Cisco Aironet 1552S Outdoor Access Point

Outdoor Access Point for Wireless Sensor Networks

- Integrated ISA100.11a compatible backbone router for wireless sensor networks
- Designed for hazardous environments (Certified Class 1 Div2/Zone2 enclosure)
- Compatibly with the Honeywell OneWireless™ Solution
- Cisco CleanAir® technology provides integrated spectrum intelligence for a self-configuring and self-healing network
- Cisco® ClientLink technology improves reliability and coverage for legacy Wi-Fi clients
- Improved 802.11n range and performance with 2 x 3 multiple-input multiple-output (MIMO) technology
- Multiple IEEE radio support (802.11a/n, 802.11b/g/n)
- Diversity antenna support for 802.15.4 sensor radio
- Multiple uplink options (Gigabit Ethernet-10/100/1000 BaseT, fiber Small Form-Factor Pluggable (SFP) interface

Cisco Aironet 1552SA Outdoor Access Point

- 100-240 VAC power supply

Cisco Aironet 1552SD Outdoor Access Point

- 19-30 VDC power supply

High-Performance Outdoor Access Point for Wireless Sensor Networks

The Cisco® Aironet® 1552S Outdoor Access Point is the latest model in the Cisco Aironet 1550 Series. The 1552S merges the ruggedized outdoor 802.11n access point with an integrated, ISA100-compliant backbone router to provide a seamless solution for wireless sensor networks. The ISA100.11a radio has been designated specifically for mission-critical wireless connectivity to industrial sensor equipment. With an ISA100.11a radio integrated in an 802.11n-based access point, a single solution addresses the growing need for wireless mobility while also providing mission-critical connectivity for industrial sensing and monitoring equipment, such as gauges for water treatment plants, sensors for chemical plants, and vibration monitoring solutions for oil rigs.

This allows customers to combine business use cases, such as:

- Monitoring a chemical treatment plant while providing onsite security via wireless video surveillance
- Monitoring the equipment and gauges on an oil rig while an onsite worker downloads schematics, blueprints, or work instructions to a handheld Wi-Fi tablet
- Providing real-time information to an onsite engineer about changes to processes and equipment so that abnormalities can be dealt with immediately

The Cisco Aironet 1552S Access Point is also Class 1, Div 2/Zone 2 hazardous location certified. This means it is designed specifically for hazardous environments like oil and gas refineries, chemical plants, mining pits, and manufacturing facilities. The 1552S offers a single-box solution rather than requiring two separate wireless networks - one for 802.11n and one for ISA100 sensor networks.

By eliminating the extra power and network connections, which can be expensive to deploy in hazardous locations, the 1552S saves costs by reducing deployment times while offering a flexible, secure, and scalable mesh network for high-performance wireless coverage for both Wi-Fi clients and ISA100.11a field instruments across large facilities. With all these benefits, the Cisco Aironet 1552S Outdoor Access Point can improve overall plant reliability, safety, and profitability.

The Cisco Aironet 1552S Outdoor Access Point supports multiple-device and multiple network application delivery methods, such as real-time seamless mobility, video surveillance, 3rd Generation (3G) and 4G data offload, and public and private Wi-Fi access. Designed to meet customer needs in a broad range of industries, the Cisco Aironet 1552S Outdoor Access Point offers the following additional benefits:

- **Flexible deployment options:** Access or mesh network, extension of an Ethernet network, and Ethernet, fiber, or wireless backhaul.
- **Cisco CleanAir® technology:** Integrated spectrum intelligence to detect, classify, and mitigate RF interference from unauthorized wireless bridges or malicious devices.
- **High-bandwidth video surveillance:** Video surveillance over Wi-Fi without the high cost of installing cables over long distances.
- **High-performance, multipurpose network:** Provides low CapEx and OpEx.
- **Integrated wired and wireless:** The Cisco Borderless Network Architecture provides cost savings with end-to-end network access solutions that include wireless, switching, routing, and security.

Flexible, High-Performance Mesh

The Cisco Aironet 1552S Outdoor Access Point offers a flexible, secure, and scalable mesh platform that is part of the Cisco Unified Wireless Network. It offers high-performance mobility across large oil and gas facilities, chemical plants, manufacturing yards, and mining pits. The 1552S provides high-performance device access through improved radio sensitivity and range with 802.11a/b/g/n multiple-input multiple-output (MIMO) technology including two spatial streams. Multiple uplink and power options are available. The 802.3af-compliant, Power-over-Ethernet (PoE) interface makes it easy to connect IP devices, such as IP video cameras. The housing is certified for Class 1, Div 2/Zone 2 deployment areas and provides a robust system that can withstand demanding, hazardous environments.

Cisco CleanAir Technology

As part of the Cisco Aironet 1550 Series with Cisco CleanAir technology, the 1552S provides the highest-performance 802.11n connectivity for mission-critical outdoor networks by detecting interference from unauthorized devices, as well as common outdoor interference sources such as WiMAX networks and wireless bridging products. The 1550 Series uses chip-level intelligence to create a spectrum-aware, self-healing, and self-optimizing wireless network that mitigates the impact of wireless interference. Cisco CleanAir technology is a systemwide feature of the Cisco Unified Wireless Network that improves wireless network quality by detecting RF interference that other systems can't recognize, identifying the source, locating it, and then making automatic adjustments to optimize wireless coverage.

RF Excellence

Building on the Cisco Aironet heritage of RF excellence, the Cisco Aironet 1550 Series delivers industry-leading performance for secure and reliable wireless connections. Industrial-grade parts, enterprise-class silicon-level intelligence, and optimized radios deliver a robust mobility experience. The Cisco Aironet 1550 Series provides a set of tools that deliver the robust, scalable wireless foundation required to realize the true potential of outdoor wireless mobility:

- Cisco ClientLink technology to raise the downlink performance to 802.11a/g clients, providing improved coverage and throughput to existing clients
- Radio resource management (RRM) for automated channel selection and power setting management of access points
- Advanced capabilities to select data rates, adjust power, and manage quality of service (QoS) for access points

Centrally Managed Mesh Network

Central management and troubleshooting of the Cisco outdoor wireless access points prevent costly maintenance service calls to outdoor locations. The Cisco Prime Network Control System (NCS) works in conjunction with the Cisco Aironet Access Points and Cisco Wireless LAN Controllers to configure and manage the wireless networks. With Cisco Prime NCS, network administrators have a single solution for RF prediction, policy provisioning, network optimization, troubleshooting, security monitoring, and wireless LAN systems management. Cisco CleanAir technology is integrated into Cisco Prime NCS to provide real-time information on your outdoor network. Wireless network security is also a part of a unified wired and wireless solution. Cisco wireless network security offers the highest level of network security, which helps ensure that data remains private and secure and that the network is protected from unauthorized access.

802.11n Outdoor Access Point

The Cisco Aironet 1552S Outdoor Access Point contains a dual-radio system with radios that are compliant with IEEE 802.11a/n (5-GHz) and 802.11b/g/n (2.4-GHz) standards. The 1552S has three external antenna connections for three dual-band antennas. It has Ethernet and fiber Small Form-Factor Pluggable (SFP) backhaul options. This access point also has a PoE-out port and can power a video surveillance camera. A highly flexible model, the Cisco Aironet 1552S is designed for hazardous environments like oil and gas refineries, chemical plants, mining pits, and manufacturing factories. The Cisco Aironet 1552S Outdoor Access Point is Class 1, Div 2/Zone 2 hazardous location certified.

ISA100-compliant Backbone Router

The Cisco Aironet 1552S Outdoor Access Point houses an ISA100.11a-compliant backbone router (BBR) that provides backhaul transport of the wireless sensor network traffic. The dual-radio BBR is based on the IEEE 802.15.4 standard and communicates to all ISA100.11a-compliant wireless field sensor devices. The BBR can also receive secure configuration codes via a windowed, infrared (IR) receiver.

External Antennas

The Cisco Aironet 1552S supports either dual-band omnidirectional or directional antenna for the WiFi radios. For omni coverage, three Cisco AIR-ANT2547V-N-HZ antennas are used, providing gains of 4 dBi (2.4 GHz) and 7 dBi (5 GHz) with IP66 rating for robustness in corrosive environments. For directional coverage, a single Cisco AIRANT2588P3M-N= antenna can be used, providing gain of 8 dBi in both bands and is IP67 rated.

For the 802.15.4 diversity radios, the Cisco Aironet 1552S also can provide omni or directional coverage. For omni coverage, two Cisco AIR-ANT2450V-N-HZ antennas with gain of 5 dBi and IP66 rating are used. For directional coverage on these radios, the Cisco Aironet 1552S is approved for use with 14 dBi sector antenna AIR-ANT2414S-R (Note: a connector adapter is required to convert the antenna's RP-TNC connector to the N-type connector on the access point).

Product Specifications

Table 1 lists specifications for the Cisco Aironet 1552S Outdoor Access Point.

Table 1. Cisco Aironet 1552S Outdoor Access Point Product Specifications

Item	Specification
Part numbers	**Cisco Aironet 1552S Access Point with AC power supply** • AIR-CAP1552SA-A-K9 • AIR-CAP1552SA-C-K9 • AIR-CAP1552SA-E-K9 • AIR-CAP1552SA-K-K9 • AIR-CAP1552SA-M-K9 • AIR-CAP1552SA-N-K9 • AIR-CAP1552SA-Q-K9 • AIR-CAP1552SA-R-K9 • AIR-CAP1552SA-S-K9 • AIR-CAP1552SA-T-K9 **Cisco Aironet 1552S Access Point with DC power supply** • AIR-CAP1552SD-A-K9 • AIR-CAP1552SD-C-K9 • AIR-CAP1552SD-E-K9 • AIR-CAP1552SD-K-K9 • AIR-CAP1552SD-M-K9 • AIR-CAP1552SD-N-K9 • AIR-CAP1552SD-Q-K9 • AIR-CAP1552SD-R-K9 • AIR-CAP1552SD-S-K9 • AIR-CAP1552SD-T-K9 Not all regulatory domains have been approved. Refer to the Cisco WLAN compliance page to the latest information.
802.11n Capabilities	• 2 x 3 multiple-input multiple-output (MIMO) with two spatial streams • Legacy beamforming • 20- and 40-MHz channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 dynamic frequency selection (DFS) • Cyclic shift diversity (CSD) support
ISA100 Backbone Router Capabilities	ISA100.11a backbone router provides: • 802.15.4 radios with diversity receivers (1 Tx, 2 Rx) • Designed to meet ISA100.11a specifications • External IR receiver for receiving secure network keys from IrDA-compatible device

Item	Specification			
Data Rates Supported	**802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps**			
	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps			
	802.11n data rates (2.4 GHz and 5 GHz):			
	MCS Index[1]	**GI[2] = 800 ns**		**GI = 400 ns**
		20-MHz Rate (Mbps)	**40-MHz Rate (Mbps)**	**20-MHz Rate (Mbps)**	**40-MHz Rate (Mbps)**
	0	6.5	13.5	7.2	15
	1	13	27	14.4	30
	2	19.5	40.5	21.7	45
	3	26	54	28.9	60
	4	39	81	43.3	90
	5	52	108	57.8	120
	6	58.5	121.5	65	135
	7	65	135	72.2	150
	8	13	27	14.4	30
	9	26	54	28.9	60
	10	39	81	43.3	90
	11	52	108	57.8	120
	12	78	162	86.7	180
	13	104	216	115.6	240
	14	117	243	130	270
	15	130	270	144.4	300
Note: The above numbers represent the over-the-air supported rates. Actual usable throughput will be determined by factors such as protocol overhead, RF channel contention, and interference.				
Frequency Band and 20-MHz Operating Channels	-A Domain: • 2.400 to 2.4835 GHz; 11 channels • 5.250 to 5.850 GHz; 14 channels -C Domain: • 2.400 to 2.4835 GHz; 13 channels • 5.725 to 5.850 GHz; 5 channels -E Domain: • 2.401 to 2.4835 GHz; 13 channels • 5.470 to 5.725 GHz; 8 channels -K Domain: • 2.400 to 2.4835 GHz; 11 channels • 5.250 to 5.825 GHz; 14 channels -M Domain • 2.400 to 2.4835 GHz; 13 channels • 5.470 to 5.850 GHz; 12 channels -N Domain: • 2.400 to 2.4835 GHz; 11 channels • 5.725 to 5.850 GHz; 5 channels -Q Domain: • 2.400 to 2.4835 GHz; 13 channels • 5.470 to 5.725 GHz; 11 channels -R Domain: • 2.400 to 2.4835 GHz; 13 channels			

[1] MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate**,** and data rate values.
[2] GI: A guard interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Item	Specification	
	• 5.250 to 5.725 GHz; 11 channels -S Domain: • 2.400 to 2.4835 GHz; 13 channels • 5.725 to 5.850 GHz; 5 channels -T Domain: • 2.400 to 2.4835 GHz; 11 channels • 5.470 to 5.850 GHz; 13 channels	
Frequency range (802.15.4 radio)	• 2.405 to 2.475 GHz	
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Maximum Number of Nonoverlapping Channels	**2.4 GHz** • 802.11b/g: ◦ 20 MHz: 3 • 802.11n: ◦ 20 MHz: 3	**5 GHz** • 802.11a: ◦ 20 MHz: 16 • 802.11n: ◦ 20 MHz: 16 ◦ 40 MHz: 8
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Maximum Transmit Power	**2.4 GHz** • 802.11b (Complementary Code Keying [CCK]) ◦ 28 dBm with 2 antennas • 802.11g (non HT duplicate mode) ◦ 28 dBm with 2 antennas • 802.11n (HT20) ◦ 28 dBm with 2 antennas • 802.15.4 ◦ 18 dBm with 1 antenna	**5 GHz** • 802.11a ◦ 28 dBm with 2 antennas • 802.11n non-HT duplicate (802.11a duplicate) mode ◦ 28 dBm with 2 antennas • 802.11n (HT20) ◦ 27 dBm with 2 antennas • 802.11n (HT40) ◦ 27 dBm with 2 antennas
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Network Interface	• 10/100/1000BASE-T Ethernet, autosensing (RJ-45) • Fiber SFP	
Dimensions (W x L x H)	12.0 in. x 7.8 in. x 6.4 in. (30.48 cm x 19.81 cm x 16.26 cm) (including antenna mount)	
Weight	1552S: 17.6 lb (8 kg) Pole mounting bracket: 6.1 lb (2.8 kg)	
Environmental	Operating temperature: -40 to 55℃ (-40 to 131℉) p lus Solar Loading Storage temperature: -50 to 85℃ (-58 to 185℉) Humidity: 0-100% (condensing) Wind resistance: • Up to 100 MPH sustained winds • Up to 165 MPH wind gusts	
Environmental Ratings	• IP67 • NEMA Type 4X	
Antenna Gain	• External Dual-Band Omnidirectional Antennas (AIR-ANT2547V-N-HZ) ◦ 4 dBi (2.4 GHz), 7 dBi (5 GHz) • External 2.4 GHz Omnidirectional Antennas (AIR-ANT2450V-N-HZ) ◦ 5 dBi	
Powering Options	**1552SA** • 100-240 VAC, 47-63 Hz • 12 VDC • 47 W	**1552SD** • 19-30 VDC • 12 VDC • 39 W
Note: The power consumption above does not include powering an external PoE (802.3af) device; allow for an additional 20 W. If using fiber SFP backhaul, add an additional 1 W.		
Warranty	1 year Limited Lifetime Warranty	

Item	Specification
Compliance	**Safety** • UL 60950, 2nd Edition • CAN/CSA-C22.2 No. 60950, 2nd Edition • IEC 60950, 2nd Edition • EN 60950, 2nd Edition **Immunity** • <= 5 mJ for 6kV/3kA @ 8/20 ms waveform • ANSI/IEEE C62.41 • EN61000-4-5 Level 4 AC Surge Immunity • EN61000-4-4 Level 4 Electrical Fast Transient Burst Immunity • EN61000-4-3 Level 4 EMC Field Immunity • EN61000-4-2 Level 4 ESD Immunity • EN60950 Overvoltage Category IV **Radio approvals** • FCC Part 15.247, 15.407 • FCC Bulletin OET-65C • RSS-210 • RSS-102 • AS/NZS 4268.2003 • EN 300 328 • EN 301 893 **EMI and susceptibility** • FCC part 15.107, 15.109 • ICES-003 • EN 301 489-1, -17 **Security** • Wireless bridging/mesh ◦ X.509 digital certificates ◦ MAC address authentication ◦ Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP) • Wireless access ◦ 802.11i, Wi-Fi Protected Access (WPA2), WPA ◦ 802.1X authentication, including Extensible Authentication Protocol and Protected EAP (EAP-PEAP), EAP Transport Lauer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS), and Cisco LEAP ◦ Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP) ◦ VPN passthrough ◦ IP Security (IPsec), Layer 2 Tunneling Protocol (L2TP) • MAC address filtering **Other** • CSA: Class I, Division 2, Groups A, B, C and D • ATEX: Class I, Zone 2; Ex nA II, T5

Ordering Information

The Cisco Aironet 1552 Outdoor Access Point is available only through Honeywell as part of the Honeywell OneWireless Network - ISA100.11a-Compliant Wireless Mesh Network.

For more information:

https://www.honeywellprocess.com/en-US/explore/products/wireless/OneWireless-Network/pages/default.aspx.

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Printed in USA C78-711419-01 12/13