Request Flood • Beacon Flood	• Session Hijack • MAC Spoofing • Evil Twin Attack • Password Guessing
WIPS	• MAC Spoofing • Evil Twin Attack	• Password Guessing
Access Control	• Dynamic Multi-PSK, Static Multi-PSK • Local MAC ACL • RADIUS-based MAC ACL	• L7 Application Control • Client Isolation

Monitoring & Diagnostics

Device Monitoring	• SNMP v2c, v3 • Syslog • Alarms
Device Management	IO Canvas - AI-enabled Centralized Network Management Platform
Network Assurance	Advanced AI-based Analytics for Anomaly Detection and RCA

Power Management	
Power	PoE Power (via 48V active PoE++ adaptor)
Max. Power Consumption	35 W (fully loaded with BLE, USB)

Power							
Power Source	2.4 GHz Radio Configuration			5 GHz Radio Configuration			BLE Support
	MIMO Mode	Channel Bandwidth (MHz)	Transmit Power (dBm)	MIMO Mode	Channel Bandwidth (MHz)	Transmit Power (dBm)	
802.3af (PoE)	2x2	20	3	2x2	20	3	No
802.3at (+25W)	2x2	40	24	4x4	80	24	Yes
802.3bt (PoE++)	4x4	40	24	4x4	80	24	Yes

Physical Characteristics	
Dimensions	287.4 x 262.4 x 105.4 mm or 10.31 x 10.33 x 4.15 in
Weight	2.17 kg
Mounting	Wall and Pole Mounting
Visual Indicators	3 blue color status LEDs for power, 2.4 GHz radio and 5 GHz radio
Operating Temperature	-5°C to 55°C
Wind Sustainability	150 km/hour
Outdoor Ingress Protection Rating	IP-67

Interfaces				
View	Port	Description	Connector Type	Speed/Protocol
Bottom View 	SFP+ Port (1)	SFP+ optical port supports both 1G and 10G optical connectivity	Optical SFP+ Cage	1/10 Gbps
	ETH0 (PoE IN) Port (2)	Provides the network uplink and supplies power to the device through Power over Ethernet (PoE)	RJ-45	1/2.5/5/10 Gbps Base-T Ethernet
Backside View 	N-type Antenna Connectors (3)	N-type connectors provide durable, weatherproof RF connections for external antennas, ensuring reliable signal transmission in outdoor deployments	RF Ports	-
Front View 	LED (4)	Blue LED for 5 GHz radio status indication	LED	-
	Power LED (5)	Blue LED for power status	LED	-
	LED (6)	Blue LED for 2.4 GHz radio status indication	LED	-

Certifications	
Wi-Fi Alliance	• Wi-Fi Certified 6 • Wi-Fi Certified Passpoint® 3.0 • Wi-Fi Certified WPA3™ • Wi-Fi Agile Multiband™

Compliances	
Regulatory	FCC Part 15 Subpart B (Class B), C & E, CE, ETA (WPC), MTCTE/TEC
Compliance & Environmental Standards	• RoHS 3.0 • IEC/EN 62368/IEC60950 & IEC 60215 Safety Standard • IEC 61000-4-2 Electrostatic Discharge Immunity Contact Level 2 and Air Discharge, L3 Level • IEC 61000-4-5 DC Surge Immunity, Level 2 (power port + signal port) • IEC 61000-4-4 Electrical Fast Transient/Burst Immunity, Level 2 • IEC 61000-4-3 Radiated Susceptibility, Level 2 (CISPR 24) • IEC 61000-4-6 Conducted Susceptibility, Level 2 (CISPR 24) • CISPR 32 Class B Radiated Emission • CISPR 32 Class B Conducted Emission (power port + signal port) • QM333 Bump and Vibration • Health Test as per IEC62311 • Voltage Variations: • IEC 61000-4-11 AC • IEC 61000-4-29 DC

Ordering Information	
Model No.	Description
ion12xe_h2	IO Wi-Fi 6 Dual Band 4x4:4 Outdoor Access Point with External Antenna [PoE powered]
HFDBV-NMOMNI-0406	Dual Band Omni-directional Antenna Gain: 4 dBi (2.4GHz) and 6 dBi (5GHz)
HFDBV-NMOMNI-0909	Dual Band Omni-directional Antenna Gain: 9 dBi (2.4GHz) and 9 dBi (5GHz)

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