# **Cloud Networking Solutions** for **Education**



ANNE HALLA



# K-12 Education

### **Enterprise-Grade Connectivity for a Superior Learning Experience**

Aerohive enables mobility in a simple, secure, and scalable manner, with a unique distributed control Wi-Fi and wired solution, combined with a cloud services platform that makes it easier to manage your network and connect staff, students and visitors.

### **Top Reasons to Choose Aerohive for Your School**

### Wi-Fi That Delivers A+ Performance

To prepare schools and districts for the mobile-first generation, Aerohive created a wireless LAN architecture specifically engineered for the capacity needs that we see today, by eliminating centralized wireless LAN controllers and optimizing access points for high-density campus connectivity.

- Utilizing a distributed control plane, Aerohive access points actively manage available bandwidth; provide seamless roaming; distribute client load; and adapt to changing RF conditions.
- Application Visibility and Control (AVC) prioritizes the bandwidth of productive apps and tools, while restricting or blocking troublesome apps
- Role based access identifies and prioritizes important users and devices within the network and assigns appropriate QoS policies
- Dual 5 GHz capable access points for spectrum and capacity optimization

### Astonishingly Powerful and Simple Management Platform

Aerohive's HiveManager provides a powerful, yet easy to use network management platform for access points and switches, with a streamlined user experience, intuitive dashboards and a range of troubleshooting tools that make any administrator an instant RF expert.

- Simplified deployment of one to thousands of devices with auto-provisioning, a guided workflow and an interactive on-screen step-by-step guided configuration assistant
- Increased visibility thanks to a 360° contextualized view of connected users, devices and applications, that can be viewed in real-time or historically
- Faster troubleshooting with a help-desk optimized interface to triage client problems and suggest immediate remedies

### **Easily and Securely Onboard Devices**

Whether campus-issued, staff, student or visitor owned, getting new devices connected to the network can be a challenge and often a burden for already stretched IT departments. With Aerohive's cloud-enabled services and simplified authentication methods, it's effortless to securely connect all devices.

- Aerohive's unique authentication method, Private PSK, provides simple and secure access for all users and devices, without requiring complex certificate installation or device configurations
- Dynamic access policies per user based on role (e.g., Faculty vs. Student vs. Guest)
- Enable the most secure guest access possible, using Aerohive's free Guest Access tool

### **Superior Visibility and Control**

It's vitally important to ensure that the technology-driven classroom remains focused on learning. Aerohive's context-based network access ensures that every user and device is identified and governed according to the administrator's preferences.

- Role-based security policies determine what a user, device, or application is permitted to do on the network, through VLAN assignment, Layer 7 firewall policies, time of day and location restrictions, and bandwidth limitations
- Integrated RADIUS services and native Active Directory integration makes it easy to apply security policies based on pre-existing group membership
- Seamless integration into User Directories for role mapping

### A platform that Scales and Supports your Growth

It's vitally important to ensure that the technology-driven campus remains focused on learning. Aerohive's context-based network access ensures that every user and device is identified and governed according to the administrator's preferences.

- Distributed architecture eliminates the cost and complexity of centralized controller solutions
- No single point of failure & inherent high availability due to distributed intelligence model

### Select K-12 Schools and School Districts that have Already Deployed Aerohive Networks

- Easy to start small and grow with a simple architecture and pricing model
- · Cloud-based services provide complete technical and commercial flexibility

Franklin ESTON MC/ LLEN Rowan Salisbury NT SCHOOL DISTRIC INDEPEND Public Schools SCHOOLS AMAR COUNTY **Mountain View** Whisman School District 1001 D 12 **SUNNYVALE** Jeff Davis County Schools SCHOOL DISTRICT

### **Select Access Points for Education**

### 802.11ac



AP122

Speed and Value

AP130 Coverage and Capacity



**AP250/550** Adaptable Connectivity



AP150W Dedicated In-room Access



ATOM<sup>™</sup> AP30 Pluggable Wi-Fi Coverage





AP630 High Capacity and Performance



AP650 / AP650X Maximum Capacity and Performance



### DATA SHEET



Enterprise-Grade 4x4, 4-stream, 802.11ax Access Point with Integrated Antennas







The AP630 is designed for high performance environments, combining the latest in Wi-Fi standards (IEEE 802.11ax technology) with Aerohive's software defined network architecture and HiveManager network management system. Powered by HiveOS and the innovative distributed Cooperative Control architecture, AP630 brings the best of capacity and advanced high-efficiency 802.11ax technology. In addition, the integrated BLE radio and a USB interface in the access point opens up a multitude of deployment use-cases in IoT and proximity/location-oriented services.

The **AP630** benefits from an Al-driven Wi-Fi architecture capable of self-organizing, self-learning, self-healing and self-optimizing in the most challenging environments. Cooperative Control eliminates single points of failure and bottlenecks, delivering stability and unbridled performance, complimenting the capabilities of HiveOS - a stateful L2-L7 DPI firewall for context-based access security, advanced and customizable QoS for traffic optimization, intelligent meshing algorithms, Private Pre-Shared Key (PPSK) and much more.

All Aerohive APs can be centrally managed using Aerohive's out-of-band cloud network management system - *HiveManager*. HiveManager is an industry-leading and visionary approach to cloud-managed networking, built from the ground up to take full advantage of the SD-LAN solution from Aerohive. Working in tandem with Aerohive's HiveOS, HiveManager leverages state-of-the-art cloud technology. Benefit from unified, full-stack management of Wi-Fi, switching and routing, centralized monitoring and configuration, real-time and historical reporting, simplified trouble-shooting, integrated RF planner tools and much more.

HiveManager is available in two editions: *Connect* and *Select*. The Connect solution is bundled with Aerohive access points and switches and is free for the lifetime of the device. Connect is the perfect solution for those looking to provide robust, yet enterprise-grade connectivity, without having to invest in the full suite of management features. The optional upgrade to Select unlocks a multitude of advanced features and capabilities that enhance network management, security and visibility.

### **Radio Specifications**

### **Wireless Frequency Range**

- USA: 2.400 ~ 2.483 GHz, 5.15 ~ 5.35 GHz, 5.47 ~ 5.725 GHz, 5.725 ~ 5.85 GHz
- Europe: 2.400 ~ 2.483 GHz, 5.15 ~ 5.35 GHz, 5.47 ~ 5.725 GHz
- Japan: 2.400 ~ 2.497 GHz, 5.15 ~ 5.35 GHz, 5.47 ~ 5.725 GHz
- China: 2.400 ~ 2.483 GHz, 5.725 ~ 5.85 GHz

### **Channel Support**

### 802.11 b/g/n/ax

- US/Canada: 11 (1 ~ 11)
- Major European country: 13 (1 ~ 13)
- France: 4 (10 ~ 13)
- Japan: 11b: 14 (1~13 or 14th), 11g: 13 (1 ~ 13)
- China: 13 (1 ~ 13)

### 802.11 a/n/ac/ax

- US/Canada: 24 non-overlapping channels (36,40,44,48,52,56,60,64;100,104,108, 112,116,120,124,128,132,136,140; 149,153,157,161,165)
- Europe: 19 non-overlapping channel (36,40,44,48,52,56,60,64;100,104,108,112, 116,120,124,128,132,136,140)
- Japan: 19 non-overlapping channels (36,40,44,48,52,56,60,64;100,104,108,112, 116,120,124,128,132,136,140)
- China: 5 non-overlapping channels (149,153,157,161,165)

### **Modulation Technology**

### 802.11 Legacy a/b/g

- DSSS (DBPSK, DQPSK, CCK) OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
- DSSS (Direct Sequence Spread Spectrum) with DBPSK (Differential Binary Phase Shift Keying 1 Mbps), DQPSK (Differential Quaternary Phase Shift Keying 2 Mbps), and CCK (Complementary Code Keying 5.5 & 11 Mbps), and OFDM (Orthogonal Frequency Division Multiplexing with BPSK for 6, 9 Mbps. QPSK for 12, 18 Mbps; 16QAM for 24, 36 Mbps; 64QAM for 48, 54 Mbps)

### 802.11n

• OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

### 802.11ac

• OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)

### 802.11ax

• OFDMA (1024-QAM)

### Mounting

• Wall or ceiling mount

### Interfaces

- •2x 10/100/1000 Gigabit Ethernet
- USB support for future IoT use cases
- Console port for CLI access
- Built in BLE for iBeacon and beacon management applications

### Radios

- Dual Radio AP, 2.4 GHz and 5 GHz, simultaneous dual band
- 2.4 GHz, 802.11b/g/n/ax, 4x4
- 5 GHz, 802.11 a/n/ac/ax, 4x4
- 160 MHz, 1024-QAM supported

### PoE

- 802.3at (PoE+)
- Typical: 15.4 W. Max: 17.8 W

### Environmental

- Operating Temperature: 0 to 40° C
- Storage Temperature: -40 to 70° C
- Humidity: 10 to 95%
- MTBF: >500,000 Hours @ 25° C (estimate)
- RoHS: -2 Compliant

### **Power Consumption**

- 802.3af Input: Typical 11.3 W, Max 12.4 W
- 802.3at Input: Typical 23.6 W, Max 24.9 W

### Physical

- Dimensions: 205mm x 205mm x 37mm
- Weight: .53lb (240g)

### Antenna

• 4x Dual Band, Omni directional antenna plus 1x Bluetooth Antenna

### Peak Antenna Gain:

- 2.4 GHz Omni Directional, gain 4.8 dBi
- 5 GHz Omni Directional, gain 5.2 dBi
- Bluetooth Omni Directional, gain 4.2 dBi

### DATA SHEET



Enterprise-grade 4x4, 4-stream, 802.11ax Access Point with Integrated Antennas







The AP650 is designed for high performance environments – combining the latest in Wi-Fi standards (IEEE 802.11ax technology), the latest in Ethernet standards (2.5 GHz capability), and Aerohive's software-defined dual 5 GHz radios for indoor and industrial environments. AP650 has integrated BLE and USB connectivity for enhanced location-driven services and the ability to provide additional wireless access options for IoT and other devices.

Powered by HiveOS and the innovative distributed Cooperative Control architecture, **AP650** brings the best of capacity and advanced high-efficiency 802.11ax technology. In addition, the integrated BLE radio and a USB interface in the access point opens up a multitude of deployment use-cases in IoT and proximity/location-oriented services.

The AP650 benefits from an Al-driven Wi-Fi architecture capable of self-organizing, self-learning, self-healing and self-optimizing in the most challenging environments. Cooperative Control eliminates single points of failure and bottlenecks, delivering stability and unbridled performance, complimenting the capabilities of HiveOS - a stateful L2-L7 DPI firewall for context-based access security, advanced and customizable QoS for traffic optimization, intelligent meshing algorithms, Private Pre-Shared Key (PPSK) and much more.

All Aerohive APs can be centrally managed using Aerohive's out-of-band cloud network management system - *HiveManager*. HiveManager is an industry-leading and visionary approach to cloud-managed networking, built from the ground up to take full advantage of the SD-LAN and SD-WAN solution from Aerohive. Working in tandem with Aerohive's HiveOS, HiveManager leverages state-of-the-art cloud technology. Benefit from unified, full-stack management of Wi-Fi, switching and routing, centralized monitoring and configuration, real-time and historical reporting, simplified troubleshooting, integrated RF planner tools and much more.

HiveManager is available in two editions: *Connect* and *Select*. The Connect solution is bundled with Aerohive access points and switches and is free for the lifetime of the device. Connect is the perfect solution for those looking to provide robust, yet enterprise-grade connectivity, without having to invest in the full suite of management features. The optional upgrade to Select unlocks a multitude of advanced features and capabilities that enhance network management, security and visibility.



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### Modes

- IEEE802.11a 5 GHz OFDM IEEE802.11b 2.4 GHz DSSS/CCK
- IEEE802.11n 2.4 GHz/5 GHz OFDM
- IEEE802.11ac OFDM
- IEEE802.11g 2.4 GHz OFDM
- IEEE802.11ax OFDMA

### **Channel Support**

### 802.11 b/g/n/ax

- US/Canada: 11 (1 ~ 11)
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- France: 4 (10 ~ 13)
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OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

### 802.11ac

OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)

### 802.11ax

OFDMA (1024-QAM)

### Interfaces

- 1x 10/100/1000 Gigabit Ethernet
- 1x 2.5 mGig
- RJ-45 Console Port

### Radios

- Dual Radio AP, 2.4 GHz and 5 GHz, simultaneous dual band
- 2.4 GHz, 802.11b/g/n/ax, 4x4
- 5 GHz, 802.11 a/n/ac/ax, 4x4
- 160 MHz, 1024-QAM supported

### PoE

- PoE: 802.3at (PoE+)
- Typical: 18.8 W. Max: 20.7 W

### **Power Consumption**

- 802.3at Input: Typical 15.72 W, Max 19.92 W
- DC: Typical 18.78 W, Max 20.65 W

### Environmental

- Operating Temperature: 0 to 40° C
- Storage Temperature: -40 to 70° C
  - RoHS: -2 Compliant
- Humidity: 10 to 95%

### **Physical**

- Dimensions: 225mm x 225mm x 37.5mm
- Weight: 2.6lb (1.18kg)
- · Wall or ceiling mountable

### Antenna

- 4x 2.5 GHz, Omni directional antenna
- 4x 5 GHz, Omni directional antenna
- 1x Bluetooth Antenna

### Peak Antenna Gain:

- 2.4 GHz Omni Directional, gain 5.0 dBi
- 5 GHz Omni Directional, gain 6.0 dBi
- Bluetooth Omni Directional, gain 4.2 dBi

• 802.3az supported

• USB Interface

Redundant PoE Capable

• MTBF: >500,000 Hours @ 25° C (estimate)

### DATA SHEET

# **HiveManager**<sup>™</sup>

Enterprise Access Network Management Offering Intuitive Configuration Workflows, Real-Time & Historical Monitoring, and Simplified Troubleshooting





# **HiveManager**<sup>™</sup>

HiveManager is an industry-leading and visionary approach to cloud-managed networking, built from the ground up to take full advantage of the SD-LAN and SD-WAN solution from Aerohive. Working in tandem with Aerohive's cutting-edge HiveOS, HiveManager Public Cloud leverages state-of-the-art cloud technology. Benefit from unified, full-stack management of Wi-Fi, switching and routing, centralized monitoring and configuration, real-time and historical reporting, simplified troubleshooting, integrated RF planner tools and much more.

### Summary

**HiveManager** operates on Aerohive's third generation Cloud Services architecture, capable of supporting millions of infrastructure devices and hundreds of millions of clients per Regional Data Center. All Aerohive Cloud Services (ACS) components are hosted in secure SOC Type 1 data centers with 24/7 monitoring, scheduled backups, and build-in disaster recovery capabilities. The Aerohive HiveManager offers rapid feature velocity, increased availability, and advanced flexibility desired for modern access network management.

Aerohive Cloud Services also provides a full suite of cloud-optimized open APIs for developers to create 3rd party applications and user experiences including user onboarding mechanisms, proximity-based services, presence and location analytics, and more.

HiveManager is available in two editions: *Connect* and *Select*. The Connect solution is bundled with Aerohive access points and switches and is free for the lifetime of the device. The optional upgrade to Select unlocks a slew of advanced features and capabilities that enhance network management, security and visibility.

### Key Features of HiveManager

**Auto-Provisioning:** With zero-touch deployment, automatically apply a configuration policy, upgrade software and more.

**Dashboard:** Intuitive, visual dashboard with contextual filters for a comprehensive overview of network assets, application and data usage as well as user activity.

**Comparative Analytics:** Ananymously compare operational and performance-based metrics to those of other organizations of a similar size and vertical.

**Application Visibility and Control:** Visibility and control of application usage on the network, for professional and recreational applications and network services.

**Monitoring:** Real-time and historical view of devices, clients, alarms and events with automated out-of-band alerting.

**Simplified Deployment:** Guided workflows for creating and deploying network policies, with optional advanced configuration.

**Guest Access:** Flexible onboarding and management options for visitor and BYOD devices including intuitive Captive Web Portals, Social Login and PPSK.

**Network Health:** Real-time and historical view of client and device health with built-in remediation tools.

**Deployment Scalability:** Centrally manage over 1 million network connected devices including access points, switches, and routers

**Troubleshooting:** Help-desk optimized interface to triage historical and real-time client problems with actionable data to reduce escalations and provide a better end-user experience.

**Full-stack Management:** Single pane-of-glass management and visibility of wired and wireless devices.

**Multi-tenancy:** Allows MSPs and large corporations to efficiently manage multiple customers or subsidiary accounts from one master account with VHM switching or Hierarchical Management (HHM).

**IoT Management:** Securely connect IoT devices with AES encryption using Aerohive's unique Private Pre-Shared Key (PPSK).

**Open APIs:** A full suite of REST APIs and webhooks including: monitoring, identity, presence and location, configuration.

### **Optional Free Cloud Management**

HiveManager is available in two editions: *Connect* and *Select*. Connect is completely free and optimized for those who want to use Aerohive APs and switches to deliver enterprise-grade connectivity, a streamlined user experience and management simplicity but operate on a limited budget. The optional Select upgrade offers the full capabilities of HiveManager with SD-LAN and SD-WAN for larger organizations with comprehensive security, policy, analytics and troubleshooting requirements.

Not sure which solution is right for you? With one-click flexibility, administrators can start with Connect and upgrade to Select as their requirements or budget evolve.



Aerohive Connect provides subscription-free enterprise Cloud networking, with a one-click upgrade to the advanced features of Aerohive Select.

### **Distributed Control**

HiveManager is a Network Management System (NMS). It leverages Aerohive's unique distributed control architecture (built into HiveOS) and eliminates the needs for centralized network controllers. The control and data planes operate at the edge. With this **out-of-band control plane**, no control or data plane information traverses ACS.

As a result, network devices can operate without having to connect to HiveManager. This is essential to support continous operation in the event the WAN connection to the HiveManager Cloud is interrupted. It also enables HiveManager to meet stringent regulatory restrictions and achieve optimal network performance.



HiveManager's unique distributed control architecture.

### **Security and Operation**

- Accounts are password protected and accessed via secure SSL
- Management traffic is encrypted and restricted using industry-proven CAPWAP protocol over HTTPS
- Out-of-band operation ensures no customer data traverses Aerohive's Cloud Services (ACS)
- Single-Sign-On (SSO) to HiveManager Public Cloud for administrator accounts
- Multi-Factor authentication with Google Authenticator for administrator accounts
- Multi-tenant architecture with secure account separation

- Centralized monitoring and management
- Integrated RBAC to delegate select HiveManager roles and permissions to different administrators
- VAR and partner management capabilities including account provisioning and maintenance
- HiveManager Cloud connectivity does not impact network operations servicing end-users
- 99.99% uptime, excluding maintenance windows

### Intuitive Interface









### **Simplified Deployment**

- Customer self-service sign-up
- Guided workflow for network policy deployment
- On-screen step-by-step guided configuration
- RF planner with map import and export
- Ability to swap simulated APs with real Aerohive APs on RF planner map
- Devices automatically connect to HiveManager for provisioning
- · Devices auto-provision with network policy and firmware udpates

### **Centralized Configuration**

- · Guest Access functionality
- Device templates for switches, routers and APs
- Aerohive device as RADIUS server or RADIUS proxy, and as DHCP server
- · Centralized view of all configuraiton objects
- Ability to bulk edit device properties
- Ability to schedule firmware upgrade
- Command Line Interface (CLI) access to Aerohive devices
- Support for select Dell N-Series switches
- Active directory/LDAP
- IPv6 support
- Syslog and SNMP server configuration
- Auto-provisioning
- Configuration audit, backup, restore, import and export
- Support for Aerohive VPN gateway (VG-VA)
- Multi-tenant capability: supports multiple virtual organizations

### **Centralized Policy Management**

- Device classification by location & timezone
- Customer application definition
- Client classificaion by location, OS type, MAC address
- Multiple user profiles for each SSID
- Time-based firewall and QoS policy
- Application, network and MAC layer firewall policy rules
- WIPS policy for rogue AP detection and mitigation

### Security

- Role-based access control
- Customer and network data is private and secure
- No customer data traverses Aerohive's network
- SSO for HiveManager administrators via SAML
- Optional multi-factor authentication with Google Authenticator for administrators

### Dashboard

- Graphical widgets and status cards with drill-down capabilites
- Time-range slider on dashboard for historical view
- 360° views of Aerohive network policies, AP, client devices, users and apps
- Global search function by network policy, MAC address, serial number, user, hostname or application name
- 30-days of historic monitoring and reporting data
- Interactive Network Summary Report with easy sharing
- Savable contextual filters by location, SSID, policy, user, profile and client OS type
- Comparitive Analytics to anonmously compare operational and performance metrics against other cloud customers of a similar size and industry

### Troubleshooting

- Client 360° behavioral analysis; real-time and historical network performance monitoring and optimization
- · Help-desk optimized interface with problem summary and suggested remedy
- Dedicated Helpdesk user role
- · Real-time troubleshooting with probe messages and stage filters
- · Historical troubleshooting with automatic issue detection
- · Mark issue resolved or escalate issue with email notification
- Built-in Command Line Interface (CLI) and remote SSH
- RADIUS test
- AP technical data download
- VLAN probe tool for simplified troubleshooting of the wired network
- Optional packet capture analysis with partner solution (CloudShark)

### Monitor

- WIPS history report
- Drill-down capability from client list to client 360° view
- Device list with rich utilities for advanced configuration and investigation
- Real-time client list with SNR, RSSI, data usage and connection status
- Savable and reusable filters shared across dashboard and monitor
- Alarm and event lists with historical and real-time data
- PCI DSS 3.2 compliant reporting
- Rogue AP and rogue client monitoring
- Real-time data for connection clients and users
- Google Maps integration and navigation with floorplan upload capability

### **Guest Access**

- Onboarding and management of visitor and employee personal devices (BYOD)
- Provides multiple onboarding workflows via Captive Web Portal, Kiosk app and Guest Check-In applications
- Private PSK (PPSK), 802.1X (RADIUS) and PSK authentication
- Supports 3rd party and customized CWPs including HTML upload for added deployment flexibility

### **Supported Languages**

• English, German, Spanish, French, Italian, Japanese, Korean, Portugese, Chinese

### Reliability

- Data centers with SOC Type 1 compliance (formally SAS 70 and/or SSAE 16), Type 2 and 3 compliance
- High availability with disaster recovery and redundancy
- 99.99% Uptime SLA (excluding maintainance windows)
- Scheduled backups
- 24x7 monitoring



# Switch Portfolio

advanced performance, optimization, and security services. Aerohive switches are perfect as a stand-Aerohive Networks<sup>(®</sup> cloud-managed switches can be easily and centrally deployed in minutes with alone product or to complement an existing Aerohive Wi-Fi deployment for unified management.

cies, and a powerful QoS engine make these switches a perfect addition to any enterprise network. Critical capabilities, such as zero-touch provisioning, cloud-powered switch stacking, unified poli-

|                 | Switches  |
|-----------------|-----------|
|                 | & SR2300  |
|                 | ), SR2200 |
| <b>DRTFOLIO</b> | , SR2100  |
| WITCH PO        | SR2000,   |

|                   | SR2200 & SR2300   | Series   |  |   | SR2000 & SR2100   | Series   |  |
|-------------------|---|--|--|---|---|--|--|
|                   |   |  |  |   |   |  |  |
|                   |   |  |  |   |   |  |  |
|                   | SR2208P   | SR2224P  | SR2324P  | SR2348P   | SR2024P   | SR2124P  | SR2148P  |
|                   | Enterprise-cli  | ass Entry-level  | Enterprise-c.  | lass Premium  | Enterprise-class Entry-level  | Enterprise-cl  | lass Premium   |
| Ideal For         | Retail or Small Branch,<br>Conference Rooms<br>(Fan-less, 1GE Uplinks, PoE) | Distributed Enterprises<br>(16E Uplinks, customers<br>NOT requiring BR [Branch<br>Routing] mode) | Small to Medium C<br>(High Power Bud<br>For customers read<br>Ex: K-12, Enterprise | iampus Deployments<br>Iget, 10GE Uplinks,<br>Iy for HiveManager")<br>35, Higher Education | Distributed Enterprises<br>(1GE Uplinks, customers<br>requiring BR mode)<br>Ex: Branch/Retail<br>deployments with VPN | Small to Medium C:<br>(High Power Bud,<br>For customers wanting<br>Ex: K-12, Small/M | ampus Deployments<br>get, 10GE Uplinks,<br>HiveManager <sup></sup> Classic)<br>edium Enterprises |
| PoE Ports         | 8 PoE/PoE+ GE   | 24 PoE/F   | 20E+ GE  | 48 PoE/PoE+ GE  | 24 PoE/F  | 20E+ GE  | 48 PoE/PoE+ GE   |
| PoE Budget        | 124W  | 180W   | 370W   | 740W  | 195W  | 408W   | 779W   |
| Uplink Capacity   | 2 x 1GE Combo<br>(SFP or Ethernet)  | 4 x 1GE SFP  | 4 × 106  | 3E SFP+   | 4 x 1GE SFP   | 4 x 10G  | E SFP+   |
| Switch Capacity   | 20 Gbps   | 56 Gbps  | 128 Gbps   | 176 Gbps  | 56 Gbps   | 128 Gbps   | 176 Gbps   |
| Stacking          |   |  | ۲  | ۲   |   |  |  |
| L3 Static Routing | ۲   | ۲  | ۲  | ۲   |   |  |  |
| Deployment        | Hive  | Manager Cloud or On-Premises   | : (excluding HiveManager™ Cl   | lassic)   | HiveManager Cloud   | or On-Premises <i>(including Hi</i> v  | eManager™ Classic)   |

# Access Point Portfolio

data insights. The foundation of our solution is great Wi-Fi, with unlimited scale and resilient mobilself-organizing and self-healing connectivity, reduced operational cost and complexity, and greater Aerohive Networks'® cloud networking technologies with unified wired and Wi-Fi access provide ity for all users on the network.

working that eliminates single points of failure, can effortlessly grow from a single access point to hundreds of thousands, and lets you easily manage and support thousands of access points from a No matter which of our access points you choose, you will experience next-generation cloud netcentralized cloud management platform.



ACCESS POINT PORTFOLIO 802.11ax & 802.11ac Wave 2 Access Points

|                | 802.11ax Access                                  | Points                       |                                | 802.11ac Wave 2                                   | Access Points                   |   |  |
|----------------|--|------------------------------|--------------------------------|---|---------------------------------|---|--|
|                |  |                              |                                | 8   |                                 |   |  |
|                | AP630  | AP650                        | AP650X                         | AP150W  | AP245X                          | AP250                                       | AP550  |
| Environment    |  | Indoor - Plenum              |                                |   | Indoor -                        | Plenum                                      |  |
|                |  | Dual Radio w                 | / a Software                   | Dual Radio 802.11ac/n                             | Dual Radio 802.11ac/n           | Dual Radio w<br>Selectable R                | // a Software<br>adio 802.11ac                   |
|                | DUAL HAULO OUZ. IT AX                            | Selectable Ra                | ldio 802.11ax                  | Wa  | /e 2                            | Dual V                                      | Vave 2   |
| Performance    |  | 4x4:4 MU-MIMO                |                                | 3x3:3 SU-MIMO<br>2x2:2 MU-MIMO<br>300 + 1300Mbps  | 3x3:3 MU-MIMO<br>450 + 1300Mbps | 3x3:3 MU-MIMO<br>1300Mbps SSR<br>+ 1300Mbps | 4x4:4:3 MU-MIMO<br>1733Mbps SSR<br>+ 1733Mbps    |
| Security       |  | TPM Security Chip            |                                |   | TPM Sec                         | urity Chip                                  |  |
| Interfaces     | 2 x GE <i>(2 x PoE)</i><br>with link aggregation | 2.5G + 1G <i>(2 x PoE)</i> w | ith link aggregation           | 4 x GE (1 x PoE,<br>1 x Passive PoE<br>pass thru) | 2 × GE <i>(1 × PoE)</i> wi      | h link aggregation                          | 2 x GE <i>(2 x PoE)</i> with link<br>aggregation |
| Power          |  | PoE+, DC                     |                                | PoE, DC   | A                               | E   | PoE+, DC   |
| loT            |  | USB + BLE                    |                                | BLE + ZigBee                                      |                                 | USB + BLE                                   |  |
| Operating Temp | 0°C -<br>(32°F -                                 | 40°C<br>104°F)               | -20°C - 55°C<br>(-4°F - 131°F) | 0°C - 40°C<br>(32°F - 104°F)                      | 0°C - 50°C<br>(32°F - 122°F)    | 0°C -<br>(32°F -                            | 40°C<br>104°F)                                   |
| Deployment     | HiveMa   | nager Cloud & On-Premises /N | G Only)                        |   | HiveManager Cloud & On          | Premises (NG or Classic)                    |  |

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|       |           | Environment                     | -<br>-<br>-<br>- | Kadio lechnology | Performance                  | Security   | Interfaces                                       | Power    | Ŀ     | Operating Temp                  | Deployment  |
|-------|-----------|---------------------------------|------------------|------------------|------------------------------|------------|--|----------|-------|---------------------------------|---|
| e     | ATOM AP30 |                                 |                  |                  |                              |            | 1 × GE   | 120V AC  | BLE   |                                 | HiveManager Cloud &<br>On-Premises <i>(NG Only)</i> |
|       | AP122     | Indoor - Non-Plenum             |                  |                  | 2x2:21<br>300 + 80           |            |  |          | USB - |                                 |   |
|       | AP122X    |                                 | Dual Radio       | Wav              | VIMO<br>S7Mbps               | TPM Secu   | 1 × GE ( <i>PoE</i> )                            | PoE      | + BLE | 0°C - 40°C<br>(32°F - 104°F)    | HiveManag   |
|       | AP130     | Indoor -                        | 802.11ac/n       | e 1              |                              | rrity Chip |  |          | I     |                                 | ler Cloud & On-Premises ( <i>NG</i>                 |
| Ab Ab | AP230     | - Plenum                        |                  |                  | 3x3:3 MIMO<br>450 + 1300Mbps |            | 2 x GE <i>(1 x PoE)</i><br>with Link aggregation | PoE, DC  | USB   |                                 | or Classic)   |
|       | AP1130    | Outdoor - Waterproof<br>(IP 67) |                  |                  | 2x2:2 MIMO<br>300 + 867Mbps  |            | 1 × GE <i>(PoE)</i>                              | PoE+, DC | I     | -40°C - 55°C<br>(-40°F - 131°F) |   |