HPE aruba networking

Data sheet



HPE Aruba Networking 580EX Series Hazardous Location Access Points

Flagship Wi-Fi 6 performance and flexible options for challenging outdoor environments

HPE

Key features

— Weatherproofed and temperature hardened with HazLoc Class 1 Division 2, ATEX Zone 2 certification, and IP66 rating to support the harshest outdoor environments

— Wi-Fi 6 support for UL and DL MU-MIMO and OFDMA

— More power with 5 Gbps SmartRate Ethernet port

— High power Bluetooth and 802.15.4/Zigbee radios to meet Industrial IoT requirements

— Backed by HPE Aruba Networking's limited lifetime warranty for peace of mind

Purpose-built to survive the harshest outdoor and hazardous indoor environments, the HPE Aruba Networking 580EX Series Hazardous Location Access Points withstand exposure to extreme high and low temperatures and persistent moisture, are fully sealed to keep out airborne contaminants, and include industrial surge protection. The 580EX series offers flexible power and management options to meet the needs of diverse environments and can be deployed using existing mounts. Like all HPE Aruba Networking access points, the 580EX series is Wi-Fi 6 certified and backed by a limited lifetime warranty.

Designed for outdoor flexibility

HPE Aruba Networking 580EX Series Hazardous Location Access Points are weatherproofed and temperature hardened to support hazardous indoor and outdoor environments, including outdoor oil rigs, industrial manufacturing, and transportation sites. With Wi-Fi 6 capabilities, high power Bluetooth and 802.15.4/ Zigbee radios, and maximum aggregate throughput of 2.97 Gbps, 580EX series access points deliver the speed and reliability needed for demanding Industrial IoT environments.

To support highperformance connectivity in dense mobile and IoT outdoor environments, 580EX series access points deliver maximum aggregate on air data rates of 2.97 Gbps and include 5 Gbps Smart Rate Ethernet ports. In addition, dual redundant power/port failover and support for AC ensure high availability with uninterrupted performance.

Wi-Fi 6 benefits

HPE Aruba Networking 580EX Series Hazardous Location Access Points are based on the Wi-Fi 6/802.11ax standard, which means that Wi-Fi 6 features such as uplink and downlink orthogonal frequency division multiple access (OFDMA), BSS coloring, downlink multiuser MIMO (MU- MIMO), and cellular colocation are fully supported making it more efficient and secure.

Advantages of OFDMA

This capability allows HPE Aruba Networking access points to handle multiple 802.11ax capable clients on each channel simultaneously, regardless of device or traffic type. Channel utilization is optimized by handling each transaction through smaller subcarriers or resource units (RUs), which means that clients are sharing a channel and not competing for airtime and bandwidth.

Bidirectional multiuser MIMO (MU-MIMO)

Similar to downlink MU-MIMO in Wi-Fi 5 (802.11ac Wave 2), 580EX series access points can simultaneously connect clients using downlink—and now—uplink spatial streams. The added benefit is the ability to multiply the number of clients that can now send traffic, thus optimizing client-to-access point spatial stream diversity.

Wi-Fi optimization

Client optimization

HPE Aruba Networking's patented AI-powered ClientMatch technology eliminates sticky client issues by steering a client to the access point where it receives the best radio signal. ClientMatch also dynamically steers traffic to load balance access points to improve the user experience.

Automated Wi-Fi radio frequency management

To optimize the user experience and provide greater stability, HPE Aruba Networking AirMatch allows organizations to automate network optimization using machine learning. AirMatch provides dynamic bandwidth adjustments to support changing device density and enhanced roaming using an even distribution of Effective Isotropic Radiated Power (EIRP) to radios, and real-time channel assignments to mitigate cochannel interference.

Intelligent power monitoring (IPM)

HPE Aruba Networking 580EX Series Hazardous Location Access Points continuously monitor and report hardware energy consumption and temperature. Access points can be configured to enable or disable capabilities based on the available PoE power—ideal when wired switches have exhausted their power budget. Additionally, with IPM, if the access point gets too close to the maximum temperature limit, it can disable features to prevent overheating.

HPE Aruba Networking Advanced Cellular Coexistence (ACC)

Unique to HPE Aruba Networking, Advanced Cellular Coexistence uses built-in filtering to automatically minimize the impact of interference from cellular networks, distributed antenna systems (DAS), and commercial small cell or femtocell equipment.

IoT capabilities

High power Bluetooth and Zigbee

The 580EX series was the first HPE Aruba Networking access point to feature a high-powered Bluetooth and 802.15.4/Zigbee radio, ensuring maximum range and performance for IoT applications. Built in Bluetooth and Zigbee capabilities simplifies deploying and managing IoT-based location services, asset tracking services, security solutions and IoT sensors and allows organizations to leverage the 580EX series as an IoT platform. There is no need for an overlay infrastructure or additional IT resources.

Advanced IoT Coexistence (AIC)

Built-in filtering allows Wi-Fi and Bluetooth/Zigbee radios to operate at maximum capacity without the impact of interference.

Target wake time (TWT)

Ideal for IoT solutions that communicate infrequently, this Wi-Fi 6 capability allows IoT devices to use 802.11ax protocol. TWT coordinates with client IoT devices to allow them to sleep for extended periods and use shorter wake times to communicate before returning to sleep. This substantially extends the useful operating life of Wi-Fi 6 based, battery-powered sensors.

HPE Aruba Networking secure infrastructure

The HPE Aruba Networking 580EX Series Hazardous Location Access Points is an integral part of HPE Aruba Networking's SASE and zero trust security approach to help protect user authentication and wireless traffic. Select capabilities include:

WPA3 and Enhanced Open

With the introduction of WPA3 and Enhanced Open, a Wi-Fi 6 certified client will never send unencrypted traffic over the air. Even with an open authenticated network, Enhanced Open still provides strong encryption over the air. In all Wi-Fi 6 user sessions, each user is uniquely encrypted and if they disconnect and reconnect, the encryption changes from session to session.

WPA2-MPSK

MPSK enables simpler passkey management for WPA2 devices—should the Wi-Fi password on one device change, no additional changes are needed for other devices. This feature is enabled when networks are deployed with HPE Aruba Networking NAC.

Simple and secure access

To improve security and ease of management, IT can centrally configure and automatically enforce role-based policies that define proper access privileges for employees, guests, contractors, and other user groups—no matter where users connect on wired and wireless networks. Dynamic segmentation eliminates the time consuming and error-prone task of managing complex and static VLANs, ACLs, and subnets by dynamically assigning policies and keeping traffic secure and separated.

Flexible operation and management

Our unified access points can operate as stand-alone access points or with a gateway for greater scalability, security, and manageability. Access points can be deployed using zero touch provisioning—without on-site technical expertise—for ease of implementation. HPE Aruba Networking access points can be managed using cloud-based or on-premises solutions for any campus, branch, or remote work environment. HPE Aruba Networking Central provides a single pane of glass for overseeing every aspect of wired and wireless LANs, WANs, and VPNs. AI-powered analytics, end-to-end orchestration and automation, and advanced security features are built natively into the solution.

Additional Wi-Fi features

Transmit beamforming (TxBF)

Increased signal reliability and range

Dynamic frequency selection (DFS)

Optimized use of available RF spectrum

Maximal ratio combining (MRC)

Improved receiver performance for multi antenna access points.

Cyclic delay/shift diversity (CDD/CSD)

Enable use of multiple transmit antennas

Space-time block coding (STBC)

Increased connection robustness

Low-density parity check (LDPC)

High performance error detection and correction coding for enhanced receiver performance.

Technical specifications

Hardware variants

— AP-585EX
  - Built in omnidirectional antennas (H and V polarized)
  - 5 GHz antennas 4.5 dBi uncorrelated avg (5.8 dBi peak)
  - 2.4 GHz antennas 3.0 dBi uncorrelated avg (4.4 dBi peak)
  - Bluetooth antenna 4.8 dBi peak

— AP-587EX
  - Built in 90°H x 90°V directional antennas (H, V, and +/−45 polarized)
  - 5 GHz antennas 5.2 dBi uncorrelated avg (6.6 dBi peak)
  - 2.4 GHz antennas 5.7 dBi uncorrelated (5.8 dBi peak)
  - Bluetooth antenna 6.3 dBi peak

Wi-Fi radio specifications

— AP type: Outdoor hardened, Wi-Fi 6 dual radio, 5 GHz and 2.4 GHz 802.11ax 4x4 MIMO

— 5 GHz radio: Four spatial stream single user (SU) MIMO for up to 2.4 Gbps wireless data rate with individual 4SS HE80 (or 2SS HE160) 802.11ax client devices, or with four 1SS or two 2SS HE80 802.11ax MU-MIMO capable client devices simultaneously

— 2.4 GHz radio: Four spatial stream single user (SU) MIMO for up to 1150 Mbps wireless data rate with individual 4SS HE40 802.11ax client devices or with two 2SS HE40 802.11ax MU-MIMO capable client devices simultaneously

— Support for up to 1024 associated client devices per radio (typical recommended limit for active outdoor clients is 100–200 depending on distance), and up to 16 BSSIDs per radio

— Supported frequency bands (country-specific restrictions apply):
  - 2.400 to 2.4835 GHz (ISM)
  - 5.150 to 5.250 GHz (U-NII-1)
  - 5.250 to 5.350 GHz (U-NII-2A)
  - 5.470 to 5.725 GHz (U-NII-2C)
  - 5.725 to 5.850 GHz (U-NII-3/ISM)

— Available channels: Dependent on configured regulatory domain

— Dynamic frequency selection (DFS) optimizes the use of available RF spectrum

— Supported radio technologies:
  - 802.11b: Direct-sequence spread-spectrum (DSSS)
  - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)
  - 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 37 resource units (for an 80 MHz channel)

— Supported modulation types:
  • 802.11b: BPSK, QPSK, CCK
  • 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM (proprietary extension)
  • 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM (proprietary extension)
  • 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
— 802.11n high-throughput (HT) support: HT20/40
— 802.11ac very high-throughput (VHT) support: VHT20/40/80/160
— 802.11ax high-efficiency (HE) support: HE20/40/80/160
— Supported data rates (Mbps):
  • 802.11b: 1, 2, 5.5, 11
  • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
  • 802.11n: 6.5 to 600 (MCS0 to MCS31, HT20 to HT40), 800 with 256-QAM
  • 802.11ac: 6.5 to 1,733 (MCS0 to MCS9, NSS = 1 to 4, VHT20 to VHT160), 2166 with 1024-QAM
  • 802.11ax (2.4 GHz): 3.6 to 1147 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE40)
  • 802.11ax (5 GHz): 3.6 to 2402 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE160)
— 802.11n/ac packet aggregation: A-MPDU, A-MSDU
— Transmit power: Configurable in increments of 0.5 dBm
— Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements):
  • 2.4 GHz band: +29 dBm (23 dBm per chain)
  • 5 GHz band: +28 dBm (22 dBm per chain)
  • Hazardous Location access points do not exceed 33dBm total EIRP to stay under the ATEX Zone 2 intrinsic safety limits
  • Note: conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain.
— Advanced Cellular Coexistence (ACC) minimizes the impact of interference from cellular networks
— Maximum ratio combining (MRC) for improved receiver performance
— Cyclic delay/shift diversity (CDD/CSD) for improved downlink RF performance
— Space-time block coding (STBC) for increased range and improved reception
— Low-density parity check (LDPC) for high-efficiency error correction and increased throughput
— Transmit beamforming (TxBF) for increased signal reliability and range
— 802.11ax Target wait time (TWT) to support low-power client devices
— Advanced IoT existence (AIC) allows for concurrent operation of the IoT and 2.4 GHz radios without issue
— 802.11mc fine timing measurement (FTM) for precision distance ranging

Wi-Fi antennas

— **AP-585EX**: Four integrated dual-band omnidirectional antennas for 4x4 MIMO with peak antenna gain of 4.4 dBi in 2.4 GHz and 5.8 dBi in 5 GHz. Built-in antennas are optimized for a horizontally mounted orientation of the access point. The downtilt angle for maximum gain is roughly 10°.
  • A mix of horizontally and vertically polarized antenna elements are used
  • Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the combined, average pattern is 3.0 dBi in 2.4 GHz and 4.5 dBi in 5 GHz
— **AP-587EX:** Four integrated 90°H x 90°V dual-band directional antennas for 4x4 MIMO with peak antenna gain of 5.8 dBi in 2.4 GHz and 6.6 dBi in 5 GHz. Built-in antennas are optimized for a vertically oriented installation to a wall or pole.
  • A mix of horizontal, vertical, and +/–45 degree antenna elements are used
  • Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the combined, average pattern is 5.7 dBi in 2.4 GHz, and 5.2 dBi in 5 GHz

Other interfaces

— Wired network interface (E0)
  • 100/1000/2500/5000Base-T Ethernet
  • 5 Gbps Smart Rate: NBase-T, 802.3bz
  • PoE PD support on E0
  • IEEE/802.3az support
  • Support for jumbo frames (MTU up to 9216 bytes)

— Wired network interface (E1)
  • 10GBASE-R SFP+ port
  • IEEE/802.3az support (as applicable)
  • Support for jumbo frames (up to 9216 bytes)
  • 1 x SFP+ cage
  • When used in operation it is expected that this is the primary uplink port
  • Only recommended industrial temperature SFP/SFP+ modules should be used for optimal performance
— Wired network interface (E2)
  • 10/100/1000BaseT Ethernet
  • IEEE/802.3az support (as applicable)
  • Support for jumbo frames (up to 9216 bytes)
  • Support for PoE PSE of at 802.3at (preferable to possibly be able to reach 802.3at PSE with IPM policy if needed)
— AC power interface: 110–240V (requires AP-AC-MLX power connector BT)
— Bluetooth (BLE5.0) and Zigbee (802.15.4) radio
  • BT: up to 8 dBm transmit power (class 2) and –98 dBm receive sensitivity (125 kbps)
  • Zigbee: up to 8 dBm transmit power and –96 dBm receive sensitivity
— Visual indictors (multi-color LED): for system and radio status
— GNSS L1 (1575.42 MHz) receiver supporting GPS, Galileo, GLONASS, and BeiDou signal
  • Receive sensitivity: –163 dBm (tracking)
  • Integrated antenna with gain of –2 dBi
— Reset button: factory reset, LED mode control (normal/off)
— USB-C console interface
— Shielded twisted pair (STP) Ethernet cable should be used on all Ethernet interfaces for proper surge protection

Power sources and power consumption

— The access point supports direct AC power and Power over Ethernet (802.3bt PoE; on port E0 only)
— When both AC and PoE power sources are available, AC power takes priority over PoE
— Power sources are sold separately; see the ordering information section below for details
— See below conditions for each power configuration:
  • When powered by AC, the access point will operate without restrictions, including 802.3af/at support (with upper thermal limitations).* With IPM enabled, the access point will adjust power requirements to meet requirements, and will reduce according to established IPM policy
  • When powered by 802.3bt Class 6, the access point will operate without restriction, limited to 802.3af PSE support.* With IPM enabled, the access point will adjust power requirements to meet requirements, and will reduce according to established IPM policy
  • When powered by 802.3bt Class 5 with LLDP, full function but no PSE support*
  • When powered by 802.3at, the access point will reduce both radios to 2 chains only, and will disable PSE out*
  • When powered by 802.3af, the access point will boot up, but not enable any radios, regardless of IPM settings.
— Maximum (worst-case) power consumption:
  • AC powered: 71W (802.3af/at*)
  • PoE powered (802.3bt Class 6): 49.5W (802.3af PSE only)
  • PoE powered (802.3bt Class 5): 35.5W (no PSE)
  • PoE powered (802.3at, IPM disabled): 25.5W (2 chains @ 2.4 GHz, 2 chains @ 5 GHz, no PSE)
— Maximum (worst-case) power consumption in idle mode: 9.2W (PoE) or 10.8W (AC)
— Maximum (worst-case) power consumption in deep-sleep mode: 3.0W (PoE) or 4.4W (AC)

Mounting details

— Optional mounting kits:
  • AP-OUT-MNT-V1A: Outdoor Pole/Wall Long Mount Kit
  • AP-270-MNT-H1: Outdoor AP Hanging or Tilt Install Mount Kit
  • AP-270-MNT-H2: Outdoor Flush Wall or Ceiling Mount
  • AP-270-MNT-H3: Outdoor AP Hanging or Dual-Tilt Install Mount Kit

Mechanical specifications

— AP-585EX
  • Dimensions/weight (AP-585EX unit only):
    ◦ 324 mm (W) x 313 mm (D) x 320 mm (H)/12.6'' (W) x 12.3'' (D) x 9.6'' (H)
    ◦ 5.24 kg / 11.5 lbs

* With IPM enabled, the access point will adjust power requirements to meet requirements, and will reduce power as necessary according to the established IPM policy

- Dimensions/weight (AP-585EX shipping pkg, no mount):
  - 431 mm (W) x 415 mm (D) x 442 mm (H)/17'' (W) x 16.3'' (D) x 17.4'' (H)
  - 7.81 kg / 17.2 lbs

— AP-587EX

- Dimensions/weight (AP-587EX unit only):
  - 302 mm (W) x 300 mm (D) x 174 mm (H)/5.9'' (W) x 11.8'' (D) x 6.9'' (H)
  - 4.51 kg/9.9 lbs
- Dimensions/weight (AP-587EX shipping pkg, no mount):
  - 385 mm (W) x 272 mm (D) x 433 mm (H)/15.2'' (W) x 10.7'' (D) x 17'' (H)
  - 6.03 kg / 13.3 lbs

Environmental specifications

— Operating conditions
- Temperature: –40C to +65C/–40F to +149F with full solar loading
- Humidity: 5% to 93% noncondensing internal
- Rated for operation in all weather conditions

— Storage and transportation conditions
- Temperature: –40C to +70C/–40F to +158F

— Operating altitude: 3000m

— Water and dust: IP66

— Salt tolerance: Test to ASTM B117-07A salt spray 200 hrs

— Wind survival: 150 mph (GR-487)

Reliability

— Mean time between failure (MTBF): 828,651hrs (~95yrs) at +25C operating temperature.

Regulatory compliance

— FCC/ISED

— CE marked

— RED directive 2014/53/EU

— EMC directive 2014/30/EU

— Low voltage directive 2014/35/EU

— IEC 60950-22

— UL/IEC/EN 62368-1

— IEC/EN60601-1-2

— EN 50155

— EN IEC 60079-0

— EN IEC 60079-7

— IEC 60079-0

— IEC 60079-7

— CSA C22.2 No.213-17

— UL 121201

— UL 50E

For more country-specific regulatory information and approvals, contact your HPE Aruba Networking representative.

Regulatory model numbers

— AP-585EX: APEX0585

— AP-587EX: APEX0587

Certifications

— Wi-Fi Alliance:

— Bluetooth SIG

— Ethernet Alliance (E0, PoE PD device, class 6; E2, PoE PSE device, class 3)

— Class 1 Div 2

— ATEX Zone 2

— IECEx

Warranty

HPE Aruba Networking's hardware limited lifetime warranty

Minimum operating system software versions

— HPE Aruba Networking Wireless Operating System Networking InstantOS 8.10.0.1

— HPE Aruba Networking Wireless Operating System 10.4.0.0

RF performance table

Band rate	Maximum transmit power (dBm) per transmit chain	
2.4 GHz, 802.11b		
1 Mbps	23	–95
11 Mbps	23	–87
2.4 GHz, 802.11g		
6 Mpbs	23	–92
54 Mbps	20	–74
2.4 GHz, 802.11n/ac HT20		
MCS0	23	–92
MCS8	18	–70
2.4 GHz, 802.11n/ac HT40		
MCS0	23	–89
MCS9	18	–66
2.4 GHz, 802.11 ax HE20		
MCS0	23	–92
MCS11	16	–62
2.4 GHz, 802.11 ax HE40		
MCS0	23	–89
MCS11	16	–59
5 GHz, 802.11a		
6 Mpbs	22	–93
54 Mpbs	22	–75
5 GHz, 802.11n/ac HT20		
MCS0	22	–93
MCS8	20	–71
5 GHz, 802.11n/ac HT40		
MCS0	22	–90
MCS9	20	–65

RF performance table (continued)

Band rate	Maximum transmit power (dBm) per transmit chain	
5 GHz, 802.11n/ac HT80		
MCS0	22	–87
MCS9	20	–62
5 GHz, 802.11ax HE20		
MCS0	22	–93
MCS11	18	–62
5 GHz, 802.11ax HE40		
MCS0	22	–90
MCS11	18	–59
5 GHz, 802.11ax HE80		
MCS0	22	–87
MCS11	18	–56

Ordering information

Part number	Description
HPE Aruba Networking 580EX Series Hazardous Location Access Points	
R7T29A	HPE Aruba Networking AP-585EX (US) Dual Radio 4x4:4 802.11ax Internal Omni Antennas Unified HazLoc AP
R7T30A	HPE Aruba Networking AP-585EX (RW) Dual Radio 4x4:4 802.11ax Internal Omni Antennas Unified HazLoc AP
R7T31A	HPE Aruba Networking AP-585EX (EG) Dual Radio 4x4:4 802.11ax Internal Omni Antennas Unified HazLoc AP
R7T32A	HPE Aruba Networking AP-585EX (IL) Dual Radio 4x4:4 802.11ax Internal Omni Antennas Unified HazLoc AP
R7T33A	HPE Aruba Networking AP-585EX (JP) Dual Radio 4x4:4 802.11ax Internal Omni Antennas Unified HazLoc AP
R7T34A	HPE Aruba Networking AP-587EX (US) Dual Radio 4x4:4 802.11ax Internal Directional Antennas Unified HazLoc AP
S5E01A	HPE Aruba Networking AP-585EX (ID) Dual Radio 4x4 802.11ax Internal Omni Antennas HazLoc AP

Ordering information (continued)

Part number	Description
HPE Aruba Networking 580EX Series Hazardous Location Access Points	
R7T35A	HPE Aruba Networking AP-587EX (RW) Dual Radio 4x4:4 802.11ax Internal Directional Antennas Unified HazLoc AP
R7T36A	HPE Aruba Networking AP-587EX (EG) Dual Radio 4x4:4 802.11ax Internal Directional Antennas Unified HazLoc AP
R7T37A	HPE Aruba Networking AP-587EX (IL) Dual Radio 4x4:4 802.11ax Internal Directional Antennas Unified HazLoc AP
R7T38A	HPE Aruba Networking AP-587EX (JP) Dual Radio 4x4:4 802.11ax Internal Directional Antennas Unified HazLoc AP
S5E02A	HPE Aruba Networking AP-587EX (ID) Dual Radio 4x4 802.11ax Internal Directional Ants HazLoc AP

For more ordering information and compatible accessories, refer to the ordering guide.

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