DATASHEET

Wi-Fi 6
Outdoor 4x4
Wireless Access Point

ion12xe_h2

High Capacity Dual-Band Access Point

HFCL's ion12xe_h2 is a Wi-Fi 6 Outdoor Access Point that delivers up to 3.5 Gbps throughput and supports advanced features. Four spatial streams in the 5 GHz band, in conjunction with four spatial streams in the 2.4 GHz, results in up to 8 streams of Wi-Fi 6 connectivity, significantly boosting overall spectrum use. The Access Point includes external antenna connectors, enabling the use of custom antennas for supporting diverse deployment scenarios.

Overview

- Wi-Fi 6 (IEEE 802.11ax) certified with backward compatibility
- 4x4 MIMO on both 2.4GHz and 5GHz radios
- 24dBm for 2.4GHz@MCS0, 26dBm for 5GHz@MCS0 + Physical Antenna gain
- -96dBm minimum receiver sensitivity
- 3.5 Gbps Aggregate data rate (2.4 Gbps in 5GHz; 1.15 Gbps in 2.4GHz)
- Built-in IoT module (for BLE/ZigBee)
- 32 SSIDs combined; 1024 concurrent client support

Applications

- Outdoor stadiums & Industrial Belts
- Public Venues
- High Foot Traffic Areas
- Transportation (Airport/Railways)
- Outdoor Resorts
- Transit Stations
- Smart city
- Telco off load

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UNMATCHED PERFORMANCE

Dual-Band Radio Offering Peak Data Rate up to 3.5 Gbps

The concurrent dual-band radio inside ion12xe_h2 offers a combined peak data rate of 3.5 Gbps with up to 2.4 Gbps in the 5 GHz band and 1.15 Gbps 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 transmissions

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.

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.

Seamless Handover with 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.

WMM-based QoS (IEEE802.11e)

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

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TECHNICAL SPECIFICATIONS

Wireless

AP type	Outdoor, 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 4x4 [5 GHz] + 4x4 [2.4 GHz] Multi-User, Multiple Input, Multiple Output [MU-MIMO]
Radio Frequency Band	Supported frequency bands (country-specific restrictions apply): • 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
Modulation Schemes	Supports up to 1024 QAM
Data Rate (max)	3.5Gbps (2.4 GHz: 40MHz, 4x4 MIMO and 5GHz: 80MHz, 4x4 MIMO)

Physical Characteristics

Dimensions	L - 272±5 mm W - 272±5 mm H - 105±5 mm
Weight	2 Kg (Approx.)
Mounting	Wall and Pole mounting
Visual Indicators	3 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

High Level Features

- WAN Protocols: Static IPv4/v6, DHCP client v4/v6
- Link Aggregation (LACP)
- Topology Discovery (LLDP)
- Band Steering, Load Balancing
- 802.11w- Protected Management Frames (PMF) support
- Support for ATPC, coverage hole detection & correction
- Integration with ioPass and 3rd-party captive portals
- Advanced AI-based analytics
- EasyMesh support
- Management: Standalone (via GUI) or through on-premise based solution or cloud-based
- 32 SSIDs combined (16 per radio)
- QoS 802.11e WMM
- Fast Roaming
- Auto Channel Selection
- Rate limiting per SSID and per user
- Advanced Power Save (U-APSD)
- Load-balancing
- Radio Resource Management for power and channel
- VoIP Support
- Support for console login for troubleshooting APs
- Built-in BLE Radio
- Client Emulation Mode: AP can be configured as a client for emulating end user devices and performing client connectivity and performance tests.

Radio Frequency

- External antenna (N-type connectors)
- 24dBm for 2.4GHz@MCS0, 26dBm for 5GHz@MCS0 + Physical Antenna gain
- Spatial multiplexing & MRC
- Supports -96 dBm or better Receiver Sensitivity
- Ability to simultaneously serve clients and scan RF environment

Interfaces

- 10/100/1000/2.5G/5G/10G - RJ45 Port
- 1G/10G - Optical SFP+ Port

Safety & Other Compliances

- RoHS 3.0
- Safety standard as per IEC 60950 & 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 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
- 802.1X Authentication (EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, EAP-SIM, Dynamic VLAN)
- Dynamic Multi-PSK, Static Multi-PSK
- Rogue AP
- Dedicated Sensor Mode
- VPN pass-through
- Layer 2 Tunneling (EoGRE)
- IP/URL Filtering
- Client isolation
- Captive Portal Integration
- Third Party NAC Integration
- Wireless IDS and IPS
- Hidden SSID in beacons
- MAC address authentication

Certifications

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

Power

- PoE Power (via 48V active PoE++ adaptor)
- Max Power Consumption -< 35 W

Power Source	2.4 GHz Radio Configuration			5 GHz Radio Configuration			BLE Support
	MIMO Mode	Channel Bandwidth	Transmit Power	MIMO Mode	Channel Bandwidth	Transmit Power	
802.3 at	2x2	20 MHz	22 dBm	2x2	20 MHz	25 dBm	Yes
802.3 bt	4x4	40 MHz	25 dBm	4x4	80 MHz	28 dBm	Yes

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) & 6 dBi (5GHz)
HFDBV-NMOMNI-0909	Dual-band Omni-directional Antenna Gain: 9 dBi (2.4GHz) & 9 dBi (5GHz)

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Email: iosupport@hfcl.com
Website: hfcl.com | io.hfcl.com
Office: 8, Commercial Complex, Masjid Moth, Greater Kailash II, New Delhi 110048